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THE EEIG AGROSYNERGIE IS FORMED BY THE COMPANIES

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This study, financed by the European Commission, has been carried out by the GEIE AGROSYNERGIE. The conclusions, recommendations and opinions presented in this report reflect the opinion of the consultant and do not necessarily reflect the opinion of the Commission.

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GLOSSARY

APO:	Association of Producers Organisations
CAP:	Common Agricultural Policy
CMO:	Common Market Organisation
CWC:	Community Withdrawal Compensation
EC:	European Commission
EU:	European Union
FFI:	Family Farm Income
FNVA:	Farm Net Value Added
MS:	Member State
NME:	New Member States
PO:	Producers Organisation
TOR:	Terms of reference
TUA	Total Utilised Area
UAA :	Utilised agricultural area
VMP:	Value of marketed production
Withdrawal:	The event for which part of the produced quantity is not directed to the market for sale.
Crisis:	The condition of an unexpected worsening of the conditions that generate farmers' income. *Market* crisis usually refers to a price level substantially below expected values. Crises are divided into *temporary, or short-term* crises when bad conditions are believed to last only for the current marketing season, and *structural, or long-term* crises, that are expected to last for more than one marketing season.
Reference market:	The wholesale market where the withdrawn quantity would have been sold.
Projected price:	The price that would have been formed if the withdrawn quantity had been sold.
Demand function:	Unless otherwise specified, this is the *aggregate* demand function for a single commodity expressed by the buyers at a specific wholesale market, as a function of price. As such, it does not need to obey the restrictions imposed by the economic theory of *individual* consumer behaviour.
Elasticity of demand:	Unless otherwise specified, it refers to the *price elasticity of the aggregate demand,* that is the ratio of the proportional changes in quantity and the proportional change in price, $\eta = [(\Delta q/q)/(\Delta p/p)]$. In terms of demand function's elasticity, the *punctual* demand elasticity can be expressed as $\eta = [(\partial q/\partial p)(p/q)]$. The two quantities are approximately equal for small changes in quantity.

1. INTRODUCTION TO THE EVALUATION

This evaluation is part of framework Contract No. 30-CE-0035027/00-37 concerning the evaluation of the fruit and vegetables sector, and covers the crisis management measures implemented in the fruit and vegetable sector, in particular withdrawals.

The fruit and vegetables CMO, established with Council Regulation (EC) 2200/96, provides a measure governing crisis management, i.e. withdrawals. This mechanism, although with different implementation procedures, had already been introduced in 1972 with the first fruit and vegetables CMO (Council Regulation (EEC) 1035/72 of 18 May 1972).

With the 1996 CMO reform (Council Regulation (EC) 2200/96 of 28 October 1996), the withdrawal regime was substantially modified with the aim of reducing withdrawals. The method previously established regarding price levels in production markets and buying-in prices was abandoned; the role of POs was strengthened and a maximum limit was imposed on the amount of production that may be withdrawn by each PO.

According to Annex II of Council Regulation (EC) 2200/96, there are sixteen products which may be withdrawn from the market and that are eligible for Community Withdrawal Compensation (CWC). Other products not included in that Annex as stated in Article 1, Paragraph 2 of Council Regulation 2200/96 may also be withdrawn from the market, but Community Withdrawal Compensation does not cover their withdrawals.

The main texts regulating intervention arrangements since 1996 are:

- Council Regulation (EC) 2200/96 of 28 October 1996 on the common organization of the market in fruit and vegetables (*Official Journal L 297, 21/11/1996)* and subsequent amendments.
- Commission Regulation (EC) 659/1997 of 16 April 1997[1] laying down detailed rules for implementing Council Regulation (EC) 2200/96 as regards intervention arrangements and market withdrawals in the fruit and vegetable sector (*Official Journal L 100 , 17/04/1997).*
- Commission Regulation (EC) 103/2004 of 21 January 2004 laying down detailed rules for implementing Council Regulation (EC) 2200/96 as regards intervention arrangements and market withdrawals in the fruit and vegetable sector (*Official Journal L 016 , 23/01/2004).*

The study concerned an evaluation of the effectiveness, efficiency, consistency, relevance and usefulness of crisis management measures, in particular withdrawals.

The evaluation is structured according to the four evaluation themes under which the nine evaluation questions are placed. These are:

- Theme 1: Stability of the market
- Theme 2: Income of producers
- Theme 3: Environment
- Theme 4: Management and efficiency

The analysis of producers' income (theme 2) and the environment (theme 3) have been supported by two case studies on the two major fruit products included in Annex II (citrus and apples) and by two case studies on the two major vegetable products included in Annex II (tomatoes and cauliflowers). The case studies cover thirteen of the major production areas of these products.

[1] Commission Regulation (EC) 659/1997 was in force until 2004 and was replaced by the Commission Regulation (EC) 103/2004. Considered the period of analysis of the present evaluation (1991-2005) it is important to mention it.

The geographical coverage of the evaluation is EU-15 until 2004 and EU-25 after 2005. A more in depth analysis has been undertaken at regional/national level by means of the above-mentioned case studies.

Moreover, in the case of New Member States, the two main producer countries - Poland and Hungary - have also been studied more deeply by means of a desk analysis.

Furthermore, the analysis distinguished the following elements:

- products eligible for Community withdrawal compensation (as in Annex II of Council Regulation (EC) 2200/96), and products outside the scope of Annex II. The answers to evaluation questions focus on the products eligible for Community withdrawal compensation;
- permanent and annual crops;
- the rate of perishability of products.

Finally, the evaluation is completed by a description of the fruit and vegetable sector in the EU-25, with special reference to crises caused by surpluses and measures taken to respond to the crises.

The evaluation covers the period subsequent to Council Regulation (EC) 2200/96; in order to observe the impact of the 1996 reform, the following two periods have been compared: 1991-1996 and 1997-2005.

2. THE REGULATORY FRAMEWORK FOR CRISIS MANAGEMENT AND WITHDRAWALS FROM THE MARKET

The regulations of the common market organization (CMO) for the Fruit and Vegetable sector, since its coming into force in 1972, establish a system of common rules for quality, competition, intervention and trade with other nations, in order to contribute towards market transparency and product quality and to increase the profitability of production. In order to achieve these objectives appropriate conditions were created for direct market intervention, through crisis management and product withdrawals from the market. The regulations set the conditions to maintain produce prices, avoiding excessive changes in the market and in producers' income.

In 1972, the Fruit and Vegetable CMO felt the impact of two Council Regulations that set CMO policies: Council Regulation (EEC) 1035/72 of 18 May 1972, in force from 1972 to 1996[2], and Council Regulation (EC) 2200/96 of 28 October 1996, still in force, amended by Council Regulation (EC) 2699/00 of 4 December 2000. The switch from Council Regulation (EEC) 1035/72 to Council Regulation (EC) 2200/96 has changed the crisis management scheme.

The Commission has issued the following regulations to implement measures:

A) with regard to Council Regulation (EEC) 1035/72 the most relevant are:

- Commission Regulation (EEC) 1805/78 of 28 July 1978 on the withdrawal by fruit and vegetable producers' organizations of products not complying with their marketing rules – *amended until 1993 and repealed by Commission Regulation (EC) 1946/97 (amending Regulation (EC) 659/97)*
- Commission Regulation (EEC) 3587/86 of 20 November 1986 fixing conversion factors to be applied to buying-in prices for fruit and vegetables – *amended until 1995 and repealed by Commission Regulation (EC) 659/97*
- Commission Regulation (EEC) 827/90 of 30 March 1990 adopting the list of representative producer markets for certain fruit and vegetables – *amended until 1995 and repealed by Commission Regulation (EC) 659/97*
- Commission Regulation (EEC) 2103/90 of 23 July 1990 laying down conditions for taking over sorting and packing costs relating to the free distribution of apples and citrus fruit – *amended until 1995 and repealed by Commission Regulation (EC) 659/97*
- Commission Regulation (EEC) 2276/92 of 4 August 1992 laying down detailed rules for the application of Article 21 of Council Regulation (EEC) 1035/72 on the common organization of the fruit and vegetables market – *amended until 1995 and repealed by Commission Regulation (EC) 659/97*

B) measures, spelled out in Council Regulation (EC) 2200/96, have been implemented by the Commission with two regulations: Commission Regulation (EC) 659/97 of 16 April 1997 laying down detailed rules for the application of Council Regulation (EC) 2200/96 as regards intervention arrangements in the fruit and vegetables sector, replaced by Commission Regulation (EC) 103/04 of 21 January 2004, which underlines the importance of environmental protection during withdrawal operations.

The most relevant regulatory developments concerning crisis management and withdrawals, introduced in the 1996 CMO reform by Council Regulation (EC) 2200/96, relate to:

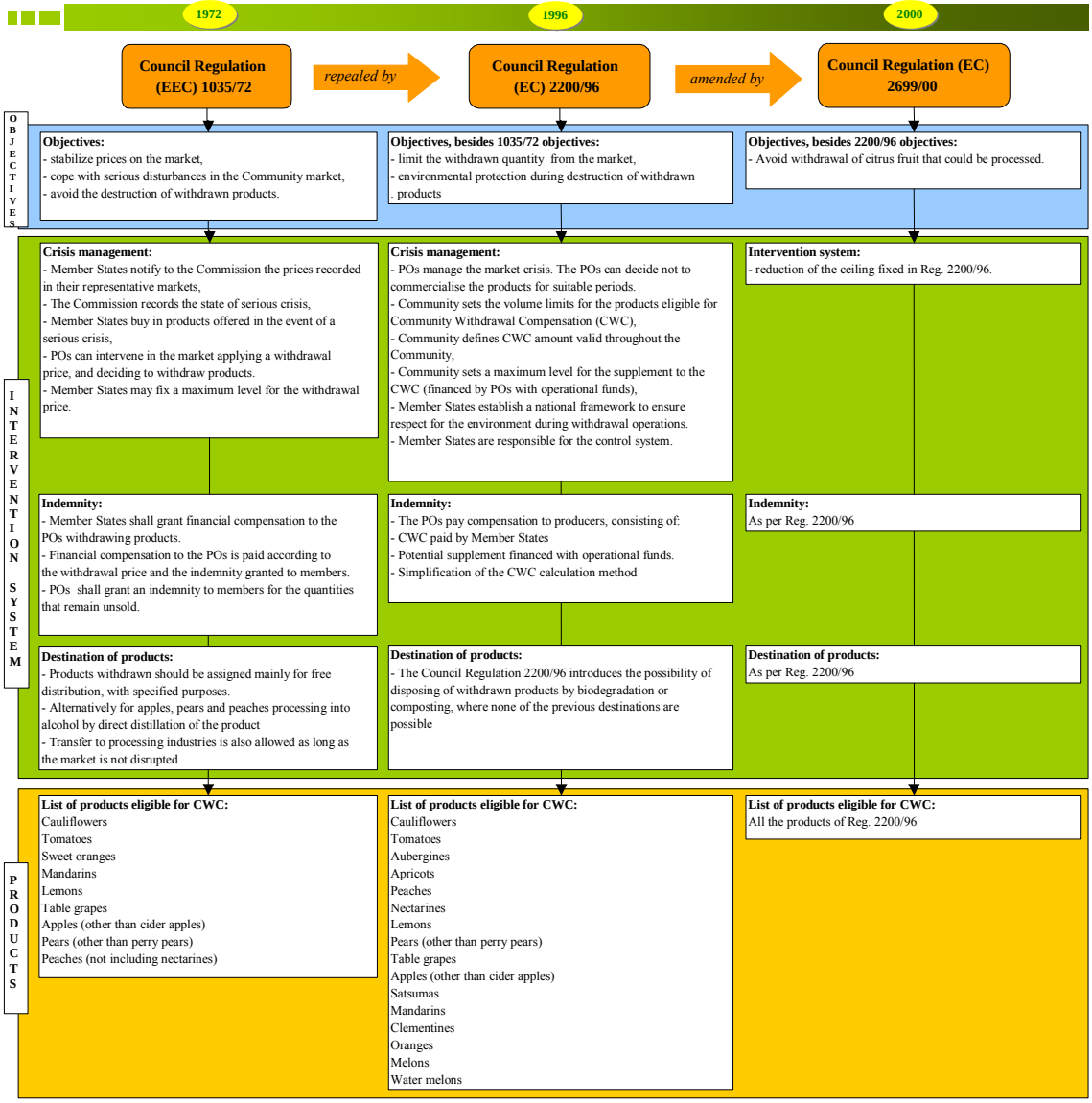
- a simplification of the indemnity calculation system, and a decreasing level of Community compensation;

[2] The Council Regulation (EEC) 1035/72 has been amended several times during this period.

- the introduction of a decreasing ceiling for the maximum volume of products that can be eligible for Community withdrawal compensation. This ceiling applies at PO level;
- rules for the disposal of withdrawn products;
- the role of POs in the withdrawal management scheme;
- the introduction of more stringent environmental protection rules in product destruction procedures.

The following scheme provides the framework adopted since the 1970s and indicates primary intervention concerning market crisis management. It also highlights objectives and principal intervention measures, with special reference to crisis management and the withdrawal of products from the market.

Fig. 1 - Evolution of the regulatory framework



Source: Community regulations

2.1 Objectives of the Community Regulation

In the period prior to the 1996 reform, the Community Regulation governing common market organisation was Council Regulation (EEC) 1035/72. This Regulation stemmed from the need to reorganise market organisation rules, which were developed earlier and modified over time.

Council Regulation (EEC) 1035/72 established certain fundamental elements of market organisation, such as the need to define common quality rules for produce marketed within the Community in order to eliminate products of unsatisfactory quality from the market, thus directing production choices towards consumer needs and facilitating trade relations on the basis of fair competition.

The aim of Council Regulation (EEC) 1035/72, as a whole, was to ensure a system of intervention measures in order to stabilize prices in the market and guarantee the capacity of the system to cope with serious disturbances in the Community market.

Furthermore, the regulation sought to avoid both the destruction of products and their re-introduction in the commercial circuit. To this end the regulation established a series of possible destinations for the disposal of products withdrawn from the market.

Council Regulation (EC) 2200/96 maintains the priority aim of giving the market as much stability as possible and stabilizing prices, but introduces significant environmental conditions: the management of waste materials and the destruction of products withdrawn from the market, in particular the protection of water quality, maintenance of biodiversity and upkeep of the countryside.

Council Regulation (EC) 2200/96 specifies possible destinations for withdrawn productions, according priority to free distribution and introducing the possibility of destroying withdrawn products through biodegradation or composting only in those cases in which all other options are unfeasible.

2.2 Intervention arrangements mechanism

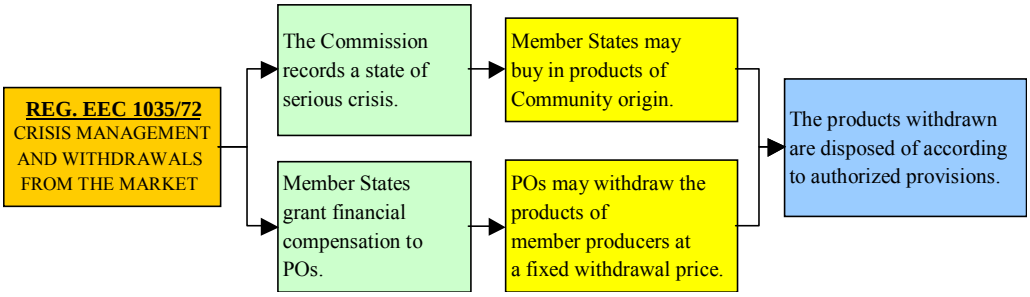
2.2.1 Council Regulation (EEC) 1035/72

Council Regulation (EEC) 1035/72 governed the management of market crises through the activity of POs, which could decide not to place on sale the products of its members, and by giving Member States the possibility of buying in products of Community origin, after the Commission declares the state of serious crisis for a given product.

2.2.1.1 Market crisis management

The scheme fixed by Council Regulation (EEC) 1035/72 for crisis management and withdrawals is summarised in the table below.

Fig. 2 - Key elements of Council Regulation (EEC) 1035/72 concerning crisis management and withdrawals



Source: Council Regulation (EEC) 1035/72

One of the aims of the market organisation was to deal with short-term market crises due to their impact on producers' income. For this purpose Council Regulation (EEC) 1035/72 established that the Community, through continuous monitoring of products' buying-in prices[3], recognised Member States' requests for a declaration of periods of serious crisis, for various fruit or vegetable products. In particular, Member States had to notify to the Commission the prices recorded in their representative producer markets, every day, when basic and buy-in prices were applied. Where the price fell below the buy-in price for three consecutive days, the Commission could recognise a state of serious crisis in the market for that product.

In that case, Member States could, through the authorities or the natural or legal persons appointed by them for this purpose, buy in products of Community origin when the respective relevant market was in a state of serious crisis and if they were not withdrawn from the market by producer organizations. Buy-in operations were suspended as soon as prices rose above the established buy-in price for three consecutive days.

Moreover, in order to stabilize the prices of products, producer organizations or their associations fixed a withdrawal price (for products indicated in art. 1 of Council Regulation (EEC) 1035/72). On the other hand, Member States could fix a maximum level for the withdrawal price[4].

Member States define the maximum level of the withdrawal price to which the contribution is linked. POs define the withdrawal price, which could be different from the one above, but obtain in any case a contribution tied up with the withdrawal price established by the Member State

2.2.1.2 Indemnity system

Producer organizations or their associations could grant an indemnity to members for quantities of products listed in Annex II that remained unsold. The products had to conform to their quality standards. There was also the option of granting an indemnity for other products referred to in Article 1 but not listed in Annex II. To finance withdrawal measures, producer organizations could establish an intervention fund, maintained by contributions based on quantities offered for sale.

Member States granted financial compensation to producer organizations for withdrawal operations, providing:

- the withdrawal price did not exceed the value as resulting from the application of Art. 18 and 19 of Council Regulation (EEC) 1035/72 (as indicated in footnotes 3 and 4);
- the indemnity granted to members in respect of quantities withdrawn from the market did not exceed the amount which resulted from applying the withdrawal price to those quantities.

The value of the above mentioned financial compensation should have been equal to indemnities paid by the producer organizations, less net receipts from products withdrawn from the market.

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[3] The Council, further to a Commission proposal, fixed, before the beginning of each commercialisation period, a "basic price" and a "buying-in price" for each product. The basic price was equal to the arithmetic mean of prices recorded in the representative Community market or markets situated in surplus production areas with the lowest prices during the three marketing years immediately preceding the date on which the basic price is fixed for a product with defined commercial characteristics. Surplus production areas used as a reference for fixing basic prices represented, taken together, for the period in question, between 20 and 30% of Community output of the relevant product. The buying-in price was fixed for each of the relevant products at between 40 and 45% of the basic price in the case of cauliflowers and tomatoes, between 50 and 55% of the basic price in the case of apples and pears, between 60 and 70% of the basic price in the case of other products. That method was considered excessively rigid, and has been modified by Council Regulation (EEC) 2454/72 of 21 November 1972, calculating the basic price on average price trends over the three preceding years.

[4] In that case the level of the withdrawal price (for products listed in annex II of Council Regulation (EEC) 1035/72) was at least equal to the buying-in price multiplied by the conversion factor for Class II or Class III (and, as appropriate, by other conversion factors) plus 10% of the basic price, in respect of products which have the characteristics laid down in the quality standards for Class II or Class III.

2.2.1.3 Destination of withdrawn products

To avoid the destruction of withdrawn products, or their reintroduction in the market, Council Regulation (EEC) 1035/72 defined possible destinations for products withdrawn from the market by POs or bought in by Member States.

Withdrawn products could be assigned mainly to free distribution as per the following purposes:

- use for non-food purposes,
- use when fresh for animal feed,
- use for animal feed after processing by the feedingstuff industry,
- processing and free distribution of processed products to natural or legal persons referred to in the first indent,
- free distribution to children in schools.

Alternatively for apples, pears and peaches, processing into alcohol of a strength of more than 80° by direct distillation of the product. Transfer to processing industries was also allowed as long as the market was not disrupted.

If the disposal, in one of the authorized ways, could not be made in time, Member States could directly indemnify those producers who decided not to sell off their production but to use such products in their own farms.

2.2.2 Regulatory developments: amendments to Council Regulation (EEC) 1035/72

Over the years of application, Council Regulation (EEC) 1035/72 underwent numerous amendments in order to bring the regulations into line with the real needs of the fruit and vegetable market.

In particular, the role of POs was strengthened. As mentioned above, the Common market policy has always assigned a fundamental role to POs in the CMO, since they are capable of enforcing quality rules among their member producers, essential for achieving the objectives of common market organisation.

For this purpose an important change to Council Regulation (EEC) 1035/72 concerning producer organisations was introduced in 1983 by Council Regulation (EEC) 3284/83[5], which:

- specified the aims of producer organisations, members' obligations concerning production and marketing, and finally the requirement of recognition of organisations by Member States;
- introduced a concept of "economic area", taken as regions consisting of neighbouring or nearby production zones, in which production and marketing conditions are homogenous. In this context, a producer organisation (or an Association of Producer Organisations – APO, with the same rules and operating in a given economic area) may be considered as representing production and producers for a specific product in that area. Therefore, after having consulted non-member producers, the Member State may enforce production, trade and market withdrawal rules in force in that area;
- in applying the market withdrawals' framework, allowed the State to pay an indemnity to non-member producers for the quantities of withdrawn product.

Moreover, as from 1987 a series of amendments to Council Regulation (EEC) 1035/72 have been introduced with the aim of making producers aware of actual market and processing industry needs, and of thus obtaining improved market stability. For tomatoes for example Council Regulation (EEC) 1926/87[6] set a quantity of 390,000 tonnes for withdrawal and/or buy-in by the State, beyond which the

[5] Council Regulation (EEC) 3284/83 of 14 November 1983.
[6] Council Regulation (EEC) 1926/87 of 2 July 1987.

basic and buy-in prices for the subsequent marketing year were subject to a reduction of 1% per 10,000 tonnes of excess up to a maximum reduction of 20%.

Similarly, Council Regulation (EEC) 223/88[7], then Council Regulation (EEC) 1119/89[8] and Council Regulation (EEC) 1193/90[9], for citrus fruit and nectarines, considered the possibility of making producers aware of market needs by introducing an intervention limit (ceiling). This limit was calculated as a percentage of average production allocated to the fresh market, with reductions in basic and buy-in prices if intervention quantities exceeded the stated ceiling (1% reduction for each fraction of excess quantities up to a maximum reduction of 20%).

Furthermore, in order to improve conditions for the use of free distribution, Council Regulation (EEC) 1193/90 provided for the reimbursement of the cost of sorting and packing, and encouraged Member States to facilitate contacts between POs and charities and associations.

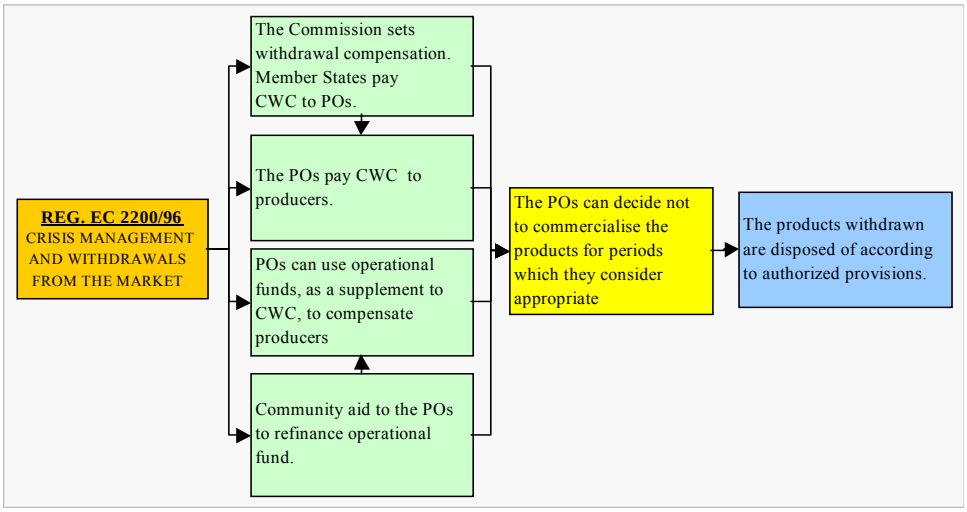
2.2.3 Council Regulation (EC) 2200/96

In 1996, considering the substantial changes in the fruit and vegetables sector and the amendments to Council Regulation (EC) 1035/72 over the years, it was deemed appropriate to redefine the main rules by adopting new regulations for the Common Market Organisation in this sector. The Regulation, repealing previous regulations and forming the basis for the withdrawal policy, is Council Regulation (EC) 2200/96 of 28 October 1996.

2.2.3.1 Market crisis management

The scheme established by Council Regulation (EC) 2200/96 for crisis management and withdrawals is summarised in the table below.

Fig. 3 - Key elements of Council Regulation (EC) 2200/96 in terms of market withdrawal



Source: Council Regulation (EC) 2200/96

Council Regulation (EC) 2200/96 confirms the importance of the role of producer organisations, already introduced by Council Regulation (EEC) 1035/72 and subsequent amendments.

With reference to market withdrawals, Council Regulation (EC) 2200/96 actually assigns to producer organisations only the possibility of intervening directly in the market, deciding not to trade certain quantities of product in given periods. Producer organisations thus have the option not to trade, for the

[7] Council Regulation (EEC) 223/88 of 25 January 1988.
[8] Council Regulation (EEC) 1119/89 of 27 April 1989.
[9] Council Regulation (EEC) 1193/90 of 7 May 1990.

periods and volumes they consider appropriate, products allocated by their members, taking into account the fact that market withdrawals cannot in any case be considered as alternative market outlets.

As shown in Fig. 3, differing from Council Regulation (EEC) 1035/72, the Commission no longer decides on the state of serious crisis, and Member States may no longer buy-in products.

Council Regulation (EC) 2200/96 maintains the concept of "economic area" introduced by Council Regulation (EEC) 3284/83, which amended Council Regulation (EEC) 1035/72. A producer organisation (or an association of producer organisations) operating in a given economic area and representing producers for a given product in that area may ask its Member State to make the rules they have adopted binding for producers, established in the area, who do not belong to one of these organizations (extension of rules).

In short, Council Regulation (EC) 2200/96 strengthens the role of POs in the management of market crises, becoming the body designated to manage the withdrawal of products from the market. In this sense, POs pay the Community Withdrawal Compensation (CWC) but can also allocate a part of operational funds to withdrawals as a supplement to CWC.

2.2.3.1.1 National and Community checks

As stated in Title VI of Council Regulation (EC) 2200/96, Member States shall take the necessary measures to ensure compliance with Community rules, in particular as regards the proper management of public resources and environmental protection.

The environmental protection control system, referring to withdrawals, is an innovation introduced by Council Regulation (EC) 2200/96. To this end Commission Regulation (EC) 103/04 specifies the obligation of Member States to notify to the Commission the national framework adopted for drawing up general conditions relating to methods for disposing of withdrawn products while protecting the environment. In particular, national frameworks lay down the terms under which producer organisations are authorised to avail themselves of composting and biodegradation processes authorised by a Member State, procedures to be followed by producer organisations that use them and documents certifying the final destination of products.

The implementing regulation, within the context of market intervention and the proper management of public resources, is Commission Regulation (EC) 659/97, which defines controls that Member States must enforce to guarantee compliance with the rules of Regulation 2200/96. It identifies material and documentary checks relevant to withdrawal operations and establishes check procedures during the time. Member States must perform physical and documentary checks on withdrawals made by all producer organizations at least once during the marketing year. For each product, these checks shall involve at least 20% of the total quantity withdrawn. Moreover, Member States shall take the necessary measures to ensure that free distribution operations, both inside and outside the Community, comply with provisions in force. Checks, which shall cover at least 10% of quantities distributed, shall be both documentary and physical and regard both producer organizations and charitable organisations involved.

Commission Regulation (EC) 103/04 increases the percentage of physical and documentary checks, at a national level, during the marketing year, to 100% of the total quantity withdrawn (first-level checks) and, in addition, defines second-level checks at the end of the marketing year (spot checks on samples performed on the basis of a risk analysis of the withdrawal management system). Second-level checks at the national level include documentary and, if necessary, spot checks on operations at the premises of producer organisations and CWC recipients in order to ensure that the required conditions for the payment of Community withdrawal compensation are respected. Second-level checks are made each year and concern at least 30% of producer organisations involved and their members. Each check shall include a sample representing at least 5% of quantities withdrawn during

the marketing year by the producer organisation. Moreover, at least once every five years during which withdrawals are carried out, each producer organisation involved has to be checked.

In the event of illegal activity, beneficiaries may be subject to pecuniary sanctions and have their recognition revoked.

Without prejudice to checks carried out by national authorities, the Commission may, in collaboration with the competent authorities of the Member State concerned, carry out or ask a Member State to carry out spot checks in order to ensure the uniform application of Community rules in the fruit and vegetable sector.

2.2.3.2 Compensation system

Council Regulation (EC) 2200/96 simplified the compensation system compared with the previous regulation, Council Regulation (EEC) 1035/72. It is now based on Community Withdrawal Compensation and on Supplement compensation.

2.2.3.2.1 Community Withdrawal Compensation

Producer organizations and their associations may choose not to put up for sale products contributed by their members, both in quantities and for periods which they consider appropriate. In this case producer organisations and their associations shall obtain from Member States, and consequently pay their producer members or non-member growers, Community withdrawal compensation (CWC) for the products listed in the table below. CWC is a single amount valid throughout the Community and generally decreases over the period up to 2002.

Tab. 1 - Community withdrawal compensation (ECU/100kg)

Marketing years	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002	As from 2002
Cauliflowers	9,34	8,88	8,41	7,94	7,48	7,01
Tomatoes	6,44	6,12	5,80	5,47	5,15	4,83
Apples	10,69	10,32	9,94	9,56	9,18	8,81
Grapes	10,69	10,15	9,62	9,08	8,55	8,02
Apricots	18,90	17,95	17,01	16,06	15,12	14,17
Nectarines	17,39	16,52	15,65	14,78	13,91	13,04
Peaches	14,65	13,92	13,18	12,45	11,72	10,99
Pears	10,18	9,82	9,46	9,10	8,75	8,39
Aubergines	5,29	5,02	4,76	4,49	4,23	3,97
Melons	4,00	4,00	4,00	4,00	4,00	4,00
Water melons	4,00	4,00	4,00	4,00	4,00	4,00
Oranges	14,33	14,26	14,20	14,13	14,07	14,00
Mandarins	16,15	15,52	14,89	14,26	13,63	13,00
Clementines	12,74	12,79	12,84	12,90	12,95	13,00
Satsumas	10,49	10,99	11,49	12,00	12,50	13,00
Lemons	13,37	13,30	13,22	13,15	13,07	13,00

Source: Council Regulation (EC) 2200/96

Council Regulation (EC) 2200/96 establishes that, in order not to alter the market, the withdrawal compensation is reserved to a limited percentage (the so-called *ceiling*) of average production, at PO level, for the three previous marketing years. The ceiling has been determined as decreasing until 2002 and then is fixed, except for melons and watermelons.

Tab. 2 - Withdrawal ceiling of POs commercialised quantity

	1997	1998	1999	2000	2001	Since 2002

Melons and water melons	10%	10%	10%	10%	10%	10%
Citrus	35%	30%	25%	20%	10%	5% [10]
Apples and Pears	50%	45%	40%	30%	20%	8.5%
Other products	50%	45%	40%	30%	20%	10%

Source: Community Regulations

2.2.3.2.2 Supplement compensation

In addition to CWC, POs may allocate, for withdrawal purposes, resources from operational funds[11] for the payment to producers of:

- a "supplement" to CWC;
- withdrawal compensation for "products not listed in Annex II of Reg. 2200/96".

Member States may set a maximum level for compensation or supplement, but the amount thus established plus that of CWC may not exceed the limit of the highest withdrawal prices applicable for the 1995/1996 marketing year. Commission Regulation (EC) 659/97 establishes the maximum prices applicable for the 1995/96 marketing year.

The table below shows the maximum withdrawal price applicable, in the first column, and the maximum supplement to CWC that POs may pay to producers in subsequent columns. Therefore it is quite clear that while CWC tends to fall, supplements to CWC tend to rise, reaching, together with CWC, the maximum price represented by the 1995/1996 marketing year price.

[10] Introduced from marketing year 2002/03, with Council Regulation (EC) 2699/00 of 4 December 2000 in order to prevent the risk of illegal deviations to the withdrawal of products, which would normally have been allocated to the processing sector.

[11] The operational fund quota which may be destined to withdrawals funding may not exceed 60% in the first year, 55% in the second, 50% in the third, 45% in the fourth, 40% in the fifth and 30% with effect from the sixth year as from the date of approval, by the competent national authorities, of the first operational programme presented by the reference producer organisation and approved by said authority.

Tab. 3 - Maximum prices applicable in the 1995/96 marketing year and resulting supplements to Community withdrawal compensation (ECU/100kg)

Product	Maximum prices for the marketing year 1995/96	Supplement to Community compensation					
		1997/98	1998/1999	1999/2000	2000/2001	2001/2002	From the marketing year 2002/2003*
Cauliflowers	**13,51**	4,17	4,64	5,1	5,57	5,57	6,5
Tomatoes	**12,84**	6,4	6,72	7,04	7,37	7,37	8,01
Apples	**15,04**	4,35	4,73	5,1	5,48	5,48	6,23
Grapes	**15,45**	4,76	5,29	5,83	6,36	6,36	7,43
Apricots	**23,36**	4,46	5,41	6,35	7,3	7,3	9,19
Nectarines	**25,43**	8,04	8,91	9,78	10,65	10,65	12,39
Peaches	**22,53**	7,88	8,61	9,35	10,08	10,08	11,54
Pears	**14,83**	4,65	5,01	5,37	5,73	5,73	6,44
Aubergines	**7,62**	2,33	2,59	2,86	3,12	3,12	3,65
Melons	**NA**	NA	NA	4,2	4,2	4,2	4,2
Watermelons	**NA**	NA	NA	2,7	2,7	2,7	2,7
Oranges	**15,85**	1,52	1,59	1,65	1,72	1,72	1,85
Mandarins	**17,48**	1,33	1,96	2,59	3,22	3,22	4,48
Clementines	**13,7**	0,96	0,91	0,86	0,8	0,8	0,7
Satsumas	**10,49**	0	0	0	0	0	0
Lemons	**17,26**	3,89	3,96	4,04	4,11	4,11	4,26

Source: Commission Regulation (EC) 659/97 - *also valid for Commission Regulation (EC) 103/04

Commission Regulation (EC) 103/04, still in force, substituted Commission Regulation (EC) 659/97 and has confirmed the value of the supplement from the marketing year 2002/2003.

Operational funds, provided for by the Community in addition to the contribution of PO members, are allocated to fund operational programmes[12] and withdrawals from the market. Financing by the operational fund of withdrawals from the market is only allowed if the competent national authorities have approved an operational programme.

Financial assistance for operational funds, allocated to POs by the Community, is limited to 50% of actual POs expenditure.

2.2.3.2.3 Reimbursement of transport, sorting and packing costs

Transport costs associated with free distribution are paid by the European Agricultural Guidance and Guarantee Fund (EAGGF), Guarantee section, based on lump sums established for the distance between the withdrawal and delivery sites.

Commission Regulation (EC) 103/04 updates the transport costs framework compared with Commission Regulation (EC) 659/97.

[12] The operational programmes may set numerous objectives including improvements to the quality of products, commercial valorisation, the promotion of production methods that respect the environment.

Tab. 4 - Transport costs under free distribution arrangements

Distance between withdrawal and delivery sites	Regulation 659/97 (ECU/tonne)	Regulation 659/97 amended by Reg. 398/00 (€/tonne)	Regulation 103/04 (€/tonne)
Less than 25 km	12	14.4	15,5
25 km or more but less than 200 km	25	30	32,3
200 km or more but less than 350 km	35	42	45,2
350 km or more but less than 500 km	50	60	64,5
500 km or more (but less than 750 km)*	65	78	83,9
750 km or more	-	-	102

Source: Commission Regulation (EC) 659/97 and Commission Regulation (EC) 103/04 - *only for Regulation 103/04

Transport costs are paid to the organisation that has actually sustained the transport costs.

Commission Regulation (EC) 659/97 sets values for the cost of sorting and packaging of apples and citrus fruits up to a maximum of ECU 11 per 100 kg net. Commission Regulation (EC) 398/00 amending Commission Regulation (EC) 659/97 sets, for fresh products disposed of by free distribution, a lump-sum amount of €132 per tonne net weight, for products in packaging weighing less than 25 kg. Council Regulation 103/04 confirmed this value.

2.2.3.3 Destination of withdrawn products

Council Regulation 2200/96 specifies possible destinations for products withdrawn from the market, which may be disposed of by producer organisations under the supervision of Member States, through the following:

- free distribution authorised by Member States for welfare or to charitable institutions for activities undertaken in favour of persons recognised by national legislation as having a right to public assistance specifically due to insufficient means of subsistence;
- free distribution to prisons, children's holiday homes and hospitals and hospices for the elderly designated by Member States, which take all necessary steps to ensure that the quantities distributed thus are in addition to those normally purchased by these institutions;
- free distribution outside the Community through charitable institutions authorised by Member States in favour of poor populations in other nations[13].

According to Commission Regulation (EC) 103/04, the charitable institutions may process or arrange the processing, at its expense, of products withdrawn from the market and products obtained must be freely distributed until totally used. Alternatively, Member States may organise one or more tenders for processing of the products withdrawn from the market based on the needs of charitable institutions. The quantity of fresh product allocated for free distribution, and exceeding that required to produce the processed product, constitutes remuneration in kind to the entity awarded the tender to offset processing costs incurred.

Subsequently, the following purposes for disposal are envisaged:

- use for non-food purposes;
- use as animal feed, in the form of fresh products or after processing by the animal feed industry.

For fruit, free distribution to schoolchildren, other than as part of meals served in school canteens, and to pupils in schools, which do not have canteens providing meals.

[13] Regulation (EC) 103/04 establishes that withdrawn products may be allocated to other nations when there is a specific request by the government of the destination nation on the basis of a recognised humanitarian crisis.

For apples, pears, peaches and nectarines, processing into alcohol higher than 80% by direct distillation of the product.

Disposal of some categories of products to the processing industry is allowed as long as this does not determine unfair competition for the industries involved within the Community or for imported products.

Commission Regulation (EC) 103/04 includes additional elements compared with Commission Regulation (EC) 659/97. In particular, tender procedures or public auctions are introduced and are open to the processing industries for allocation of the withdrawn products for non-food purposes or processing into animal feed or processing into alcohol above 80%. Furthermore, in the case of distillation, the alcohol obtained is subject to special denaturing[14] and is allocated for industrial and not alimentary use.

Where none of the destinations described above are possible, Regulation 2200/96 authorises the destination of withdrawn products for composting or biodegradation processes authorized by the Member State concerned.

This form of disposal of products withdrawn from the market marks a change vis-à-vis the previous regulations, which did not provide any possibility for the destruction if products withdrawn or bought-in by Member States.

2.3 Products eligible for Community withdrawal compensation

Products eligible for CWC rose from 9 to 16. At present they are listed in Annex II of Council Regulation (EC) 2200/96.

Tab. 5 - Evolution of products eligible for Community withdrawal compensation

Products included in Council Regulation (EEC) 1035/72	Products added with the amendments to Council Regulation (EEC) 1035/72	Products included in Council Regulation (EC) 2200/96
Cauliflowers	Aubergines	Cauliflowers
Tomatoes	Apricots	Tomatoes
Sweet oranges	Nectarines	Aubergines
Mandarins	Satsumas	Apricots
Lemons	Clementines	Peaches
Table grapes	Melons	Nectarines
Apples (other than cider apples)	Water melons	Lemons
Pears (other than perry pears)		Pears (other than perry pears)
Peaches (not including nectarines)		Table grapes
		Apples (other than cider apples)
		Satsumas
		Mandarins
		Clementines
		Oranges
		Melons
		Water melons

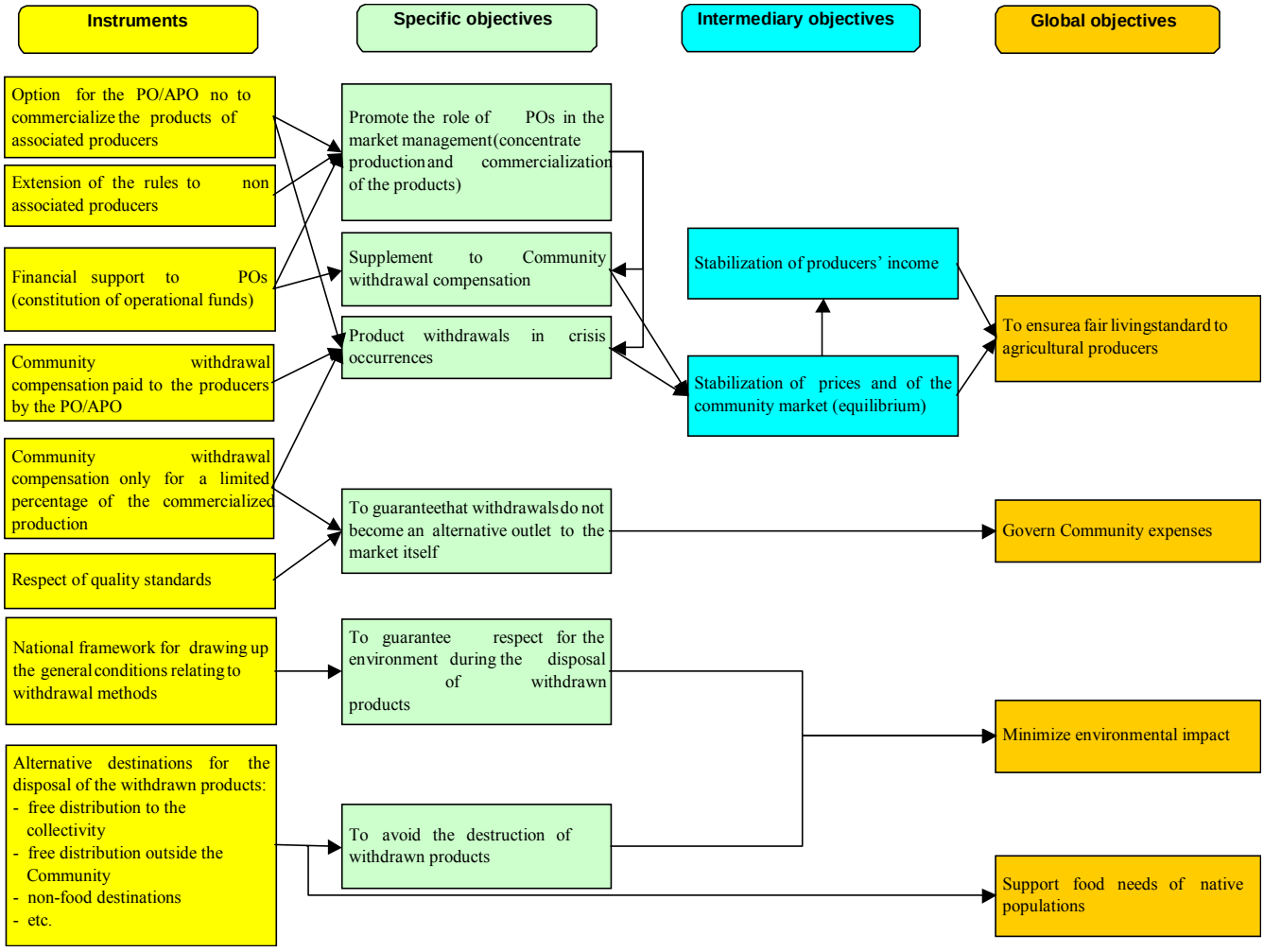
Source: Council Regulations

[14] Commission Regulation (EC) 3199/93.

2.4 Model of intervention logic

The following intervention logic model schematises existing relations between measures (and instruments) contemplated by intervention provisions and specific objectives, as well as between specific objectives and global objectives.

Fig. 4 - Model of intervention logic



3. DESCRIPTION OF THE FRUIT AND VEGETABLE SECTOR

3.1 World production and trade in the fresh fruit and vegetables sector

3.1.1 Basic information on world fresh fruit and vegetable production

In the years 2003-2005 world production posted an annual average of 1,373 million tonnes[15]. From 1991 to 2005 the average annual growth rate was 3.9%, but with different rates in the two sectors, fruit and vegetables (F&V), which registered variations of 2.6% and 4.7% respectively. The trends of F&V created a different composition within the sector, with a greater weight of vegetables vis-à-vis fruit. In the period 1991-2005 there was an evolution from 43.7% to 36.7% for fruit and from 56.3% to 63.3% for vegetables.

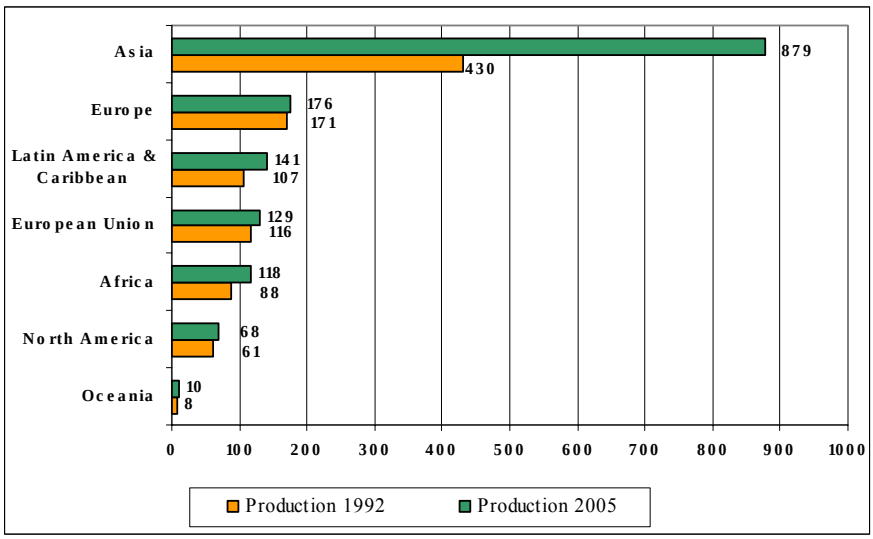
Tab. 6 - World production (.000 of tonnes, 1991-2005)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Vegetable	463.744	479.255	509.600	533.748	564.452	597.358	613.619	640.668	695.346	746.232	777.914	809.878	850.899	872.441	883.145
Fruit	353.537	384.222	391.628	395.684	408.785	427.022	443.262	439.804	460.326	470.262	471.190	481.683	493.343	511.023	507.922
Total	817.281	863.477	901.227	929.432	973.237	1.024.381	1.056.881	1.080.471	1.155.672	1.216.494	1.249.104	1.291.561	1.344.242	1.383.464	1.391.066

Source: FAO

Asia, which is the world's major producing region, posted a strong increase, due to growing production volumes in China, accounting in 2005 for more than 63% of world output. Europe followed, with 13%, then Latin America (10%), Africa (8%), North America (5%) and Oceania (1%). While in China and India production increased from 1991 to 2005 by 237% and 64% respectively, in the EU-25 it rose by 10% (EU-15, 11%), and in the United States by 16%.

Fig. 5 - Major region shares of fruit and vegetable production (.000 tonnes[16])



Source: based on data from FAO

[15] FAO data. All fruit and vegetables (excluding potatoes, including all kinds of grapes and processed tomatoes). The aggregates are therefore wider than products covered by the common market organization for fruit and vegetables.

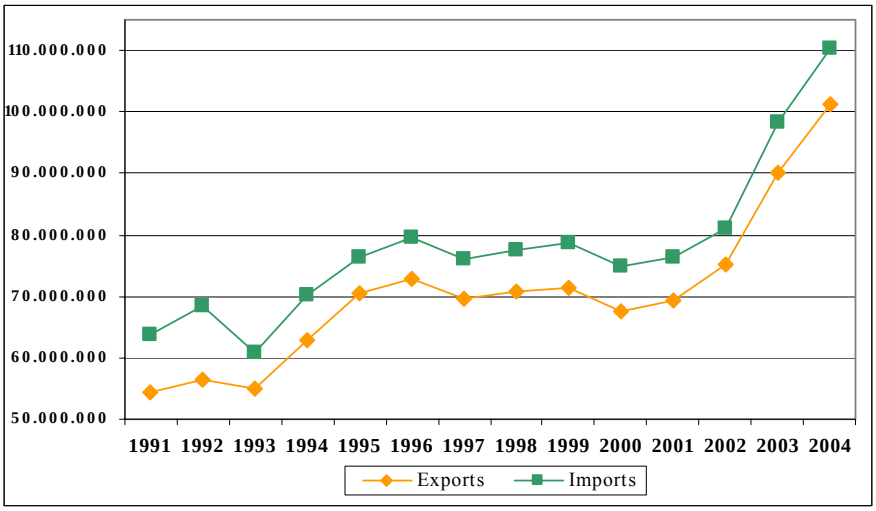
[16] In 1992 the data refers to EU-15, and in 2005 to EU-25.

3.1.2 World trade in the fresh fruit and vegetables sector

In 2004, world trade reached a global figure of over US$ 100 billion[17]. A consistent share, however, was represented by intra-Community trade, making up around 40% of the total. The value of exports rose in the period 1991-2004 at an average annual rate of 4..9%, while imports rose by 4.3%.

The sharp rise in world trade since 2002, around 25% in 2003 and 10% in 2004, is mainly linked to China's entry in the World Trade Organization in December 2001 and to the strong increase in the value in US$ of EU intra-trade relating to the strong devaluation of the US$ against the Euro (around 20% in 2003 and 10% in 2004).

Fig. 6 - World trade (.000 of US$)



Source: FAO

In terms of exports, in 2004 USA was market leader with a share of 15.8%, followed by the EU-25 (11.4%), China (10.5%) and Mexico (7.7%). All the major exporters posted growths. During the period 1991-2004, Mexico and China had the biggest annual growth rates, of 9% and 7.5% respectively.

Three major markets receive almost 60% of imports. The EU was the largest importer with 28.9% of the total, followed by the USA with 20.6% and Japan with 9.4%. Due to high import levels, the EU registered a trade balance deficit of US$ 13.2 billion in 2004, followed by Japan with a US$ 6.4 billion deficit. On the other hand, China registered the highest surplus with US$ 4.6 billion, followed by Mexico (US$ 3.5 billion) and Turkey (US$ 3.2 billion).

3.2 European production and trade in the fresh fruit and vegetables sector

3.2.1 Importance of the fresh fruit and vegetables sector in the EU

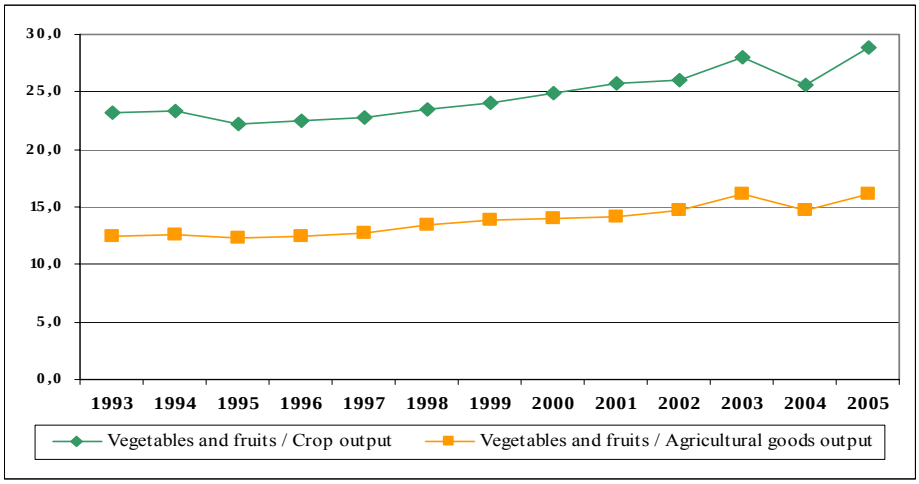
In 1993-2005[18] the European F&V sector rose in importance in terms of both total crop output and total agricultural output[19]. The economic relevance of this sector, in terms of both total agricultural output and crop output, has risen constantly during the period, with the exception of 2004. The sector

[17] FAO data. The fruit and vegetables aggregate includes processed products, potato products and all grapes, wine excluded; it is therefore much broader than products covered by the fruit and vegetables CMO.
[18] The 2005 figure is an estimated value.
[19] Production of agricultural goods (does not include services).

has thus registered a significant increase, from a share of total agricultural production of 12.4% (1993) to 16.1% in 2005 (in the EU-25, 15.6%), reaching almost 30% of crop production.

The rising economical relevance of this sector is partially attributable to the fall in market prices of other crops caused by the ongoing shift from price support to direct income payment, which has characterised the various CAP reforms starting with the Mc Sharry reform of 1992.

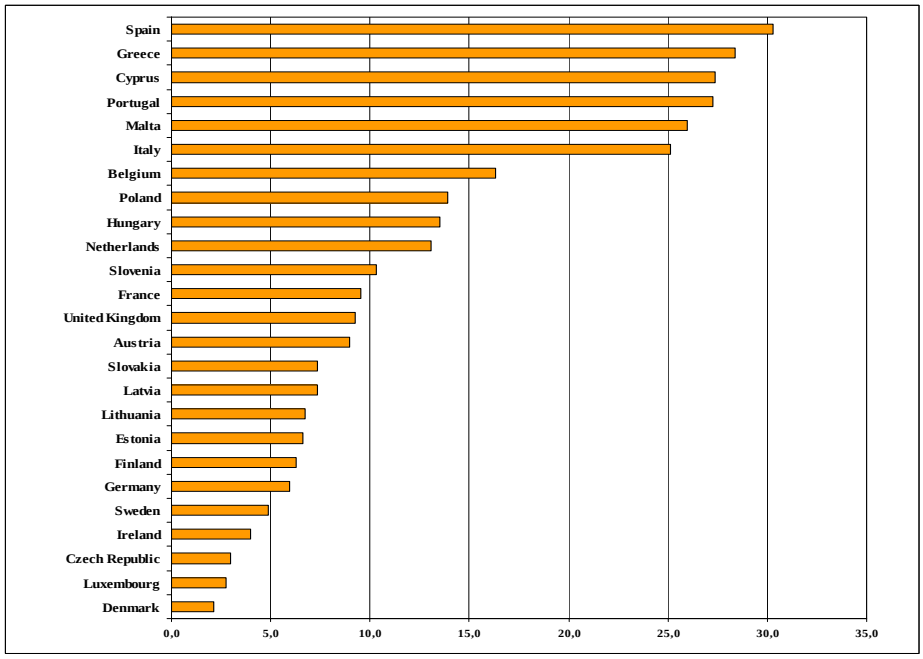
Fig. 7 - Share of the fruit and vegetables sector in agricultural production (EU-15, %, 1993-2005)



Source: based on data from Eurostat

The fresh F&V sector is particularly relevant in Mediterranean Member States. Spain is the country where the value of fruit and vegetable production forms the highest share of total agricultural output (30.3%), followed by Greece (28.4%), Cyprus (27.4%), Portugal (27.3%), Malta (26%), and Italy (25.1%). The continental countries where the sector is most relevant are: Belgium (16.3%), Poland (16.9%), Hungary (13.5%), Netherlands (13.1%), and Slovenia (10.3%).

Fig. 8 - National share of fruit and vegetables in agricultural production (%, average 2003-2005)

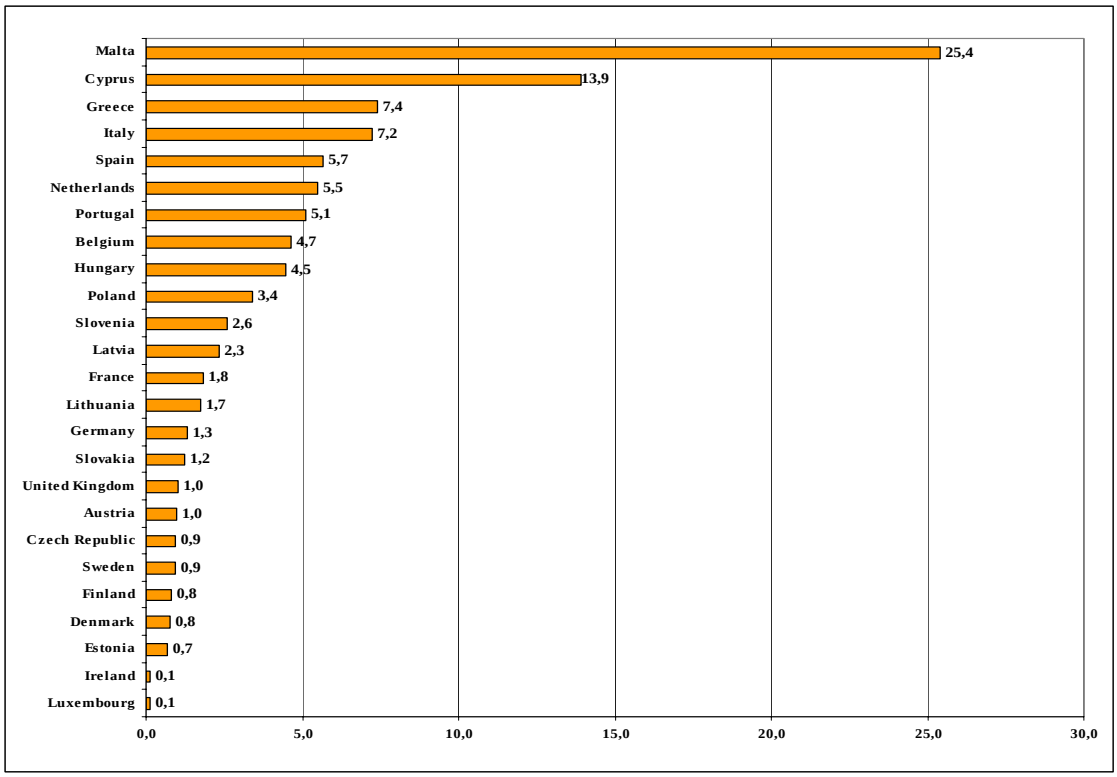


Source: based on data from Eurostat

3.3 Major features of production structure

In 2003, the utilized area in the F&V sector amounted to 3.1% of UAA in the EU-25 (in EU-15 was 3.2%)[20]. With reference to the destination of agricultural areas for F&V growing, as for production value, there is a high variability among countries. The highest share of UAA is in Mediterranean Member States.

Fig. 9 - National share of utilised agricultural area (UAA) for fruit and vegetables (%, 2005)



Source: based on data from Eurostat

The number of specialised fruit and vegetable farms decreased from 940,000[21] in 1990 to 650,000 in 2003, a total reduction of 30%. Spain and Italy, together, account for 50% of EU F&V specialised farms. Among the 10 New Member States, Poland is outstanding (17% of EU specialised farms).

Tab. 7 - Number of specialised farms in fruit and vegetable production (1990-2003)

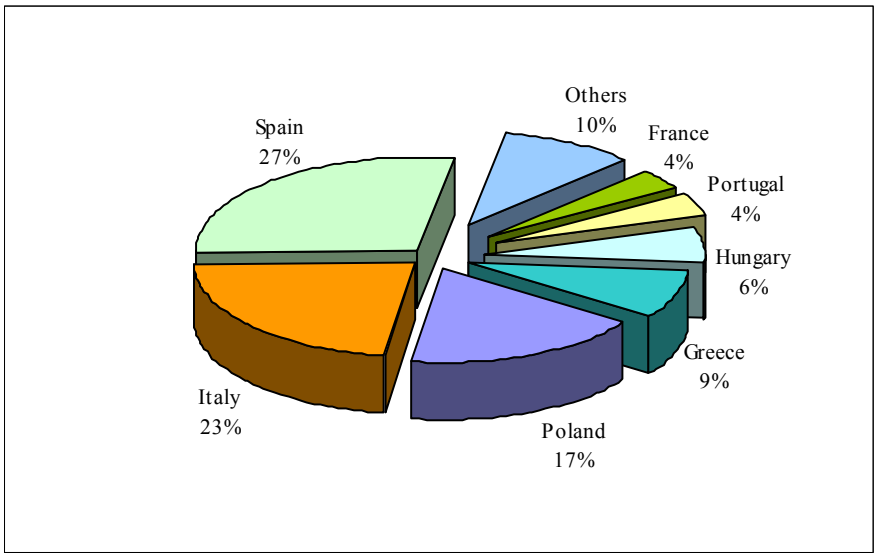
	1990*	1993*	1995*	1997*	2000	2003
EU-15	936.670	826.384	759.699	753.196	723.670	653.150
Vegetable	242.201	208.504	203.752	190.608	185.940	167.440
Fruit	694.469	617.881	555.947	562.588	537.730	485.710

Source: Eurostat. *Estimated value

[20] To extrapolate the surface area utilised by this sector, the Eurostat databank was used as follows: (Fresh vegetables, melons, strawberries) + (Permanent crops) – (Olive plantations) – (Vineyards - quality wine) – (Vineyards - other wines).

[21] Estimation: in 1990 and 1993, no data available for Germany, Austria, Sweden and Finland. In 1995 and 1997, no data available for Germany.

Fig. 10 - Share of specialised farms by country (EU-25, %, 2003)



Source: based on data from Eurostat

As for the area covered by specialised farms, their UAA fell from 3,256,151 hectares in 1990 to 2,834,100 hectares in 2003, with a total reduction of 13%. The utilised area for vegetables fell by 14.1% and that of fruit specialised farms fell by 12.5%. The reduction in UAA, however, was less intense than that for the number of specialised farms. This accordingly caused an increase (+25%) in the average size of specialised farms, in both the fruit and vegetable sectors.

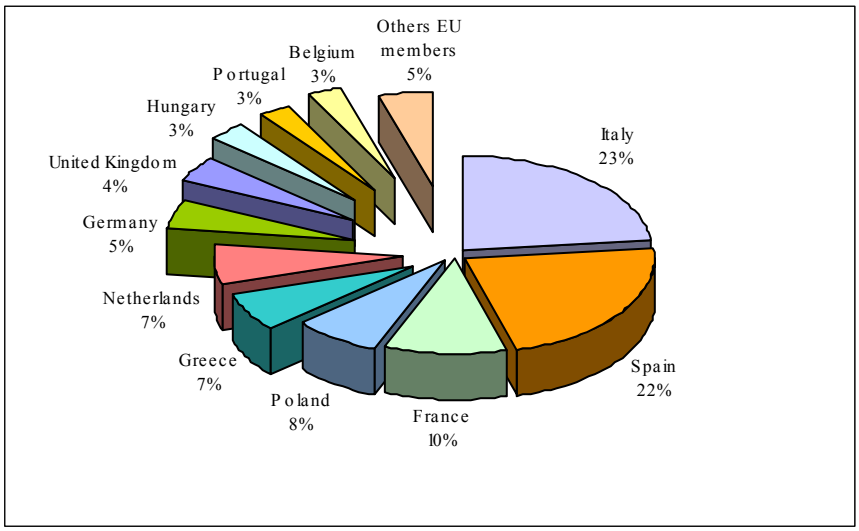
3.3.1 Basic information on European fresh fruit and vegetable production

3.3.1.1 Vegetable output

Community output (EU-25) rose from approximately 56 million tonnes in 1991 to around 61.5 million in 2004[22], with an average annual growth of 0.7%. The trend differs from State to State, although the three major producers, Italy, Spain and France, which account for over half of total production (55%), all registered a positive increase in annual average output. Italy grew at a rate exceeding 1%, while Spain at a rate exceeding 1.5%. France's growth rate has been in line with the European average. The 10 new Member States have a production share exceeding 13% of the Community total, and Poland is the undisputed leader with 4.9 million tonnes.

[22] This is our estimate, as 1991 data is not available for Austria and 2004 data is not available for the Czech Republic, Spain, Ireland, Portugal and Sweden.

Fig. 11 - Member States vegetable output (EU-25, %, 2003)



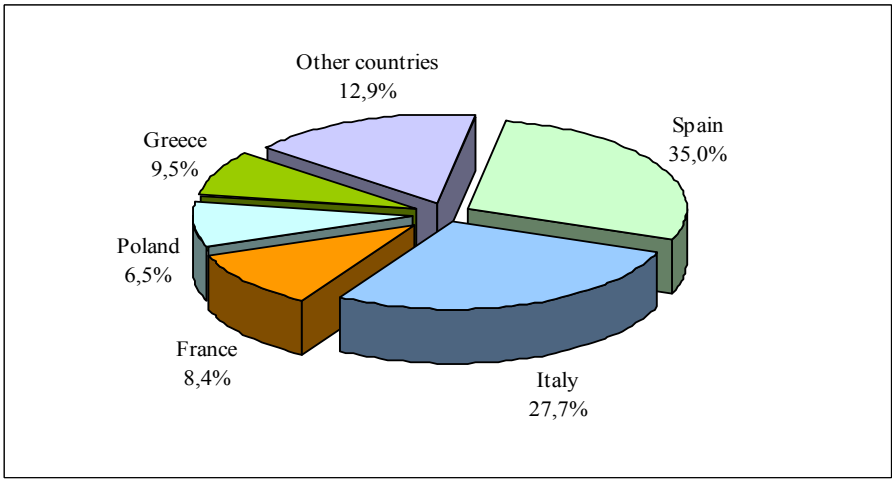
Source: based on data from Eurostat and DG AGRI

3.3.1.2 Fruit Production

Fruit output has risen over the last decade in most EU Member States and, with the entry of the 10 new Member States in 2004, production reached 40 million tonnes[23].

Analysing 2002 data,[24] it can be seen that Mediterranean countries have the largest production share. Portugal, Spain, France, Italy and Greece produce over 87% of the total and Spain and Italy, with 35% and 28% respectively, are the sectors' leading countries. The 10 new Member States produce 10% of the Community's fruit and, once again, Poland is the largest producer among these, with 3 million tonnes and 6.5% of total European production.

Fig. 12 - Member States fruit production (EU-25, %, 2002)



Source: based on data from Eurostat and DG AGRI

[23] Commission staff working document.

[24] 2002 data was preferred because more complete, with the sole exception of Netherlands' data, which was estimated on the basis of other years' production.

3.3.2 Basic information on Producer Organizations

Producer Organizations (PO & APO) have played a fundamental role in the EU fruit and vegetable sector since 1972, with the establishment of the Common Market Organization (CMO). Furthermore, POs and APOs play a crucial role in the withdrawals scheme, especially since the 1996 CMO reform, when they were selected as the entities in charge of decision-making-organization-management of withdrawal and disposal operations. To analyse the relevance of POs in EU agriculture their most relevant elements at a national level need to be observed:

- the different rates of organization[25] by Member State,
- the existence and number of POs,
- the average size[26] of POs during the period 2000-2004

The average **rate of organisation** of EU-15 does not exceed 37%, with significant fluctuations between 2002 (36.3%), 2003 (30.8%) and 2004 (35.5%). A great heterogeneity can be observed among all Member States and within major F&V producers. In 2004 the rate of organization was: Netherlands (78.9%); France (45.5%); Spain (33%); Italy (30.6%) Greece (13.2%). In the same year only 5 of the 10 New Member States recorded a rate of organisation. Malta and Czech Republic lead with 17.6% and 17.3%, and the other 3 NMS do not exceed 4%.

Tab. 8 - POs rate of organization (EU-25, %, 2000-2004)

	2000	2001	2002	2003	2004
BE	64,6%	66,4%	70,7%	83,7%	86,2%
NL	74,9%	71,5%	74,5%	78,0%	78,9%
IE	31,9%	46,8%	54,0%	90,1%	76,6%
UK	30,9%	34,1%	59,1%	39,9%	51,6%
DK	32,0%	36,5%	37,4%	53,1%	47,5%
FR (1)	56,1%	43,6%	45,6%	33,7%	45,5%
SE	41,0%	42,7%	44,4%	45,2%	44,9%
AT	23,3%	22,2%	22,5%	20,6%	36,0%
ES	34,5%	34,2%	36,7%	26,6%	33,0%
IT (2)	28,2%	31,1%	28,8%	24,2%	30,6%
DE	26,8%	26,5%	31,8%	34,4%	29,5%
GR	18,5%	11,6%	11,0%	10,4%	13,2%
FI	9,3%	10,0%	10,1%	11,6%	11,9%
PT	4,7%	4,3%	4,4%	5,4%	5,6%
EU-15	**36,5%**	**34,7%**	**36,3%**	**30,8%**	**35,5%**
MT					17,6%
CZ					17,3%
HU					4,0%
CY					2,8%
PL					0,9%
EE					
LV					
LT					
SI					
SK					
NMS-10					**3,0%**
EU-25					**33,5%**

(1): Total production of F&V of France includes production of bananas.

(2): One region (Calabria) is missing in the italian data.

Source: based on data from European Commission - DG AGRI

Observing the **number of POs and relative trends over the period 2000-2004**, we can see a great heterogeneity among all Member States and among leading F&V producers. In 2004, the five leading countries (Spain, France, Italy, Greece and Netherlands) accounted for 85.5% in absolute terms of all POs of EU-15 Member States, but their share, in the period 2000-2004, differed significantly. Italy

[25] Rate of organisation = Total production of POs / Total production.

[26] Average size = Average production of POs/Average number of POs.

increased considerably (+59.6%), while growth in Spain and Netherlands was much lower (+8.5% and +7.1%). At the opposite end of the scale France and Greece posted falls (-7.4%).

Tab. 9 - Number of POs (EU-25, 2000-2004)

	Number of POs					Evolution of POs number 2001-2004
	2000	2001	2002	2003	2004	
ES	568	566	526	646	616	**8,5%**
FR	339	331	314	309	314	**-7,4%**
IT	141	150	171	203	225	**59,6%**
GR	122	119	117	122	113	**-7,4%**
UK	78	69	72	72	73	**-6,4%**
PT	40	40	37	52	60	**50,0%**
DE	35	33	35	37	35	**0,0%**
BE	15	15	15	15	17	**13,3%**
NL	14	14	14	14	15	**7,1%**
IE	11	14	17	16	10	**-9,1%**
SE	7	8	7	7	7	**0,0%**
FI	7	7	6	6	6	**-14,3%**
DK	5	5	5	5	5	**0,0%**
AT	4	5	5	5	5	**25,0%**
LU						
EU-15	**1.386**	**1.376**	**1.341**	**1.509**	**1.501**	
CZ					8	
HU					8	
PL					7	
CY					6	
MT					2	
EE					0	
LV					0	
LT					0	
SI					0	
SK					0	
NMS-10	**0**	**0**	**0**	**0**	**31**	
EU-25	**1.386**	**1.376**	**1.341**	**1.509**	**1.532**	

Source: based on European Commission - DG AGRI data

Furthermore, if we compare the **average size of POs in the period 2000-2004**, for the five leading F&V producing Member States, we can observe that Netherlands is by far the leading country, with an annual average commercialised production of €124Mio for each PO, Italy is second with €16Mio, then come France with €8Mio, Spain with €6Mio and Greece with €3Mio.

Tab. 10 - Average annual commercialised production per PO (EU-15, 2000-2004)

	Average total production of POs (mio €)	Average number of POs (mio €)	Average production per PO (mio €)
NL	1.756	14	**124**
BE	743	15	**48**
AT	97	5	**20**
DE	631	35	**18**
IT (2)	2.884	178	**16**
DK	60	5	**12**
UK	816	73	**11**
SE	79	7	**11**
IE	131	14	**10**
FR (1)	2.725	321	**8**
ES	3.737	584	**6**
FI	23	6	**4**
GR	372	119	**3**
PT	82	46	**2**

(1): Total production of F&V includes production of bananas.

(2): One region (Calabria) is missing in the italian data.

Source: based on data from European Commission - DG AGRI

3.3.3 Basic information on extra-EU15 trade

EU is the world's major fruit and vegetables market. The majority of European trade is intra-regional, but if we consider the EU as a single entity, we can analyse separately extra-EU and intra-EU trade. Extra-EU trade posted an increasing deficit in the period 1995-2004, so high that in the last year, in comparison with €2.710 million of exports, imports registered a value of €7.308 million.

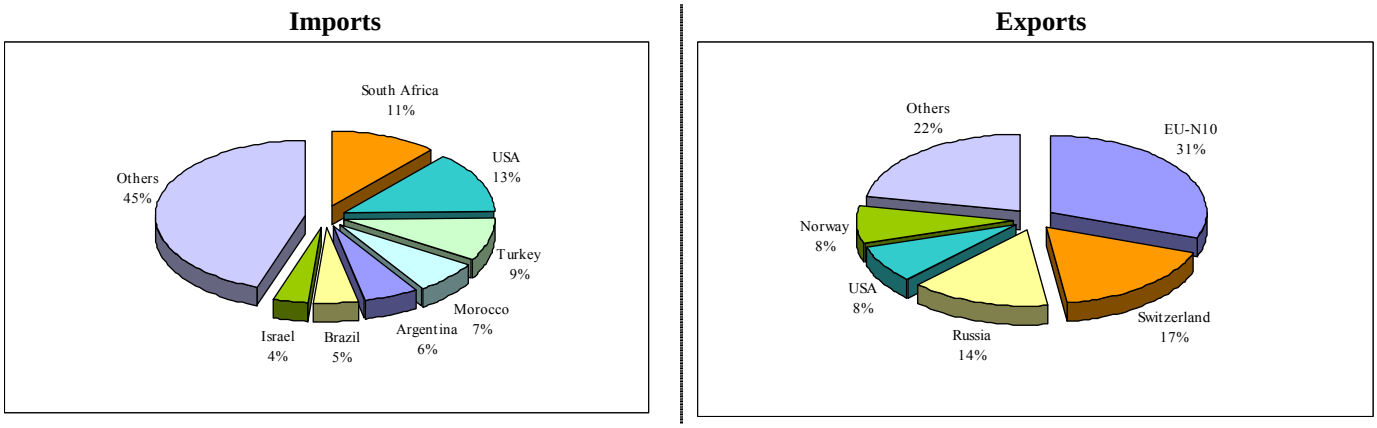
Tab. 11 - Extra-EU15 trade (Mio EUR, 1995-2004)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
					Export					
Vegetables	592	621	765	823	725	802	918	1.079	1.098	1.017
Fruits	1.113	1.238	1.357	1.229	1.226	1.520	1.737	1.752	1.774	1.693
- citrus fruit	415	441	478	470	450	571	627	634	661	593
					Import					
Vegetables	929	926	632	787	792	894	1.039	1.173	1.206	1.275
Fruits	3.764	4.278	4.362	4.294	4.541	4.591	5.344	5.332	5.683	6.033
- citrus fruit	881	1.016	907	866	910	830	1.109	912	1.003	966
					Export - Import					
Vegetables	-338	-305	133	36	-68	-91	-120	-94	-108	-259
Fruits	-2.651	-3.040	-3.006	-3.065	-3.314	-3.070	-3.607	-3.580	-3.909	-4.339
- citrus fruit	-466	-575	-428	-396	-460	-259	-482	-278	-342	-373

Source: Comext

Major import partners for the EU are the United States, South Africa and Turkey from which, during 2004, we imported 13%, 11% and 9% respectively of total fruit and vegetable imports. The first two countries export almost exclusively fruit to the EU. With regard to vegetable imports, Morocco (22%), and Israel (9%) are EU major partners. Referring to exports, until 2004 the 10 New Member States were the main trade outlet (31%), followed by Switzerland (17%) and Russia (14%).

Fig. 13 - EU fruit and vegetables Imports and Exports (%, 2004)



Source: Comext

3.4 Production and withdrawal of the 16 products within the scope of annex II of Reg. (EC) 2200/96

3.4.1 EU-15 output of products within the scope of annex II

There are 16 products eligible for withdrawal compensation listed at Annex II to Reg. (EC) 2200/96 (see table below). The analysis of output shows fairly constant trends in harvested quantities, except for the period 1991-1992 and 1998-1999. With a few exceptions, the year by year variations of total output are not significant.

Tab. 12 - Output of products within the scope of Annex II (EU-15, .000 tonnes, 1989-2004)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Cauliflowers (1)	1.973	1.998	2.157	2.253	2.276	2.231	2.217	2.239	2.234	2.236	2.202	2.116	1.992	1.985	2.218	2.224
Tomatoes	1.067	1.170	1.204	1.224	5.963	6.202	6.103	6.764	6.705	6.542	6.948	7.528	6.763	6.616	6.135	5.873
Melons	1.713	1.746	1.781	1.751	1.798	1.867	1.843	1.498	2.009	2.032	2.308	2.106	2.071	2.036	2.158	2.235
Water melons	1.844	2.099	1.939	1.976	2.058	1.857	1.980	1.398	1.922	2.055	1.858	2.029	1.779	1.813	1.917	1.984
Egg-plants	524	535	565	573	586	569	591	588	654	651	604	642	642	619	685	509
Dessert apples	6.604	6.484	5.625	9.638	8.344	8.302	7.610	7.735	7.647	7.597	8.768	8.524	7.999	7.523	6.928	7.156
Dessert pears	2.130	2.168	1.721	2.662	2.235	2.484	2.264	2.542	2.211	2.331	2.477	2.563	2.356	2.414	2.285	2.509
Peaches	2.937	2.955	2.771	3.565	3.375	3.481	2.855	3.215	2.311	2.455	3.299	3.313	3.202	3.328	2.437	3.108
Apricots	587	543	549	641	551	626	416	571	421	379	650	564	530	554	438	601
Nectarines	715	790	684	1.113	905	947	853	853	654	773	1.066	1.147	1.067	1.036	827	925
Oranges	5.850	5.384	5.336	6.083	5.155	5.688	5.202	5.131	5.821	4.760	5.817	5.725	5.664	6.045	5.973	5.812
Mandarins	332	308	323	394	365	245	267	528	277	354	368	354	336	343	321	728
Sasumas	490	413	410	377	430	369	309	262	347	285	335	288	267	268	257	283
Clementines	1.245	1.364	975	1.388	1.309	1.785	1.703	1.323	2.019	1.717	2.145	1.896	1.777	2.174	2.089	2.206
Lemons	1.491	1.455	1.353	1.593	1.524	1.279	1.154	1.261	1.686	1.490	1.583	1.666	1.673	1.526	1.706	1.361
Table grape	2.297	1.956	2.269	2.525	2.400	2.193	2.704	2.289	2.024	2.209	2.222	2.206	2.264	1.777	1.913	2.028

(1): Includes broccoli production.

Source: based on data from Eurostat and DG AGRI

The output trends of these 16 products confirm the trends already noted for the global F&V sector. Leading producer countries are Spain and Italy, followed by France and Greece. The output of these 4 countries, in 1989-2004, was constantly between 84% and 87% of total EU production. Furthermore, these 4 countries are confirmed leaders in all 16 products, except for some vegetables such as cauliflowers, that have particular relevance in Germany and the UK, and tomatoes, which are important in Netherlands.

Tab. 13 - Output share of products within the scope of Annex II (EU-15, %)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Austria	1,1	1,1	1,1	0,8	1,0	0,9	1,1	1,1	1,3	1,1	1,1	1,2	1,1	1,2	1,2	0,8
Belgium	2,2	2,0	2,1	2,7	2,8	2,7	2,9	2,1	2,3	2,6	2,6	2,4	1,9	2,1	2,2	2,3
Germany	0,0	0,6	3,3	4,3	2,8	2,7	2,1	2,9	2,6	3,3	3,0	3,2	2,8	2,6	2,8	3,2
Denmark	0,3	0,2	0,2	0,2	0,2	0,2	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Spain	29,5	29,5	28,4	27,8	28,9	28,5	29,2	29,9	34,3	33,0	32,1	30,7	33,3	33,6	37,2	32,5
Finland	0,1	0,1	0,1	0,1	0,1	0,1	0,1		0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
France	12,1	12,0	10,4	11,7	11,1	11,8	12,0	11,5	11,2	10,4	10,8	10,4	10,5	10,8	10,1	10,5
Greece	10,8	11,5	10,7	10,5	12,2	12,2	11,1	11,7	9,9	9,9	10,7	11,2	10,9	11,1	8,7	10,2
Ireland	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,0	0,1	0,0	0,1	0,0	0,0
Italy	34,5	33,8	35,0	33,6	32,7	33,4	33,3	33,3	31,0	32,0	32,3	33,7	32,5	30,9	30,2	33,1
Luxembourg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Netherlands	3,9	4,0	2,8	3,8	3,6	3,3	3,7	3,0	3,0	3,3	3,1	3,0	2,7	2,9	3,1	3,5
Portugal	2,3	2,5	2,6	2,2	2,2	2,1	2,4	2,4	2,7	2,3	2,6	2,4	2,5	3,0	3,0	2,5
Sweden	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
United Kingdom	2,9	2,5	3,0	2,3	2,1	1,9	1,8	1,7	1,4	1,6	1,5	1,4	1,3	1,3	0,9	1,1

Source: based on data from Eurostat and DG AGRI

3.4.2 Basic information on EU trade of the 16 products within the scope of annex II

Looking at the extra-EU15 trade of the 16 products within the scope of annex II to Reg. (EC) 2200/96, the following can be noted:

- a steady deficit in vegetable trade, with year by year fluctuations of between 57 and 108 Mio €;
- a quite homogeneous increase in surpluses in fruit trade, with some exceptions (2000 and 2001).

Tab. 14 - Extra-EU trade value of the products within the scope of Annex II (EU-15, Mio EUR, 1998-2005)

	1998	1999	2000	2001	2002	2003	2004	2005
				Export				
Vegetable	148,16	148,21	163,54	152,51	222,15	187,37	193,38	269,74
Fruit	1.814,42	2.009,15	1.838,15	2.323,61	2.354,30	2.456,45	2.578,15	2.940,63
				Import				
Vegetable	243,55	205,27	239,20	287,01	324,68	290,85	301,82	331,64
Fruit	931,49	929,52	1.194,48	1.380,42	1.347,58	1.334,39	1.232,89	1.460,68
				Export - Import				
Vegetable	-95	-57	-76	-135	-103	-103	-108	-62
Fruit	883	1.080	644	943	1.007	1.122	1.345	1.480

Source: Comext

The intra EU-15 trade value[27] of the above mentioned 16 products reached €8,315 million in 2004, and was far higher than extra EU-15 trade value. As shown in the table below, the fruit trade accounts for almost three times the value of vegetables trade. On the other hand, it can be seen that the rate of increase of vegetables trade is far higher than that of fruit trade.

Tab. 15 – Intra-trade of the products within the scope of Annex II (EU-15, Mio EUR, 1998-2005)

	1998	1999	2000	2001	2002	2003	2004	2005
				Value (mio €)				
Vegetable	1.525,83	1.531,37	2.143,67	2.168,45	2.444,46	2.561,81	2.298,89	2.608,26
Fruit	5.152,74	4.598,69	5.145,14	5.801,73	6.020,18	6.412,91	6.016,84	5.901,05
				Quantity (.000 t)				
Vegetable	1.761,78	1.839,12	2.339,24	2.526,37	2.540,45	2.592,10	2.703,05	2.544,12
Fruit	8.133,31	7.611,89	8.041,88	8.055,03	8.368,72	8.527,38	8.321,08	8.243,16

Source: Comext

3.4.3 Destination of output: facts on PO marketing channels

As far as we can see from the results of our investigations, there is no official data on the share of the various marketing channels of specific POs commercialising the 16 products listed in Annex II to Reg. (EC) 2200/96.

In this section, we analyse marketing channel shares for four products, using the data and information gathered at PO level by the case studies. These are relative to four Member States (France, Italy, Spain, Netherlands) and concern the production of two vegetables (table tomatoes and cauliflowers) and two fruits (apples and citrus fruits).

The data collected on PO marketing channels at a national level (in the case of the Netherlands) and at a regional level (France, Italy, Spain) point to an outstanding prevalence for large retail chains, followed by the wholesale market. The industry and retail channels appear to be marginal. The following table shows the number of POs that stated the share among marketing channels for tomatoes, cauliflowers, citrus fruits and apples.

[27] The value of intra-Community trade is calculated based on imports.

Tab. 16 - Most relevant PO marketing channels (tomato, cauliflower, citrus fruit and apple)

	Large Retail Chain	Wholesale	Retail	Industry
Tomato				
Netherlands				
PO 1	70%	20%	10%	0%
PO 2	0%	80%	20%	0%
Spain				
PO 1	90%	5%	0%	5%
PO 2	90%	10%	0%	0%
Italy				
PO 1	60%	40%	0%	0%
PO 2	0%	100%	0%	0%
Cauliflower				
Spain				
PO 1	20%	60%	20%	0%
PO 2	80%	15%	5%	0%
PO 3	70-80%	20-30%	0%	0%
PO 4	90%	10%	0%	0%
France				
PO 1	50%	10%	0%	40%
PO 2	25%	25%	0%	50%

	Large Retail Chain	Wholesale	Retail	Industry
Citrus fruit				
Italy				
PO 1	5%	3%	27%	65%
PO 2	65%	0%	15%	20%
Spain				
PO 1	100%	0%	0%	0%
Apple				
Italy				
PO 1	40-45%	55-60%	0%	5-10%
Spain				
PO 1	90%	10%	0%	0%
PO 2	80%	20%	0%	0%
France				
PO 1	95%	5%	0%	0%
PO 2	60%	40%	0%	0%
PO 3	95%	5%	0%	0%
PO 4	100%	0%	0%	0%
PO 5	75%	25%	0%	0%
PO 6	90%	10%	0%	0%

Source: based on data collected at regional and national level

There are naturally some differences in the destination of products among Member States. In the Netherlands, for example, supplies of fruit and vegetables are highly concentrated. A transformation industry does not exist for the tomato, as only table tomatoes are produced. In the Italy case study (Puglia - tomatoes), for POs the large retail chain is very difficult to reach, and the wholesale market represents the main channel. In the French regions, the large retail chain receives a large quantity of apples, with a share ranging from 51% to 95%.

3.4.4 Most relevant production surplus crises

In this study "production surplus crises" is taken to mean a state when the price level is substantially below the expected value, which lasts only for the current marketing season and generates a deterioration in farmers' income.

Our investigations revealed that there are no official records or other publicly available data that allow for the identification of production surplus crises. However, as mentioned previously (see the chapter on the regulatory framework), during both periods before and after the 1996 CMO reform, a condition of "market crisis", at either local or national level, is implicitly recognized for each utilization of the withdrawal tool.[28] For this reason we use the recording of an authorised withdrawal for a specific product in a specific Member State as evidence of the occurrence of a market crisis, at either local or national level.

Below we report the countries that have been authorized to withdraw, by number of yearly withdrawals and by product, for both periods, pre- and post-reform, to show the relevance of the phenomenon and how it differs across products and States. For each of the 16 products within the scope of annex II, we only report those Member States that have been involved in the production of the specific commodity, with the relative frequency of recourse to withdrawals. Recourse to withdrawals has been classified as "null", "moderate" and "intense" depending on the number of years in which withdrawals have been effected over the period. The tables clearly show that, in both periods, there has been a rather high frequency of crises for most products and, moreover, that the most relevant fruit and vegetable producing Member States, such as Spain, France, Greece and Italy, had

[28] Under the rules of Council Regulation (EEC) 1035/72, the Community was responsible for declaring periods of serious crisis, reacting to Member States' requests; after the 1996 CMO reform, this duty was transferred to the national government, and is generally performed at a regional Administration level.

the highest frequency of yearly crises. On the other hand, we can note that depending on the product, some Member States have made a null or moderate recourse to withdrawals.

Overall, the frequency of recourse to withdrawals, and therefore the frequency of crises, has not changed significantly between the two periods.

Tab. 17 - Frequency of yearly withdrawals, by product, for permanent crops

	Marketing years 89/90 - 96/97			Marketing years 97/98 - 04/05		
	Null	Moderate	Intense	Null	Moderate	Intense
Apricots	AT - DE - PT		ES - FR - GR - IT	AT - DE - PT		ES - FR - GR - IT
Clementines	PT		ES - FR - GR - IT	GR	PT	ES - FR - IT
Dessert Apples	AT - FI - LU - SE	DK	BE - DE - ES - FR - GR - IE - IT - NL - PT - UK	AT - DK - FI - LU - SE	IE	BE - DE - ES - FR - GR - IT - NL - PT - UK
Dessert Pears	AT - DK - IE - LU - SE		BE - DE - ES - FR - GR - IT - NL - PT - UK	AT - DK - IE - LU - SE		BE - DE - ES - FR - GR - IT - NL - PT - UK
Lemons		FR - PT	ES - GR - IT	FR	GR - IT	ES - PT
Mandarins	ES	PT	GR - IT		PT	ES - IT - PT
Nectarines	PT		ES - FR - GR - IT	PT		ES - FR - GR - IT
Oranges			ES - FR - GR - IT - PT		FR	ES - GR - IT - PT
Peaches	AT - BE - NL	DE	ES - FR - GR - IT - PT	AT - BE - DE - NL		ES - FR - GR - IT - PT
Satsumas		GR	ES	GR		ES
Table grapes	BE - IT - NL - PT		ES - FR - GR	BE - NL - PT	GR - IT	ES - FR

Legend: **Null:** no withdrawals were effected in the period; **Moderate:** a maximum of 3 yearly withdrawals were effected in the period; **Intense:** more than 3 yearly withdrawals were effected in the period

Source: based on data from European Commission - DG AGRI

Tab. 18 - Frequency of yearly withdrawals, by product, for annual crops

	Marketing years 89/90 - 96/97			Marketing years 97/98 - 04/05		
	Null	Moderate	Intense	Null	Moderate	Intense
Cauliflowers	AT		BE - DE - ES - FR - GR - IE - IT - PT - UK	GR	AT - IE - PT	BE - DE - ES - FR - IT - UK
Eggplants	BE - NL	GR	ES - FR - IT	GR - NL	BE - IT	ES - FR
Melons	product not included in this Reg. period			BE - GR - NL - SE	PT	ES - FR - IT
Table Tomatoes	AT - DK - FI - LU - SE	UK	BE - DE - ES - FR - GR - IE - IT - NL - PT	AT - DK - FI - LU - NL - SE - UK	GR - IE	BE - DE - ES - FR - IT - PT
Water melons	product not included in this Reg. period			FR - GR - PT		ES - IT

Legend: **Null:** no withdrawals were effected in the period; **Moderate:** a maximum of 3 yearly withdrawals were made effected the period; **Intense:** more than 3 yearly withdrawals were effected in the period

Source: based on data from European Commission - DG AGRI

In order to identify the most relevant crises we have analysed, at a national level, the intensity of withdrawals and price fall trends[29]. In addition, we have collected, through deep interviews with the main actors involved (countries' government officials and representatives of respective regional administrations, APO and PO managers) the perception and memory of the most relevant crises at both the national and local levels, for the products and regions involved in the 13 case studies.

To build a representative map, we have selected:

- the 6 most relevant products, for which total withdrawal expenses account for about 85% of total withdrawal costs over the 1989/90-2003/04 period;
- for each of these 6 products, the Member States that have been most involved in withdrawals, namely those that have withdrawn, at least once, more than 10% of annual production (for the first period) or more than 10% of allowed quantities (for the period after the 1996 reform).

The *"intensity" of annual withdrawals* is defined as the ratio between the quantity withdrawn and the quantity produced (for the pre-reform period) and as the ratio between the quantity withdrawn and the maximum allowed withdrawal quantity (after CMO reform). The *"intensity" of price falls* is defined as the ratio between the price of each year, as recorded by EC statistics, and the overall average price of the period (the 8 marketing years 1989/90-1996/97 for the first period, and the other 8 marketing years 1997/98-2004/05 for the post-reform period). To highlight the most important results, we show only the most relevant figures for both intensity indexes.

The table shows clearly that there is no close relationship between intense withdrawals and sharp price falls, and furthermore, that a strong crisis witnessed at a local level does not mirror one at a national level or vice versa.

[29] Our analysis on the possible relationships between the fluctuation of yields and withdrawals found no significant correlation between them (this index is not shown in the table).

Tab. 19 - Most relevant crises

Cauliflowers

M. S.	Mktg Year	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
FR	Relevant Withdr.				21,7%		28,1%			24,4%						32,7%	38,4%
	Relev. Price fall	NA															-28,5%
	Crisis witnessed				Bretagne	Bretagne	Bretagne	Bretagne			Bretagne					Bretagne	Bretagne
GR	Relevant Withdr.			11,2%													
	Relev. Price fall	NA			-22,9%	-26,8%			NA		-53,8%	-36,4%	-41,5%			NA	
IE	Relevant Withdr.						70,7%		20,6%								
	Relev. Price fall	Time series not available								Time series not available							
IT	Relevant Withdr.											49,6%					
	Relev. Price fall	NA				-26,1%			-21,8%	-30,8%		-42,4%	-35,0%				
	Crisis witnessed											Italy	Italy				
UK	Relevant Withdr.									22,3%	21,4%	21,9%					
	Relev. Price fall	NA			-22,9%	-26,8%			NA								

Tomatoes

M. S.	Mktg Year	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
IE	Relevant Withdr.							25,5%									
	Relev. Price fall	NA	-21,8%														
ES	Relevant Withdr.											20,9%		28,9%	29,8%	25,5%	27,7%
	Relev. Price fall	NA								-39,7%	-24,8%	-26,1%					
	Crisis witnessed													Murcia	Murcia	Murcia	Murcia
IT	Relevant Withdr.																
	Relev. Price fall	NA				-22,4%		-30,0%		-33,4%	-35,3%	NA				NA	
	Crisis witnessed	Apulia		Apulia				Apulia								Apulia	

Dessert apples

M. S.	Mktg Year	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
BE	Relevant Withdr.				20,9%	15,3%											
	Relev. Price fall	NA			-46,6%	-40,4%						-21,7%					
ES	Relevant Withdr.																
	Relev. Price fall	NA			-57,8%	-23,6%				-21,9%							
	Crisis witnessed				Cataluna							Cataluna	Cataluna	Cataluna		Cataluna	Cataluna
FR	Relevant Withdr.				35,4%	21,3%	17,4%			20,0%							
	Relev. Price fall	NA			-46,4%	-30,7%				-27,4%		-28,3%					
	Crisis witnessed				France	France	France	France	France	France	France	France	France	France	France	France	France
GR	Relevant Withdr.	23,0%	46,7%		41,6%	29,0%	29,9%	24,4%	41,1%	34,2%	27,4%	21,9%	45,7%	24,2%	44,4%		
	Relev. Price fall	NA	-24,5%		-31,5%												-48,0%
IE	Relevant Withdr.						20,1%	24,2%	21,9%								
	Relev. Price fall	Time series not available								Time series not available							
IT	Relevant Withdr.																
	Relev. Price fall	NA			-42,2%	-27,2%				-28,0%	-21,6%	-25,9%	-33,1%				
	Crisis witnessed											Trento	Trento	Trento			
NL	Relevant Withdr.				18,3%	21,4%											
	Relev. Price fall	NA			-48,6%	-40,3%						-21,9%					

Peaches

M. S.	Mktg Year	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
FR	Relevant Withdr.				26,5%				20,2%	26,4%		30,6%	23,0%		38,9%	27,1%	20,0%
	Relev. Price fall	NA			-30,0%		-21,1%								-22,8%		
GR	Relevant Withdr.	42,8%	50,9%	44,1%	61,5%	60,4%	62,5%	25,6%	40,1%			59,6%	63,1%	47,0%			66,1%
	Relev. Price fall	NA										-30,0%	-28,8%				-25,3%
IT	Relevant Withdr.	18,4%															
	Relev. Price fall	NA			-26,3%		-33,7%					-30,7%					

Nectarines

M. S.	Mktg Year	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
ES	Relevant Withdr.									49,7%	27,1%	76,0%	78,0%	40,0%	74,7%	51,3%	23,4%
	Relev. Price fall	NA			-20,7%	-33,9%									-26,8%		
FR	Relevant Withdr.				31,7%		18,0%		31,6%	43,2%		61,2%	51,0%	44,6%	62,3%	37,3%	34,9%
	Relev. Price fall	NA				-24,2%						-20,7%			-27,4%		
GR	Relevant Withdr.	26,1%	28,2%	38,8%	76,6%	71,1%	74,2%	28,5%	74,7%				87,8%	54,9%			72,9%
	Relev. Price fall	Time series not available								NA	NA	NA	-36,1%	-26,0%	-20,7%		-22,6%
IT	Relevant Withdr.	24,0%	17,6%		27,4%				15,7%			49,1%	34,7%	32,0%	43,1%		50,3%
	Relev. Price fall	NA					-37,0%					-47,2%	-36,1%				-37,1%

Oranges

M. S.	Mktg Year	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
ES	Relevant Withdr.																
	Relev. Price fall	NA			-37,9%												
	Crisis witnessed															Valencia	Valencia
FR	Relevant Withdr.		19,8%		39,0%	35,4%	63,8%	65,2%	54,2%								
	Relev. Price fall	Time series not available								Time series not available							
GR	Relevant Withdr.	29,7%	22,4%	22,4%	26,9%	17,4%				26,0%		38,3%					
	Relev. Price fall	NA			-30,4%							-24,9%				-31,5%	
IT	Relevant Withdr.																
	Relev. Price fall	NA			-30,0%	-22,9%				-22,9%			NA	-36,3%		-29,8%	
	Crisis witnessed													Italy		Calabria	

Relevant Withdrawals
- between 15% and 25% of annual production
- over 25% of annual production

Relevant Price fall
- between 20% and 30% below the 89-90/96-97 average price
- over 30% below the 89-90/96-97 average price

Crisis witnessed
- intense crisis at Regional / national level
- very strong crisis at Regional / national level

Relevant Withdrawals
- between 20% and 30% of annual allowed ceiling
- over 30% of annual allowed ceiling

Relevant Price fall
- between 20% and 30% below the 97-98/04-05 average price
- over 30% below the 97-98/04-05 average price

Crisis witnessed
- intense crisis at Regional / national level
- very strong crisis at Regional / national level

Source: based on data from DG AGRI (withdrawals and annual prices) and from case studies

3.4.5 The gap between withdrawal compensation and market price

In this section we explore the connection between market price and maximum compensation (CWC plus Supplement to Community Compensation) that can be received by producers for withdrawals.

This analysis is based on six products, two vegetables and four fruits, in five Member States.

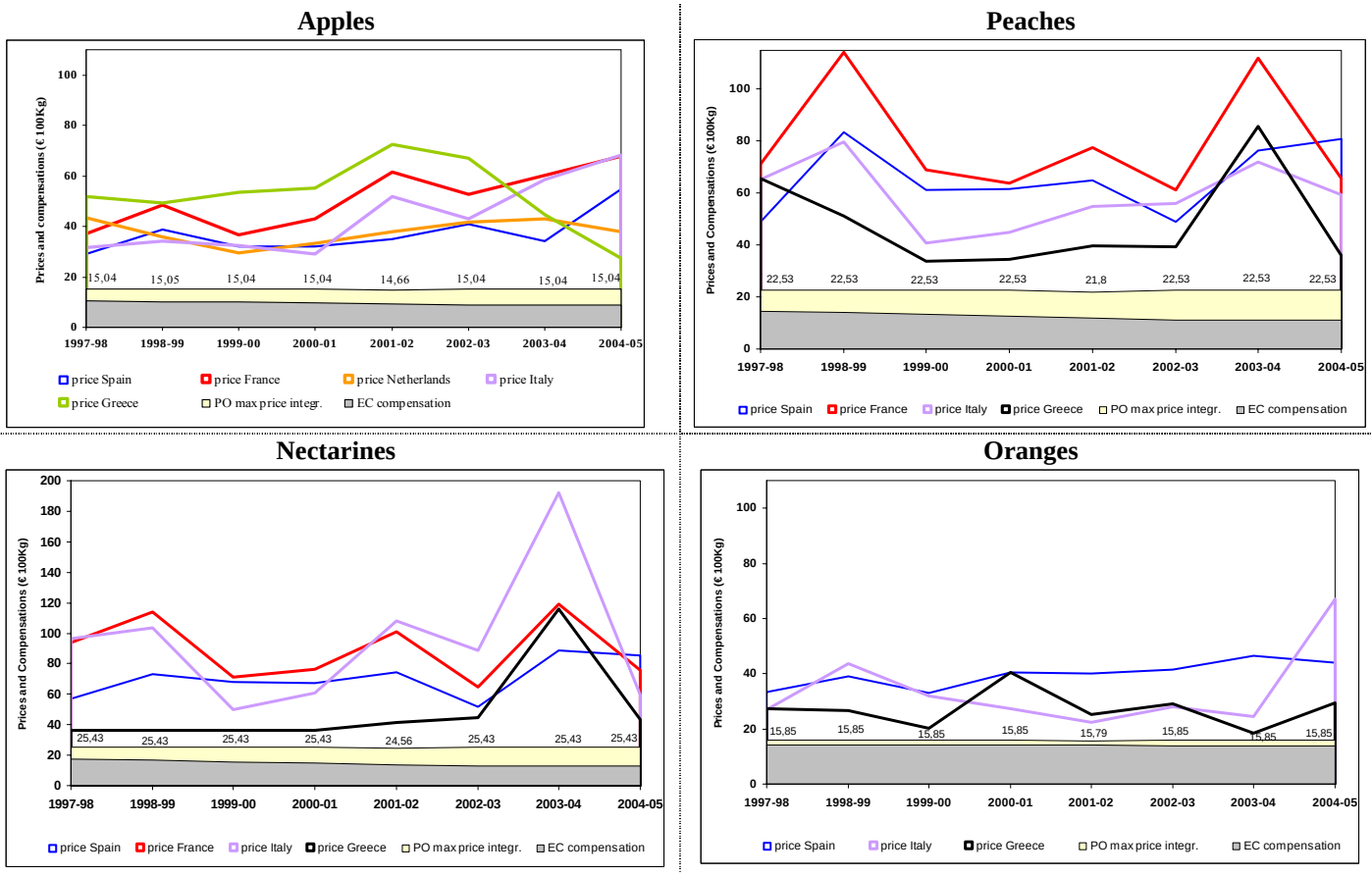
The final results of investigations show that there is a strong variability in average prices in the five countries for the products considered, with a remarkable distance of market price from the maximum possible compensation.

In Greece during the years 1990-2000 and 2003-2004 the market price for oranges underwent a downward trend. A similar situation was recorded in Italy in the years 2001-2002 and 2003-2004. In these cases, the maximum compensation was close to annual price averages.

Still in Greece, but for nectarines, from 1997-1998 to 2002-2004 the gap between the maximum price and the market price was small. The gap was very high in 2003-2004, when there was a rise in market prices for all the countries we looked at.

It is interesting to observe the case of peaches in Greece, for which the market price was low from 1999-2000 to 2002-2003, therefore the gap between price and possible compensation was particularly small.

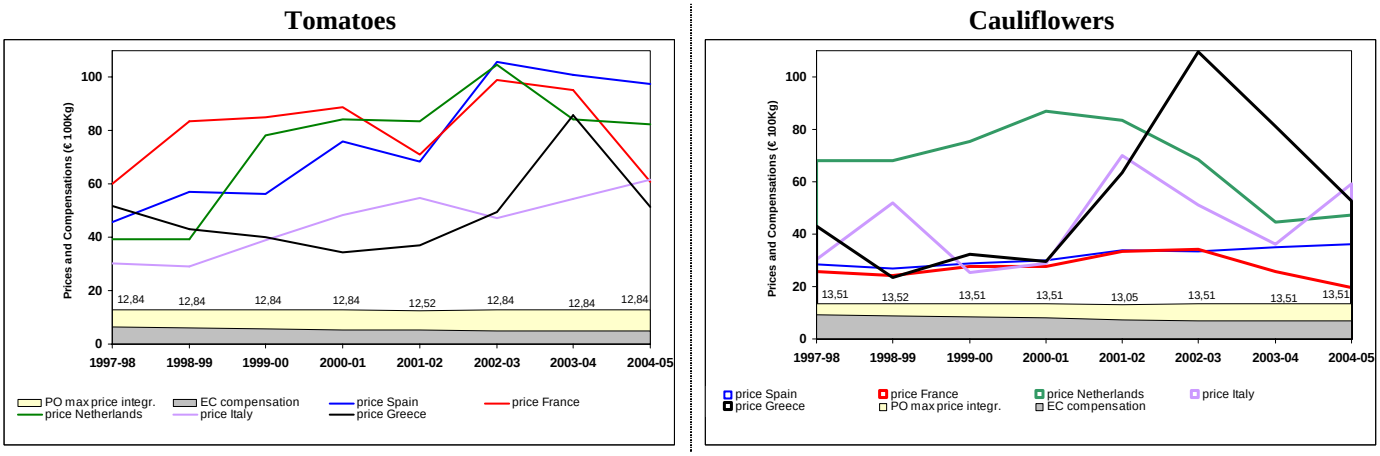
Fig. 14 - Market price and compensation for analysed fruit products



Source: based on data from DG AGRI (market prices); EU Regulation (maximum price)

As far as cauliflowers are concerned, in France and Spain the gap between the maximum compensation and price market has been consistently small from 2001-2002 onwards, compared to other countries. A similarly small gap existed for Italy in 1999-2000 and 2000-2001.

Fig. 15 - Market price and compensation for analysed vegetable products



Source: based on data from DG AGRI (market prices); EU Regulation (maximum price)

3.4.6 Withdrawals of products within the scope of annex II

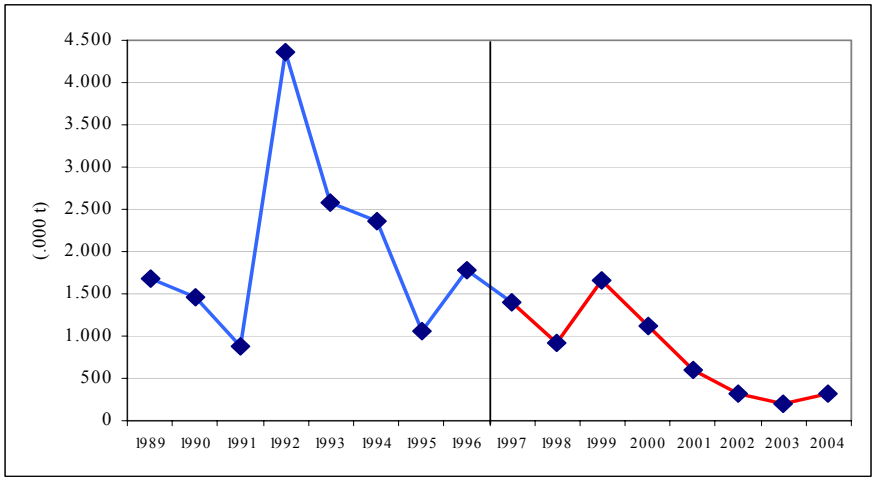
As already analysed in the regulatory framework section of this study, the objective of the withdrawals instrument is to stabilize fruit and vegetable prices in order to avoid potential market crises. Council Regulation (EEC) 1035/72 first, then Council Regulation (EC) 2200/96, recognised POs as being the major actors in the application of the withdrawals scheme.

Below we present an analysis of products withdrawn within the scope of annex II. They constitute the most relevant quantities of all withdrawals effected. The quantities of other withdrawn products "outside the scope of annex II" are marginal in comparison with those listed in annex II, and only a few products in a few years were subject to more significant withdrawals.

Analysing withdrawal trends since 1989, the decline of the phenomenon and the relatively steady decrease since 1999 are evident. In this scenario, the reform of the withdrawals scheme from Regulation (EEC) 1035/72 to Regulation (EC) 2200/96 (in force since 01/01/1997) also has to be considered. The lower variability and levels of withdrawn quantities over the period 1997-2004 reflect the major scheme changes with the CMO reform in 1996 (lower withdrawal ceilings – the role of POs in the scheme – decreasing EU compensation level).

The graph below shows a clear negative trend beginning in 1992, which slowed down to an extent in the 1996 and 1999 marketing years. In 1992, 4,369,002 tonnes of products were withdrawn, and in 2004 only 315,.818 tonnes were withdrawn, a reduction of over 4 million tonnes. Withdrawal trends show no particular correlation with production trends. However, in 1992 and 1999, when the highest production levels were recorded, withdrawals rose significantly. This suggests that withdrawals were resorted to particularly in those years in which there was a sharp rise in quantities, with the market unable to absorb the production surplus. On the other hand, in other years with high production levels, but in line with past trends, either the market was able to absorb production without a drop in prices or alternative methods to cope with the production surplus were adopted.

Fig. 16 - Withdrawn quantities in EU-15 (tonnes, 1989-2004)



Source: European Commission - DG AGRI

Looking separately at the two main withdrawal periods/schemes (1989-96, Reg, 1035/72, and 1997-2004, Reg. 2200/96), if we consider average withdrawn quantities in the first period, we can see that peaches, with a 28.8% average share, was the most withdrawn product, followed by apples, with an average share of 28.5%, oranges (13.8%), nectarines (8.5%), cauliflowers (5.7%) and tomatoes (5.3%). During the second period (1997-2004), for all products we notice a substantial fall in withdrawals, but the major withdrawn products remain the same, as listed above.

Tab. 20 - Withdrawn quantities and average share by product (EU-15, tonnes, 1989-1996)

	Reg. 1035/72								
	1989	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**Average**
Cauliflowers & broccoli	81.776	31.792	75.947	140.808	109.241	204.338	140.744	141.034	**5,7%**
Tomatoes	46.427	135.655	60.272	252.697	60.563	59.431	73.143	166.272	**5,3%**
Melons	0	0	0	0	0	0	0	0	**0,0%**
Water melons	0	0	0	0	0	0	0	0	**0,0%**
Egg-plants	1.938	86	553	148	385	461	5.332	4.244	**0,1%**
Dessert apples	312.302	323.583	35.736	1.761.123	985.027	637.953	229.458	319.866	**28,5%**
Dessert pears	23.232	28.286	3.267	196.712	42.614	88.380	50.083	176.571	**3,8%**
Peaches	541.225	513.967	430.081	890.311	710.826	808.489	229.009	532.238	**28,8%**
Apricots	13.528	37.253	1.004	20.946	85.666	54.940	3.218	20.272	**1,5%**
Nectarines	130.236	129.609	83.075	340.974	159.699	208.543	71.110	247.177	**8,5%**
Oranges	340.289	236.844	164.588	607.454	315.056	231.344	197.263	140.340	**13,8%**
Mandarins	18.021	8.814	2.723	7.266	6.471	4.522	5.335	3.093	**0,3%**
Sasumas	280	0	0	4.030	3.578	506	1.210	1.051	**0,1%**
Clementines	13.749	792	1.713	58.164	21.412	40.999	52.718	6.648	**1,2%**
Lemons	153.633	18.739	13.736	84.578	52.532	6.450	6.849	3.876	**2,1%**
Table grapes	14	85	291	3.791	18.487	21.542	1.704	13.087	**0,4%**

Source: based on data from European Commission - DG AGRI

Tab. 21 - Withdrawn quantities and average share by product (EU-15, tonnes, 1997-2004)

	Reg, 2200/96								
	1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**Average**
Cauliflowers & broccoli	172.181	116.696	184.042	43.424	29.379	9.479	19.364	20.257	**9,1%**
Tomatoes	249.003	193.973	272.335	147.134	147.051	72.632	57.762	74.944	**18,6%**
Melons	10.218	18.622	21.912	14.358	11.846	12.797	11.077	6.764	**1,6%**
Water melons	6.380	14.326	7.782	10.442	5.814	11.096	7.701	9.465	**1,1%**
Egg-plants	4.118	1.566	15.663	2.750	2.066	1.791	655	113	**0,4%**
Dessert apples	401.998	274.151	209.347	257.775	75.174	36.198	31.641	26.069	**20,1%**
Dessert pears	88.525	67.444	88.749	70.546	36.314	30.154	27.373	24.901	**6,7%**
Peaches	92.902	24.909	318.648	257.490	108.118	42.649	14.478	70.692	**14,3%**
Apricots	17.060	10.038	25.811	14.554	3.851	1.195	663	509	**1,1%**
Nectarines	76.352	37.403	209.638	126.219	78.116	54.233	18.701	43.904	**9,9%**
Oranges	187.638	77.650	201.139	86.352	49.127	19.783	4.860	17.623	**9,9%**
Mandarins	1.651	959	3.360	1.267	708	63	0	0	**0,1%**
Sasumas	4.064	3.543	2.633	6.576	4.794	3.443	1.854	2.161	**0,4%**
Clementines	67.851	38.811	93.965	66.351	37.839	15.859	6.283	16.481	**5,3%**
Lemons	20.238	36.098	5.294	7.493	5.515	3.103	2.408	1.773	**1,3%**
Table grapes	932	60	81	66	120	21	27	161	**0,0%**

Source: based on data from European Commission - DG AGRI

During the period when Regulation 1035/72 was in place, the leading Member State in terms of withdrawal quantity shares was Greece (42.2%), followed by Italy (21.4%), France (18.4%) and Spain (11.6%). Moreover, in the period following the 1996 CMO reform, there has been a noticeable change in country shares. Spain is now top of the table, with an average share rising to 44.9% of total withdrawals in the EU, Greece's share, on the other hand, fell significantly to 14.8%. France and Italy maintained their average share of withdrawals, at 16.4% and 17.3% respectively. The other countries, in terms of withdrawn quantities, account for marginal shares. Obviously, as we shall see further on, there are substantial differences between countries and their specific withdrawn products.

Tab. 22 - Withdrawn quantities and average share by Member State (EU-15, %, 1989-2004)

	Reg. 1035/72									Reg. 2200/96								
	1989	1990	1991	1992	1993	1994	1995	1996	Average	1997	1998	1999	2000	2001	2002	2003	2004	Average
Austria	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**
Belgium	0,6	0,3	0,2	2,5	3,5	1,2	1,5	0,5	**1,3**	0,6	1,8	0,6	4,1	0,2	1,6	3,1	2,9	**1,9**
Germany	1,5	0,2	0,3	1,4	1,9	1,5	1,2	1,2	**1,1**	0,8	1,3	0,7	1,3	0,9	0,3	0,7	0,4	**0,8**
Denmark	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**
Spain	7,7	2,8	2,6	13,9	11,9	12,6	18,1	23,0	**11,6**	43,2	46,0	31,2	33,8	49,5	53,6	62,7	39,1	**44,9**
Finland	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**
France	12,0	9,6	8,9	27,4	22,3	27,6	24,8	14,4	**18,4**	26,5	19,4	12,7	13,6	11,4	15,1	20,3	12,6	**16,4**
Greece	39,8	54,5	65,4	25,7	38,0	42,6	33,9	37,4	**42,2**	10,7	7,5	23,9	23,5	18,4	7,9	3,0	23,4	**14,8**
Ireland	0,1	0,1	0,2	0,0	0,0	0,5	0,5	0,3	**0,2**	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**
Italy	33,5	30,3	20,8	24,3	14,5	12,4	17,8	21,5	**21,9**	14,6	17,6	27,5	19,6	16,7	19,1	7,1	16,0	**17,3**
Luxembourg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**
Netherlands	2,0	0,9	0,6	3,4	6,0	0,3	0,7	0,4	**1,8**	0,1	3,5	0,6	3,0	0,3	1,0	0,2	2,9	**1,4**
Portugal	0,0	0,0	0,0	0,4	0,5	0,5	0,7	0,4	**0,3**	1,4	0,1	1,0	0,4	0,8	1,0	0,7	1,4	**0,8**
Sweden	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**
United Kingdom	2,8	1,3	1,1	0,9	1,3	0,8	0,8	1,0	**1,3**	2,3	2,9	1,8	0,7	1,8	0,5	2,2	1,3	**1,7**

Source: European Commission - DG AGRI

Furthermore Regulation 2200/96 establishes, for Annex II products, a maximum limit (also called "ceiling" or "plafond") with respect to quantities commercialised by POs, that can benefit from withdrawal compensation. A different ceiling is therefore established for each product. This limit is implemented at PO level and is calculated based on average commercialised amounts during the three previous years with a margin of 3%. However, assuming as a theoretical limit the ceiling percentages applied to global national output[30], the analysis of withdrawals indicates that in the EU-15 the limit for each of the Annex II products has never been exceeded. Nectarines, which are the product with the highest withdrawal levels, vis-à-vis harvested production, are those which come closest to the stated ceiling, although they remain well below it, as shown in Fig. 17.

Tab. 23 - Withdrawals ceiling of POs commercialised quantity

	1997	1998	1999	2000	2001	Since 2002
Melons and water melons	10%	10%	10%	10%	10%	10%
Citrus	35%	30%	25%	20%	10%	10%
Apples and Pears	50%	45%	40%	30%	20%	8,5%
Others products	50%	45%	40%	30%	20%	10%

Source: Community Regulations

Comparing the incidence of withdrawals out of all commercialised production between the two Regulation periods, a decrease is again observed. The withdrawal average for Nectarines decreased from 19.3% to 8.3%; peaches from 18.1% to 3.7%; dessert apples decreased from 6.9% to 2.1%; cauliflowers from 5.3% to 3.4%; oranges from 5% to an average share of 1.4%. The biggest relative drops regarded peaches (-79.3% of its 1989-96 average level), oranges (-71.5%) and dessert apples (-70.1%).

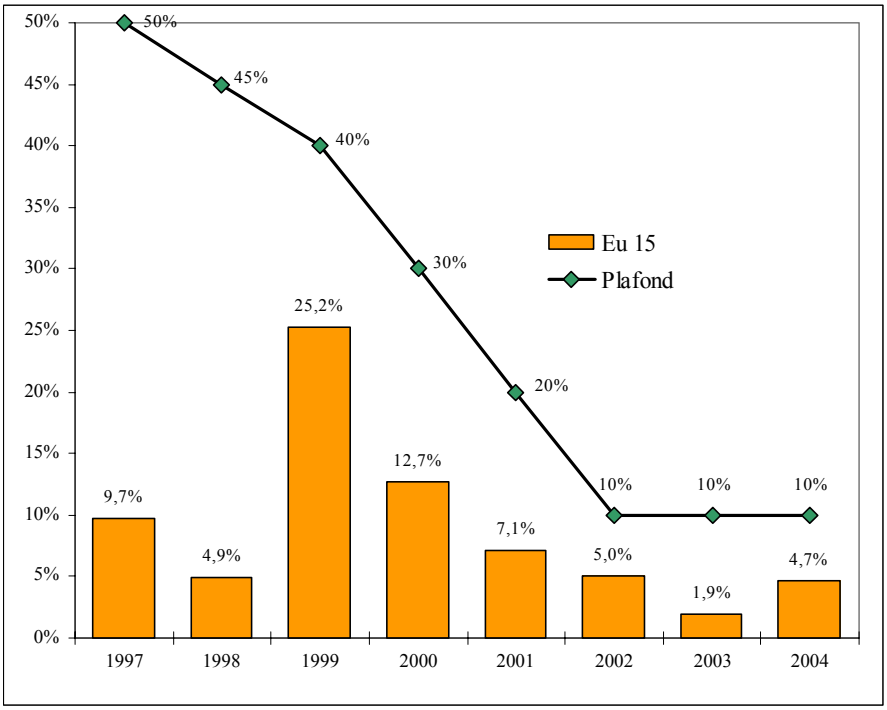
[30] It is a theoretical limit because not all the national production is commercialised by POs.

Tab. 24 - Withdrawal share by product (% of total EU-15 commercialised production, 1989-2004)

	Reg. 1035/72									Reg. 2200/96								
	1989	1990	1991	1992	1993	1994	1995	1996	Average	1997	1998	1999	2000	2001	2002	2003	2004	Average
Cauliflowers & broccoli	4,1	1,6	3,5	6,2	4,8	9,2	6,3	6,3	**5,3**	7,7	5,2	8,4	2,1	1,5	0,5	0,9	0,9	**3,4**
Tomatoes	4,4	11,6	n.a	n.a	0,0	1,0	1,2	2,5	**3,4**	3,7	3,0	3,9	2,0	2,2	1,1	0,9	1,3	**2,3**
Melons	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**	0,5	0,9	0,9	0,7	0,6	0,6	0,5	0,3	**0,6**
Water melons	0,0	0,0	0,0	0,0	2,9	0,0	0,0	0,0	**0,4**	0,3	0,7	0,4	0,5	0,3	0,6	0,4	0,5	**0,5**
Egg-plant	0,4	0,0	0,1	0,0	0,1	0,1	0,9	0,7	**0,3**	0,6	0,2	2,6	0,4	0,3	0,3	0,1	0,0	**0,6**
Dessert apples	4,7	5,0	0,6	18,3	11,8	7,7	3,0	4,1	**6,9**	5,3	3,6	2,4	3,0	0,9	0,5	0,5	0,4	**2,1**
Dessert pears	1,1	1,3	0,2	7,4	1,9	3,6	2,2	6,9	**3,1**	4,0	2,9	3,6	2,8	1,5	1,2	1,2	1,0	**2,3**
Peaches	18,4	17,4	15,5	25,0	21,1	23,2	8,0	16,6	**18,1**	4,0	1,0	9,7	7,8	3,4	1,3	0,6	2,3	**3,7**
Apricots	2,3	6,9	0,2	3,3	15,5	8,8	0,8	3,5	**5,2**	4,1	2,7	4,0	2,6	0,7	0,2	0,2	0,1	**1,8**
Nectarines	18,2	16,4	12,1	30,6	17,6	22,0	8,3	29,0	**19,3**	11,7	4,8	19,7	11,0	7,3	5,2	2,3	4,7	**8,3**
Oranges	5,8	4,4	3,1	10,0	6,1	4,1	3,8	2,7	**5,0**	3,2	1,6	3,5	1,5	0,9	0,3	0,1	0,3	**1,4**
Mandarins	5,4	2,9	0,8	1,8	1,8	1,8	2,0	0,6	**2,1**	0,6	0,3	0,9	0,4	0,2	0,0	0,0	0,0	**0,3**
Sasumas	0,1	0,0	0,0	1,1	0,8	0,1	0,4	0,4	**0,4**	1,2	1,2	0,8	2,3	1,8	1,3	0,6	0,8	**1,2**
Clementines	1,1	0,1	0,2	4,2	1,6	2,3	3,1	0,5	**1,6**	3,4	2,3	4,4	3,5	2,1	0,7	0,3	0,7	**2,2**
Lemons	10,3	1,3	1,0	5,3	3,4	0,5	0,6	0,3	**2,8**	1,2	2,4	0,3	0,4	0,3	0,2	0,1	0,1	**0,7**
Table grapes	0,0	0,0	0,0	0,2	0,8	1,0	0,1	0,6	**0,3**	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	**0,0**

Source: based on data from Eurostat and DG AGRI

Fig. 17 - Nectarine withdrawals and plafond (EU-15, %, 1997-2004)



Source: based on data from DG AGRI; Community Regulations

3.5 Production and withdrawals of the most relevant products outside the scope of annex II to Reg. (EC) 2200/96

3.5.1 EU-15 production of the products outside the scope of annex II

Among all of the F&V products outside the scope of annex II to Reg. (EC) 2200/96, 13 products accounted for about 90% of all withdrawn quantities in the period 1997-98 to 2003-04. The analysis, limited to these 13 products (3 fruits and 10 vegetables), shows fairly constant trends in harvested quantities for both fruit and vegetable products. The leading product among the three relevant fruit productions was plums, and the major vegetable product was carrots.

Tab. 25 - Production of the most relevant fruit and vegetable products outside the scope of annex II (EU-15, .000 tonnes, 97/98-03/04)

	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	Total
Plums	612	625	665	695	739	715	766	**4.816**
Kiwis	391	394	491	512	485	542	478	**3.294**
Cherries	374	359	491	530	423	475	432	**3.085**
Total fruit	1.377	1.378	1.647	1.737	1.648	1.732	1.676	**11.196**

	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	Total
Carrots	3.255	3.251	3.730	3.525	3.572	3.890	3.805	**28.675**
Cucumbers - Gherkins	1.745	1.640	1.636	1.635	1.766	1.801	1.855	**13.305**
Chicories - Endives	1.204	1.132	1.167	1.188	1.135	1.137	1.126	**9.173**
Beans, Runner and Frech	1.099	1.085	1.115	1.076	1.150	1.180	1.122	**8.959**
Gourds	1.053	1.098	1.028	1.083	1.076	1.114	1.154	**8.432**
Globe Artichokes	887	881	863	896	831	844	775	**6.852**
Mushrooms	868	833	870	873	860	848	799	**6.597**
Leeks	713	692	775	643	675	698	708	**5.546**
Brussel sprouts	228	223	259	245	225	196	233	**1.823**
Asparagus	211	212	207	220	220	227	228	**1.759**
Total vegetable	11.263	11.046	11.650	11.385	11.510	11.935	11.805	**91.121**

Source: Eurostat

The leading producers of the three most relevant fruit products are Italy, France, Spain and Germany, which together account for about 84% of total production (see Tab. 26).

For the ten most relevant vegetable products too, Italy, France and Spain were the leading producing countries, and together with Netherlands, Germany and United Kingdom they accounted for some 85% of total production in the period 1997-98 to 2003-04.

Tab. 26 – Member States' average shares of total EU production for the most relevant fruit products outside the scope of annex II (EU-15, %, 97/98-03/04)

	Plums	Kiwis	Cherries
Austria	8,7	0,0	7,0
Belgium	0,2	0,0	1,2
Germany	6,9	0,0	14,0
Denmark	0,0	0,0	0,8
Spain	24,3	1,8	22,2
Finland	0,0	0,0	0,0
France	32,1	16,5	13,7
Greece	0,4	12,0	9,0
Ireland	0,0	0,0	0,0
Italy	23,0	67,7	28,9
Luxembourg	0,1	0,0	0,0
Netherlands	0,4	0,0	0,0
Portugal	2,3	2,0	2,8
Sweden	0,0	0,0	0,1
United Kingdom	1,6	0,0	0,2

Source: Eurostat

Tab. 27 - Member States average shares of total EU production for the most relevant vegetable products outside the scope of annex II (EU-15, %, 97/98-03/04)

	Carrots	Cucumbers - Gherkins	Chicory - Endive	Gourds	Brussel sprouts	Asparagus	Mushrooms	Beans, Runner and Frech	Leeks	Globe Artichokes
Austria	1,7	2,4	0,3	1,1	0,1	0,7	0,0	0,6	0,9	0,0
Belgium	4,8	1,5	7,6	1,7	20,5	0,5	4,2	8,1	25,0	0,0
Germany	11,1	11,9	1,0	0,0	4,2	23,4	6,7	4,1	9,3	0,0
Denmark	1,9	0,8	0,0	0,0	0,4	0,0	1,0	0,0	0,9	0,0
Spain	11,1	28,0	6,5	30,1	2,2	28,3	10,6	24,7	9,3	33,3
Finland	1,7	2,5	0,0	0,0	0,0	0,0	0,2	0,0	0,1	0,0
France	19,3	7,4	31,5	18,3	6,1	10,9	23,0	32,2	25,9	8,0
Greece	1,0	9,4	3,6	7,6	0,0	12,5	0,0	6,3	5,7	3,0
Ireland	0,4	0,1	0,0	0,0	0,7	0,0	4,0	0,0	0,1	0,0
Italy	15,4	4,0	40,9	40,0	3,9	16,2	8,5	14,8	2,2	55,7
Luxembourg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Netherlands	10,8	25,5	8,6	1,1	33,6	6,6	30,5	5,6	13,9	0,0
Portugal	1,3	0,0	0,0	0,0	0,0	0,0	0,0	1,4	0,0	0,0
Sweden	2,4	2,0	0,0	0,0	0,0	0,0	0,0	0,0	0,4	0,0
United Kingdom	17,2	4,6	0,0	0,0	28,2	0,8	11,1	2,2	6,3	0,0

Source: Eurostat

3.5.2 Withdrawal trends for products outside the scope of annex II

During the seven marketing years observed (1997-98 to 2003-04) the total amount of all withdrawn products outside the scope of annex II was about 118,400 tonnes, and the quantity relating to the most relevant 13 products was about 107,350 tonnes. The analysis limited to these 13 productions shows the marginal nature of the withdrawal of products outside the scope of annex II, in terms of quantities, if compared with the overall quantities of products within the scope of annex II withdrawn in the same period (accounting for some 5,120,000 tonnes).

Furthermore, the Tab. 28 below highlights the high yearly variation of withdrawn quantities of each product. During the period 1997-2003 plums accounted for the largest withdrawn quantity (about 41,000 tonnes) among the most relevant fruit products, and gourds were the most withdrawn vegetable product (about 16,300 tonnes).

Tab. 28 - Withdrawal quantities for the most relevant fruit and vegetable products outside the scope of annex II (EU-15, .000 tonnes, 97/98-03/04)

	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	Total
Plums	2.731	9.848	4.099	6.449	8.131	3.949	5.715	**40.922**
Kiwis	412	315	1.350	1.518	1.240	1.133	591	**6.559**
Cherries	1.106	270	345	117	50	76	120	**2.085**
Total fruit	4.250	10.433	5.794	8.084	9.420	5.157	6.427	**49.566**

	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	Total
Carrots	1.811	1.227	71	183	132	137	120	**3.682**
Cucumbers - Gherkins	117	1.290	688	271	184	229	94	**2.873**
Chicories - Endives	158	204	1.893	1.946	2.143	1.569	1.962	**9.876**
Beans, Runner and Frech	414	624	712	47	124	116	295	**2.331**
Gourds	1.268	9.629	3.777	821	302	436	68	**16.301**
Globe Artichokes	203	1.538	219	5	175	3	6	**2.149**
Mushrooms	0	0	121	0	1.064	1.559	631	**3.376**
Leeks	81	926	793	204	258	25	16	**2.302**
Brussel sprouts	17	65	2.794	2.885	3.854	100	100	**9.816**
Asparagus	51	245	706	1.433	1.014	846	795	**5.088**
Total vegetable	4.121	15.746	11.775	7.795	9.251	5.019	4.087	**57.793**

Source: European Commission - DG AGRI

The analysis by product of the incidence of withdrawn quantities out of all commercialised production again shows the marginal nature of the withdrawal of products outside the scope of annex II.

Tab. 29 – Share of withdrawn quantities vis-à-vis total production of the most relevant fruit and vegetable products outside the scope of annex II (EU-15, 97/98-03/04)

	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
Plums	0,45%	1,58%	0,62%	0,93%	1,10%	0,55%	0,75%
Kiwis	0,11%	0,08%	0,28%	0,30%	0,26%	0,21%	0,12%
Cherries	0,30%	0,08%	0,07%	0,02%	0,01%	0,02%	0,03%

	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
Carrots	0,06%	0,04%	0,00%	0,01%	0,00%	0,00%	0,00%
Cucumbers - Gherkins	0,01%	0,08%	0,04%	0,02%	0,01%	0,01%	0,01%
Chicories - Endives	0,01%	0,02%	0,16%	0,16%	0,19%	0,14%	0,17%
Beans, Runner and Frech	0,04%	0,06%	0,06%	0,00%	0,01%	0,01%	0,03%
Gourds	0,12%	0,88%	0,37%	0,08%	0,03%	0,04%	0,01%
Globe Artichokes	0,01%	0,13%	0,10%	0,03%	0,04%	0,00%	0,00%
Mushrooms	0,00%	0,00%	0,01%	0,00%	0,12%	0,18%	0,08%
Leeks	0,02%	0,17%	0,03%	0,00%	0,02%	0,00%	0,00%
Brussel sprouts	0,01%	0,03%	1,08%	1,18%	1,72%	0,05%	0,04%
Asparagus	0,02%	0,12%	0,34%	0,65%	0,46%	0,37%	0,35%

Source: European Commission - DG AGRI

The leading producers of the most relevant fruit and vegetables were also the leading Member States as regards withdrawals during the seven marketing years observed. Italy led the way with a 23.5% share, followed by France with a 19.4% share and Spain with a 16.5% share.

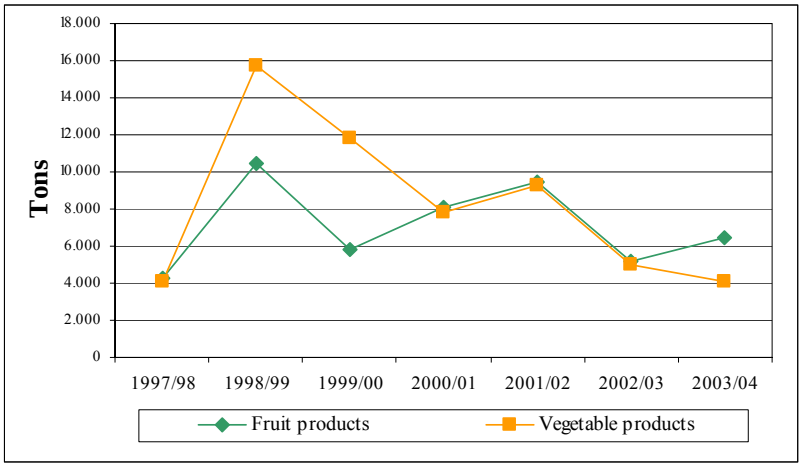
Tab. 30 - Withdrawn quantities and average share by Member State (EU-15, tonnes, %, 97/98-03/04)

Member State	Total withdrawals (tons)	Member State share (%)
Austria	2.116,8	2,0%
Belgium	6.193,8	5,8%
Germany	8.645,2	8%
Denmark	755,8	0,7%
Spain	17.714,6	16,5%
Finland	876,6	0,8%
France	20.866,6	19,4%
Greece	4.952,9	4,6%
Ireland	0,0	0,0%
Italy	25.208,2	23,5%
Luxembourg	14,5	0,0%
Netherlands	10.548,8	9,8%
Portugal	966,6	0,9%
Sweden	1.136,1	1,1%
United Kingdom	7.362,4	6,9%
Total	**107.358,8**	**100,0%**

Source: European Commission - DG AGRI

Withdrawal trends during the period 1997-2003 show that for both fruit and vegetables there was a sharp increase in the 1998-99 and 2001-02 marketing years, and then a progressive fall until the 2003-04 marketing year.

Fig. 18 - Withdrawal quantities for the most relevant products outside the scope of annex II (EU-15, tonnes, 97/98-03/04)



Source: European Commission - DG AGRI

3.5.3 Disposal of withdrawn products

Withdrawn products cannot be reintroduced to the commercial circuit, but have to be disposed of through specific destinations[31], with the priority given to free distribution, utilization for non-food purposes, animal feed and direct distillation. In cases where none of these destinations is possible, products withdrawn may be destined for composting or for biodegradation processes authorized by the Member State concerned. Nevertheless, we can observe how composting and biodegradation has been the most relevant disposal destination, as shown in the table below.

On the other hand, analysing trends for shares among various destinations, composting and biodegradation shares have fallen in recent years and, at the same time, free distribution and animal feed disposal shares have risen.

Tab. 31 - Withdrawal destinations (EU-15, %, 89/90-04/05)

	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/1996	1996/1997
Free Distribution	1,5%	1,2%	1,1%	1,9%	4,1%	n.a.	n.a.	n.a.
- Third countries	0,0%	0,0%	0,0%	0,0%	0,0%	n.a.	n.a.	n.a.
- School children	0,0%	0,0%	0,0%	0,0%	0,0%	n.a.	n.a.	n.a.
- Others	0,0%	0,0%	0,0%	0,0%	0,0%	n.a.	n.a.	n.a.
Non food purposes	16,7%	15,4%	15,1%	11,4%	8,3%	n.a.	n.a.	n.a.
Animal feed	33,6%	16,0%	2,4%	14,4%	16,3%	n.a.	n.a.	n.a.
Direct distillation	22,2%	44,3%	5,3%	10,0%	7,1%	n.a.	n.a.	n.a.
Composting/Biodegradation	25,9%	23,1%	76,1%	62,4%	64,2%	n.a.	n.a.	n.a.
Total disposed quantities (t)	807.240	1.471.222	872.910	4.367.587	2.514.386	2.367.897	1.067.176	1.775.769

	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Free Distribution	5,4%	3,0%	2,7%	4,1%	5,9%	8,1%	11,0%	8,4%
- Third countries	2,7%	0,0%	1,0%	0,6%	1,8%	1,5%	0,0%	0,0%
- School children	0,0%	0,0%	0,0%	0,0%	0,3%	0,0%	0,0%	0,0%
- Others	2,7%	3,0%	1,7%	3,5%	3,8%	6,6%	11,0%	8,4%
Non food purposes	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,1%	0,0%
Animal feed	12,4%	16,8%	8,9%	18,1%	19,3%	25,3%	23,9%	17,6%
Direct distillation	0,0%	8,7%	6,5%	6,7%	6,2%	12,1%	1,1%	8,6%
Composting/Biodegradation	82,2%	71,5%	81,8%	71,1%	68,6%	54,5%	63,9%	65,4%
Total disposed quantities (t)	1.401.108	916.249	1.660.398	1.112.654	595.832	314.494	204.078	315.818

Source: European Commission - DG AGRI

[31] For details, see the regulatory framework section of the present study.

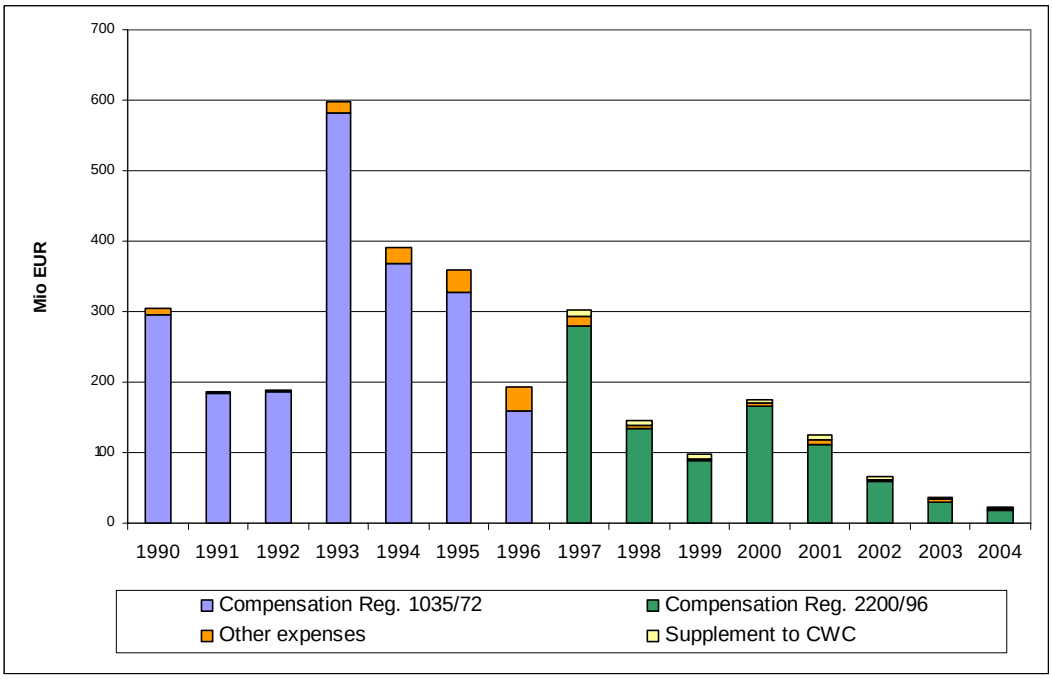
3.6 Evolution of Community expenditure before and after the 1996 CMO reform

Community expenditure for withdrawal indemnities fell significantly over the period 1990-2004, from €597 million in the financial year 1993 to only €23 million in the financial year 2004[32].

Up to 1997, expenditure was broken down into: "compensation for withdrawals and buying-in" (CWC), and "other expenses for free distribution operations." From 1997 onwards, Reg. (EC) 2200/86 has added the "supplement to CWC" paid to producers by POs and funded by Operational funds.

As the chart below shows, from 1997 to 2004, consistently, over 90% of withdrawal expenditure consisted of withdrawal indemnities, while the other two expenditure categories varied from about 10% of the total in 1999 to about 21% in 2004.

Fig. 19 - Withdrawal expenditure (EU-15, EUR, 1990-2004)



Source: European Commission - DG AGRI

The majority of withdrawal expenditure was allocated for peaches (32.3% in the first period and 21.4% in the second), followed by apples (24.1% in the 1st and 17.7% in the 2nd), oranges (12.3% in the 1st and 10.2% in the 2nd), nectarines (10.9% in the 1st and 13.0% in the 2nd), and tomatoes (7.7% in the second period). However, an analysis on this data reveals that Community expenditure varied widely by product and from year to year.

[32] Fig. 19 does not include the financial year 2005 due to lack of data on the buying-in expenses paid, which will be available only during the financial years 2006 and 2007.

Tab. 32 - Withdrawal expenditure by product under Reg. 1035/72 (EU-15, EUR, 1990-1996)

	Compensation for product							
	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**Average 90-96**
Cauliflowers	10.328.203	3.312.016	10.728.445	16.043.666	12.897.118	25.700.609	18.632.686	**4,40%**
Tomatoes	2.704.137	9.260.912	9.849.808	14.196.909	4.463.016	6.354.579	6.731.953	**2,41%**
Egg-plants	112.652	264	77.031	57.057	22.000	38.660	421.530	**0,03%**
Dessert apples	37.208.948	36.837.931	7.131.140	223.803.138	126.094.379	78.867.090	24.470.700	**24,08%**
Dessert pears	2.490.489	2.801.387	1.769.959	19.572.454	7.043.510	10.842.976	9.313.717	**2,43%**
Peaches	131.342.118	71.462.660	90.022.127	131.153.512	118.811.302	130.561.590	40.085.381	**32,15%**
Apricots	7.945.331	229.765	3.252.937	15.539.142	15.786.699	2.930.476	2.714.737	**2,18%**
Nectarines	30.269.434	22.482.115	34.484.777	65.219.848	30.642.280	34.307.173	25.154.309	**10,93%**
Oranges	48.248.917	32.045.373	25.125.771	74.804.469	40.971.881	28.498.981	22.789.422	**12,28%**
Mandarins	6.538.032	1.680.608	692.277	853.734	955.594	510.830	878.442	**0,55%**
Satsumas	4.405	6.095	0	279.256	342.078	43.728	129.148	**0,04%**
Clementines	1.187.001	256.861	551.094	6.811.696	2.755.513	5.414.734	7.185.436	**1,09%**
Lemons	17.747.155	4.793.018	2.686.621	13.997.841	5.566.770	1.148.616	942.580	**2,11%**
Table grapes	76	11.290	36.081	496.215	2.629.349	2.844.963	270.478	**0,28%**
Total compensation and buying-in of product	296.126.899	185.180.294	186.408.066	582.828.937	368.981.488	328.065.007	159.720.518	-
Other expenses	8.250.179	1.945.537	1.108.802	14.161.434	21.355.479	31.738.679	33.184.571	-
Total expenses	304.377.078	187.125.831	187.516.868	596.990.371	390.336.967	359.803.686	192.905.089	**100,00%**

Source: European Commission - DG AGRI

Tab. 33 - Withdrawal expenditure by product under Reg. 2200/96 (EU-15, EUR, 1997-2004)

	Compensation for product								
	1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**Average 97-04**
Cauliflowers	19.728.978	15.358.888	9.419.041	15.083.750	4.385.214	2.517.587	1.150.253	2.500.246	**7,24%**
Tomatoes	16.620.271	15.065.114	9.755.293	12.173.006	7.741.052	5.812.092	4.242.435	2.642.069	**7,65%**
Melons	0	657.642	861.714	919.559	675.838	817.662	575.271	506.935	**0,52%**
Water melons	0	266.163	581.094	310.663	415.538	268.891	622.005	272.687	**0,28%**
Egg-plants	325.181	216.435	15.343	644.006	112.490	105.769	94.651	84.117	**0,17%**
Dessert apples	49.047.867	38.798.860	27481812,91	20.661.080	22.385.936	7.635.526	3.007.731	2.105.034	**17,67%**
Dessert pears	19.398.594	7.866.814	6.322.094	8.401.507	5.623.317	3.266.597	2.237.747	2.007.422	**5,69%**
Peaches	103.798.007	9.764.537	5.557.347	39.792.752	28.258.108	13.387.455	4.620.137	1.960.859	**21,39%**
Apricots	4.058.452	2.605.547	1.557.042	3.663.417	2.241.349	438.626	217.151	78.670	**1,53%**
Nectarines	44.017.922	9.420.101	8.529.723	29.979.961	14.807.279	10.560.745	6.764.460	2.088.758	**13,03%**
Oranges	18.397.882	22.520.238	10.882.610	23.009.572	13.573.851	7.140.588	1.683.223	1.315.912	**10,18%**
Mandarins	492.732	254.184	93.273	554.723	84.483	188.089	1.127	1.511	**0,17%**
Satsumas	104013,92	423.090	293.568	183.887	375.926	490.468	334.155	464.477	**0,28%**
Clementines	1.040.441	8.238.798	2.747.652	9.354.978	9.625.754	4.372.910	3.621.938	2.205.149	**4,26%**
Lemons	533.458	2.038.083	3.754.664	1.298.941	615.568	987.119	746.648	222.494	**1,05%**
Table grapes	1.854.549	88.251	9.268	7.756	7.060	14.182	2.256	1.921	**0,21%**
Total compensation and buying-in of product	279.418.350	133.582.748	87.861.537	166.039.559	110.928.764	58.004.307	29.921.190	18.458.262	-
Other expenses	13.734.930	4.923.874	4.147.805	4.431.084	7.353.876	4.444.445	4.400.000	1.489.080	-
Supplemet to CWC	8.529.713	6.805.678	5.306.741	3.818.772	5.765.264	3.174.592	2.342.655	3.392.439	-
Total expenses	301.682.993	145.312.299	97.316.084	174.289.415	124.047.904	65.623.344	36.663.845	23.339.781	**100,00%**

Source: European Commission - DG AGRI

More than 90% of Community expenditure in the period 1990-2004 was destined for four Member States: Greece (36.6% in the first period and 26.4% in the second), followed by Italy (21.4% in the 1st and 19.8% in the 2nd), Spain (10.3% in the 1st and 26.0% in the 2nd), and France (20.7% in the 1st and 14.6% in the 2nd).

With reference to products, expenditure shares destined to various Member States varied greatly from year to year, although in this case it mainly varied among the four above-mentioned Member States.

Tab. 34 - Withdrawal expenditure per Member State under Reg. 1035/72 (EU-15, EUR, 1990-1996)

	Compensation for Member State							
	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**Average 90-96**
Belgium	1.254.992	540.358	569.911	14.647.875	11.341.561	3.063.063	1.432.855	**1,48%**
Denmark	0	0	0	0	0	0	0	**0,00%**
Germany	2.890.590	536.167	412.791	8.311.877	7.268.362	4.256.079	1.862.782	**1,15%**
Greece	136.889.997	98.807.188	79.815.491	163.442.478	144.754.238	150.686.795	38.535.118	**36,63%**
Spain	10.887.216	6.608.034	7.626.946	88.014.095	46.045.239	38.267.479	30.710.749	**10,28%**
France	26.528.987	8.316.678	51.685.165	143.452.647	86.662.497	86.279.072	56.947.759	**20,72%**
Ireland	178.280	128.957	163.988	142.396	86.916	176.110	47.025	**0,04%**
Italy	111.023.728	67.315.953	40.430.925	142.738.002	48.458.011	38.091.935	26.979.637	**21,41%**
Luxembourg	0	0	0	0	0	0	0	**0,00%**
Netherlands	1.994.476	709.630	4.331.912	15.421.398	18.489.860	3.380.607	746.669	**2,03%**
Austria	0	0	0	0	0	0	0	**0,00%**
Portugal	0	0	182.712	2.568.524	2.221.276	2.030.065	1.031.992	**0,36%**
Finland	0	0	0	0	0	0	0	**0,00%**
Sweden	0	0	0	0	0	0	0	**0,00%**
United Kingdom	4.478.635	2.217.328	1.188.226	4.089.645	3.653.529	1.833.801	1.425.932	**0,85%**
Total compensation and buying-in	296.126.900	185.180.294	186.408.066	582.828.937	368.981.488	328.065.007	159.720.519	-
Other expenses	8.250.180	1.945.537	1.108.802	14.161.434	21.355.479	31.738.679	33.184.571	-
Total	304.377.080	187.125.831	187.516.868	596.990.371	390.336.968	359.803.686	192.905.089	**100,00%**

Source: European Commission - DG AGRI

Tab. 35 - Withdrawal expenditure per Member State under Reg. 2200/96 (EU-15, EUR, 1997-2004)

	Compensation for Member State								
	1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**Average 97-04**
Belgium	1.252.842	878.445	1.612.839	907.983	4.332.199	135.482	369.441	478.014	**1,04%**
Denmark	0	0	0	0	0	0	0	0	**0,00%**
Germany	1.593.428	799.861	1.186.543	909.109	1.380.546	326.639	39.879	71.204	**0,66%**
Greece	110.497.617	17.998.237	9.904.005	50.574.007	28.454.975	11.908.197	13.922.513	10.658.469	**26,38%**
Spain	69.146.587	52.626.765	29.387.062	35.849.953	34.094.145	19.474.445	4.821.129	4.595.526	**25,97%**
France	37.812.644	34.965.109	21.867.143	19.109.742	15.073.435	9.363.460	1.765.686	322.225	**14,57%**
Ireland	89.793	8952,31	673,82	0	0	12676,77	0	0	**0,01%**
Italy	54.782.427	21.381.379	16.997.646	52.159.541	21.859.785	14.355.346	6.960.881	2.078.953	**19,80%**
Luxembourg	0	0	0	0	0	0	0		**0,00%**
Netherlands	1.029.856	276.168	2.598.779	1.461.436	3.187.378	142.630	395.225	37.893	**0,95%**
Austria	0	7.190	9.529	0	0	0	0		**0,00%**
Portugal	1.060.292	1.766.192	211.061	1.436.728	761.014	381.503	222.890	233.961	**0,63%**
Finland	0	0	0	0	0	0	0	0	**0,00%**
Sweden	0	0	0	0	0	0	0	0	**0,00%**
United Kingdom	2.152.866	2.677.024	2.645.789	2.391.311	693.911	817.374	226.269	455.036	**1,25%**
Total compensation and buying-in	279.418.350	133.385.323	86.421.069	164.799.809	109.837.388	56.917.754	28.723.913	18.931.282	-
Other expenses	13.734.930	4.923.874	4.147.805	4.431.084	7.353.876	4.444.445	4.400.000	1.489.080	-
Supplement to CWC	8.529.713	6.805.678	5.306.741	3.818.772	5.765.264	3.174.592	2.342.655	3.392.439	-
Total	301.682.993	145.114.875	95.875.616	173.049.665	122.956.528	64.536.791	35.466.568	23.812.801	**100,00%**

Source: European Commission - DG AGRI

4. METHODOLOGY

The evaluation methodology has been formulated on the basis of the results of the structuring phase, during which we analysed the links between the instruments of the Fruits and Vegetables CMO, as set out by Commission Regulation (EC) 659/97, and its objectives, spelled out in Council Regulation (EC) 2200/96.

The methodology applied in this report combines quantitative analysis – via modelling and other quantitative methods – with the collection and analysis of qualitative data.

Data from different sources was used. Whenever possible, we used official data. When official time series were incomplete, other statistical sources were used, and their reliability has been checked. In all cases, the lack of official data has been highlighted. In many instances, the analysis has been supplemented by the results of deep interviews with selected expert witnesses chosen from among sector "stakeholders".

1. Evaluation tools and data collection techniques

A. Secondary data

The main statistical sources used during the evaluation exercise were as follows:

- Time series provided by DG Agriculture and Rural Development:
  - quantities withdrawn by product and by country;
  - annual harvested production;
  - withdrawn quantities by month;
  - budget outlays for processing aid;
  - quantity withdrawn by destination;
  - monthly prices extracted from the AgriView data-warehouse;
  - budget line data;
  - balance of withdrawal interventions.
- Data on prices and corresponding traded quantities in the periods of interest and for the most relevant products, obtained by us from reference wholesale markets:
  - For **France**, we collected data on daily quotes and traded quantities for apples, peaches, tomatoes and cauliflowers, relative to the seasons from 2001 through 2005, for the Chateaurenard market, through the web portal of the French Ministry of Agriculture's Service de Nouvelles de Marchés, at http://www.snm.agriculture.gouv.fr.
  - For **Italy**, we obtained data on weekly price and quantities for apples, peaches, oranges, tomatoes and cauliflowers traded on the Milan market from week 1 of 2003 through week 52 of 2005, from the Statistic Office of Infomercati, the mandatory Consortium for the implementation and management of the information system of wholesale agro-food markets in Italy, as mandated by art. 2 of Law 421 of 8 August 1996.
  - For **Spain**, we obtained the data on weekly quotes and traded quantities for apples, peaches, oranges, tomatoes and cauliflowers traded in Madrid between 2003 and 2005. The data was obtained, upon request, through Mercamadrid, S.A., the company that runs Madrid's central wholesale market for fruit and vegetables, fish and meat.

- Accounting data on fruit and vegetable farms: taking into account the fact that national FADN services contain more detailed information than the FADN at the Commission level, we used, when possible, the data gathered directly from national FADN services.
  - For **oranges**, we used the EC FADN database.
  - For **apples**, we used the Italian and French FADN databases.
  - For **cauliflowers**, we used the French FADN database.
  - For **tomato**, we used for Italy the Italian FADN database and for Spain and Netherlands the EC FADN database.
- Data on cropped area, annual working units (AWU) engaged in agricultural production and on quantities produced, by country, was obtained from Eurostat.

B. Economic model

Some of the analyses relative to EQ 1, 2 and 5 are based on use of an economic model to identify the hypothetical impact of withdrawals on price levels, by simulation of market equilibria that would have been formed in the absence of withdrawals. To assess the impact of a withdrawal, indeed, we needed an estimate of the elasticity of relevant demand, which allowed us to predict what the price would have been if the withdrawn quantity had been sold instead.

For a set of the most relevant products and countries (apples, peaches, oranges, tomatoes and cauliflowers in Italy, France and Spain), demand elasticity has been estimated based on prices and corresponding traded quantities from some of the countries' reference markets from which data was available. The relevance of the selected markets has been confirmed by desk analysis and interviews with expert witnesses conducted during the case studies.

For other products and countries (tomatoes in the Netherlands) for which no primary market data could be obtained, the analysis was performed through a sensitivity analysis, based on a range of possible values of price elasticity of demand, as revealed by successful demand estimates.

C. Case studies

The methodology applied in this report emphasizes detailed analysis of case studies concerning two of the main permanent fruit crops (citrus and apples) and two of the major vegetable crops (tomatoes and cauliflowers). In total, 13 regional case studies and one national case study were conducted, as detailed below.

Member States, regions and products selected for the case studies

Citrus fruits:	Italy - Calabria
	Spain - Comunidad Valenciana
Apples:	France - Maine et Loire; Lot et Garonne; Vaucluse
	Spain - Cataluña
	Italy - Prov. Autonoma di Trento
Tomatoes:	Spain - Murcia
	Italy - Puglia
	Netherlands
Cauliflowers:	France - Bretagne
	Spain - La Rioja, Comunidad Focal de Navarra

The case studies served to inform the analysis of the impact of withdrawals on producers' income (theme 2) and on the environment (theme 3), although they also provided a host of useful complementary information for other themes of the evaluation.

The case studies' missions to the offices of national and regional administrations provided us with a host of quantitative data in order to validate and supplement officially available time series.

The methodology applied to the case studies was based on:

- desk analysis and economic analysis of official data (European Commission and other main sources such as FAO, National Statistic Services, etc.),
- deep interviews with the main sector's stakeholders (see below).

The choice of POs to interview was made on the basis of:

- specific indications arising from deep interviews with regional administrations' representatives;
- their relevance to the overall regional trade of the specific product;
- their relevance to the actual adoption of the withdrawals scheme[33].

Case studies regarding 2 of the Community's 10 new Member States were conducted at national level, mainly through the desk analysis of data gathered by the European Commission Services and by national public institutions. One in-depth mission was made to Poland.

It is worth mentioning that the 2 case studies (desk analysis on Hungary and Poland) on the 10 NEM, revealed that these countries have not made use of withdrawals during the period under observation. This was also confirmed by the in-depth mission to Poland. Therefore the analysis for the evaluation questions refers exclusively to the EU-15 level with the exception of EQ 7. In EQ7 an analysis was undertaken of the regulatory framework implemented by all of the 10 NEMs in application of art. 25 of Council Regulation (EC) 2200/96. For the Polish case study talks were held with the national authorities (Ministry of Agriculture).

D. Deep interviews

This approach – widely used in this report – provided both quantitative and qualitative information that completed available data or identified qualitative elements useful for defining the context.

The qualitative elements gathered through the deep interviews served to complete and validate the results obtained through the quantitative analysis and vice versa, to thus form a sound basis for the judgement phase.

The interviews focused on the main themes of the present evaluation and were made on the basis of detailed and pre-validated structured guidelines.

The main interviewed categories were the main actors involved in the withdrawals scheme (countries' government officials and representatives of respective regional administrations, APO and PO managers, etc.).

2. Availability of data

A problem frequently encountered during this study, particularly regarding microeconomic information, but also, more surprisingly, for certain aspects of aggregate data for some Member States and the EU as a whole, is the patchiness and limited availability of some data.

[33] For each region, and when possible, we interviewed one PO that has withdrawn large quantities in the last 3 or 5 years, and one PO that has not made use of withdrawals - or that has withdrawn small quantities.

In particular we encountered problems with regard to:

- **Prices and traded quantities at the market level**. While many wholesale markets do publish data on prices on a weekly, or even on a daily basis, obtaining data on traded amounts has proved much more difficult, because, in many cases, not all data is collected.
- **FADN data**. The gathering of data at the national FADN level caused some problems, mainly related to the delivery of the requested data and to the completeness of the data provided.
  - **Spain**: From the national Spanish FADN service it was not possible to obtain data concerning table tomatoes and cauliflowers. According to the representatives we contacted, these two specific products are always included in the broader aggregate labelled "vegetables", which did not allow us to perform the required detailed analysis at the regional level.
  - **Netherlands**: we obtained, from the EC FADN service, the data concerning table tomatoes. In this case, however, the national Dutch FADN service did not provide the data on tomato production for the period 1993-2000.
- **Quantities disposed of by various destinations.** With reference to products within the scope of Annex II, the available data presented a problem concerning the time series before 1996. For the marketing years 1993/94-1994/95-1995/96 there was no available data concerning the quantities disposed of through various destinations. Moreover, for the products outside the scope of Annex II, it was not possible to obtain data concerning withdrawn quantities by destination, with the exception of the marketing year 1997/98.
- **Free distribution in third countries.** Unfortunately there are no processed statistics regarding quantities and geographical destinations concerning the free distribution of products in third countries.

5. THEME 1: STABILITY OF THE MARKET

The first theme concerns the effectiveness of withdrawals in achieving the objective of stabilising prices by preventing excessive price reductions.

The goal of the evaluation task is to verify whether withdrawals have contributed to market stabilisation in the event of short-term production surpluses, while not acting as an incentive that might lead to the formation of structural surpluses. The comparison between the impact of the withdrawal mechanism as it existed before and after the issue of Council Regulation (EC) 2200/96 and possible interference with processing aids are subjects that are also explored.

5.1 To what extent did the withdrawals contribute to stabilise the quantities and prices of fruit and vegetable products in situations of short-term surpluses? - EQ.1

The evaluation question seeks to assess the impact of the withdrawals mechanism on quantities produced and on market prices to ascertain the extent to which the mechanism has been able to stabilise the market in the face of short-term surpluses. In addition, given that processing can be an alternative destination for fresh products in case of production surpluses, the possible interference between the withdrawal mechanism and aid to processing will be explored.

To answer the question, we assess, in turn:

- the extent to which the withdrawal mechanism has been applied (criterion 1),
- the extent to which marketed quantities have been stabilised thanks to withdrawals (criterion 2),
- the impact of withdrawals on price levels (criterion 3),
- the resulting impact on price variability (criterion 4), and
- possible interference with processing aids (criterion 5)

For oranges, lemons, peaches and pears, which may benefit from processing aids, as per Council Regulation (EC) No 2201/96 and Council Regulation (EC) 2202/96, we measured the correlation between the extent of use of both withdrawals and processing aid, by product and by country, in the period 1993/94 – 2002/03. As an index of the extent of use of withdrawals, we used the total withdrawn quantity, whereas for processing we used the quantities that have received processing aids, as recorded in EU budget data. This correlation can be used as an indicator of whether the two mechanisms have been used as complements or as substitutes, it can thus provide some evidence on whether the presence of processing aids might have interfered with the withdrawal mechanism.

5.1.1 Judgement criteria and indicators

The answer to the evaluation question has been based on the following criteria and indicators:

Judgement criteria	Indicators
1. Extent of the withdrawal mechanism.	1.1. For each product, for each year and for each Member State, ratio between withdrawn quantities and total production quantities and total production
	1.2. For each product, for each year and for each Member State, the ratio between withdrawn quantity and maximum allowed withdrawals

Judgement criteria	Indicators
2. Extent of quantity stabilisation	2.1. Ratio between a measure of the variability of the time series of produced quantity and of the same measure of variability of the time series of implicit sold quantities (i.e. produced quantity minus withdrawals)
3. Impact on price levels	3.1. For each product and for each Member state, time series of prices as recorded on the main reference markets
	3.2. For each product and for each Member State, time series of projected price, given demand elasticity and the withdrawn quantity
4. Impact on price *variability*	4.1. Ratio between an index of variability of actual prices and the same index of variability of projected prices
5 Interference with the presence of processing aids	5.1. For those products for which aids to processing exists, we measure the correlation between quantities receiving processing aids and quantities withdrawn

5.1.2 Data sources and limits

To assess the impact of withdrawals on quantities traded, the overall relevance of the phenomenon and the potential interference of aids to processing on the withdrawals mechanism, indicators 1.1, 1.2, 2.1 and 5.1. were calculated using EC data obtained from DG Agriculture and Rural Development relative to the seasons between 1989/90 and 2004/05. The data include figures for annual harvested production, withdrawn quantities by month, and budget outlays for processing aid for each of the EU-15 Member States.

We found some missing values in the DG Agriculture and Rural Development time series of harvested quantities (e.g. mandarins in Spain for 1996, tomatoes for all countries between 1989 and 1992, apricots in Greece in 1996 and 1997), which have partially been filled in by using other official sources (Eurostat).

The indicators used to answer criteria 3 and 4 were calculated based on data on monthly prices for the products subject to withdrawals, obtained from DG Agriculture and Rural Development and extracted from the AgriView data-warehouse.

To determine the values of indicators 3.2 and 4.1, we estimated price elasticities of demand on data on prices and corresponding traded quantities collected from a number of reference markets in Europe. For France, we collected data on daily quotes and traded quantities on apples, peaches, tomatoes and cauliflowers, relative to the seasons from 2001 through 2005, for the Chateaurenard market, through the web portal of the French Ministry of Agriculture's *Service de Nouvelles de Marchés*, at http://www.snm.agriculture.gouv.fr. For Italy, we obtained data on weekly price and quantities of apples, peaches, oranges, tomatoes and cauliflowers traded on the Milan market from week 1 of 2003 through week 52 of 2005, from the Statistic Office of *Infomercati*, the mandatory Consortium for the implementation and management of the information system of wholesale agro-food markets in Italy, as mandated by art. 2 of Law n. 421 of 8 August 1996. For Spain, we obtained the data on weekly quotes and traded quantities for apples, peaches, oranges, tomatoes and cauliflowers traded in Madrid between 2003 and 2005 through Mercamadrid, S.A., the company that runs Madrid's central wholesale market for fruit and vegetables, fish and meat.

Through the estimated elasticities of demand, we predicted what price would have been formed, for each product and for each Country, if the withdrawn quantity had been sold, and compared the characteristics of this series of projected prices to actual historical prices.

Care must be thus taken in interpreting the results of this Evaluation Question, which are conditional on a number of simplifying assumptions. We have assumed:

- first, that the three identified markets (Chateaurenard, Milan and Madrid) are representative of the respective countries' demand for the products under review, and in particular of those markets were the withdrawn quantity might have been sold;
- second, that the fundamental characteristics of demand have not changed in a significant way over the period considered;
- third, that all aspects other than the quantity supplied that determine the price of the product (such as seasonality, consumers' income, tastes, presence of substitutes, etc) would, on average, cancel out, and
- fourth, that the distribution over the year of withdrawn quantities is identical to that of the actually marketed quantity, so that in each month when withdrawals were recorded, withdrawals represented a percentage of marketed quantity equal to the overall annual share of withdrawals over total harvested quantity, as recorded by the official sources.

Also, the results in terms of the effects of withdrawals on prices must be interpreted as an upper limit to the possible effects on prices that might be attributed to withdrawals, given that they have been obtained by maintaining the hypothesis that no other mechanism would have been used to prevent the price from dropping in case of surpluses. As such, our results likely overestimate the quantitative effect on prices attributable to withdrawals, to the extent that other mechanisms might have been used.

Lack of sufficiently detailed quantitative data on the characteristics of buyers, on the actual distribution of marketed quantity in each market and on other mechanisms that were or could have been used in each case prevents us from obtaining more precise results.

5.1.3 Extent of the withdrawal mechanism

To assess the extent to which the withdrawal mechanism has been applied, we compiled two indicators by analysing recorded EC data on authorized withdrawals between 1989 and 2005 and compared them to the levels of total production of the products in question for all products included in Annex II of Council Regulation (EC) 2200/96 in all EU-15 Member States.

5.1.3.1 Ratio between withdrawn quantities and total production

For each of the products eligible for withdrawal compensation included in Annex II, for each year between season 1989/90 and season 2004/05, and for each EU-15 Member State, we compared the amount withdrawn and total harvested production.

Tab. 36 reports the percentage share of withdrawn quantities out of total harvested production at the EU-15 level. To facilitate interpretation of data, figures larger than 5.00% are highlighted in bold type.

Tab. 36 - Share of withdrawals out of total production (EU-15) (*)

Product	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/'00	00/01	01/02	02/03	03/04	04/05
Cauliflower and broccoli	3.52%	**6.25%**	4.80%	**9.16%**	**6.35%**	**6.30%**	**7.71%**	**5.22%**	**8.36%**	2.05%	1.48%	0.48%	0.87%	0.91%
Tomatoes	**5.01%**	**20.65%**	1.02%	0.96%	1.20%	2.46%	3.71%	2.96%	3.92%	1.95%	2.17%	1.10%	0.94%	1.28%
Melons	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.51%	0.92%	0.95%	0.68%	0.57%	0.63%	0.51%	0.30%
Water melons	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.33%	0.70%	0.42%	0.51%	0.33%	0.61%	0.40%	0.48%
Egg-plant	0.10%	0.03%	0.07%	0.08%	0.90%	0.72%	0.63%	0.24%	2.59%	0.43%	0.32%	0.29%	0.10%	0.02%
Dessert apples	0.64%	**18.27%**	**11.81%**	**7.68%**	3.02%	4.14%	**5.26%**	3.61%	2.39%	3.02%	0.94%	0.48%	0.46%	0.36%
Dessert pears	0.19%	**7.39%**	1.91%	3.56%	2.21%	**6.95%**	4.00%	2.89%	3.58%	2.75%	1.54%	1.25%	1.20%	0.99%
Peaches	**15.52%**	**24.98%**	**21.06%**	**23.22%**	**8.02%**	**16.56%**	4.02%	1.01%	**9.66%**	**7.77%**	3.38%	1.28%	0.59%	2.27%
Apricots	0.18%	3.27%	**15.54%**	**8.78%**	0.77%	3.55%	4.06%	2.65%	3.97%	2.58%	0.73%	0.22%	0.15%	0.08%
Nectarines	**12.14%**	**30.64%**	**17.64%**	**22.01%**	**8.33%**	**28.98%**	**11.68%**	4.84%	**19.66%**	**11.00%**	**7.32%**	**5.23%**	2.26%	4.75%
Oranges	3.08%	**9.99%**	**6.11%**	4.07%	3.79%	2.74%	3.22%	1.63%	3.46%	1.51%	0.87%	0.33%	0.08%	0.30%
Mandarins	0.84%	1.84%	1.77%	1.84%	2.00%	0.59%	0.60%	0.27%	0.91%	0.36%	0.21%	0.02%	0.00%	0.00%
Satsumas	0.00%	1.07%	0.83%	0.14%	0.39%	0.40%	1.17%	1.24%	0.79%	2.29%	1.80%	1.28%	0.58%	0.76%
Clementines	0.18%	4.19%	1.64%	2.30%	3.10%	0.50%	3.36%	2.26%	4.38%	3.50%	2.13%	0.73%	0.30%	0.75%
Lemons	1.01%	**5.31%**	3.45%	0.50%	0.59%	0.31%	1.20%	2.42%	0.33%	0.45%	0.33%	0.20%	0.14%	0.13%
Table grapes	0.01%	0.15%	0.77%	0.98%	0.06%	0.57%	0.05%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%

(*) Each cell gives the percentage share of withdrawn product out of harvested production for those countries/years having a positive production. Figures larger than 5% are highlighted in boldface.

Source: based on data from European Commission - DG AGRI

The data show that, in the period preceding the 1996 CMO reform, **withdrawals were a non-negligible phenomenon for many products, and especially for cauliflowers, tomatoes, apricots, apples, peaches and nectarines**. **For all of these products except nectarines, the share fell considerably following the reform of 1996**. **In the three most recent seasons for which we have data, for no product other than nectarines or peaches did withdrawals exceed 1.28% of total production**. And for those two products, nectarines and peaches, withdrawals were much less than in previous years.

There are however differences among products and countries. For **cauliflowers**, in **France** and **Italy** significant amounts were withdrawn up until the season 1999/00, with a peak of 28.09% of harvested production in France in 1994/95, and of 19.83% in Italy in 1999/00. Also remarkable were the quantities withdrawn in **Greece**, where 11.23% of production was withdrawn during the season 1991/92, and in the United Kingdom, with 11.17% of harvested production withdrawn in 1997/98. Nevertheless, in the most recent three seasons, withdrawals everywhere made up less than 5% of harvested production.

For **tomatoes**, withdrawals involved significant amounts, especially in **Spain**, most notably in 1997/98 when 9.32% of harvested production was withdrawn. Significant shares of production were withdrawn in Ireland in the seasons between 1994/95 and 1996/97, with a peak of 25.47% of harvested production in 1995/96. In the last three years withdrawals never exceeded 5% of production in all countries.

For **apricots**, withdrawals involved significant amounts in **Spain** and **Greece** during the entire period analysed, and most notably during seasons 1993/94, when 25.18% of production in Spain and 36.57% of production in Greece was withdrawn, and 1994/95, when the respective figures were 16.99% and

20.70%. In more recent years, only in 1999/00 and 2000/01 did withdrawals exceed 5% of production in Spain, France and Greece.

For **apples**, withdrawals involved significant amounts in **Greece** during the entire period analysed, and for **Ireland, France, Spain, Belgium and Netherlands** in the first years of the analysis. In Greece, the maximum share of production was withdrawn during seasons 90/91 (46.69%). Significant amounts of production were also withdrawn in France in 92/93 (35.42%), and in Ireland during the season 95/96, when 24.23% of production was withdrawn. Also for apples, in the last three years withdrawals never exceeded 5% of production in all countries.

For **nectarines**, withdrawals involved significant amounts of production in Greece, France, Italy and Spain during the entire period analysed, and most notably during seasons 96/97, when respectively 74.71% in Greece, 31.57% in France and 15.71% in Italy of production was withdrawn, and 99/00, when the respective figures were 38.75%, 21.94%, 14.90% and 20.73% in Spain. In more recent years, 02/03 withdrawals exceeded 5% of production in Spain, France and Italy. In the last year of the analysis, only in Greece was more than 5% of production withdrawn.

For **peaches**, withdrawals involved significant amounts of production in **Greece, France and Italy** up to the 2000/01 season, in particular during seasons 92/93, when respectively 61.49% in Greece, 26.49% in France and 12.48% in Italy of production was withdrawn, and 94/95, when the respective figures were 62.51%, 14.25%, and 7.61%. In more recent years, withdrawals fell below 5% of production for all countries.

For all other products included in Annex II of Council Regulation (EC) 2200/96 and not listed here, the data show that **withdrawals have generally been a negligible phenomenon.**

5.1.3.2 Ratio between withdrawn quantities and maximum allowed withdrawals

Council Regulation (EC) 2200/96 establishes that the withdrawal compensation to which members of a PO are entitled is limited to a given percentage (the so-called *ceiling*) of average production marketed by the same PO for the three previous marketing years.

Analysis of data on the actual amounts of withdrawals, under the assumption that the entire harvested production would be marketed through Producers Organizations, shows that withdrawals were well within the limits imposed, with the sole exceptions of: **nectarines**, whose withdrawals often exceeded 50% of the theoretical ceiling in all relevant Member States (Tab. 37), **clementines in France,** where withdrawals reached about 50% of the ceiling in all the years between 1997 and 2004, a phenomenon which is due to reductions in allowed quantities rather than an actual increase in quantities withdrawn, and **peaches in Greece**, where about 60% or more of the maximum allowed quantity was withdrawn in 1999, 2000 and 2004.

Tab. 37 - Nectarines: share of withdrawn quantities out of total withdrawals allowed per country

Countries	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
ES	40.21%	43.13%	39.16%	46.90%	68.19%	93.01%	62.01%	64.29%
FR	42.66%	52.80%	50.69%	53.95%	72.60%	94.82%	67.53%	50.79%
GR	96.09%	93.52%	57.53%	69.12%	103.68%	93.25%	59.67%	33.63%
IT	17.93%	18.18%	20.27%	30.59%	49.74%	66.51%	40.67%	33.68%

Each cell gives the percentage share of actually withdrawn quantities out of the maximum allowed quantities, for those countries/years having positive production and withdrawals.

Source: based on data from European Commission - DG AGRI

For **tomatoes**, this calculation would show that in all countries except Spain, where they consistently reached about 20% of the plafond, withdrawals were very limited when compared to the ceilings calculated under the assumption that POs market 100% of production.

At the EU-15 level, total quantities withdrawn never reached or exceeded the percentage defining the ceilings for allowed withdrawals. Only for nectarines did withdrawals still reach levels of about 50% of the limit (Tab. 38).

Tab. 38 - Withdrawn quantities as percentage of the allowed *plafond* (EU-15)

Products	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05
Cauliflower and broccoli	13.98%	14.67%	18.25%	18.03%	**20.96%**	13.91%	9.68%	7.87%
Tomatoes	5.14%	6.97%	9.12%	10.02%	13.74%	18.07%	14.64%	11.36%
Melons	1.97%	5.36%	8.23%	8.77%	7.64%	6.46%	5.87%	4.91%
Water melons	1.24%	3.97%	5.03%	5.64%	4.37%	5.01%	4.60%	5.09%
Egg-plant	1.54%	1.20%	2.88%	3.61%	5.59%	3.58%	2.39%	1.45%
Dessert apples	8.52%	9.92%	9.50%	10.23%	11.04%	18.60%	7.72%	5.27%
Dessert pears	9.25%	10.75%	8.98%	10.56%	13.62%	**22.64%**	16.12%	13.86%
Peaches	**21.00%**	18.64%	13.93%	**22.76%**	**35.91%**	**42.72%**	18.98%	14.84%
Apricots	5.93%	7.91%	9.40%	10.87%	13.07%	12.26%	3.86%	1.53%
Nectarines	**34.45%**	**36.23%**	**33.40%**	**42.90%**	**64.99%**	**81.95%**	**53.10%**	**43.16%**
Oranges	9.57%	8.86%	11.72%	11.54%	20.15%	9.17%	8.59%	4.88%
Mandarins	2.77%	1.69%	2.46%	2.68%	5.20%	2.03%	1.59%	0.09%
Satsumas	2.03%	3.32%	4.36%	7.24%	16.23%	18.55%	**26.27%**	19.01%
Clementines	7.42%	7.69%	14.05%	17.81%	**35.08%**	**21.15%**	**20.46%**	12.30%
Lemons	2.22%	4.66%	5.34%	5.31%	3.83%	3.41%	4.63%	3.27%
Table grapes	0.46%	0.49%	0.04%	0.01%	0.02%	0.03%	0.03%	0.04%

Each cell gives the percentage share of withdrawn quantities out of total withdrawals allowed, for those countries/years having positive production and withdrawals. Figures larger than 20% are highlighted in boldface.

Source: based on data from European Commission - DG AGRI

All this can be seen as an indicator of the fact that the ceilings, determined according to the current regulation, do not constitute a binding constraint for withdrawals.

The result, however, is likely to be affected by the fact that we calculated the plafond based on the total production of Countries rather than on the quantity traded by POs. Lacking data on actual production marketed by POs, for each product in each Country, we cannot exactly determine whether the general conclusion we draw is also warranted for those countries and products in which PO operations cover only a limited share of total production. Given that we know that there is considerable heterogeneity as to the rate of organization of POs among countries and by product, any attempt to adjust the ceilings based only on the average rate of organization (see paragraph 3.3.2.) may be misleading.

5.1.4 Extent of quantity stabilisation

5.1.4.1 Ratio between the variability of the time series of produced quantities and variability of the time series of implicit sold quantities (i.e. produced quantities minus withdrawals)

To assess the extent to which quantities have been stabilised due to withdrawals, the standard deviation[34] of the time series of harvested quantities was compared with the corresponding index of the *theoretically marketed quantity*, calculated as the difference between production and withdrawn quantity[35]. In this way, we could measure the impact on the variability of quantities traded due to

[34] The standard deviation is an index of variability which measures the average dispersion of data around its mean. The table gives ratios of standard deviations that are therefore directly comparable across products.

[35] Notice that this latter quantity may not coincide with actually marketed amounts, given that other phenomena, such as processing, might take product away from the consumption market.

withdrawals. If indeed withdrawals were effected mostly during short-term crises – i.e. at production peaks, they would reduce the overall variability of quantity marketed, if they were effected on other occasions, the opposite effect would be obtained.

Tab. 39 shows the indexes of standard deviation changes, calculated as the ratio between the standard deviation of the actually marketed quantity (that is, net of withdrawals) and that of the series of harvested quantities. Values smaller than one indicate that the presence of withdrawals caused a reduction in variability of the marketed quantity.

Tab. 39 - Index of change in *standard deviation* of quantities caused by withdrawals (*)

Product	AT	BE	DE	DK	ES	FR	GR	IR	IT	NL	PT	UK
Cauliflower and broccoli	1.015	0.998	**1.110****	1	1.012	**0.793****	**1.122****	**1.618****	1.004	1	1.001	0.978
Tomatoes	1	**0.948***	0.998	1	**0.765****	1.061	1.001	0.975	0.956*	**0.895****	1.003	1
Melons	1	1	n.a.	n.a.	**0.940****	0.991	1.000	n.a.	0.996	1	1	n.a.
Water melons	n.a.	n.a.	n.a.	n.a.	0.982	1.000	1.000	n.a.	1.006	n.a.	1	n.a.
Egg-plant	1	1	n.a.	n.a.	0.968	0.973	0.993	n.a.	1.025	1	n.a.	n.a.
Dessert apples	1	**0.902***	**0.948***	0.999	**0.792****	**0.847****	**0.677****	0.964	0.941*	**0.782****	0.986	0.916*
Dessert pears	1	0.980	1.001	1	**0.865****	**0.840****	0.973	1.000	**0.870****	0.978	0.951	1.031
Peaches	1	1	0.992	n.a.	0.989	**0.728****	**0.747****	n.a.	**0.814****	1	0.985	n.a.
Apricots	1	n.a.	1	n.a.	**0.813****	0.938	**0.694****	n.a.	0.996	n.a.	1	n.a.
Nectarines	n.a.	n.a.	n.a.	n.a.	**0.912****	0.914*	**0.830****	n.a.	0.929*	n.a.	1	n.a.
Oranges	n.a.	n.a.	n.a.	n.a.	0.977	0.961*	**1.291****	n.a.	1.009	n.a.	1	n.a.
Mandarins	n.a.	n.a.	n.a.	n.a.	1	n.a.	**0.846****	n.a.	0.907*	n.a.	1	n.a.
Satsumas	n.a.	n.a.	n.a.	n.a.	1.013	n.a.	0.998	n.a.	n.a.	n.a.	n.a.	n.a.
Clementines	n.a.	n.a.	n.a.	n.a.	0.972	**1.233****	1.004	n.a.	0.962	n.a.	1.076	n.a.
Lemons	n.a.	n.a.	n.a.	n.a.	1.031	**0.834****	0.976	n.a.	0.976	n.a.	1.013	n.a.
Table grapes	n.a.	1	n.a.	n.a.	1.003	1.009	0.969	n.a.	1	1	1	n.a.

(*) Each cell gives the ratio between the standard deviation of the 1989-2005 time series of the difference between harvested production and withdrawals and the standard deviation of the corresponding time series of harvested production. The difference from one, multiplied by a hundred, gives the percentage reduction in standard deviation, which could be ascribed to withdrawals. Values larger than one are underlined; values that imply a difference of 10% or more are marked with a double asterisk; values that imply a difference of between 5% and 10% are marked with a single asterisk.

Source: Source: based on data from Eurostat (harvested production) and from DG AGRI (withdrawals)

In most cases, withdrawals had a stabilising effect on quantities, as shown by the reduction in standard deviation. However, data also show a few instances (figures underlined in the table) where subtracting the withdrawn quantity from harvested production actually *increased* the standard deviation of the time series of marketed quantity, something that may happen when withdrawals are effected in years of average production. For **cauliflowers in Germany, Greece and Ireland**, **oranges in Greece** and **clementines in France** this led to an increase in standard deviation of more than 5%. Apart from these few cases, in general the impact was that of reducing variability, and was larger in Mediterranean countries (**France, Italy, Spain** and **Greece)** and in **the Netherlands**. In these Member States, the impact on marketed quantity stabilization was often a reduction of 10% or more in standard deviation, as can be seen for **tomatoes**, **melons**, **apples**, **pears**, **apricots** and **nectarines** in **Spain**; for **cauliflowers**, **apples**, **pears** and **peaches** in **France**; for **cauliflowers**, **apples**, **peaches**, **apricots**, **nectarine**, **oranges** and **mandarins** in **Greece**; for **pears** and **peaches** in **Italy**; and for **tomatoes** and **apples** in the **Netherlands**. The largest reductions were recorded for apples (-32%), apricots (-31%) and peaches (-25%) in Greece, which seems to be the country where withdrawals have had the greatest impact on quantity stabilization.

Product-wise, **apples**, **pears**, **peaches** and **apricots** were the products for which withdrawals seem to have had the largest stabilization effect on quantities. The fact that stabilization due to withdrawal is greater for permanent crops than for annual crops is not surprising, given that annual crops have a larger flexibility in production, which may eliminate part of the need to resort later to product withdrawals.

5.1.5 Impact on price levels

To identify the impact of withdrawals on price levels, we first analysed the time-series characteristics of prices for a subset of relevant products (apples, peaches, oranges, tomatoes and cauliflowers) in Italy, Spain, France and the Netherlands, and compared them to the values of the withdrawal share, as a percentage of harvested production.

Then, based on the weekly prices and corresponding traded quantities as recorded on the markets of Madrid (Spain), Chateaurenard (France) and Milan (Italy), from January 2002 to December 2004, we estimated the price elasticity of wholesale demand of the same products[36]. Based on estimated elasticities, we predicted the monthly prices that would have formed if withdrawals had not been effected, thus obtaining the series of what we call "projected prices", which we finally compared with the original time series of prices[37].

As specified above in paragraph 5.1.2., in addition to the data on withdrawals, provided by DG Agriculture and Rural Development, two other sources of data were used:

- AgriView datawarehouse, as provided by DG Agriculture and Rural Development
- Agrosynergie, data collected directly from various sources on prices and traded quantities on several representative markets in Europe.

5.1.5.1 Time series characteristics of prices

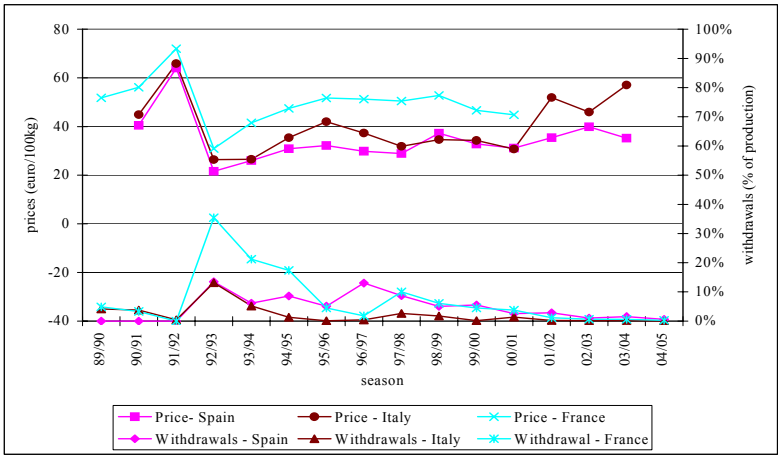
For each of the products considered, the figures below show trends for indexes of average annual prices compared with the share of withdrawals as a percentage of total production. The price indexes are averages of the recorded price (in euro/100kg), obtained by averaging the relevant monthly figures[38]. The purpose of the graphs is to highlight the correlation between withdrawal intensity and annual average prices.

Fig. 20 - Apples: prices and withdrawals

[36] The price elasticity of demand measures the average percentage reduction in purchased quantity caused by a one percent change in price.

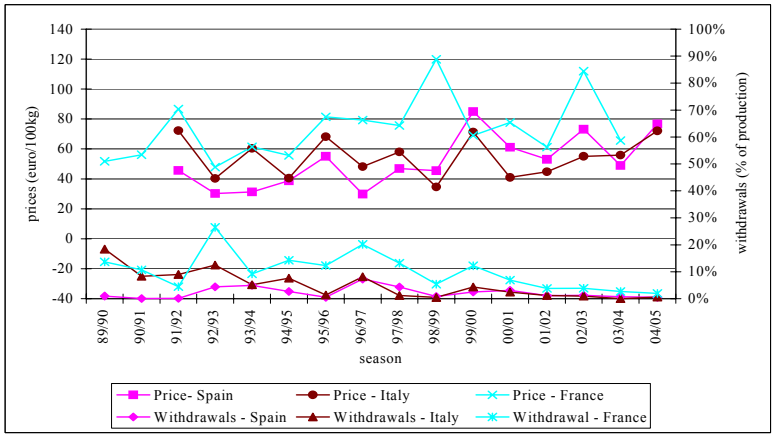
[37] The projected price is based on the assumption that, for these commodities, price responds to the quantity traded in wholesale markets. Given the demand function, an additional quantity reaching the wholesale market would cause a reduction in price whose magnitude is inversely proportional to the price elasticity of demand.

[38] The relevant periods are: for apples, from July to June; for oranges, from October to September; for tomatoes, from January to December; for peaches, from May to April; for cauliflowers, from May to April.



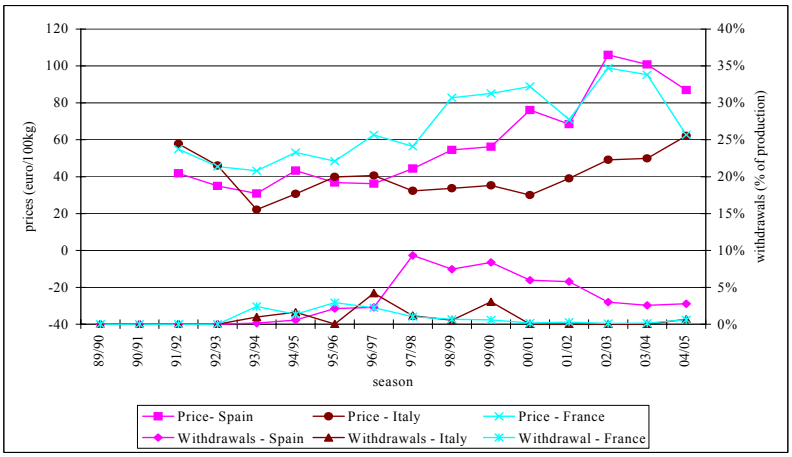
Source: based on data from AgriView, Infomercati (Italy), Mercamadrid (Spain) and Ministère de l'Agriculture de France (Service de Nouvelles de Marchés); European Commission - DG AGRI (withdrawals)

Fig. 21 - Peaches: prices and withdrawals



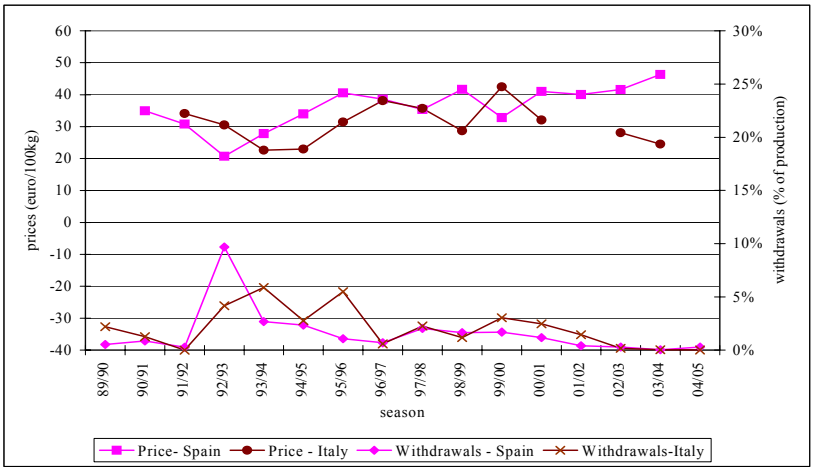
Source: based on data from AgriView, Infomercati (Italy), Mercamadrid (Spain) and Ministère de l'Agriculture de France (Service de Nouvelles de Marchés); European Commission - DG AGRI (withdrawals)

Fig. 22 - Tomatoes: prices and withdrawals



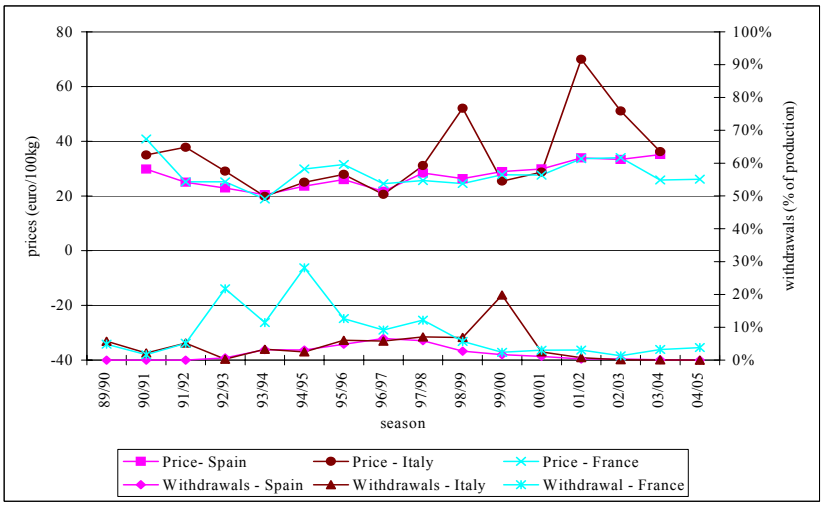
Source: based on data from AgriView, Infomercati (Italy), Mercamadrid (Spain) and Ministère de l'Agriculture de France (Service de Nouvelles de Marchés); European Commission - DG AGRI (withdrawals)

Fig. 23 - Oranges: prices and withdrawals



Source: based on data from AgriView, Infomercati (Italy), Mercamadrid (Spain) and European Commission - DG AGRI (withdrawals)

Fig. 24 - Cauliflowers: prices and withdrawals



Source: based on data from AgriView, Infomercati (Italy), Mercamadrid (Spain) and Ministère de l'Agriculture de France (Service de Nouvelles de Marchés); European Commission - DG AGRI (withdrawals)

In general, with few notable exceptions (such as peaches in France, in 1998/99 and 1999/00, when the price moved in an opposite direction compared to Italy and Spain, or cauliflowers in Italy, for which the price in Italy peaked in 1998/99 and 2001/02, unlike in Spain and France), average prices for the same product appear to be positively correlated across countries.

No clear relation can be identified, at this level of analysis, between the average annual price and withdrawals. If anything, it may be noted that, for all products the higher incidence of withdrawals occurred in seasons that also witnessed relatively low prices (compare for example the peaks in the withdrawal series to the slumps in the price series in 1992/1993 for apples, in all three countries, for peaches, in France, and for oranges in Spain) suggesting that, at least in those seasons, withdrawals were used, but did not succeed in avoiding price drops.

Rather than supporting the effectiveness of withdrawals in affecting average prices for the season, the comparison of price and withdrawal trends suggests only that withdrawals increased in seasons when prices were dropping compared to the previous one.

The relatively large, negative correlations[39] between the two series, measured for all product/country combinations except tomatoes in Spain, confirm that **a larger use of withdrawals did not result in relatively higher prices** (Tab. 40). This appears to be a result in line with the logic of the intervention, according to which withdrawals should be used not to increase prices but rather to avoid excessive price decreases.

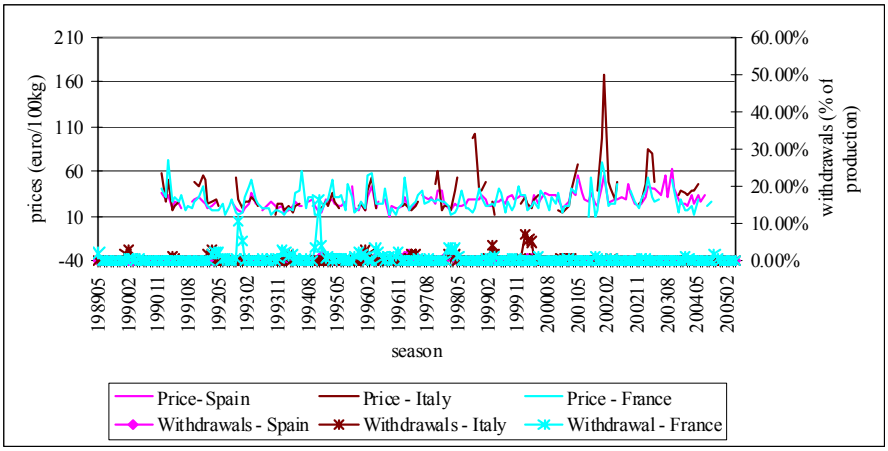
Tab. 40 - Correlation between annual average price index and incidence of withdrawals

	Spain	Italy	France
Cauliflowers	-0.53	-0.29	-0.27
Apples	-0.69	-0.51	-0.78
Peaches	-0.53	-0.13	-0.47
Tomatoes	0.20	-0.26	-0.54
Oranges	-0.77	-0.15	n.a.

Source: based on data from AgriView, Infomercati (Italy), Mercamadrid (Spain) and Ministère de l'Agriculture de France (Service de Nouvelles de Marchés)

In the previous analysis, prices and withdrawals referred to the entire marketing season. The averaging of prices across the year, however, might hide the possible effect linked to the *timing* of the withdrawal. In order to try and detect whether the occurrence of withdrawals has been associated with higher prices, we also analysed the series of prices and withdrawals recorded by month. Fig. 25 gives the example of cauliflowers.

Fig. 25 - Cauliflowers: prices and withdrawals, monthly figures



Source: based on data from AgriView, Infomercati (Italy), Mercamadrid (Spain) and Ministère de l'Agriculture de France (Service de Nouvelles de Marchés); European Commission - DG AGRI (withdrawals)

Using this analysis, it is difficult to appreciate the possible systematic impact of withdrawals on prices. For this reason we measured the existing correlation between the two series of monthly withdrawals (measured as a percentage of total production for the year) and monthly prices for each product and

[39] The correlation index measures the extent to which the trends of two series of data are linked to each other. A positive correlation indicates a positive association between the variables (increasing values in one variable correspond to increasing values in the other variable), while a negative correlation indicates a negative association between the variables (increasing values of one variable correspond to decreasing values of the other variable). The index value varies from -1 to +1. An index of one in absolute values indicates a perfect proportionality between the two series A correlation value close to 0 indicates no association between the variables. Since the formula for calculating the correlation coefficient standardizes the variables, changes in scale or units of measurement will not affect its value. For this reason, the correlation coefficient is often more useful than a graphical depiction in determining the strength of the association between two variables.

each country: $\rho(p_t, w_t)$. A negative correlation would indicate a systematic correspondence between low price and high withdrawal.

Tab. 41 - Correlations between prices and withdrawals

		Spain	Italy	France	Netherlands
Cauliflowers	$\rho(p_t, w_t)$	**-0.38**	-0.24	**-0.34**	-
	$\rho(p_t, w_{t-1})$	-0.20	-0.18	-0.16	-
	$\rho(\Delta p_t, w_t)$	-0.09	-0.03	-0.09	-
Apples	$\rho(p_t, w_t)$	**-0.38**	-0.19	**-0.35**	-
	$\rho(p_t, w_{t-1})$	**-0.35**	-0.20	**-0.33**	-
	$\rho(\Delta p_t, w_t)$	-0.12	-0.02	-0.08	-
Peaches	$\rho(p_t, w_t)$	-0.37	**-0.31**	**-0.52**	-
	$\rho(p_t, w_{t-1})$	-0.36	**-0.35**	**-0.51**	-
	$\rho(\Delta p_t, w_t)$	**0.26**	-0.17	**0.40**	-
Tomatoes	$\rho(p_t, w_t)$	-0.14	-0.16	**-0.48**	-0.24
	$\rho(p_t, w_{t-1})$	-0.14	-0.07	-0.32	-0.18
	$\rho(\Delta p_t, w_t)$	-0.19	0.11	0.05	-0.02
Oranges	$\rho(p_t, w_t)$	**-0.53**	-0.26	-	-
	$\rho(p_t, w_{t-1})$	**-0.52**	-0.16	-	-
	$\rho(\Delta p_t, w_t)$	-0.10	-0.02	-	-

Source: based on data from AgriView, Infomercati (Italy), Mercamadrid (Spain) and Ministère de l'Agriculture de France (Service de Nouvelles de Marchés); European Commission - DG AGRI (withdrawals)

To measure the extent to which price might respond to the previous month's withdrawals, we also measured the correlation between price and withdrawals lagged one period: $\rho(p_t, w_{t-1})$. Finally, to determine whether withdrawals effected in one month were able to cause an increase in price in the following month, we also measured the correlation between withdrawals in one given month and the change in price from that month to the next: $\rho(\Delta p_t, w_t)$ (Tab. 41).

The correlation between simultaneous withdrawals and price rises was negative for all combinations of products and countries we considered, with absolute values larger than 0.3 for cauliflowers and apples in Spain and France, for peaches in France and in Italy, and for oranges in Spain. This result means that **in general withdrawals are relatively more intense in those months when prices are lower, as would be expected, but also that withdrawals have been incapable of fully preventing price drops**. In other words, even when there have been large withdrawals, prices have remained relatively low.

The correlation between price and lagged withdrawals was also negative for all possible combinations, thus providing some **evidence *against* the hypothesis that withdrawals in one month could cause relatively high prices in the following month**. In fact, by measuring the correlation between withdrawals in one month and price changes from that month to the next, we find no general evidence that supports the hypothesis: only for peaches in Spain and France (but not in Italy) were high withdrawals in one month associated with price increases in the next. For all other combinations, there appears to be no significant correlation between withdrawals and subsequent price changes.

The mechanism was systematically used when prices were lower, but not up to the point of reversing the direction of price changes.

The conclusion that can be drawn from this analysis is that **withdrawals do not seem to have been capable of structurally affecting the *level* of prices in a significant way in the desired direction, i.e. completely preventing price drops from occurring.**

5.1.6 Impact on price variability

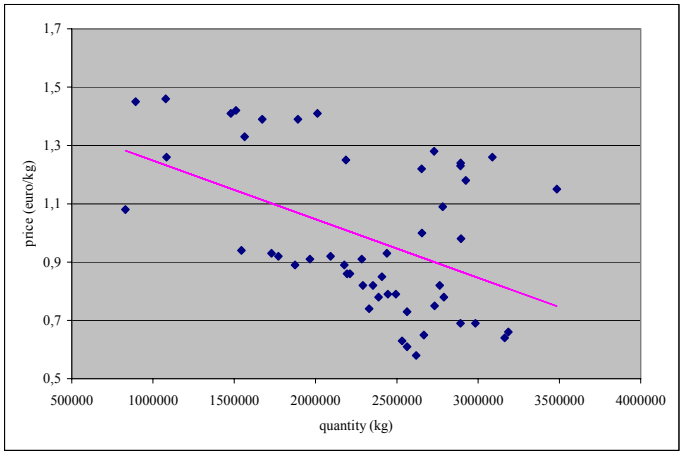
To assess *ex-post* the impact of withdrawals on the *variability* of prices, we needed an estimate of the price that would have formed, in each month in which there had been withdrawals, if the same quantity had been sold instead. To form such a prediction, a value for the elasticity of demand function was needed.

To estimate demand elasticities we obtained data on prices and corresponding traded quantities of a number of products: apples, peaches, oranges, tomatoes and cauliflowers in a number of reference wholesale markets across Europe. In particular, we obtained data for the *Chateaurenard* market in France, the Madrid market in Spain and the Milan market in Italy, where weekly figures on quantities traded and on settlement prices were available for the last two marketing seasons.

To choose the reference markets, we considered the results of interviews with experts who listed the most important markets in their countries. We then selected, among those mentioned, the ones that make data available on both prices and quantities traded. Lacking detailed quantitative information on the shares of each product traded in each market, we cannot precisely determine their representativeness.

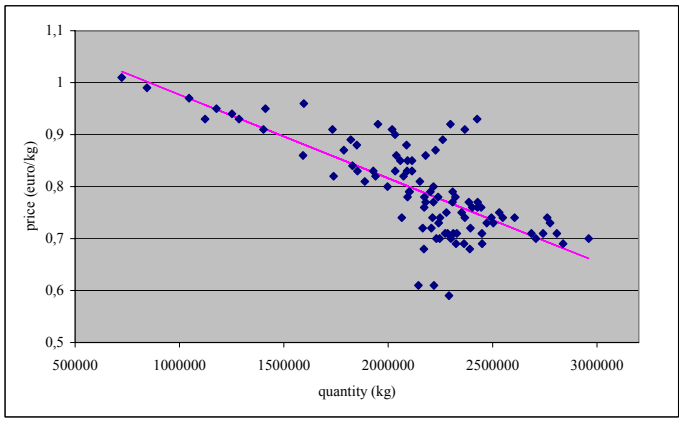
Based on these data, we estimated, for each product and market, the implied price elasticity of demand. As an example, the fitted curves for the demand for peaches in Madrid and for Oranges in Milan are shown in Fig. 26 and Fig. 27 below.

Fig. 26 - Weekly demand function for peaches in Madrid



Source: based on data from Mercamadrid S.A.

Fig. 27 - Weekly demand function for Oranges in Milan



Source: based on data from Infomercati (Milan)

The rationale behind the procedure is that, over a week, the average price is formed based on the total amount that reaches the market in that week. The hypothesis is that, in such a short term, price reacts to quantities traded, and not vice versa. In this way, observation of the pairs (price, quantity) can be effectively used to identify the underlying demand function.

Of course, nothing prevents other phenomena, linked for example to seasonal factors, availability of substitute products, etc. from affecting the demand price, but this is not of concern, given that what we aim to measure is simply the potential, average effect on price of changes in quantities traded. Of course, the impossibility of controlling these other variables might introduce some bias in the estimation of the effect of quantity on price, if correlated with the quantity. In such cases, we might be ascribing to changes in the quantity supplied an effect that is actually due to other concomitant events. We hope that, in the period we considered, all of these other events were not conditional on the quantities traded in the markets we analyzed. If that is true, the only consequence would be a reduction of the overall fit of the model (with correspondingly low values of the R^2 index.)

In processing data, we excluded observations when traded quantities were negligible, and considered only the weeks included in the main marketing seasons for each product. For each case, the elasticity is calculated at the mean of the sample, and is based on a linear approximation of demand. The estimated implied elasticities, along with some test statistics, are given in Tab. 42 below.

Tab. 42 - Implied elasticity of demand for various products and markets

Product	Markets	Sample size	Elasticity	t-stat	prob	R^2
Apples	Madrid	114	-0.254	-1.52	0.066	0.02
	Milan	114	-0.465	-2.79**	0.003	0.07
	Chateaurenard	141	-0.276	-2.61**	0.005	0.05
Peaches	Madrid	51	-0.47	-3.70**	0.000	0.22
	Milan	51	-0.251	-1.72*	0.046	0.06
	Chateaurenard	77	-0.376	-3.61**	0.000	0.09
Oranges	Madrid	102	-0.211	-14.09**	0.000	0.67
	Milan	99	**-1.265**	-10.87**	0.000	0.54
Tomatoes	Madrid	57	-0.131	-2.06*	0.022	0.07
	Milan	98	-0.11	-2.04*	0.022	0.04
	Chateaurenard	83	**-1.14**	-13.1**	0.000	0.24
Cauliflowers	Madrid	108	-0.273	-3.67**	0.000	0.11
	Milan	99	-0.204	-2.62**	0.005	0.07
	Chateaurenard	103	**-1.393**	-2.57**	0.005	0.16

Column four includes the value of the price elasticity of demand calculated at the mean sample, that is the percentage change in quantity purchased that would be caused by a one percent change in price; column five includes the value of the t-statistics calculated under the assumption that the slope parameter of the demand function were actually equal to zero; column six presents the probability that the t-statistics would have taken the value indicated in the previous column if the assumption of zero elasticity were true, and therefore it measures the probability of making a mistake by rejecting the hypothesis that the elasticity is not significantly different from zero; the last column measures the R^2 index (see explanation in the text)

Source: based on data from AgriView, Infomercati (Italy), Mercamadrid (Spain) and Ministère de l'Agriculture de France (Service de Nouvelles de Marchés)

The elasticity of demand is the key element that determines whether or not withdrawals can be profitable for producers. If demand is not very responsive to price (that is if the elasticity figure is lower than one, in absolute values), withdrawals would raise revenues, given that a higher price can be sustained by reducing the quantity sold, and this may more than compensate for the lower amount sold.

The figures for the implied elasticity of demand are all negative, as expected, and vary in the range of -0.11 through -1.4, with many values included in the range -0.1 – -0.5. Only for oranges in Milan, and for tomatoes and cauliflowers in Chateaurenard, was the elasticity larger than one, in absolute values, thus suggesting that withdrawals would not be profitable in those cases. This may be due to the fact that the data available and used to estimate elasticity do not apply to periods in which there have been

withdrawals in those particular markets (see Fig. 22, Fig. 23 and Fig. 24 above, which show that in the last two years there were very limited withdrawals for oranges in Italy and for tomatoes and cauliflower in France). Nevertheless, we have no argument to consider these data as not being representative of typical demand in those markets, and therefore we have kept the estimated values of the elasticities in the rest of the analysis.

The values of the t-statistics reported in the table are used to test the hypothesis that the quantity had no effect on price (see the footnote to the table). Other than for apples in Madrid, the values are all significant, with a 95% confidence region, and most are significant at the 99% level (denoted in the table by double asterisks). In other words, the probability that the observed coefficient might have been obtained when the actual price elasticity of demand was zero or positive is less than 0.05 and 0.01 respectively, and we can therefore deem it safe to reject the hypothesis that quantity has no effect on price.

The R^2 index can be taken as a measure of the percentage of total variability in price that can be attributed to quantity variation given the assumed linear model. Other than for Oranges, the R^2 values are generally low, indicating that quantities traded cannot fully explain the variability of prices in the samples through a linear relationship, something that does not come as a surprise, given the simplicity of the model and recognition of the fact that many other factors possibly affecting prices are excluded from the analysis[40]. The R^2 could be increased in different ways, such as for example by exploring with different functional forms the price/quantity relationship, although we deemed it not wise to follow such a procedure, which would amount at exploiting a form of data mining with no theoretically sound economic justification.

We are aware that, without checking other variables that might have contributed to determining the price, the estimated price elasticity of quantity might reflect the effect of these other variables, but lack of data prevented us from estimating more complete models, and **we must warn that the validity of these results is directly linked to the assumption that all other effects on prices, other than that of quantities traded, might, on average, cancel each other out**.

The next step in the analysis was to calculate the percentage change in prices that such values of elasticity would have implied if the withdrawn quantity had been sold instead, by calculating projected prices over the entire period under scrutiny.

Recalling the definition of the price elasticity of demand, $\eta = (\Delta q/q)/(\Delta p/p)$, and knowing the percentage change in traded quantities, $\Delta q/q$, the hypothetical percent change in price, $\Delta p/p$, can be calculated as the ratio between $\Delta q/q$ and η. Finally, the projected price can be calculated as $p\ [1 + (\Delta p/p)]$.

For each product and country for which we estimated elasticity, we applied the predicted percentage change in price to the monthly series of prices as recorded by the AgriView, thus obtaining a new series of what we term "projected" prices.

In extending the results to all other commodities and to a longer period than the one used to estimate elasticities, a note of cautions must be sounded. First, we assume that the percentage impact on prices of a unit percentage change in the traded quantity is constant over the entire period considered, something that might prove incorrect if, over the period, significant changes have occurred in the market structure, such as changes in consumer preferences, the supply of substitute products and so on.

[40] The R^2 index in a regression analysis is used to measure the percentage of variability in the dependent variable that is explained by the adopted model. It varies between zero and one, and its value can be used to form a test on the ability of the model to *completely* describe the variable being analyzed. It takes on a value of one when the model is capable of fully explaining the observed variability in the dependent variable.

Second, we only have monthly data on withdrawals effected, and do not know what the total marketed quantity was each month. We assume that, on a monthly basis, the amounts withdrawn were distributed in the same way as the amount produced, which leads to the result that if the withdrawal had not been effected, each month the traded quantity would have been larger by a percentage equal to the percentage of total production withdrawn in the year. **This may lead to an overestimate of the effects of withdrawals, especially on higher prices in the series, if, instead, withdrawals are concentrated in the months where most of the production reaches the market and prices are lower. Nevertheless, without detailed data on marketed quantity by month, any assumption on the distribution of sales across the year would be arbitrary, and we were careful to avoid making it.**

Tab. 43 below summarizes the changes to the mean and standard deviation of monthly prices for each commodity and country, both for the entire sample 1990/2004, and for the two subsamples 1990/96 and 1997/2004, that would have resulted if the withdrawn quantities had been sold instead.

Tab. 43 - Predicted effects of hypothetical absence of withdrawals on prices (percentage changes)

Product	Country	Entire sample		1990/96		1997/04	
		mean	St.dev.	mean	St.dev.	mean	St.dev.
Apples	France	*-15.72*	*+38.27*	*-24.77*	*+42.05*	*-8.9*	*+19.17*
	Italy	*-3.46*	*+4.65*	*-5.62*	*+6.12*	*-1.71*	*+1.87*
	Spain	*-25.29*	*-12.97*	*-48.32*	*-56.25*	*-13.81*	*+14.44*
Peaches	France	*-45.94*	*+8.83*	*-64.59*	*-0.73*	*-34.18*	*-0.58*
	Italy	*-12.81*	*+8.19*	*-27.74*	*-9.32*	*-4.30*	*+7.30*
	Spain	*-3.98*	*-0.32*	*-6.56*	*-2.12*	*-3.24*	*-0.66*
Oranges	Italy	*-2.68*	*+5.04*	*-4.08*	*+9.55*	*-1.09*	*-1.47*
	Spain	*-5.67*	*+9.50*	*-8.38*	*+19.66*	*-4.78*	*+3.64*
Tomatoes	France	*-1.6*	*+2.18*	*-4.34*	*+15.22*	*-1.9*	*+3.65*
	Italy	*-12.33*	*+22.17*	*-21.13*	*+52.88*	*-10.65*	*+12.29*
	Spain	*-30.66*	*-15.12*	*-24.15*	*+10.36*	*-35.45*	*-9.49*
Cauliflowers	France	*-6.41*	*-4.73*	*-9.93*	*-8.81*	*-3.14*	*-1.72*
	Italy	*-13.86*	*-5.39*	*-17.65*	*-14.53*	*-9.27*	*-3.21*
	Spain	*-7.91*	*+4.82*	*-13.37*	*-9.46*	*-5.70*	*+5.15*

Source: processed by us from data from AgriView, Infomercati (Italy), Mercamadrid (Spain) and Ministère de l'Agriculture de France (Service de Nouvelles de Marchés)

The analysis suggests that **withdrawals might have had a non-negligible effect on the time series property of monthly prices of most products, although with sizeable differences across products and countries, given the different extent to which withdrawals were effected, and the different estimated demand functions.**

Under our assumption, **withdrawals would have prevented reductions of mean prices ranging from -1.6%** (for tomatoes in France) **to about -46%** (for peaches in France, this latter a value which is mostly due to the high incidence of withdrawals in the period before the reform, which were often more than 20% of harvested production, and that may also be affected by the impossibility of correctly weighing monthly prices by the corresponding traded quantity). The case where the price level appears to have been less affected by withdrawals seems to be that of oranges, for which both in Italy and Spain the reduction in mean price would have been less than 6%.

In general, for all commodities and all countries, the effect is much stronger in the period preceding the reform of 1996, reflecting the higher incidence of withdrawals. Also, the result for the post-reform period is an average of early periods, from 1997 to 2000, when withdrawals were still significant, and later periods, from 2001 through 2004, when the incidence of withdrawals, and therefore their effect on prices, were much more limited. However, we can do no more than note this fact, given that further

dividing the time span of the analysis into subperiods would have made the time series analysis practically meaningless.

The only notable exception to the general pattern is represented by tomatoes in Spain, where the greater use of withdrawals in the post-reform period is reflected in the larger predicted impact on prices.

In terms of variability, results are heterogeneous. In the absence of withdrawals, the standard deviation of monthly prices would have been larger for apples and peaches in France and Italy (but not in Spain), for oranges and tomatoes in France and in Italy and for cauliflowers in Spain. For all other combinations, our calculation shows a potential increase in price variation due to withdrawals, which would therefore act not as a stabilizing device. Quite interestingly, in the post reform period the change in standard deviation that we would have witnessed in the absence of withdrawals is (once again, with the notable exception of tomatoes in Spain) either positive, or, when negative, of a negligible magnitude - less than five percent.

This evidence is consistent with the hypothesis that, after the reform, and apart from tomatoes in Spain, withdrawals have been used mostly to prevent temporary price falls.

5.1.7 Interference with processing aids

5.1.7.1 Correlation between processing aids and withdrawals

To measure the extent to which the presence of processing aids might have competed with product withdrawals, we started from the consideration that if competition existed between the two mechanisms this would be reflected in a **negative correlation** between any measurements of the respective intensity of use: when withdrawals are used, processing aid is not, and vice versa.

We therefore measured a simple index of linear correlation between quantities receiving processing aids and total withdrawn quantities per year, for all products eligible for processing aid, namely: **oranges**, **lemons**, **satsumas**, **peaches** and **pears** in the countries where these products were actively withdrawn between 1993/94 and 2002/2003.

The results are given in table Tab. 44 below.

Tab. 44 - Correlation between processing aids and withdrawals

	Oranges	Lemons	Satsumas	Peaches	Dessert pears
GR	-0,232	**0,831**	n.a.	**0,621**	**0,666**
ES	-0,109	0,049	**0,578**	0,122	-0,073
IT	0,070	0,000	n.a.	**0,788**	0,210
FR	n.a.	n.a.	n.a.	**0,457**	**0,424**
PT	n.a.	n.a.	n.a.	n.a.	-0,218

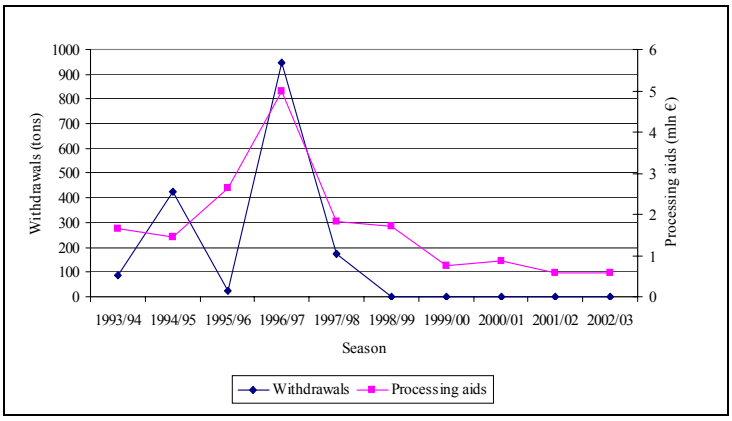
Values larger than 0.4 are highlighted in boldface.
Source: based on data from European Commission – DG AGRI

In most cases the index is positive. Only for oranges in Greece and pears in Portugal were values negative, although not very far from zero. Values larger than 0.4 (highlighted in boldface in the table) reveal that withdrawals and processing aids were positively correlated in the cases of lemons, peaches and pears in Greece, satsumas in Spain, peaches in Italy and peaches and pears in France. These values reveal that, while the possibility of obtaining processing aids for some products might well have reduced the amount of otherwise withdrawn products, they did not interfere with the correct functioning of withdrawals to the point of substituting this mechanism.

Fig. 28 below shows the most relevant of the cases, lemons in Greece, where, other than in 1995/96, the two series are clearly strongly related, due to the fact that the most significant use of withdrawals happened in the same season (1996/97) as when the largest amount of processing aids were paid. From

1998/99 on, no withdrawals were recorded, while there has still been a constant payment of processing aid. The data however do not allow us to assess the extent to which the reduction in withdrawals may be due to the presence of processing aids.

Fig. 28 - Comparison between withdrawals and processing aids – Lemons in Greece



Source: European Commission - DG AGRI

The data for other products and countries show a few instances where withdrawals could have possibly conflicted with processing. This happened for oranges in Greece and Spain and for pears in Spain and Portugal, although in all these cases the value of the correlation index is always lower than 0.3 in absolute value, too low to be considered strong evidence in favour of the hypothesis of an existing competition between the two policy instruments.

These results cannot be considered as sufficient evidence leading to the conclusion that, in practice, the presence of processing aid does conflict with the mechanism of withdrawal, and are very much in line with the conclusions of other studies (see "Evaluation of measures regarding fresh and processed peaches, nectarines and pears" and "Evaluation of measures regarding citrus fruits"[41]) where evidence led to the conclusion that the presence of processing aids might indeed have contributed to the reduction of withdrawals, although no definite evidence was found that processing aids were the only - or even the main - cause of the reduction in withdrawals. By taking into account that, after the 1996 reform, the same pattern of reduction has been observed for withdrawn amounts of products for which no processing aid existed, we tend to give more credit to the hypothesis that the incentive for withdrawals has fallen, rather than that the co-presence of processing aids is the main cause of falling withdrawal use.

5.1.8 Evaluation judgement

The analysis conducted generated interesting results on the functioning of the withdrawal scheme in the European Union fruit and vegetable sector. Through analysis of the time series of data on actually recorded withdrawals, we have highlighted how the reform of the CMO that occurred in 1996 represented a radical change in the intensity of the phenomenon, which was higher in the pre-reform period. Given that it is unlikely that other changes in the structure of the sector that could justify the different use of the withdrawal mechanism might have occurred in such a short time span, we can conclude that the reform has indeed modified the incentives of fruit and vegetable producers towards a less intense use of withdrawals in the post-reform period.

We assessed the impact of withdrawals on the level and variability of prices and quantities of the product involved. Whereas for quantities the analysis is, to a greater extent, simplified by the fact that we had data on both quantity produced and quantity withdrawn, to assess the impact of withdrawals on

[41] Agrosynergie, October 2006 (http://ec.europa.eu/agriculture/eval/index_en.htm).

prices we needed to produce a hypothetical counterfactual condition. We needed to estimate the price that would have formed if withdrawals had not been effected. We did so by relying on primary data from some of the main European wholesale markets for fruit and vegetables to measure the price elasticity of demand for the products which had been most subjected to withdrawals. Through a series of simplifying assumptions, we reconstructed the series of monthly prices that might have formed without withdrawals, and under the assumption that no other mechanisms would have been adopted by producers to limit the impact of excess production on prices. In this way we isolated the effect that could be ascribed to withdrawals alone, and that ought to be considered as an upper limit to the actual effect that withdrawals did have in practice.

The most relevant simplifying assumptions concern the stationary nature of consumer demand and seasonality. We assumed a stationary demand throughout the period considered and no seasonality which in our opinion, does not undermine the general validity of the results.

The results obtained and detailed in the pages above lead us to make the following remarks.

- **The withdrawal scheme has been a non-negligible phenomenon** for many products, especially cauliflowers, tomatoes, apricots, apples, peaches and nectarines, over the period under review. For all of these products except nectarines and tomatoes (the latter limited to Spain) the incidence has sizeably dropped following the reform of 1996. For other products (both within and outside Annex II of Council Regulation (EC) 2200/96) withdrawals have been a negligible phenomenon.
- In general, withdrawals have been effected in years of abundant production, thus likely contributing to the stabilization of the marketed quantity, this is especially so for fruits, even though the results are not uniform. There is evidence of cases when withdrawals have not been which effected during production peaks and have not contributed to stabilising the market (most notably for tomatoes in Spain in recent years; see Tab. 40 and Tab. 43 above).
- In terms of prices, **withdrawals have probably contributed to maintaining average prices above levels that they would otherwise have reached** for all products involved, although the precise quantitative measurement of such an effect is made difficult by the lack of data on the quantity traded during the period under review. Nevertheless, we may safely state that the effect was generally stronger in the pre-reform period, reflecting the higher incidence of withdrawals (See Tab. 43). The mechanism has been systematically used when prices are lower (something that was automatically ensured by the withdrawal authorisation mechanism, linked to market prices, up to 1996) but not up to the point of reversing the direction of price changes. Withdrawals do not seem to have been capable of structurally affecting the level of prices to the extent of completely preventing price drops.
- **The effects of withdrawals on price variability are more heterogeneous.** In the absence of withdrawals, the standard deviation of prices would have been greater for many products, although, especially in the pre-reform period, there is evidence of products for which withdrawals seem to have *increased* price variability. Quite interestingly, **in the post reform period the change in standard deviation is almost always of the expected sign, suggesting that the reform might have contributed to linking the withdrawals incentive to the desire to avoid price falls**, although the evidence we have is not very weighty.

The overall conclusion that can be drawn from the analysis is that withdrawals made to the extent that was common before the CMO reform of 1996 have likely had some impact on the level and variability of prices, although it is not clear that this has always served to ensure stabilization. After the reform, the extent of withdrawals, and therefore potential effects on prices, declined. Also, the apparent perverse effect of more variable prices has disappeared. Unfortunately, given the need to project estimated elasticity for a number of years in the past, no ultimate judgement on the effectiveness of the mechanism in terms of achieving price stability can be made from this analysis.

5.2 To what extent did the withdrawals lead to structural surpluses? - EQ.2

The evaluation question is based on the consideration that the presence of the withdrawal mechanism might create an incentive to increase production of the products in question.

Such an incentive originates from the expectation that the presence of withdrawals might result in one or both of the following two conditions:

- that the reduction of price risk guaranteed by the presence of withdrawals is such that it would induce farmers adverse to risk to increase the production of crops otherwise considered too risky;
- that the withdrawals mechanism is administered in such a way that it generates additional returns for withdrawn products due to the presence of an excessive level of compensation.

The possibility that, once production has been harvested, withdrawals could avoid price drops cannot be deemed a source of possible incentive to increase planned production and therefore lead to structural surpluses unless compensation granted for the withdrawn product exceeds the costs incurred in disposing of the withdrawn product, but then it should be made clear that the structural surplus is caused an excessive compensation level, not by the mere possibility of withdrawing the product.

If indeed producers could effectively manage supply to affect prices, they would do so by planning lower production (which is a better strategy than to systematically produce more and then to make use of withdrawals, which would imply higher production costs).

The presence of imperfect coordination among producers (i.e. when not all producers contribute to withdrawals proportionate to their production) might create distortions which, in the absence of publicly funded compensation, would over time lead to the partial or total failure of the withdrawal mechanism, given that withdrawing the product would no longer increase the revenue of those adopting this practice.

It is only the presence of compensation that exceeds the cost of disposing of the product that might "artificially" make withdrawals effective in increasing revenues, and therefore create an incentive to plan production above average demand.

If coordination among producers is fully operational, such compensation will be entirely capitalized by producers as rent. If coordination fails, it would at least be partly transferred to consumers through lower prices.[42] For these reasons, and to avoid possible confusion, we refer to a "price-like" (and not simply "price") incentive, as one that could come from over-high compensation levels. In the case of perfect coordination among producers, any compensation above disposal costs would result in an incentive to increase production. More likely, given the fact that POs do not control one hundred percent of production, would be compensation capable of making the use of withdrawals convenient for POs, and therefore such as to cause a supply response from producers that do not withdraw their product, and so sizeably higher than simply disposal costs, perhaps of the magnitude of market prices or production costs.

To answer the question, we collected evidence on the extent to which the two potential incentive conditions have worked in the periods in which the withdrawal mechanism has been in place for the EU-25. The possible reduction in price variability due to the presence of withdrawals has already been measured as part of answers to EQ1 (criterion 3), whereas the degree of producers' risk aversion and

[42] This might explain complaints by producers that the withdrawal mechanism is ineffective and therefore might lead to the demand for even higher compensation, a phenomenon akin to the one that plagues subsidized crop insurance in the presence of adverse selection and moral hazards, where higher subsidies have been incapable of inducing a broader participation of farmers in crop insurance programmes.

their perception of price risk associated with the specific product has been assessed through the results of interviews with expert witnesses.

Price-like incentives caused by the presence of compensation can be measured with reference to available EU budget data on the levels of compensation granted to producers who withdrew products from the market and on the actual costs associated with product disposal according to the rules.

The possible incentive towards increased production associated with withdrawals has therefore been determined, based on AgriView and FADN data, by calculating what the net compensation received by producers has been and by comparing it to average production costs[43]. The possible impact of the presence of processing aid and its relationship with the withdrawal mechanism has been already explored in answering the previous EQ.

5.2.1 Judgement criteria and indicators

To formulate the answer to this evaluation question, we have referred to the following criteria and indicators.

Judgement criteria	Indicators
1. Reduction of price risk	1.1. Effect of withdrawals on price variability
	1.2. Perception of price risk associated with the withdrawn products and degree of producers' risk aversion
2. Creation of price-like effects	2.1. Ratio between: A. Level of total compensation paid to producers B. Cost of product disposal for producers. 2.2. Difference between net compensation and average production costs.
3. Interaction with processing aids	3.1. Correlation between quantity receiving processing aids and quantity withdrawn
	3.2. Analysis of time series of the level of processing aid granted, for those products that are eligible, at the same time, for withdrawal and processing aid.
	3.3. Qualitative indicators on the competitive structure of the processing chain

5.2.2 Data sources and limits

Part of the answer to this Evaluation Question relies on indicators defined for the previous EQ.

The measurement of indicator 1.2 is based on information that has been collected through interviews conducted with experts of producers' organisations in the various regions and Member States. Indicator 2.1 has been calculated based on the levels of compensation granted to producers who decided to withdraw product from the market, as recorded by DG Agriculture and Rural Development. Indicator 2.2. has been based on FADN data.

The elements forming judgement criterion 3, indicator 3.1, are represented by data already used for the analysis to calculate indicator 5.1 in EQ1, where we used European Commission, DG Agriculture and

[43] Net compensation is taken to mean the difference between actual compensation received by producers and the costs borne for product disposal.

Rural Development data on time series for processing aids paid and withdrawn quantities, between 1997 and 2004.

We answered indicator 3.2 by combining the analysis of time series for processing aids and withdrawn quantities. In particular, we focused our analysis on the level and variability of both time series. In this case too we used European Commission, DG Agriculture and Rural Development data sources between 1997 and 2004.

5.2.3 Reduction of price risk

As we saw in the previous EQ, the effect of the presence of withdrawals on price variability has not been homogenous. For some products the standard deviation of prices fell as a consequence of withdrawals, whereas for others it increased (see EQ1 Tab. 43).

The extent to which the assessed reduction in price risk in terms of mean and standard deviation has been an incentive towards increased production, however, depends on the degree of producers' risk aversion and on their *ex-ante* perception of the price risk associated with the specific product. To address this point, we used information that was collected through interviews.

Through the interviews we tried to assess the degree of producers' risk perception by asking the interviewee to rank products according to the perceived risk related to the price, to declare the main reasons for choosing that specific product, and whether the price risk was an issue at all in deciding what to produce.

With the obvious limits of not having interviewed producers directly, the answers to these questions seem to confirm that, **although the presence of price risk is acknowledged, it is never so strong to condition production decisions, which are mainly taken with reference to the level of expected returns, and are conditioned mainly by local traditions and technical aspects of production**. Most PO representatives interviewed ranked the product of their interest among the first three in terms of price risk, although none stated that that was an important issue influencing the decision to produce that crop.

One of the reasons why price risk, although present, is not crucial in deciding whether or not to produce a given product can be related to the means that virtually all interviewees identified as the most effective in dealing with price risk, namely product and marketing channel diversification.

By coupling these results with the presumed effect of withdrawals on price variability, as explored in the previous EQ, we can conclude that **the functioning of the withdrawal mechanisms cannot be held responsible for possibly causing a supply response(and thus leading to the creation of structural surpluses) justified by risk considerations**. The producers of products eligible for withdrawals appear to be well equipped to manage production risk, in ways that do not make withdrawals a crucial mechanism. This is especially so for the period before the 1996 reform, when, if anything, the occurrence of withdrawals can be associated with *higher* price variability than might have occurred without them.

5.2.4 Creation of price-like effects

The second reason why withdrawals might lead to structural surpluses, aside from risk considerations, is linked to the possibility of a price-like incentive brought on by the presence of compensation. This incentive might derive from a positive **net compensation, i.e., the difference between total compensation received and the costs of product disposal charged to producers**[44].

[44] It should be recalled that, in theory, withdrawals could be effected even with no compensation for the withdrawn quantity, given that a zero price for the withdrawn quantity is compensated by the resulting higher price for the quantity marketed. A positive compensation, that would not be justified by extra costs

The extent to which such an effect has been in place is likely to represent the main difference in the way in which withdrawals have functioned before and after the 1996 reform of the CMO. In fact, one of the combined results of the reform was to effectively reduce the level of net compensation received by producers by reducing the amount paid per unit of product withdrawn and by increasing the share of the cost of disposing of the withdrawn products charged to producers[45].

For the four main products and the regions we have considered, the tables below give the incidence of Community Withdrawal Compensation (CWC) as a percentage of the mean price as recorded, for those products and countries, by the Agriview database.

For some of the products/country combinations, the tables also include a comparison of CWC with average, crop-specific, production costs, inclusive of wages paid, as recorded on the samples of FADN farms producing those products.[46]

The ratio of CWC to prices ranges form a minimum of 7.09% (for tomatoes in France) to a maximum of 45.71% (for oranges in Spain), and therefore is never remotely comparable in magnitude to the actual price.

Also, CWC never reaches or exceeds average crop specific costs as recorded by available data from FADN samples, representing on average over the considered period, a percentage ranging from a minimum of 7.2% (for cauliflowers in the Bretagne region of France), to a maximum of 45.1% (for oranges in the Calabria region of Italy)[47].

Tab. 45 - Cauliflowers: CWC as a percentage of mean annual price and production costs

Season	CWC	CWC as a percentage of:			
		Spain	Italy	France	
		price	price	price	cost(*)
1997/1998	9.34	32.92%	30.05%	36.44%	11.34%
1998/1999	8.88	33.70%	17.04%	36.19%	10.77%
1999/2000	8.41	29.12%	33.06%	30.32%	6.19%
2000/2001	7.94	26.57%	27.67%	28.76%	6.70%
2001/2002	7.48	22.08%	10.69%	22.25%	4.50%
2002/2003	7.01	21.00%	13.73%	20.59%	5.55%
2003/2004	7.01	19.95%	19.36%	27.11%	5.33%
Average		***26.48%***	***21.66%***	***28.81%***	***7.20%***

(*) Bretagne: the average cost considered does not include wages.

incurred for disposing of the withdrawn product, might thus create an incentive to increase production above the "normal level".

[45] Before the 1996 reform compensation was calculated with reference to the local price, as recorded in reference markets (see regulatory framework).

[46] For some of the products the FADN data did not allow identification of the specific crop, such as, for example, cauliflowers in Italy, which are included in the category of vegetables. For this reason it is not possible to isolate crop-specific costs.

[47] It should be noted that the level of average costs as recorded in the sample of FADN farms is often *higher* than the average price as recorded in the AgriView database, thus implying that producers, would have made negative profits on average, at least for these products. The result raises concerns as to the reliability of data on production costs as recorded by FADN and/or the level of average prices as recorded in the Agriview data base.

Source : AgriView DataBase – DG AGRI

Tab. 46 - Apples: CWC as a percentage of mean annual price and production costs

Season	CWC	CWC as a percentage of:					
		Spain		Italy		France	
		price	cost	price	cost	price	cost
1997/1998	10.69	36.99%	13.75%	33.57%	32.09%	21.17%	17.47%
1998/1999	10.32	27.73%	20.15%	29.84%	40.81%	19.55%	12.46%
1999/2000	9.94	30.27%	21.46%	29.00%	42.55%	21.33%	15.56%
2000/2001	9.56	30.73%	20.71%	31.11%	35.66%	21.34%	14.31%
2001/2002	9.18	25.91%	20.45%	17.68%	37.39%	--	--
2002/2003	8.81	22.07%	16.34%	19.19%	38.46%	--	--
2003/2004	8.81	25.03%	14.52%	15.44%	18.97%	--	--
Average		***28.39%***	***18.20%***	***25.12%***	***35.13%***	***20.85%***	***14.95%***

Source : AgriView DataBase, DG AGRI

Tab. 47 - Oranges: CWC as a percentage of mean annual price and of production costs

Season	CWC	CWC as a percentage of:			
		Italy		Spain	
		price	cost	price	cost
1997/1998	14.33	40.53%	37.06%	40.15%	34.77%
1998/1999	14.26	34.23%	40.08%	49.72%	27.77%
1999/2000	14.20	43.28%	54.59%	33.43%	28.29%
2000/2001	14.13	34.45%	49.61%	44.02%	34.67%
2001/2002	14.07	35.12%	36.19%	--	28.40%
2002/2003	14.00	33.64%	50.04%	49.80%	49.28%
2003/2004	14.00	30.22%	48.16%	57.14%	38.62%
Average		***35.92%***	***45.10%***	***45.71%***	***34.54%***

Source : AgriView DataBase, DG AGRI

Tab. 48 - Tomatoes: CWC as a percentage of mean annual price

Season	CWC	Spain		Italy		France	
		CWC as a percentage of:					
		price	cost	price	cost	price	cost
1997/1998	6.44	14.50%	29.76%	19.94%	61.80%	11.42%	n.a.
1998/1999	6.12	11.23%	38.60%	18.17%	n.a.	7.39%	n.a.
1999/2000	5.8	10.31%	38.59%	16.44%	33.32%	6.81%	n.a.
2000/2001	5.47	7.19%	28.78%	18.24%	n.a.	6.15%	n.a.
2001/2002	5.15	7.52%	14.73%	13.19%	51.55%	7.26%	n.a.
2002/2003	4.83	4.56%	9.80%	9.83%	52.01%	4.88%	n.a.
2003/2004	4.83	4.79%	18.13%	9.69%	16.97%	5.07%	n.a.
2004/2005	4.83	5.55%	15.21%	7.78%	18.34%	7.70%	n.a.
Average		***8.21%***	***24.20%***	***14.16%***	***39.00%***	***7.09%***	-

Source : AgriView DataBase, DG AGRI

Tab. 49 - Peaches: CWC as a percentage of mean annual price

	CWC	Spain	Italy	France
		CWC as a percentage of:		
		price	price	price
1997/1998	14.65	31.24%	25.22%	19.35%
1998/1999	13.92	30.60%	40.24%	11.61%
1999/2000	13.18	15.50%	18.48%	19.08%
2000/2001	12.45	20.37%	30.39%	16.02%
2001/2002	11.72	22.06%	26.15%	19.13%
2002/2003	10.99	15.02%	19.97%	9.81%
2003/2004	10.99	22.45%	19.64%	16.75%
2004/2005	10.99	14.33%	15.24%	--
Average		***21.45%***	***24.42%***	***15.96%***

Source : AgriView DataBase, DG AGRI

The above data makes it clear that CWC values, as set after the 1996 reform, are not comparable with average prices, or (for the products considered) even with just crop-specific production costs. Of course, as we noted, in the case of a perfectly monopolistic supply, it is sufficient that compensation exceeds disposal costs to create an incentive to increase production. If, as is the case for all products considered, POs do not control 100% of the supply, the benefits they may receive from withdrawing the product is mitigated by the fact that they would share it with those who, without withdrawing their product, would benefit from the higher price. The level of net compensation (which would be paid only to those withdrawing their products) needed to induce an incentive to increase production is therefore higher than zero when not all producers participate in the withdrawal scheme. Even if we include the possible supplement to community compensation that can be paid by POs using their own operational funds, the total compensation that PO producers might receive, does not appear to be sufficient to act as an incentive to increase overall production, especially where POs hold a share of total production that is far from 100%.

The prospect that a structural surplus might be caused by the mere presence of the withdrawals, at least the way in which they are regulated after the 1996 reform, is therefore likely to be negligible given the current condition of many fruit and vegetable products and regions. There is however the possibility, especially for those sectors where production is highly coordinated and where all producers receive it, that a positive compensation for withdrawn products, financed via public sources, might create an incentive for planning higher production.

5.2.5 Interaction with processing aids

The possible interaction between the withdrawal mechanism and the presence of processing aids has been explored in EQ 1 above.

In particular, it was noted that in most cases the correlation between withdrawals and processing aid was strong and positive, thus suggesting that there exist complementarities, rather than competition, between the two policies.

Anecdotal evidence of this can be found also from data collected through interviews for the case studies. In two of the regions considered (Calabria and Comunidad Valenciana) close coordination seems to be present between the production and processing of oranges. For example, one of the POs interviewed in Valencia, Spain, internalized processing by creating its own processing plant. All this suggests that Producers' Organizations might exploit, within a broader strategy, both processing aid and withdrawals as instruments to manage short-term surplus crises.

In Calabria, the other region covered by our case studies, most of the processing is done locally. A relatively large number of processing plants suggests that processing aid might not be captured by the

processing industry, again adding to evidence that its presence might mostly be in support of orange producers.

5.2.6 Evaluation judgement

The preceding analysis demonstrated that **none of the two possible sources of incentives towards the creation of structural surpluses, namely the risk-reducing effect of withdrawals and the price-like incentive determined by the presence of Community Withdrawal Compensation, has probably been relevant in the post reform period.**

The analysis leads us to conclude that the withdrawal mechanism, in the way it has been regulated since 1996, cannot be deemed, per se, as causing the creation of structural surpluses. However, we also note that, at least for those products and regions where production is highly coordinated, the presence of compensation for withdrawn products that exceeds the costs required to dispose of the withdrawn product might create an incentive for producers to plan for higher production.

5.3 The products withdrawn from the market should be disposed of in such a way that they do not disturb the market of fresh and processed products. To what extent was this condition met? - EQ.3

Given that all production that is not destroyed will, to a variable extent, contribute to crowd out possible purchases of either the same fresh product or of some close substitute, the destruction of the withdrawn quantity is the only form of disposal that will surely have no disturbing impact on the market for either fresh or processed products.

However the possibility that the withdrawn product that is not destroyed might actually disturb the regular functioning of the market depends on both the particular destination and the quantitative relevance of the phenomenon.

5.3.1 Judgement criteria and indicators

The following criteria and indicators have been explored to answer the evaluation question:

Judgement criteria	Indicators
1. Relevance of the phenomenon	1.1. Share of freely distributed products out of total production
2. Product destination	2.1. Shares of withdrawn products by destination
3. Distribution procedures	3.1. In a limited number of exemplary cases, actual rules and procedures set up and followed by the PO
4. Costs of disposal	4.1. Amounts of reimbursed cost by destination type
	4.2. In a few exemplary cases, comparison of actual transportation costs with flat rates set for reimbursement.

5.3.2 Data sources and limits

Indicators 1.1, 2.1 and 4.1 were calculated through use of EC budget data, as provided by DG Agriculture and Rural Development, on the distribution of withdrawals by destination. The data cover the period 1993/94 – 2002/03.

The analysis refers to two periods, 1989/90 to 1993/94, and 1997/98 to 2002/03.

Regarding criteria 3 and 4, we cannot calculate the indicators for lack of quantitative data on actual costs for product disposal.

5.3.3 Withdrawal product destinations

5.3.3.1 Shares of withdrawn products by destination

Tab. 50 gives the percentage distribution of withdrawn product by destination and by season. The figures have been calculated by adding up the quantities of all withdrawn products.

Tab. 50 - Shares of withdrawn products by destination

	1989	1990	1991	1992	1993	1997	1998	1999	2000	2001	2002	2003	2004
Free distribution	1.53%	1.24%	1.12%	1.86%	4.14%	5.40%	2.96%	2.74%	4.09%	5.86%	8.11%	11.00%	8.37%
- *given to third countries*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*2.65%*	*0.01%*	*1.01%*	*0.63%*	*1.75%*	*1.53%*	*0.00%*	*0.00%*
- *children*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*0.03%*	*0.00%*	*0.00%*	*0.00%*	*0.33%*	*0.00%*	*0.00%*	*0.00%*
- *other*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*2.72%*	*2.95%*	*1.73%*	*3.45%*	*3.78%*	*6.58%*	*10.99%*	*8.37%*
Non-food destinations	16.73%	15.37%	15.06%	11.37%	8.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.07%	0.00%
Animal feed	33.62%	16.02%	2.40%	14.36%	16.29%	12.36%	16.84%	8.92%	18.15%	19.33%	25.33%	23.94%	17.60%
Direct distillation	22.22%	44.32%	5.29%	9.98%	7.08%	0.00%	8.71%	6.52%	6.71%	6.25%	12.10%	1.05%	8.63%
Composting/biodegradation	25.90%	23.06%	76.13%	62.42%	64.20%	82.25%	71.49%	81.82%	71.06%	68.56%	54.47%	63.95%	65.39%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Source: based on European Commission – DG AGRI data

Destruction through composting or biodegradation received overall the highest shares in all seasons, from 1997/98 through 2004/05, with percentages ranging from about 55% (in 2002/03) to more than 80% (in 1997/98 and 1999/00). This is considerably higher than the average share that the same destination received in 1989/90 and 1990/91, when it represented only about 25% of all withdrawn products. In those years, direct distillation was the prevalent destination for withdrawn products. The second most relevant choice for product disposal has been animal feed, with shares ranging from 8.92% in 1999/00 to 25.33% in 2002/03.

Free distribution has never been a major destination for withdrawn products, up until 2001/02, with shares lower than 6%. In the last three seasons for which we have data, the share of this destination sizeably increased, reaching values of more than 8% in 2002/03 and 2004/05, and 11.00% in 2003/04.

The main substantial difference between the periods before and after the 1996 CMO reform relates to "non-food", which received about 15% of withdrawn products before the reform, and has virtually disappeared from official records since 1997 because, apparently, in that period it has been included in the "composting/biodegradation" destination (for more details see EQ 4).

5.3.4 Relevance of various destinations

For the period 1997/98-2003/04, we also analysed in detail the relevance of various withdrawal destinations as shares of total harvested production, by country. This relevance is minor, especially in the last season, given the overall low recourse to withdrawals.

5.3.4.1 Destruction

The products and countries where destruction has been more relevant, in percentage terms relative to harvested production, are nectarines and peaches, in Greece and France, apples in Greece and cauliflowers in France and Italy. In particular, more than 20% of the production of nectarines was destroyed in France in 1997/98 and in 1999/00, and in Greece in 1999/00; almost 24% and almost 20% of peach production was destroyed in Greece in 1999/00 and 2000/01 respectively.

In the last three seasons, however, also because of the reduced overall recourse to withdrawals, the amount of destroyed products exceeded 5% only in three cases, and has never been above 7% (See Tab. 51).

Tab. 51 - Composting/Biodegradation: most relevant cases in terms of share of total harvested production

Product	Country	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Nectarines	France	**24.06%**	12.01%	**21.29%**	**12.85%**	8.27%	6.51%	4.71%	3.53%
	Greece	6.38%	2.71%	**38.75%**	**13.06%**	9.99%	1.63%	0.00%	5.37%
Peaches	Greece	2.75%	0.61%	**23.83%**	**18.53%**	9.22%	0.88%	0.00%	6.61%
	France	**13.02%**	5.18%	**11.92%**	6.73%	3.69%	3.82%	2.62%	1.89%
Apples	Greece	**15.52%**	**11.96%**	8.74%	**13.00%**	3.30%	2.22%	1.04%	1.68%
Cauliflowers	France	**11.55%**	5.11%	1.92%	2.59%	2.53%	1.03%	2.91%	3.11%
	Italy	6.33%	5.78%	**18.29%**	1.68%	0.53%	0.06%	0.00%	0.02%
Clementines	France	9.91%	9.65%	**10.88%**	**10.01%**	4.70%	4.38%	4.38%	3.18%
	Italy	0.88%	0.00%	6.24%	5.80%	0.80%	0.00%	0.00%	0.00%
Apricots	Spain	10.42%	6.57%	3.88%	5.61%	1.31%	0.17%	0.10%	0.00%
	Greece	n.a.	n.a.	**11.87%**	3.66%	0.63%	0.02%	0.00%	0.18%
Tomatoes	Spain	9.31%	7.33%	7.90%	5.46%	4.95%	2.33%	2.12%	2.56%
Oranges	Greece	7.92%	2.84%	8.70%	0.24%	0.00%	0.05%	0.00%	0.11%

Source: based on European Commission – DG AGRI data

5.3.4.2 Animal feed

The products for which animal feed has been relevant are pears, nectarines, apples and clementines, for which there have been cases when the share exceeded 2% (see Tab. 52). In later years only the case of pears in the UK is noticeable.

Tab. 52 - Products destined for animal feed: most relevant cases in terms of share of total harvested production

Product	Country	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Pears	United Kingdom	**4.18%**	1.03%	1.62%	**2.99%**	0.64%	0.28%	**3.63%**	**3.87%**
Nectarines	Spain	0.12%	0.17%	**2.30%**	**2.01%**	**2.18%**	1.61%	1.15%	
Apples	The Netherlands	0.39%	**5.98%**	1.76%	**5.90%**	0.52%	0.34%	0.00%	1.66%
	France	**2.36%**	1.75%	0.99%	1.02%	0.21%	0.17%	0.19%	0.10%
	Belgium	1.17%	**2.89%**	0.47%	1.90%	0.03%	0.06%	0.04%	0.10%
Clementines	Spain	**2.46%**	1.52%	1.85%	**2.40%**	**2.30%**	0.76%	0.26%	0.55%

Source: based on European Commission – DG AGRI data

5.3.4.3 Free distribution

Free distribution has never formed a relevant share of total harvested production. A relatively significant share can be found only for nectarines in Italy, in the season 1997/98, when 2.33% of the harvested production was destined for free distribution, and for pears in Portugal, with a share of 1.30% of total production in 1999/00 and of 1.74% in 2004/05.

Tab. 53 - Nectarines: incidence of freely distributed withdrawn product out of total production

Product	Country	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Nectarines	Italy	**2.33%**	0.00%	0.01%	0.01%	0.01%	0.00%	0.00%	0.02%
Pears	Portugal	0.43%	0.00%	**1.30%**	0.37%	0.42%	0.37%	0.71%	**1.74%**

Source: based on European Commission – DG AGRI data

5.3.5 Evaluation judgement

Analysis of the destination of withdrawn products has demonstrated that destruction through composting or biodegradation has been the main outlet for withdrawn products in all seasons, from 1997/98 through 2004/05, with percentages ranging from about 55% (in 2002/03) to more than 80% (in 1997/98 and 1999/00).

Coupled with the fact that the incidence of withdrawals has been rather limited when compared to the overall size of the markets in question, we can conclude that, **in the post reform period, the objective of not disturbing the regular functioning of the fresh and processed products' markets has been largely achieved by the current regulation.**

5.4 The products withdrawn from the market should be disposed in a way that the destruction of the production is minimised and the alternative uses of the production are encouraged. To what extent was this objective achieved? Are the alternative uses of the products withdrawn compatible with other relevant Community policies? - EQ.4

Council Regulation 2200/96 states that "… various alternative uses to which (products withdrawn) may be put should be specified so that their destruction is avoided wherever possible"[48].

The regulatory measures regarding destinations (art. 21 Council Regulation 1035/72 and subsequently art. 30 of Council Regulation 2200/96) for products withdrawn from the market have changed since 1972 with the aim of facilitating destinations other than destruction.

- Free distribution in third countries was introduced in 1992 as the result of two simultaneous "events" that required a derogation to art. 21 of Council Regulation 1035/72[49]: on the one hand the forecasting for the marketing year 1992/93 of a particularly abundant apple harvest and on the other hand the conflict in the former Yugoslavia that demanded improved food supplies to the victims of the conflict. Following this derogation this type of destination was extended to other fruit and vegetables and to other recipients in the event of serious supply difficulties.[50]
- Reimbursement of the costs for transport, sorting and packaging of the products distributed for free was not provided for in the first CMO. The reimbursement of these costs was introduced later, with the aim of improving the conditions under which production is freely distributed. At first the reimbursement of sorting and packaging costs was introduced only for apples and citrus fruits (1990); in 1999[51] this measure was extended to all products. The reimbursement of transport costs within the national territory was introduced in 1992.
- With the 1996 reform an order of preference was clearly introduced in art. 30 of Council Regulation 2200/1996, Art. 30 establish that products withdrawn may be assigned to composting or biodegradation processes only where none of the other destinations is possible (for other possible destinations see the chapter concerning the Regulatory Framework). With this specification, the legislator intended to minimize the destruction of products by according to this possible destination the last place in the preference scale.
- With Commission regulation n°103/04 (abrogating Commission Regulation 659/97) another element was introduced to favour the recourse to "free distribution". In fact, products withdrawn from the market and disposed of by the use of free distribution as referred to in art. 30 (1)(a) and (b) of Regulation (EC) 2200/96 are considered as "marketed quantity" in the calculation of product ceilings.

The evaluation question verifies, on the one hand, whether alternative destinations for withdrawn products have been used solely to minimize the destruction of withdrawn production and, on the other, whether alternative destinations to destruction have been encouraged.

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[48] Whereas (17) of Council Regulation (EC) 2200/96 of 28 October 1996. It is important to note that this objective was also listed in the previous CMO of 1972 (Council Regulation (EC) 1035/72).

[49] Art. 21 of Council Regulation (EC) 1035/72 establish the various possible destinations for products withdrawn from the market.

[50] Council Regulation (EEC) 3196/92 of 27 October 1992.

[51] Council Regulation (EC) 857/1999 of 22 April 1999.

The analysis is based, first of all, on an analysis of trends of quantities withdrawn and disposed of through the various destinations provided for by the Community regulation, distinguishing the period before the CMO reform of 1996 from the post reform period.

In order to assess whether alternative destinations have been encouraged, we identified the pre-conditions relative to the various destinations as provided for by the Community Regulation. These have been studied in order to verify their relative influence on the attractiveness of each of the possible destinations for withdrawn production. Furthermore, the analysis was supplemented by the study of possible factors that determine the recourse to one destination rather than another.

This analysis focused on two annual crops (tomatoes and cauliflowers) and two permanent crops (citrus fruits and apples). The choices of operators concerning the means of disposal of these products were studied in main producing regions of those products in the following Member States: Italy, Spain, France and Netherlands.

The analysis focused on the period after the CMO reform of 1996. Nevertheless, to have a point of reference for the evaluation of current measures, we have made a comparison with the period before the CMO reform.

The second part of the evaluation question intended to analyse whether alternative destinations to destruction are compatible with other Community policies. This analysis focused the analysis on the compatibility of free distribution to the populations of third countries with general principles applied by the Community on the subject of "in kind" food aid (Council Regulation (EC) 1292/96 of 27 June 1996 on food-aid policy and food-aid management and special operations in support of food security). Compatibility was studied with respect to the principle underlying the Community food-aid policy: "'In kind' food aid, whether sold or distributed for free, may not be of a nature that disturbs the local market.

5.4.1 Judgement criteria and indicators

The judgement criteria and indicators used for the evaluation are as follows:

Judgement criteria	Indicators
1. The alternative destinations of products withdrawn from the market were/were not used in preferential mode in order to minimise their destruction	1.1. Volume trends per product and per destination/total volumes withdrawn before and after 1996 reform
2. Recourse to destruction of withdrawn products has decreased over time relative to other destinations	2.1. Trends of volumes destroyed per product/ total volumes withdrawn before and after 1996 reform
3. Existence of pre-conditions/factors encouraging recourse to alternative uses or which preclude recourse to destruction of the products withdrawn	3.1. Identification of pre-conditions at the Community legislation level
	3.2. Factors favouring/not favouring, in the opinion of operators, recourse to the various destinations
4. Product volumes distributed for free in non EU countries disturb (or do not disturb) the internal market of those countries	4.1. Ratio: free import /[Domestic production of the product + (Product imports – free imports)] – product exports

5.4.2 Data sources and limits

For the quantities of products withdrawn and disposed of by means of the various destinations, the data used are those communicated by each Member State to the European Commission. The available data present one problem concerning the time series before 1996. Therefore the pre-reform analysis concerns only the period 1989/90-1992/93.

With reference to factors influencing the use of the various destinations, the qualitative information was gathered through the deep interviews with sector operators.

For products outside the scope of Annex II, it has not been possible to obtain data concerning withdrawn quantities by destination, with the exception of the marketing year 1997/98.

With reference to indicator 4.1, unfortunately there are no statistics regarding quantities and geographical destinations concerning free distribution in third countries. DG Agriculture and Rural Development provided the only available data. The data concerning internal production, imports and exports of third countries were gathered through FAOSTAT.

5.4.3 Trends of volumes withdrawn by destination

Trends of volumes withdrawn and the share of each destination out of all volumes withdrawn (all products within the scope of Annex II and at EU-15 level) show that the period before the 1996 CMO reform (there is no available data on withdrawn quantities by destination for the years 1994-1996) is characterised by an increasing use of biodegradation/composting (destruction) and a clear-cut drop in the use of other destinations, with the exception of free distribution.

Tab. 54 - Trends of quantities withdrawn by destination (tonnes) and relative share in relation to the total withdrawn before the CMO reform (EU-15, %)

Destination	1989/1990	1990/1991	1991/1992	1992/1993	1993/1994	1994/1995	1995/1996	1996/1997	Overall share '89/90-'93/94
Free distribution	**12.373**	**18.187**	**9.790**	**81.451**	**104.045**	na	na	na	**2,25%**
% on tot. withdrawn	*1,5%*	*1,2%*	*1,1%*	*1,9%*	*4,1%*				
Animal feed	**271.377**	**235.675**	**20.929**	**627.259**	**409.712**	na	na	na	**15,60%**
% on tot. withdrawn	*33,6%*	*16,0%*	*2,4%*	*14,4%*	*16,3%*				
Distillation	**179.401**	**652.025**	**46.215**	**435.840**	**177.910**	na	na	na	**14,86%**
% on tot. withdrawn	*22,2%*	*44,3%*	*5,3%*	*10,0%*	*7,1%*				
Comp./biodegradation	**209.054**	**339.247**	**664.556**	**2.726.381**	**1.614.226**	na	na	na	**55,35%**
% on tot. withdrawn	*25,9%*	*23,1%*	*76,1%*	*62,4%*	*64,2%*				
Non food purposes	**135.035**	**226.088**	**131.421**	**496.657**	**208.494**	na	na	na	**11,94%**
% on tot. withdrawn	*16,7%*	*15,4%*	*15,1%*	*11,4%*	*8,3%*				
Total withdrawn	**807.240**	**1.471.222**	**872.910**	**4.367.587**	**2.514.386**	**2.367.897**	**1.067.176**	**1.775.769**	**100,0%**

Source: European Commission - DG AGRI

The table above shows that destruction (with its 55.35% overall share) was the most common destination for the disposal of products in the period 1989-1994. Furthermore, in the context of an evident increasing trend for all withdrawn quantities, the “destruction” destination also appeared to have an increasing share among possible destinations.

After the CMO reform we can observe that, in terms of destination shares of all withdrawals, composting/biodegradation is still by far the most popular of possible destinations.

Animal feed is the second most popular destination, followed by free distribution and distillation. Unlike the period before the reform, the “non food purposes” destination is no longer used.

Tab. 55 - Trends for quantities withdrawn by destination (tonnes) and relative share in relation to the total withdrawn after the CMO reform (EU-15, %)

Destination	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	Overall share '97/98-'04/05
Free distribution	**75.600**	**27.151**	**45.453**	**45.474**	**34.931**	**25.494**	**22.443**	**26.448**	
% on tot. withdrawn	*5,4%*	*3,0%*	*2,7%*	*4,1%*	*5,9%*	*8,1%*	*11,0%*	*8,4%*	***4,6%***
Animal feed	**173.125**	**154.271**	**148.090**	**201.908**	**115.182**	**79.657**	**48.849**	**55.590**	
% on tot. withdrawn	*12,4%*	*16,8%*	*8,9%*	*18,1%*	*19,3%*	*25,3%*	*23,9%*	*17,6%*	***15,0%***
Distillation	**-**	**79.814**	**108.285**	**74.662**	**37.238**	**38.042**	**2.152**	**27.264**	
% on tot. withdrawn	*0,0%*	*8,7%*	*6,5%*	*6,7%*	*6,2%*	*12,1%*	*1,1%*	*8,6%*	***5,6%***
Comp./biodegradation	**1.152.384**	**655.012**	**1.358.571**	**790.610**	**408.482**	**171.302**	**130.501**	**206.516**	
% on tot. withdrawn	*82,2%*	*71,5%*	*81,8%*	*71,1%*	*68,6%*	*54,5%*	*63,9%*	*65,4%*	***74,7%***
Non food purposes	**-**	**-**	**-**	**-**	**-**	**-**	**134**	**-**	
% on tot. withdrawn	*0,0%*	*0,0%*	*0,0%*	*0,0%*	*0,0%*	*0,0%*	*0,1%*	*0,0%*	***0,0%***
Total withdrawn	**1.401.108**	**916.249**	**1.660.398**	**1.112.654**	**595.832**	**314.494**	**204.078**	**315.818**	**100,0%**

Source: European Commission - DG AGRI

Furthermore we can observe that, in the context of an evident decrease in total withdrawn quantities, the overall share over the period 1997-2004 of composting/biodegradation increased if compared with the period before the CMO reform (from 55.4% to 74.7%). Animal feed maintained its share, but the recourse to distillation fell significantly.

5.4.3.1 Trends for withdrawn volumes by destination and by product

The analysis by product of the share of each possible destination out of all withdrawn volumes for each product shows a non-homogeneous situation if we compare the two periods: before and after the CMO reform of 1996.

The table below summarizes the overall share by product over the two periods (1989/90-191993/94 and 1997/98-2004/05) vis-à-vis the total volume withdrawn, by "destruction" destination and other possible destinations considered as a whole. The products that suffered a reverse in trend between the two periods are highlighted.

Tab. 56 - Comparison by product of the overall share over the two periods (before and after the CMO reform) of the various destinations in relation to total volume withdrawn (EU-15, %)

	Before CMO reform		After CMO reform	
	other destinations (*)	Composting Biodegradation	other destinations (*)	Composting Biodegradation
Tomatoes	**79,94**	20,06	7,20	**92,80**
Aubergines	1,09	**98,91**	14,34	**85,66**
Cauliflowers	28,39	**71,61**	13,52	**86,48**
Apricots	1,62	**98,38**	7,21	**92,79**
Nectarines	**58,01**	41,99	32,88	**67,12**
Peaches	37,32	**62,68**	11,19	**88,81**
Grapes	9,51	**90,49**	10,33	**89,67**
Lemons	20,8	**79,20**	17,18	**82,82**
Pears	**75,29**	24,71	43,21	**56,79**
Apples	**53,56**	46,44	40,76	**59,24**
Satsumas	16,03	**83,97**	**53,77**	46,23
Mandarins	**68,98**	31,02	36,27	**63,73**
Clementines	35,41	**64,59**	**53,37**	46,63
Oranges	25,05	**74,95**	28,39	**71,61**

(*) free distribution, non food purposes, animal feed, distillation

Note: Data before the reform for melons and watermelons are not available.

Source: based on data from European Commission - DG AGRI

As we can observe in the period 1989/90-1993/94 the "destruction" destination was the most common for all products, with the exception of five products (tomatoes, nectarines, pears, apples and mandarins), while after the reform this destination was the most used for all products with the exception of just two products (satsumas and clementines), which however have a marginal share of total quantities withdrawn.

Moreover, we can observe the significant drop, after the reform, of the share of "other destinations" for the following products: tomatoes, cauliflowers, nectarines, peaches and apples.

It is important to note that in the case of tomatoes, nectarines, pears, apples and mandarins the situation radically changed between the two periods, and in fact the overall share of composting/biodegradation became, after the CMO reform, greater than the overall share of all other destinations.

Tab. 57 - Tomatoes: overall share of each destination in relation to the total volume withdrawn before and after the CMO reform (EU-15)

Destination	Overall share 89/90-93/94	Overall share 97/98-04/05
Free distribution	0,23%	0,17%
Non food purposes	58,46%	0,00%
Animal feed	21,25%	7,02%
Distillation	0,00%	0,00%
Composting/biodegradation	20,06%	92,80%

Tab. 58 - Nectarines: overall share of each destination in relation to the total volume withdrawn before and after the CMO reform (EU-15)

Destination	Overall share 89/90-93/94	Overall share 97/98-04/05
Free distribution	0,22%	1,83%
Non food purposes	11,14%	0,00%
Animal feed	20,39%	4,10%
Distillation	26,26%	26,95%
Composting/biodegradation	41,99%	67,12%

Tab. 59 - Pears: overall share of each destination in relation to the total volume withdrawn before and after the CMO reform (EU-15)

Destination	Overall share 89/90-93/94	Overall share 97/98-04/05
Free distribution	0,58%	7,76%
Non food purposes	24,17%	0,00%
Animal feed	24,44%	20,80%
Distillation	26,10%	14,65%
Composting/biodegradation	24,71%	56,79%

Tab. 60 - Apples: overall share of each destination in relation to the total volume withdrawn before and after the CMO reform (EU-15)

Destination	Overall share 89/90-93/94	Overall share 97/98-04/05
Free distribution	3,18%	9,91%
Non food purposes	8,66%	0,00%
Animal feed	26,72%	26,27%
Distillation	15,01%	4,58%
Composting/biodegradation	46,44%	59,24%

Tab. 61 - Mandarins: overall share of each destination in relation to the total volume withdrawn before and after the CMO reform (EU-15)

	Overall share 89/90-93/94	Overall share 97/98-04/05
Free distribution	3,00%	26,17%
Non food purposes	65,94%	0,00%
Animal feed	0,04%	10,10%
Distillation	0,00%	0,00%
Composting/biodegradation	31,02%	63,73%

Source: based on data from European Commission - DG AGRI

In all of the above-mentioned five cases the "non food purpose" destination, which had a relatively high share before the reform, was no longer used after the CMO reform. In fact, after the reform withdrawn quantities were mainly disposed of by destruction (for tomatoes, nectarines, pears and apples). In the case of mandarins the quantities previously disposed of by "non food purposes" destinations, have been substituted, after the reform, by free distribution, animal feed and destruction destinations.

With reference to this abandonment of the "non food purpose" it is important to mention that this destination was assimilated, in the period before the reform, in some Member States (particularly in Italy), to the "destruction" destination, and therefore withdrawn quantities destroyed were classified

under the "non food" category. This assimilation was not only a question of correctly classifying quantities disposed of through the "non food" destination, but also marked a different frequency of checks established by the regulation (20% of quantities withdrawn for the "non food purposes" and 100% for destruction[52]).

On the other hand, the situation was the opposite for satsumas and clementines: in the period before the reform the overall share of the "destruction" destination was 83.97% for satsumas and 64.59% for clementines; after the reform the overall share of destruction became 46.23% and 46.63% respectively. In the case of these two products the "destruction" destination was substituted by the "animal feed" destination.

Tab. 62 - Satsumas: overall share of each destination in relation to the total volume withdrawn before and after the CMO reform (EU-15)

Destination	Overall share 89/90-93/94	Overall share 97/98-04/05
Free distribution	0,50%	0,97%
Non food purposes	0,00%	0,00%
Animal feed	15,54%	52,81%
Distillation	0,00%	0,00%
Composting/biodegradation	83,97%	46,23%

Tab. 63 - Clementines: overall share of each destination in relation to the total volume withdrawn before and after the CMO reform (EU-15)

Destination	Overall share 89/90-93/94	Overall share 97/98-04/05
Free distribution	0,33%	1,33%
Non food purposes	1,66%	0,00%
Animal feed	33,42%	52,04%
Distillation	0,00%	0,00%
Composting/biodegradation	64,59%	46,63%

Source: based on data from European Commission - DG AGRI

The choices concerning the means of disposal of other products are not such as to reverse the proportion between the two categories of destination. In fact for aubergines, cauliflowers, apricots, peaches, grapes, lemons and oranges "destruction" was, and still is, the most popular destination for the disposal of withdrawn quantities.

In global terms, the analysis for all products within the scope of Annex II and at EU-15 level shows that:

- the "destruction" destination was before the reform (55.35%) and is after the reform (74.7%) the most popular destination for withdrawn products;
- before the reform, "destruction" was the most popular destination with the exception of five products (tomatoes, nectarines, pears, apples and mandarins), as well as after the reform with the exception of two products (satsumas and clementines);
- even if free distribution, as established by the regulation, should preferably be used, actually only a marginal use is made of this destination: in the period before the reform (1989-1994) the overall share of free distribution of all withdrawn products was only 2.25% and after the reform the overall share of free distribution was only 4.6%. However, it is worth mentioning that in the last three seasons for which we have data, the share of this destination has sizeably increased, reaching values of more than 8% in 2002/03 and 11% in 2003/04;
- after the reform the "non food purposes" destination was no longer used (before the reform its overall share was 11.94% of all withdrawn products).

[52] Checked quantities of each destination have changed with the coming into force of Commission Regulation 103/2004. At present checks must be made on 100% of quantities withdrawn with the exception of quantities disposed of by free distribution (10%).

5.4.3.2 Trends for volumes withdrawn by destination and by Member State

The analysis by Member State confirms the previous analysis by destination and by product. Member States can be grouped together as follows in terms of most popular destinations after the reform.

Member States not withdrawing at all	Austria[53], Denmark, Finland, Ireland (after the CMO reform), Luxembourg, Sweden, NME[54]
Member States withdrawing and disposing of products mainly through composting/biodegradation	Spain, France, Greece, Italy, Portugal, United Kingdom, Germany
Member States withdrawing and disposing of products mainly through other possible destinations	Belgium, Netherlands

If we consider the EU-15 (the ten New Member States have not yet used the withdrawal mechanism), only in two Member States (Belgium and Netherlands) is recourse to the "destruction" destination not predominant.

Fig. 29 - Spain: share of the various destinations in relation to all withdrawn products before and after the CMO reform (%)

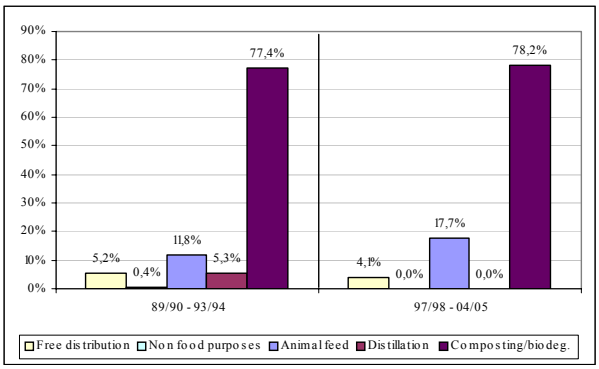


Fig. 30 - France: share of the various destinations in relation to all withdrawn products before and after the CMO reform (%)

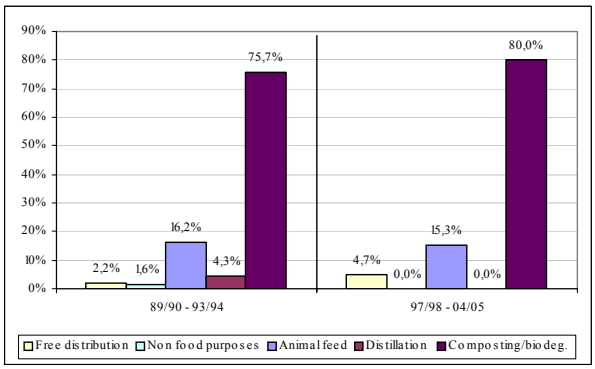


Fig. 31 - Italy: share of the various destinations in relation to all withdrawn products before and after the CMO reform (%)

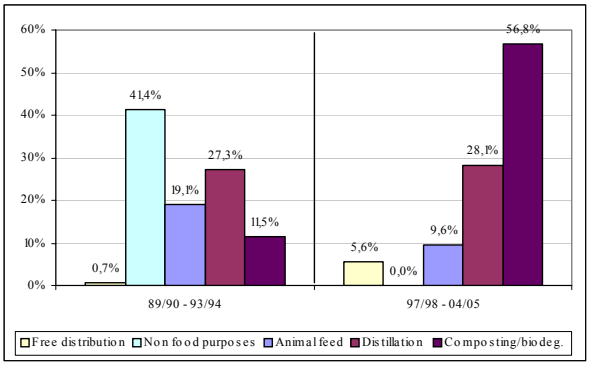
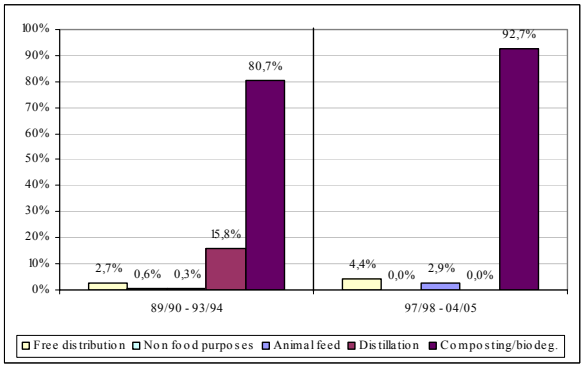


Fig. 32 - Greece: share of the various in relation to all withdrawn products before and after the CMO reform (%)



53 Austria withdrew 80.09 tonnes in the 1998/1990 season and 113.71 tonnes in 1999/2000. Since then Austria has made no withdrawals.

54 The New Member States have not yet resorted to withdrawals.

Fig. 33 - Portugal: share of the various destinations in relation to all withdrawn products before and after the CMO reform (%)

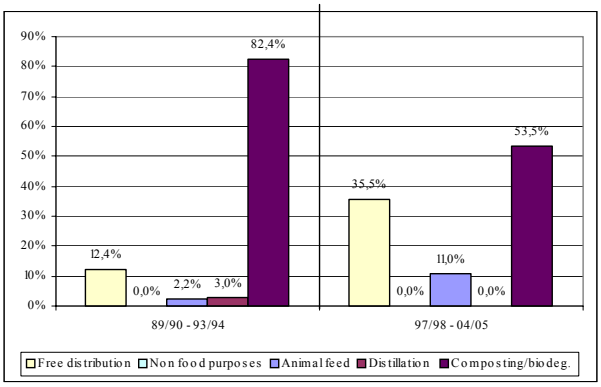
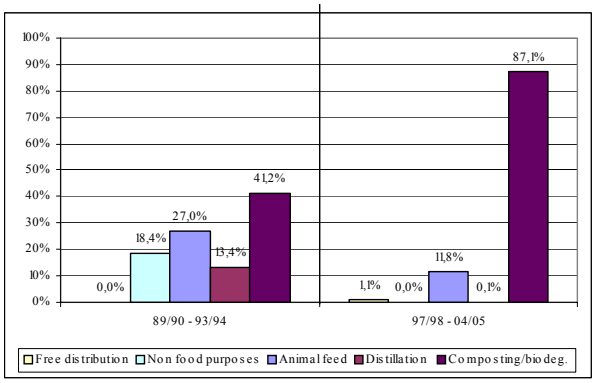
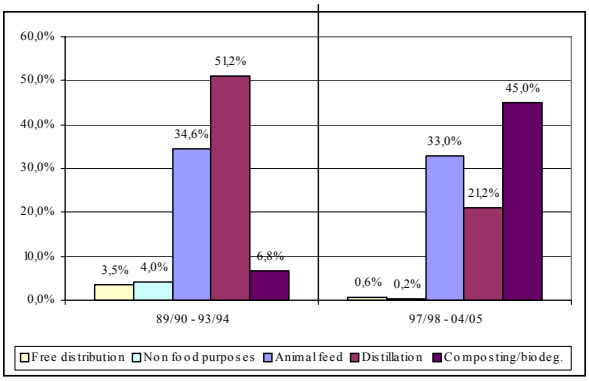


Fig. 34 - United Kingdom: share of the various destinations in relation to all withdrawn products before and after the CMO reform (%)



Source: based on data from European Commission - DG AGRI

Fig. 35 - Germany: share of the various destinations in relation to all withdrawn products before and after the CMO reform (%)



Source: based on data from European Commission - DG AGRI

In the case of this group of Member States, the "destruction" destination has been prevalent since 1996. However, comparing the two periods, one can observe that trends among Member States in the group are varied:

- in Spain, France and Greece the "destruction" destination, before and after the CMO reform, is prevalent over other destinations, and the disposal of withdrawn products by destruction has increased after the reform. Furthermore the "distillation" destination is no longer used after the reform. In Greece this destination made up, in 1989/90-1993/94, 15.8% of the total withdrawn, in Spain 5.3% and in France 4.3%;
- with reference to the United Kingdom, the "destruction" destination was the most popular before the reform, and its use has risen considerably after the reform. In fact, the United Kingdom posted a considerable increase in the use of the "destruction" destination (from 41.2% before the reform to 87.1% after the reform);
- with reference to Portugal, even if "destruction" was until the marketing year 2004/2005 the most popular destination, we can observe a significant decrease in the overall share of all withdrawn products for this destination (from 82.4% before the reform to 53.5% after the reform) and an increase of the share of the "free distribution" destination (from 12.4% to 35.5%).

According to national authorities, this trend is the result of a growth in awareness caused by the 1996 reform. The Ministry of Agriculture stated that, after 1996, there has been crucial joint work between INGA[55] (Portuguese payment agency), POs and the Portuguese Food Bank[56], intended to transfer the withdrawn products to the latter institution. The result is that, according to the national authorities, all withdrawn products are, at the present time, destined completely to the Portuguese Food Bank.

- Compared with the other five Member States, where destruction was the most popular destination before the CMO reform, in Italy and in Germany it has become so only after the reform. In fact, before 1996, destruction was the fourth most popular destination in Italy (11.5% of the total withdrawn in the period 1989/90-1993/94) and the third most popular in Germany (6.8%).

  In Italy, before the reform, the most popular destination was the "non food purposes" destination (41.4%) and in Germany preference was given to the "distillation" destination.

  With reference to Italy, as we have mentioned before, destroyed quantities were classified, until the year 2000, as "non food purposes"[57],

With regard to Member States withdrawing and disposing of products mainly through destinations other than "destruction", it is worth mentioning that the most popular destination in **Belgium** and **Netherlands** is the "animal feed" destination.

Fig. 36 - Belgium: share of the various destinations in relation to all withdrawn products before and after the CMO reform (%)

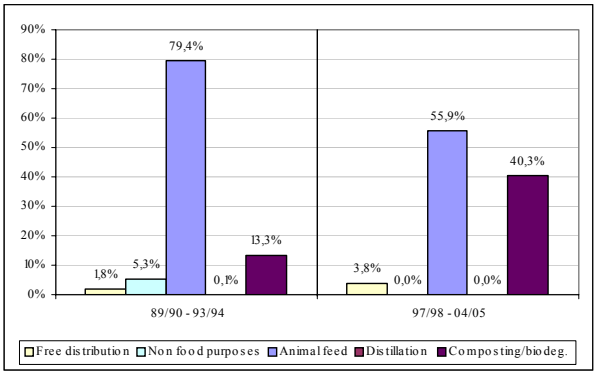
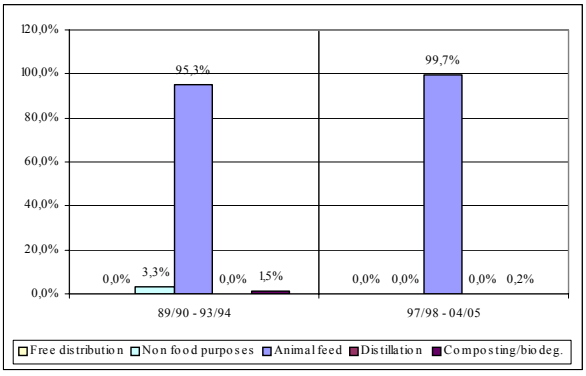


Fig. 37 - Netherlands: share of the various destinations in relation to all withdrawn products before and after the CMO reform (%)



Source: based on data from European Commission - DG AGRI

However in the case of Belgium we can observe an increasing recourse to the "destruction" destination after the reform.

5.4.4 Trends for volumes disposed of by the "destruction" destination

As we have seen before, the destruction destination has always been the most popular among all possible destinations. The overall shares of this destination out of all quantities withdrawn over the two periods (before the reform 55.4% and after the reform 74.36%) are eloquent, and show an increasing use made of this method.

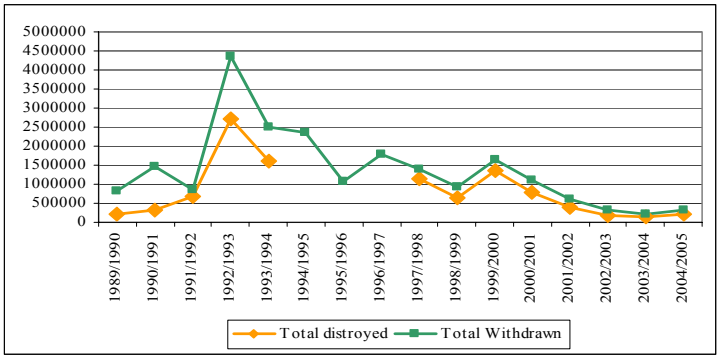
As the graphic below shows, the quantities disposed of through destruction are, after the reform, strongly correlated to all withdrawn quantities. The situation was slightly different in the marketing

[55] Instituto de Intervenção e Garantia Agrícola.
[56] Banco Alimentar Contra a Fome.
[57] The European Commission has contested this interpretation, and the dispute is ongoing.

years 1989/1999 and 1990/1991 when, in fact, destruction accounted only for 25.9% and 23.1% respectively of all quantities withdrawn.

As we have mentioned before, it is nevertheless important to remember the classification under the "non food destination" of destroyed quantities in some Member States. This means that quantities under the "destruction" destination do not exactly reflect the actual quantities destroyed.

Fig. 38 – Trends for total quantities withdrawn and quantities destroyed (EU-15, tonnes)



Source: European Commission - DG AGRI

Analysing the share of each product out of all volumes "destroyed" before and after the reform (see graph below) we can observe that:

- before the reform peaches were the most destroyed product, followed by apples and oranges respectively, with a relative share of 31.3%, 27.2%, 18.7% which means that these three products, corresponded to an overall share over the period 1989/90-1993/94of 77.2% of all destroyed volumes;
- after the reform the distribution among products has changed, and tomatoes have become the most destroyed product, with a share of all destroyed volumes of 23.3% (before the reform tomatoes accounted for 1.9% of the total destroyed).

Fig. 39 - Average share by product out of all quantities destroyed before the CMO reform (EU-15, %)

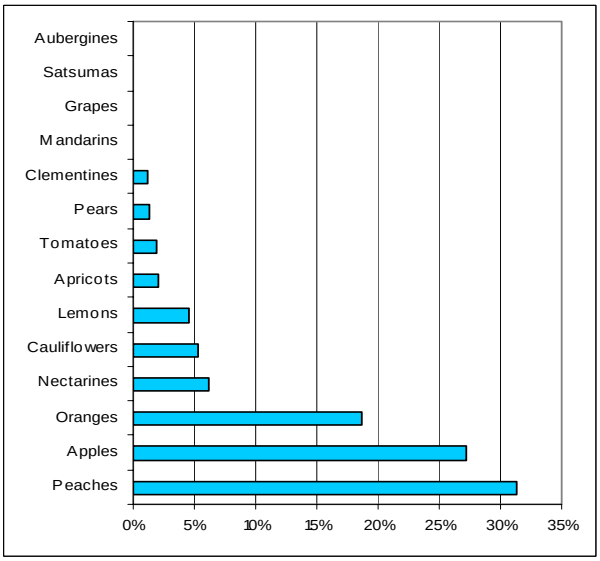
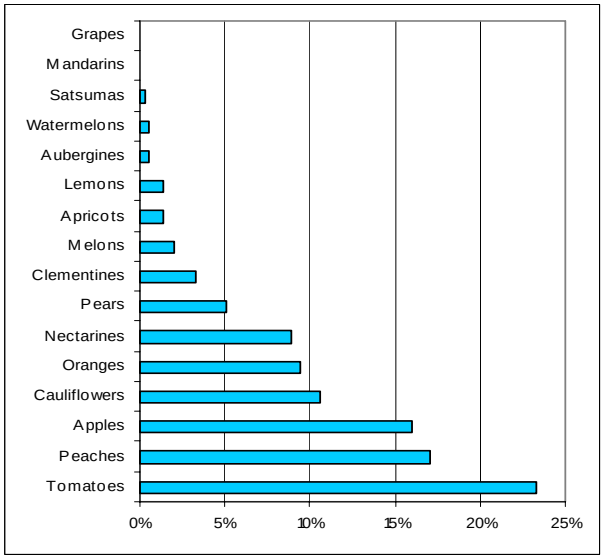


Fig. 40 - Average share of each product out of all quantities destroyed after the CMO reform (EU-15, %)



Source: based on data from European Commission - DG AGRI

The significant change concerning tomatoes is the result of the following elements:

- the average share of tomatoes out of all withdrawn products went from 5.3% before the reform to 18.6% after the reform;
- Italy substituted, after the reform, as we have seen above, the "non food purposes" denomination with the "destruction" denomination. This change was particularly evident in the case of tomatoes: in the period 1989/90-1993/94, 97.4% of tomatoes was reported as being disposed of as "non food purposes", while in the period 1997/98-2004/05, 99.8% was reported as disposed of by means of "composting/biodegradation";
- the Netherlands, which before the reform used to withdraw tomatoes using the "animal feed" destination, after the reform do not withdraw tomatoes at all.

In general the analysis allows us to conclude that the recourse to destruction of withdrawn products has not decreased over time, on the contrary it has increased.

In fact, even if we can observe a noteworthy decrease in destroyed quantities in absolute terms, this has to be weighted with all withdrawn quantities, as these have also undergone a significant decrease following the introduction of ceilings and the reduction of CWC with the 1996 CMO reform.

5.4.5 Pre-conditions and factors influencing the recourse to various destinations

5.4.5.1 Pre-conditions at community level

Commission Regulation (EC) 103/04, which came into force on February 2004, applies for each product from the start of the first marketing year following its coming into force. Consequently the impact of this regulation cannot be covered by this evaluation[58]. The analysis of pre-conditions has thus been made on the basis of Commission Regulation (EC) 659/97 that was in force until 2004.

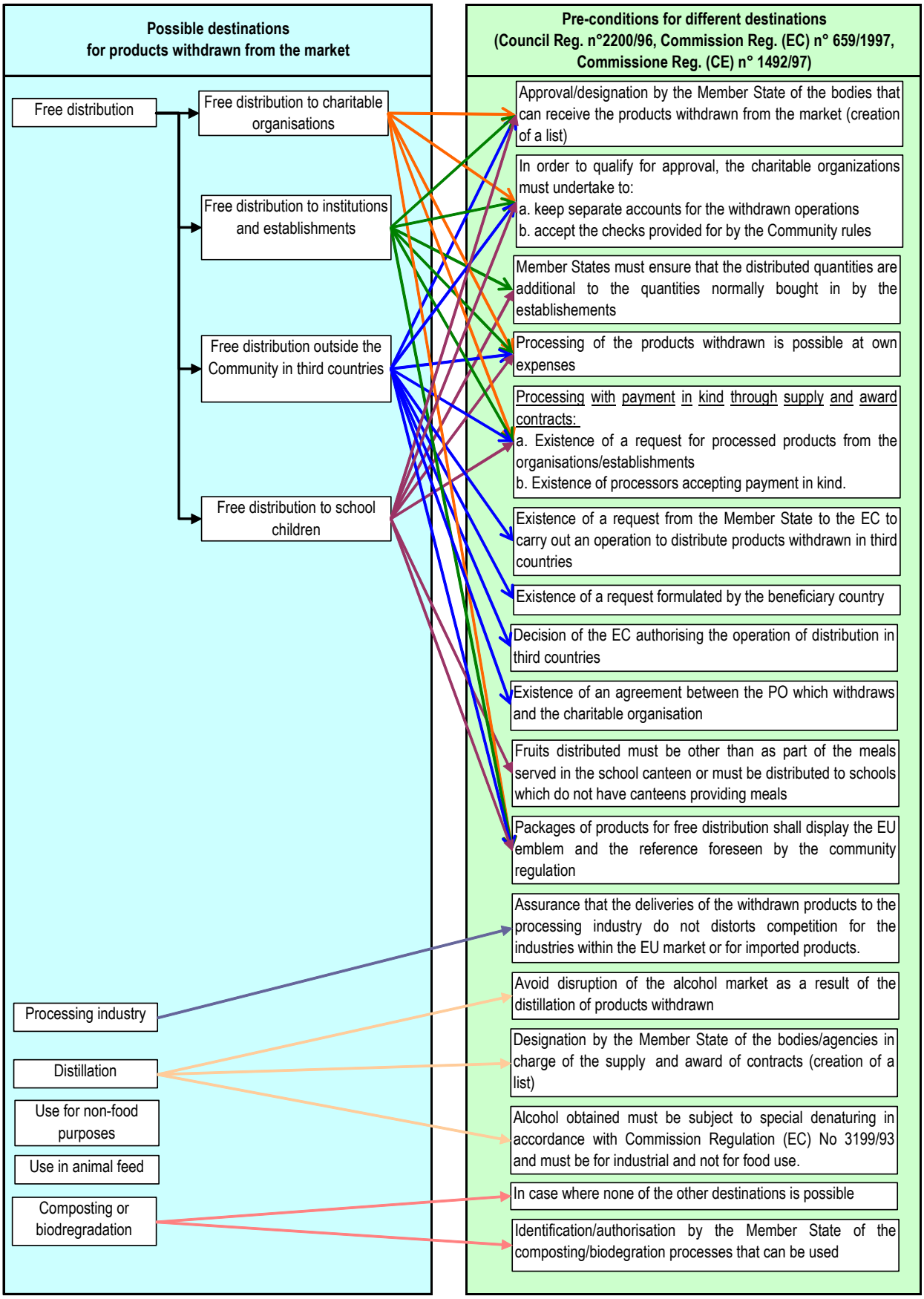
A careful reading of Council Regulation (EC) 2200/96, and of Commission Regulation (EC) 659/97, laying down detailed rules for implementing Council Regulation (EC) 2200/96 as regards intervention arrangements and market withdrawals in the fruit and vegetable sector, highlights four crucial elements that have an effect on the choice of possible destinations.

- the hierarchy of the various destinations
- the obligation of POs to use environmentally friendly disposal methods
- the rules for each destination and mainly rules relating to free distribution
- the definition by Member States of general conditions relating to withdrawal methods that respect the environment

These elements generate several pre-conditions to which the use of various possible destinations is subject. The pre-conditions, as stated in Council Regulation (EC) 2200/96 and in Commission Regulation (EC) 659/1997, and linked to each possible destination, are summarised in the diagram below.

[58] As specified in the TOR the evaluation covers the period from the introduction of the CMO in 1996 to the year 2005.

Fig. 41 - Pre-conditions for different destinations according to Commission Reg. (EC) 659/97



In order to have a complete framework for each destination under regulation 659/97, it is necessary to add that:

- Member States should define general conditions relating to environmentally friendly withdrawal methods (art. 25 of Council Regulation (EC) 2200/1996). These general conditions mainly relate to composting and biodegradation methods (see E.Q. 7 for more details). Therefore the use of environmentally friendly disposal methods is a pre-condition.
- POs were subject to several checks, as illustrated in the box below, and checks varied according to the the type of destination

Checks under Commission Regulation (EC) 659/97

1. Physical and documentary checks on withdrawals:

a. all destinations (with the exception of destruction): checks concern all producer organizations at least once during the marketing year. For each product, these checks involve at least 20% of the total quantity withdrawn.

b. composting/biodegradation: checks concern all quantities withdrawn (100% of the total quantity withdrawn).

2. Documentary checks on intervention operations to ensure that accounts are correct and that there is effective verification of compliance with the conditions for payment of the Community withdrawal compensation or of financing from the operational fund:

a. all destinations: checks concern each producer organization at least once each marketing year and, for each product, involve at least 10% of applications for payment.

Analysing the pre-conditions under each destination it is clear that:

- the "free distribution" destination is placed in first place in the ranking defined in art. 30 of Council regulation 2200/1996. However, its implementation is subject to a large number of pre-conditions that could make it difficult to use;
- "free distribution" presupposes product packaging as it was meant to be sold in the market, with packages that should display the EU emblem and the reference provided for in the regulation. This packaging, according to operators, entails supplementary costs and complementary resources (time, personnel);
- according to interviewed operators, these pre-conditions require the information/promotion of these rules mainly among charitable organizations/establishments/schools and that these organisations should have an adequate organizational structure in order to cope with the unforeseeable nature of the withdrawal phenomenon;
- moreover, according to operators the obligation for charitable organisations to keep separate accounts for withdrawal operations and to undergo the checks established in the regulation generates for these organisations supplementary costs and requires complementary resources (time and administrative personnel);
- among "free distribution" possibilities, free distribution in third countries appears to be the most difficult in terms of implementation and timing. In fact, unlike other "free distribution" destinations, each free distribution operation in third countries is subject to an agreement with the beneficiary country, a formal request of the Member State to the Commission and finally a decision of the European Commission[59];
- composting/biodegradation should be used only if none of the other destinations is possible. Among "destruction" destinations, biodegradation is subject to general conditions in terms of environmentally friendly methods;

[59] Commission Regulation (EC) 659/97 of 16 April 1997.

The main limitations of the withdrawal mechanism mentioned by interviewed operators are the administrative procedures, timing and number of checks (which are a direct consequence of the pre-conditions established by the Community regulation). In fact, when a PO decides to withdraw a product, it has to be done in three/four days, but the procedures and authorizations needed for the majority of possible destinations influence their attractiveness and therefore the recourse to that destination.

In order to provide a complete picture of the pre-conditions at Community level we produce below the pre-conditions as modified by Commission Regulation (EC) 103/04.

Comparing the two regulatory frameworks (Commission Regulation (EC) 659/97 and Commission Regulation (EC) 103/04) we can see that the novelties introduced by the latest regulation relate mainly to the "animal feed" destination[60]. Commission Regulation (EC) 103/04 indeed introduces important pre-conditions for the "animal feed" destination:

- approval by Member States of livestock farmers/similar undertakings that can receive the withdrawn products. The approval must define the maximum quantities of withdrawn products to be delivered as well as authorised methods for distributing withdrawn products to animals;
- designation by the Member State of the bodies/agencies in charge of the supply and award of contracts (creation of a list);
- livestock farms receiving the withdrawn products have to keep separate stock records and financial accounts for withdrawal operations and have to accept the checks established in Community rules.

The main change introduced by the regulation in 2004 concerns checks to which all possible destinations are subject. We have summarised in the box below the checks as provided for in Commission Regulation (EC) 103/04.

Checks under Commission Regulation (EC) 103/04

1. First-level checks (comprising a documentary and identity check and a physical check):

a. all destinations (with the exception of free distribution): checks concern all producer organisations at least once during the marketing year. For each product, these checks involve 100% of the total quantity withdrawn.

b. free distribution: checks concern a maximum of 10% of the withdrawn quantities.

2. Second-level checks (comprising documentary and, if necessary, spot checks on intervention operations at the premises of producer organisations and the recipients of withdrawn products):

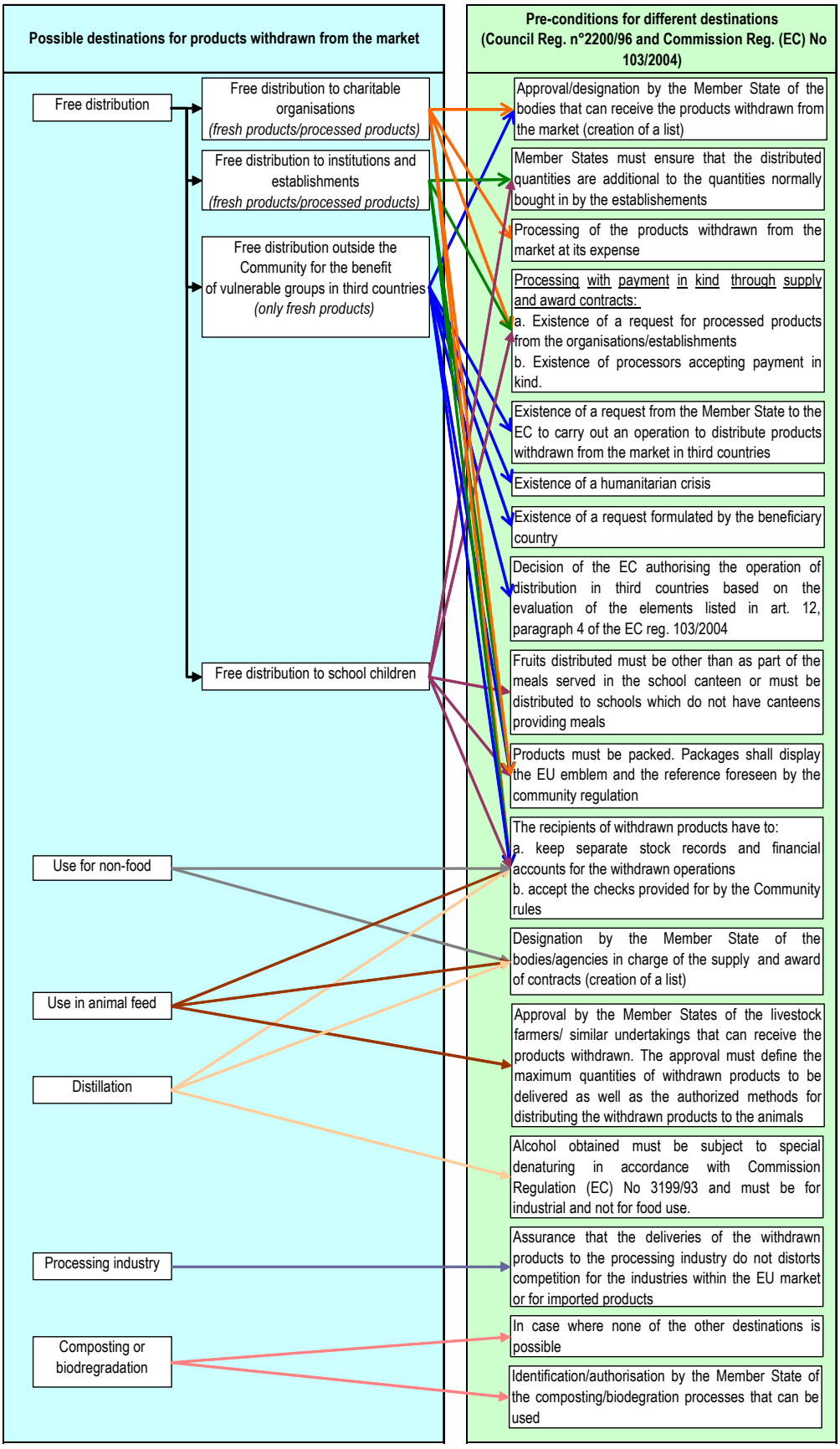
a. all destinations: the checks concern each year at least 30% of producer organisations and recipients associated with those organisations and, for each producer organization concerned, at least once every five years during which withdrawals are carried out. Each check shall include a sample representing at least 5% of quantities withdrawn during the marketing year by the producer organization.

As can be seen, the number of first level checks has increased for all destinations with the exception of the "free distribution" destination, which is no longer subject to a 20% check on quantities withdrawn but only to a maximum of 10%. For destruction the 100% control has been maintained and for all the other destinations it has gone from 20% to 100% of quantities withdrawn.

The recipients of withdrawn products (charitable organizations/livestock farms) are also subject to second level checks. This element has created difficulties to these operators in terms of time, personnel and costs.

[60] Also for the "non food purpose" destination some pre-conditions have been introduced, but this destination has not been in use since 1996.

Fig. 42 - Pre-conditions for different destinations according to Commission Reg. (EC) 103/04



As analyzed in greater detail in EQ 8, the complexity of administrative procedures seems to have a decisive influence on POs and on the destinations of withdrawn products. Among destinations it seems that the "free distribution" and "animal feed" destinations are the most affected by the complexity of these procedures.

5.4.5.2 Factors influencing recourse to the various destinations

The field missions allowed us to identify a certain number of factors/elements that, according to sector operators, have a direct influence on the attractiveness and implementation of each of the possible destinations. The results should be interpreted in a qualitative key, since the sample of interviewees is not universally representative.

The table below indicates the main destinations used in the regions under review.

Tab. 64 - Main destinations in the analysed regions after the CMO reform

	Member State/Analysed region		Main destination
Citrus fruits	**IT**	Calabria	Biodegradation
	ES	Comunidad Valenciana	Animal feed
Apples	**FR**	Maine et Loire	Biodegradation
		Lot et Garonne	Biodegradation
		Vaucluse	Biodegradation
	ES	Cataluna	Biodegradation
	IT	Prov. Aut. Trento	Distillation
Tomatoes	**ES**	Murcia	Biodegradation
	IT	Puglia	Biodegradation
	NL	Netherlands	Animal feed
Cauliflowers	**FR**	Bretagne	Biodegradation
	ES	La Rioja	Animal feed
		Comunidad Focal de Navarra	Biodegradation

Source: based on data from AGEA (Italy), DRAP (Comunidad Valenciana), Junta Regional de Catalunya (Cataluña), Junta Regional de Murcia (Murcia), Junta Regional de La Rioja (La Rioja), Consejeria de Agricultura y Desarollo de Navarra (Navarra), Viniflhor (France), European Commission - DG AGRI (Netherlands)

As we can see from the table below, the factors that, according to operators, influence the choice on the means of disposing of withdrawn products can be classified in five categories:

- Characteristics of the product
- Logistics (organization, time, resources)
- Economic convenience
- Implementation rules and administrative procedures
- Other

Some factors are exogenous to the regulatory framework and its implementation, while others are directly linked to it.

Tab. 65 - Factors mentioned by operators that influence the use of different destinations

Category of the factor	Main factors influencing use of the destination	Positively (P) Negatively (N)		Member State/Product
ANIMAL FEED				
Characteristic of the product	Inadequacy of the product to be used as feeding for some animals	N		France: cauliflowers, apples
Implementation rules and administrative proceedings	Requires the establishment of agreements with livestock farmers (this takes time and has a cost)	N		Spain: tomato
	Complexity of the administrative procedures (documentation to provide, authorizations, separate accounts for the withdrawn operations) for POs and for livestock farmers	N		Spain: tomato, citrus fruits, apples France: cauliflowers, apples
	Number of checks for POs and for the livestock farmers	N		Spain: tomato France: apples
Logistics (organization, time, resources)	Absence of demand from the livestock farmers	N		Italy: citrus fruits France: apples
	Limited absorption capacity of livestock farmers	N		Spain: tomato France: cauliflowers
	Requires product preparation (sorting, packaging, transport)	N		Spain: tomato
	Presence and proximity of numerous livestock farms of large dimension		P	Netherlands: tomato Spain: cauliflowers
	Large absorption capacity of livestock farmers		P	Netherlands: tomato
	Easier to implement in comparison with the other destinations in terms of organization, time and costs		P	Netherlands: tomato Spain: cauliflowers, citrus fruits
Economic convenience	Low cost compared with destruction		P	Spain: citrus fruits
BIODEGRADATION				
Implementation rules and administrative proceedings	Complexity of administrative procedures	N		Spain: cauliflowers
	Strict regulatory framework concerning environment protection	N		Spain: cauliflowers, citrus fruits
Logistics (organization, time, resources)	Easier to implement in comparison with the other destinations in terms of organization, time and resources		P	Italy: citrus fruits, tomato Spain: tomato
	Allows the withdrawal of large quantities		P	Italy: citrus fruits, tomato Spain: tomato France: cauliflowers
	Allows the standardization of procedures and is economically convenient		P	Spain: tomato
	Allows the PO to be autonomous if this one has an authorized plot		P	Spain: tomato
Economic convenience	Low cost		P	Italy: citrus fruits, tomato Spain: tomato, apples France: cauliflowers, apples
Other	Negative to environment	N		Netherlands: tomato
	Generates a negative marketing image	N		France: cauliflowers
	Release of particularly bad odour	N		France: cauliflowers
COMPOSTING				
Economic convenience	Higher cost in comparison with biodegradation	N		Spain: tomato
DISTILLATION				
Logistics (organization, time, resources)	Allows the withdrawal of large quantities		P	Italy: apples
	Logistics easier to implement		P	Italy: apples
	Low transport costs as a consequence of the proximity of the distilleries		P	Italy: apples
Economic convenience	Presence and proximity of numerous distilleries of large dimension		P	Italy: apples

Category of the factor	Main factors influencing use of the destination	Positively (P) Negatively (N)		Member State/Product
FREE DISTRIBUTION				
Characteristic of the product	Rate of perishability of the products	N		Spain cauliflowers France: cauliflowers
Implementation rules and administrative proceedings	Complexity of the administrative procedures (documentation to provide, authorizations, separate accounts for the withdrawn operations) for POs and for charitable organisations	N		Spain: tomato Netherlands: tomato Spain: cauliflowers, citrus fruits, apples France: cauliflowers, apples
	Number of checks (quality checks, administrative-documentary checks) for POs and for charitable oragnisations	N		Spain: tomato Netherlands: tomato France: cauliflowers, apples
	Represents a higher financial risk (in terms of administrative errors) for the public administration	N		Netherlands: tomato
	Withdrawn products are considered as marketed quantity		P	Spain: apples France: apples
Logistics (organization, time, resources)	Absence of demand from charitable organizations	N		Italy: citrus fruits, tomato Spain: tomato
	Limited stock capacity of charitable organizations	N		Italy: citrus fruits, tomato, apples France: cauliflowers
	Limited absorption capacity of charitable organizations	N		Italy: citrus fruits Spain: tomato France: cauliflowers, apples Spain: cauliflowers Italy: apples
	Requires appropriated logistics (time, resources, organisation) and product preparation (sorting, packaging, transport)	N		Spain: tomato Spain: cauliflowers, apples France: apples
Economic convenience	High cost (sorting, packaging and transport) respect the quantities that can be disposed	N		Italy: citrus fruits Spain: tomato, cauliflowers, citrus fruits
Other	Generates a positive marketing image		P	Netherlands: tomato France: apples, cauliflowers

Source: based on data from the case studies

The analysis of the factors influencing the choice of the various destinations, carried out at a regional/product level, shows varied results from region to region but shows up some common phenomena:

- the choice of operators concerning the means of disposing of withdrawn products is the result of a number of factors. The weight of each factor in the choice of the destination depends mainly on the product withdrawn, the place where the withdrawal takes place and the implementation rules;
- the main factor favouring recourse to "composting/biodegradation", "animal feed" and "distillation" is the capacity of these destinations to absorb large quantities of product. This is not the case for "free distribution". This latter destination is strongly conditioned by the absorption capacity of charitable organizations;
- the recourse to "distillation" and "animal feed" is always dependent on factors that are highly correlated to the local context (proximity of distilleries, proximity of livestock, dimension of livestock, type of animals, etc.);
- the complexity of procedures and the number of controls play an important role in deciding the destination for withdrawn products.

5.4.5.2.1 Free distribution

The "free distribution" destination should be, according to the legislation, the priority choice for withdrawn products. However, according to sector operators interviewed, this destination is conditioned by several factors that make it difficult to use.

Characteristics of the product: the rate of perishability of products is one of the factors influencing the use of this destination. Mainly cauliflower producers (and some tomato POs) have mentioned this factor. Cauliflower and tomatoes are highly perishable products (can be stored for a few days only and they require special logistics to store it). The storage capacity is a problem in the case of the "free distribution" destination since charitable organisations are not generally prepared to cope with it.

Furthermore, cauliflowers should be distributed in a short period of time (within 10 days), which means that the final beneficiaries should be located near the producers. Usually this is not the case: in fact the beneficiaries receiving the withdrawn products and supplied by the charitable organisation are often spread all over the national territory.

Logistics (organisation, time, resources): in the case of "free distribution" this category of factors has a strong bearing on the use of this destination.

The main factor influencing this destination, according to operators, is the absorption and stock capacity of charitable organizations. This generates an organisational and economic problem for POs and does not allow the reduction of disposal costs per unit. All interviewed operators have mentioned this limitation as being the most relevant in explaining the little use made of this destination.

According to POs, the limited distribution capacity of charitable organisations **does not allow the disposal of large quantities of withdrawn products**. This creates important logistical (and therefore economic) problems: charitable organisations are numerous, have a limited dimension and are dispersed over the territory (Spain). They lack adequate infrastructures and adequate storage capacity. Often charitable organisations do not even have the needed manpower or equipment to load and/or unload the trucks. In France only very important charitable organisations such as *Restos du Coeur*, *Secours Populaire* and *Banques alimentaires* are able to absorb larger quantities. The latter organisation has been involved very actively in the free distribution of apple withdrawals and has storage facilities and small trucks.

Therefore, to use this destination, the PO has to create its own logistical system in order to cope with the difficulties of charitable organisations. According to operators, only large POs are able to develop an economically convenient system of disposal cost per unit to allow the free distribution of large quantities of products.

Furthermore, in some regions (Puglia for tomatoes, Calabria for citrus fruits, Murcia for tomatoes) the demand of products from charitable organisations is almost non-existent, and this prevents POs from using this type of destination.

Finally, POs have stressed that withdrawals are short-term and not structural events, and therefore not suitable for free distribution, which requires an efficient information system concerning withdrawn quantities and an organised system for distribution operations.

In fact, some POs (mainly in Spain) have mentioned that the biggest difficulty with the use of "free destination" is related to the organisation of the national charitable system. Recourse to this destination would be facilitated if there were a coordinating body capable of centralising information. At the present time, the charitable systems of most Member States (with the exception of Italy and Portugal) consist of small charitable organisations that generate little demand and are dispersed over the territory: distribution is therefore particularly complex.

Economic convenience: according to operators the "free distribution" destination is the most expensive among the possible destinations for withdrawn products. However, interviewed operators did not provide figures on costs related to various destinations.

The costs related to free distribution are: transport, sorting, packaging, stocking, maintenance, administrative and logistic costs. Consequently, even if POs receive an indemnity for transport, sorting

and packaging costs[61] that partially (according to operators) cover actual costs, free distribution entails extra costs that reduce the economic feasibility of this destination.

Moreover, in consideration of the limited capacity of this destination to absorb large quantities of product, free distribution does not allow the development of a system capable of reducing per unit disposal costs, and thus this destination is considered by sector operators as not economically sustainable. In fact, according to operators, to dispose of large quantities of product it is necessary to distribute it to a large number of charitable organizations (because of their limited absorption capacity), this involves high transport costs and the development of an adequate logistical system.

Transport can also be provided by charitable organizations[62] but frequently these are lacking in adequate means for transportation, logistics (for storing the products) and personnel. Additionally, receiving withdrawn products requires, on the part of charitable organizations, compliance with the rules of the regulatory framework (checks, authorizations, administrative procedures), which considerably increases the cost of operations.

Another remark concerning transport costs (France, apples) concerns the fact that the "transport refund" provided for by the regulation takes into account only the distance and not the fixed cost of loading and unloading the trucks. As a result, POs choose charitable organisations that are far enough away that the reimbursed fee covers total transport costs.

Implementation rules and administrative proceedings are another important factor precluding the recourse to free distribution. In fact, according to interviewed operators, the complexity of implementing rules and of administrative proceedings generates supplementary costs and requires complementary resources (time and administrative personnel) for both POs and charitable organisations.

The main administrative difficulties mentioned by operators include the obligation of keeping separate accounts for the operations in question (for both POs and charitable organisations) and the number of controls (physical and documentary checks).

Furthermore, in the case of apples and citrus fruits withdrawn from the market, the costs of sorting and packaging linked to free distribution were subject to the existence of contractual agreements between the producer organizations and charitable organizations concerned (art. 16 of Commission Regulation 659/97). This requires POs and charitable organizations to establish internal procedures as well as the engagement of skilled human resources, which represents a cost. Several French POs, working in the apple sector, are ready to stop free distribution because of the administrative complexity and the number of checks.

One positive factor has been mentioned at the regional level (Cataluña - Spain; Maine et Loire - France), concerning the introduction in Community laws (Regulation (EC) 103/04) of the concept that products withdrawn for free distribution be included in marketed quantities. According to representatives of the above-mentioned regions, this element should have contributed to developing the use of this destination in the case of POs that are able to manage this type of destination.

One French PO in the apple sector (Lot-et-Garonne) made an interesting remark about ownership of the products withdrawn for free distribution. This PO had several problems with the French Payment Agency and has not been indemnified for quantities of product that have been processed into purée by a charitable organisation. It seems that the charitable organisation has not respected the rules concerning the processing of withdrawn products. Furthermore, the customs authorities have certified

[61] Until 1999, only apples and citrus fruits withdrawn could apply for the payment of sorting and packaging costs.

[62] The regulation establishes that transport costs are paid to the party that actually bears the financial cost of the transport operation in question.

that the weight of quantities delivered to the charitable organisation did not correspond to the weight at the departure of the PO.

This PO, which is now ready to stop free distribution, highlights the problem of the ownership of (and consequently responsibility for) withdrawn products when they leave the PO centre as, from that moment, the PO no longer has control over the products.

Other factors: an important factor concerning free distribution is that it generates a positive marketing image, offsetting the negative image given by the recourse to the "destruction" destination.

In fact, some operators (large-sized POs) recognise this factor as being the most important when choosing this destination. However according to operators, as we have seen before, this is possible only in the case of large POs that are able to amortise costs.

This is the case of a Spanish PO, which has been developing use of the free distribution of apples. This PO represents 1,200 apple producers with a production area of 5,000/6,000 hectares, and has developed in past years a logistical system for free distribution. This system comprises:

- one full time employee in charge of the search for charitable organisations able to absorb withdrawn products and in charge of relative coordination activities;
- numerous trucks adapted (for the manual loading of merchandise) and dedicated to free distribution;
- a network of charitable organisations with which the PO normally works.

This PO is the only one to have mentioned that the "handling and packaging" Community indemnity is above the real cost, and therefore allows it to cover also the administrative cost related to the management of this type of destination.

5.4.5.2.2 Animal feed

Characteristics of the product: recourse to the "animal feed" destination is precluded and/or restricted by the characteristics of some products. In fact some products are not suitable for some animal species.

For example in Bretagne, the disposing of cauliflowers by using at as animal feed is not simple, even if this region is largely recognised as one of the most important milk producing regions in the EU. In fact, cauliflowers cannot be used extensively for feeding dairy cows and fattening pigs because it gives a strong taste to milk and meat (technically it is due to the fact that odours are highly captivated by lipids). Cauliflowers can only be used to feed nurse cows, which however are less numerous and whose major feeding needs are concentrated during suckling periods (short periods during the year). Therefore the absorption capacity of Bretagne livestock farmers is limited.

This is also the case for apples in the Vaucluse region. This French region is characterised by a large number of sheep livestock farms, but this kind of animal can only absorb a limited amount of fruits.

On the other hand, in other regions where livestock farming is an important sector for the local economy (La Rioja, Navarra), cauliflowers are mainly disposed of using the "animal feed" destination because in those regions the type of livestock, sheep for meat and breeding bovines, do not have specific feeding requirements.

Logistics (organisation, time, resources): in the case of the "animal feed" destination this category of factors is heavily influenced by the local context.

The main factor influencing the use of this destination is the presence and proximity to POs of livestock farms breeding specific varieties of animals. In La Rioja and Navarra (cauliflowers), in the Comunidad Valenciana (citrus fruits), and in the Netherlands (tomatoes) this is the main factor determining the recourse to this destination: these territories are characterised by the presence of numerous large-sized livestock farms that are able to absorb large amounts of withdrawn products.

Moreover the logistics are easier to implement compared with biodegradation (which involves more work and controls):

- it minimises transport costs (in most cases livestock farmers themselves provide transport for the products),
- it does not require special product sorting and packaging,
- it allows permanent contact and coordination with livestock farmers and therefore the creation of an efficient information flow system.

The first factor (presence and proximity of livestock farms), in order to positively influence the use of this destination, has to be matched with the second factor: the size of the livestock farms. The absorption capacity of withdrawn products of livestock farms is regulated by specific implementation rules of this destination in terms of animal feeding: the quantities of withdrawn products that can be absorbed by a livestock farm depends on its size.

It is obvious that in regions such as Calabria, Bretagne, Lot et Garonne and Vaucluse where there is a limited demand from livestock farms due either to the small number of livestock farms in the territory or to the type of animals, the use of this destination is virtually non-existent.

Economic convenience: as for the "free distribution" destination, economic convenience is highly correlated to the quantities that can be withdrawn using this specific destination. In fact, according to the operators of regions where there is a high concentration of livestock farms and a high number of heads, the disposal of production by the "animal feed" destination allows the exploitation of economies of scale (in terms of time, costs and resources) and therefore makes it possible to amortise respective costs.

Unfortunately, interviewed operators did not provide costs related to the various destinations. Only one Spanish PO estimated a cost of around 0.012-0.024 Euro for each kilogram disposed of by the "animal feed" destination. However, according to PO representatives this cost is lower than that incurred in the case of destruction, which involves higher transport costs and the payment of a fee to the withdrawal centre.

Implementation rules and administrative proceedings seem to constitute another important factor precluding recourse to this destination. As for the "free distribution" destination, the complexity of rules and of administrative proceedings involves affects both POs and livestock farms. The main administrative difficulties mentioned by operators concerns the obligation of keeping separate accounts for these operations (for both POs and livestock farms) and the number of requested controls (physical and documentary controls).

This category of factors has been mentioned in Bretagne, Vaucluse, Calabria, Murcia and Valencia, and local livestock farmers consider excessive the burden imposed by required authorisations and procedures as well as controls established by the regulation. This element in turn negatively affects the demand for withdrawn products from livestock farmers and therefore the respective absorption capacity of this type of destination.

5.4.5.2.3 Distillation

With reference to this destination, and as already mentioned, there has been a significant drop in the use of this destination, passing from an overall share of 14.86% of the total withdrawn over the period before the reform to an overall share of 5.6% in the period after the reform. In Spain, France and Greece, where in the period 1989/90-1993/94 this destination represented respectively 5.3%, 4.3% and 15.8% of the total, this destination is no longer in use after the reform.

Among the studied regions within this evaluation, this destination has been noted only in the Italian province of Trento, which is one of the most important apple producing regions in the Community. However, since 1995 there has been no recourse to withdrawals in this region[63].

In Trento, until 1995, according to interviewed operators, 95% of withdrawn apples were disposed of by means of "distillation". The Trento region has a large number of distilleries, which allowed the withdrawal of large quantities of product at a low transport cost. According to operators the organisation of the disposal of the products is simple and prompt.

With reference to other analysed regions withdrawing apples (Maine et Loire, Lot et Garonne, Vaucluse in France and Cataluña in Spain) the main destination for withdrawn products is biodegradation. In those regions distillation is not used for several reasons. According to operators, the first is that the withdrawn apple varieties are not requested by distillation industries, therefore there is weak demand from distilleries (limited absorption capacity).

The second is economic convenience as, for POs, biodegradation has a lower cost vis-à-vis distillation: lower transport costs and higher costs related to the search for distilleries interested in taking withdrawn apples. Furthermore POs are not used to working with distilleries.

The last reason is linked to the absence of distilleries in traditional apple producing areas, which entails high transport costs.

5.4.5.2.4 Biodegradation

The main factor influencing the widespread use of this destination is its capacity to absorb high quantities of withdrawn products (Italy: citrus fruits, tomatoes, Spain: tomatoes, France: cauliflowers, apples), thus allowing the standardization of procedures and cost reductions. Therefore, this destination is generally considered to be the most convenient compared with other destinations in term of costs, particularly if the PO has parcels authorised for biodegradation. On the other hand, composting is considered to have a higher cost than biodegradation.

However, the recent regulatory framework concerning environmentally friendly withdrawal methods are, at present, influencing the use of this destination. This is the case in some regions where POs have mentioned that the strict regulatory framework concerning environment protection is favouring recourse to other destinations (see EQ 7 for more details).

Besides the problems linked to environment protection, biodegradation generates a negative marketing image of the PO. Therefore, when the quantities disposed of by other destinations make it possible to amortise disposal costs, this destination is used only as the last resort.

[63] According to interviewed operators, after the 1996 reform, the production chain of the Trentino region was restructured: higher concentration (before 1996 there were 34 cooperatives, after 1996 only 5 POs) and better organisation. Implemented marketing planning has avoided the strong competition of other producing countries, and the concentration process has allowed the creation of a strong market power.

5.4.5.2.5 An example of how local conditions influence the choice of destination: the case of cauliflowers in Bretagne

It is interesting to see a case where biodegradation is the most popular destination for the disposal of large quantities of product.

The case of cauliflowers in Bretagne

Animal feed

Bretagne is one of the most important regions for the production of milk and fattening pigs in the Community. Therefore it is a region with numerous large-sized livestock farms. Cauliflowers cannot however be used extensively for feeding dairy cows and fattening pigs. Furthermore, livestock farmers are quite critical towards the complexity of procedures.

Free distribution

The rate of perishability of cauliflowers largely influences the use of this destination. Particular logistics are required for stocking it. The stock capacity is a problem in the case of the "free distribution" destination, since charitable organisations are not generally prepared to cope with it. Furthermore, cauliflowers should be distributed within a period of 10 days, which means that final beneficiaries need to be close by, which is not the case.

Distillation

Cauliflowers are not suitable for distilling.

Biodegradation

Even if it is the most common destination for cauliflowers in Bretagne, according to operators the use of this destination is subject to negative factors considered quite important by producers: it generates a negative marketing image and is a method that gives off strong smells. This situation is not suitable in a highly tourist-based area (like St. Malo).

Therefore, some POs are trying to increase the use of other destinations, mainly "free distribution" and "animal feed" but the problem of the absorption capacity of these two destinations still remains.

5.4.6 Trends for withdrawn products distributed in third countries

As we have seen before, "free distribution" is the least used destination for withdrawn products (share of total volumes withdrawn in the period 1989/90-1993/94: 2.3%, and in the post reform period 4.6%).

Among the possible allocations provided for the "free distribution" destination, the regulatory framework allows the free distribution of withdrawn products outside the EU territory, by charitable organizations and foundations. As already mentioned, free distribution in third countries was introduced in 1992, as a derogation to art. 21 of Council Regulation 1035/72, after the beginning of the conflict in the former Yugoslavia that demanded the improvement of food supplies to victims of the conflict.

The table below shows trends for main free distribution destinations for the period 1997/98-2004/05 (available data concerning the pre-reform period do not make the distinction between the three possible destinations).

Tab. 66 - Most relevant "free distribution" destinations (EU-15, tonnes, %)

	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005
in third countries	**37.154**	**112**	**16.747**	**7.058**	**10.452**	**4.800**	-	-
% of tot. free distribution	*49,1%*	*0,4%*	*36,8%*	*15,5%*	*29,9%*	*18,8%*	*0,0%*	*0,0%*
within EU	**38.069**	**27.035**	**28.695**	**38.395**	**22.522**	**20.688**	**22.438**	**26.446**
% of tot. free distribution	*50,4%*	*99,6%*	*63,1%*	*84,4%*	*64,5%*	*81,1%*	*100,0%*	*100,0%*
within EU to children	**377**	**4**	**12**	**22**	**1.957**	**6**	**4**	**3**
% of tot. free distribution	*0,5%*	*0,0%*	*0,0%*	*0,0%*	*5,6%*	*0,0%*	*0,0%*	*0,0%*
Total free distribution	**75.600**	**27.151**	**45.453**	**45.474**	**34.931**	**25.494**	**22.443**	**26.448**

Source: European Commission - DG AGRI

The share of free distribution in third countries out of the total of the "free distribution" destination shows a high annual oscillation, and in some years, 1998-2003-2004, the share drops to zero. This is a consequence of implementing rules, as this destination is subject to the existence of humanitarian crises. Moreover, we can observe that total quantities of the "free distribution" destination have tended to fall significantly over time.

If we look at the table below the total quantities of products distributed for free in third countries are quite marginal in absolute terms.

Tab. 67 - Quantities distributed for free in third countries by product and by year (EU-15, tonnes)

	Member State Distributing in third countries	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003
Nectarines	Italy	7.801	-	-	-	-	-
Peaches	Greece	-	-	-	2.422	-	-
	Ireland	-	-	-	-	-	-
	Italy	5.988	-	7.527	-	-	-
Apples	Germany	23	83	-	-	-	-
	Greece	-	-	-	570	-	-
	Italy	22.525	-	-	-	-	-
	Netherlands	-	29	16	-	-	-
Oranges	Greece	-	-	9.203	4.066	10.452	4.800
	Italy	817	-	-	-	-	-

Source: European Commission - DG AGRI

Unfortunately there are no processed statistics regarding the quantities and geographical destinations of free distribution in third countries. The only available data are reported below.

Tab. 68 - Geographical destination of quantities distributed for free in third countries by product and by year (tonnes)

Beneficiary country	Product	1998	1999	2000	2001	2002	2003
Bosnia	Apples	30	-	-	-	-	-
Albania	Apples	-	10	-	-	-	-
Romania	Apples	-	16	-	-	-	-
Croatia	Apples	-	54	-	-	-	-
Kosovo	Citrus fruits	-	-	9.400	-	2.719	-
Kosovo	Peaches	-	-	7.800	-	-	-
Kosovo	Apples	-	-	2.000	-	-	-

Source: European Commission - DG AGRI

As can be seen, the main geographical area receiving withdrawn products is Kosovo. However there is no available data concerning specific production, imports and exports of the Kosovo area, and thus it is not possible to verify the impact of quantities distributed for free in this area. Nevertheless,

considering that Kosovo is in a state of conflict that has lasted since the beginning of the 1990s and that the quantities imported for free are small, relate to different products and are concentrated in one year only (2000), it is unlikely that these products have caused a distortion of the local market of those products.

For other countries receiving sporadically minimum amounts of apples, we present below the share of free imports in the respective internal markets.

Tab. 69 - Share of free imports in the internal market of beneficiary third countries of products distributed for free (tonnes, %)

	Reference year	Free imports	Quantity produced	Imports	Exports	Share of the free imports on the internal market (*)
Bosnia & Herz.	1998	30	24.960	10.960	11.380	**0,122%**
Albania	1999	10	11.800	16.760	90	**0,035%**
Romania	1999	16	315.000	173.200	5.990	**0,003%**
Croatia	1999	54	66.750	13.780	6.500	**0,073%**

(*) Ratio: free import /[domestic production + (imports – free imports)] – exports

Source: based on data from FAOSTAT

As we can see, the free imports were not such as to disturb the internal market of those countries.

5.4.7 Evaluation judgement

The results of the analysis allow the following conclusions to be drawn.

With reference to the objective of minimising the destruction of withdrawn products, the analysis has shown that this objective has not been accomplished: the "destruction" destination was before the reform of 1996 (55.4%) and still is after the reform (74.7%) the most popular destination for withdrawn production (all products within the scope of Annex II and at EU-15 level).

With regard to other destinations, the analysis showed that, even if the "free distribution" should preferably be used, only marginal use of this destination has been made. Therefore the objective stated in the regulations has not been achieved.

The "animal feed destination" is, in the post reform period, the second most popular destination. And the "non food purposes" destination is no longer used (before the reform its overall share was 11.94% of all withdrawn products). This underlines the concrete feasibility of this destination when local conditions are appropriate.

The analysis of pre-conditions for each destination (as set forth in the Commission Regulation 659/97) showed that some destinations are subject to a larger number of pre-conditions that influence the respective recourse. Furthermore, it is important to mention that measures taken by the legislator to encourage the use of destinations as alternatives to destruction (introduction in 1992 of the destination "free distribution in third countries", introduction of the reimbursement of the costs relating to transport, sorting and packaging of products withdrawn by free distribution, etc.) have not had a decisive influence on the use of this destination: in the period before the reform (1989-1994) the overall share of free distribution out of the total withdrawn was only 2.25% and after the reform (1997-2004) its overall share was only 4.6% (even if in the last three seasons the share of this destination has noticeably increased, reaching values of more than 8% in 2002/03 and 11% in 2003/04).

Moreover, the results of the analysis of factors that influence the use of different destinations, based on the information provided by sector operators, allowed further conclusions to be drawn:

- POs search for the most **flexible destination** in terms of the ability to absorb large quantities. Consequently the choice of a destination is largely influenced by the specific characteristics of withdrawals: seasonality and uncertainty on the quantities withdrawn.
- The recourse to a destination depends mainly on its capacity to absorb large quantities of product because it makes it possible to **amortise costs** in terms of logistics and resources (time and human resources).
- There is a close relationship between the **geographic location** (in terms of being located in a geographical and economic system) of the PO and the destination for withdrawn products. When the location favours the implementation of a standard/cost efficient logistics system (presence and proximity of livestock farms, presence and proximity of distilleries, presence and proximity of the final beneficiaries of free distributed products), then biodegradation is less used than the other possible destinations (mainly animal feed and distillation). We can affirm that destruction is in fact used where there is no other adequate alternative to dispose of large quantities of product at a cost that is considered as being reasonable. The choice of one destination rather than another is closely related to the inadequate adaptability of the others to the needs of the PO.
- The **complexity of the administrative procedures as well as the number of checks** laid down by the regulatory framework imposed for each destination remains the most important factor influencing the recourse to the various destinations. In fact even if the legislator has made a clear effort to encourage the use of some destinations, no significant results have been reached, mainly because the changes introduced to the regulatory framework have not led to administrative simplification. Among the destinations it seems that the "free distribution" and "animal feed" destinations are the most affected by the complexity of procedures. Furthermore the control system is considered excessively demanding both for POs and for charitable organisations/livestock farms, with the burden of administrative complexity often preventing recourse to these destinations both from the POs side and from the charitable organisations and livestock farmers side.

With reference to the second part of the evaluation question, unfortunately there are no available statistics on the quantities and geographical destinations concerning free distribution in third countries. The little data gathered however makes it possible to conclude that the quantities imported for free in the countries concerned are not able to distort the internal markets of those countries.

6. THEME 2: INCOME OF PRODUCERS

6.1 To what extent did the withdrawals contribute to the stability and the level of prices obtained by farmers? What were the consequent impacts on the income of farmers? - EQ.5

The evaluation question has two objectives: on the one hand, to quantify the effect, if any, of withdrawals on prices received by producers, on the other, to assess their impacts on farmers' incomes.

The analysis of the effect of withdrawals on prices is requested in terms of both the level and the stability of prices.

The analysis is extended to the period from 1991 through 2005. Two aspects dictate the choice of such a time frame:

- the evaluation of impacts in terms of "stability" requires a sufficiently long time span (which we deemed to be at least five years);
- The CMO reform, as established by Council Regulation (EC) 2200/96, introduced new rules for the management of the withdrawals scheme, and the need to evaluate its effects requires an extension of the analysis to the period prior to the coming into force of the new CMO.

From the point of view of agricultural producers, the effect of withdrawals should be broken down into short-term effects, when production choices are already made and the products already obtained, so that the only possible action is to withdraw or not, and medium/long-term effects, due to the influence on the planning of production choices of the existence of the withdrawal mechanism.

The present analysis focuses on the short-term effects and interprets the term "withdrawals" as the effective application of withdrawals rather than the possibility of recourse to withdrawals.[64]

Identification and assessment of the impact of withdrawals on prices and farmers' income are obtained via case studies, which focus on four products (apples, citrus fruit, table tomatoes and cauliflowers) and twelve regions in four Member States: **table tomatoes**: Italy - Puglia, Spain - Murcia, the Netherlands; **cauliflowers**: France - Brittany, Spain - Rioja, Navarra; **citrus fruits**: Spain - Valencia, Italy - Calabria; **apples**: Italy - Trentino, Spain - Cataluña, France - Lot et Garonne, Vaucluse, Maine-et-Loire.

The assessment of the potential impact on prices has been based on the results of prices collected from reference markets and on demand elasticity estimates as presented in the answer to EQ 1, which covers the countries involved in the case studies. Through local surveys, quantities produced and quantities withdrawn at the regional level have been recorded.

As already mentioned, we only considered the short-term effects of effected withdrawals, that is: what would have happened to the levels of prices received by producers, and thus to their incomes, if the withdrawals had not been made, given actual cropping patterns. In other words, we have measured

[64] To evaluate the long-term effects we would need an assessment of the perceived credibility that the policy would last, and there is no information or data, which would enable us to determine this in the various case studies. Some general remarks on the possible long-term effects of the presence of withdrawals have been included in the answer to EQ2, where we discussed the possible incentives for the formation of structural surpluses.

only the possible short-term net benefits that farmers might have received because of the higher price possibly induced by withdrawals after the production had been obtained.

As has been argued when answering EQ 1, the effect on prices attributable to withdrawals can be quantified only by the theoretical construction of a counterfactual simulation, which identifies what the prices would have been if the withdrawn products had reached the market.

To construct the simulated background, it was necessary to use an estimate of demand elasticity in the reference markets for the products under review, and where possible, we used the one obtained in the analysis of EQ 1. Once the hypothetical counterfactual frame was formed, we compared it with the actual price as recorded in the reference markets to assess the price reduction that producers would have suffered without withdrawals.

Combining the reduction in quantity with the increase in price caused by the withdrawals, we measured the impact in terms of *revenue* obtained from the specific crop. The second part of the evaluation question, however, refers to the impact on producers' *income*. The object of the analysis is therefore not the *revenue* from selling the product, but rather farm income (company earnings). Given our working hypothesis of not simulating changes in cropping patterns or in production costs, the impact on the level of revenues would be the same as the impact on incomes.

The most interesting aspect is the impact in terms of overall income stability, which depend also on the weight that the income from the withdrawn product has on total farm income. To measure the impact on farm earnings of a given change in revenues from one single crop, we needed a measure of the weight of that crop on the overall production of the farm. For the case study regions, we formed an average incidence index in terms of both the area and value of production, as the ratios between the area and output value of the specific product and the area and output value of the entire farm. The relevant data was obtained from the FADN database, with the limitations specified below.

6.1.1 Judgement criteria and indicators

The proposed method for answering evaluation question 5 is based on the following criteria and indicators:

Judgement criteria	Indicators
1. The price level the producers would have obtained for their products (apples, table tomatoes, cauliflowers, citrus fruit) in the absence of withdrawals differs from the level obtained in the presence of the provision	1.1. For each product and for each Member state, time series of prices as recorded in the main reference markets (see indicator 3.1. of EQ1)
	1.2. For each product and for each Member State, time series of projected price, given the demand elasticity and the withdrawn quantity (see indicator 3.2. of EQ1)
2. The variability in the prices the producers would have obtained in the absence of the withdrawals provision is bigger than the variability in the prices actually obtained.	2.1. Comparison of variability coefficients of actual prices and of estimated prices in the periods 1991-96 and 1997-2005 (see indicator 4.1. of EQ1)
3. The variability in the agricultural income of citrus fruit, apple, tomato and cauliflower growers which would have been obtained in the absence of the withdrawals provision is greater that the actual variability in agricultural income.	3.1. Trend for the actual Farm Net Value Added per surface unit (FNVA/ha), estimated in the absence of withdrawals
	3.2. Trend for the actual Family Farm Income per surface unit (FFI/ha), estimated in the absence of withdrawals

Judgement criteria	Indicators
	3.3. Trend for the actual Farm Net Value Added per total work unit (FNVA/AWU), estimated in the absence of withdrawals
	3.4 Trend for the actual Family Farm Income per family work unit (FFI/FWU), estimated in the absence of withdrawals
	3.5 Effect of the price fluctuation attributable to withdrawals on the FNVA/ha and FFI/ha
	3.6 Comparison of variability coefficients of actual and estimated indicators, in the periods before and after the 1996 CMO reform

6.1.2 Data sources and limits

The data used to provide answers to evaluation criteria indicators 1-2 and relative limitations are those already used and described for answering criteria 3 and 4 of EQ 1.

To answer the third criterion, the FADN databank was the main statistical source. FADN's data present several limitations:

- Farms are sampled on a voluntary basis. On this basis, the sample farms are selected using a sampling plan based on the region, economic size and production structure.
- The number and composition of the FADN sample varies over time. This implies that the results of the analysis regarding trends for physical (area, production, AWU, FWU) and economic (output, FNVA, FFI) data can be affected during the various years by variations of the sample in terms of structural elements (size of the farms, etc.) and production organisation of the farms (variability of the proportion of surfaces used for the various crops, etc.).
- The output data do not distinguish products grown by destination: total output includes products intended for the fresh produce market; product intended for the processed food industry (for which, as in the case of oranges, an aid for production is allocated) and withdrawn products. The proportion of the various destinations in the various years may significantly influence the economic results.

Because of these limitations, the results of the analysis must be judged with prudence.

Available data made it possible to carry out the analysis for farms producing:

- **Oranges**: the analysis was carried out on the specialised farms of Spain and Italy, and in two regions of these countries (Comunidad Valenciana and Calabria). The source of the data was the EC FADN service;
- **Apples**: the analysis was carried out on farms producing apples in the Trentino region (Italy) and on the farms of several France départements considered as a whole (Lot et Garonne; Vaucluse; Maine-et-Loire Provence-Alpes-Côtes d'Azur, Aquitaine, Languedoc-Roussillon, Midi-Pyrénées et Pays de la Loire.)[65]. The source of the data was the national Italian FADN service and the national French FADN service. It was impossible to identify a sample of farms that specifically produce apples for the Cataluña region. The data regarding this region, made available by the EC FADN service, regard farms that produce pome fruits, including apples. These data were used as a proxy, with all the limitations that entails.

[65] The national French FADN service provided only aggregate data for the whole of the mentioned areas since at individual level the available farm sample did not reach the minimum number.

- **Cauliflowers**: the analysis was carried out solely on the cauliflowers farms of Bretagne. No information was provided by the national Spanish FADN service for the regions of La Rioja and Navarra.
- **Tomatoes for fresh consumption**: the analysis was carried out on two levels, according to the technological production system used:
  - glasshouse-grown tomato farms (Netherlands, Puglia and Spain);
  - field-grown tomato farms (Puglia and Spain). In this case, in order to be able to exclude specialised farms in tomatoes for processing, the sample used focused on farms having less than 2 hectares farmed for tomatoes[66].

  The source of data for Netherlands was the EC FADN service. However, in this case the information about tomato production volumes were not provided by the national Dutch FADN service for the period 1993 to 2000. We were therefore obliged to make estimates of the yields per hectare, made on the basis of the product's market price trends and the average for yields achieved in the years 2001-2004.

  The source of data for Puglia was the national Italian FADN service. Nevertheless, the sample lacked data for several years of the period considered. In particular:
  - glasshouse-grown tomatoes: 1993, 1994, 1995, 1997, 1998, 2000;
  - field-grown tomatoes: 1998 and 2000.

  The source of data for Spain was the EC FADN service. The available data did not contain regional information, particularly for Murcia, and therefore the analysis was undertaken on a national level.

6.1.3 Methodological approach and limitations

See answer to EQ1 for discussion of the methodological approach and the general limitations regarding criteria 1 and 2. In this specific case, the analysis was based on annual prices obtained as the simple arithmetic mean of the monthly prices. The weighted mean could not be calculated due to the lack of data relative to the monthly volumes of products placed on the market. In the hypothesis that lower prices correspond to higher traded quantities, the arithmetic mean we calculated would lead to an overestimate of the real annual average price.

The variability of prices in the absence and presence of withdrawals (indicator 2.1) was calculated using the coefficient of variation ((Standard Deviation / Average price)*100) relative to the two sub-periods: before and after the 1996 reform.

[66] The FADN sample does not distinguish between farms that produce tomatoes for fresh consumption and those that produce tomatoes for processing. This is why we considered farms with less than 2 hectares tilled for tomatoes as producers of tomatoes for fresh consumption in the overview of the analysis.

The calculation was made for the "de-trended"[67] time series of monthly prices.

As for criterion 3, the analysis regarded the economic results of the farms as a whole (i.e. the results deriving from the various production activities that farms carry out, including the crop to be withdrawn). In this case, two income elements were used. The first was the *Farm Net Value Added* (FNVA), which represents the total remuneration of work (family and employees) and of farms' equities or loans. The FNVA is therefore the basic value from which the income of all parties engaged in the farm's activity derives. It is calculated as the difference between the total output (after taxes) and the sum of the variable inputs' costs + amortisation and depreciation of machinery. The second is the *Family Farm Income* (FFI), which records the actual remuneration of entrepreneurial activity. It is calculated as the difference between the FNVA and the sum of costs paid for external labour, capital and land (wages, interest and land rents paid).

In order to relate the analysis to the variability of the FADN sample, the FNVA was compared with the Total Utilised Area (TUA) and the Total Labour Input (AWU[68]), obtaining, respectively, the indexes of income per hectare (FNVA/ha) and per work unit (FNVA/AWU).

Likewise, the FFI was compared with the Total Utilised Area (TUA) and the Family Work Units (FWU), obtaining, respectively, the indexes of family income per hectare (FFI/ha) and family income per family work unit (FFI/FWU).

As already underlined, FADN data do not provide information on produced quantities that are then withdrawn by the farms included in the sample. In order to estimate the effects that withdrawals have on farm incomes, we assumed that the (national) market price variations attributable to withdrawals are transferred to actual prices received by farms of the FADN sample, regardless of the fact that withdrawals were actually effected within the farms. This will very likely overestimate the effect of withdrawals on farms' income to the extent that, without withdrawals, the surveyed farms would have marketed a larger amount than that recorded.

Therefore, the methodology used was as follows:

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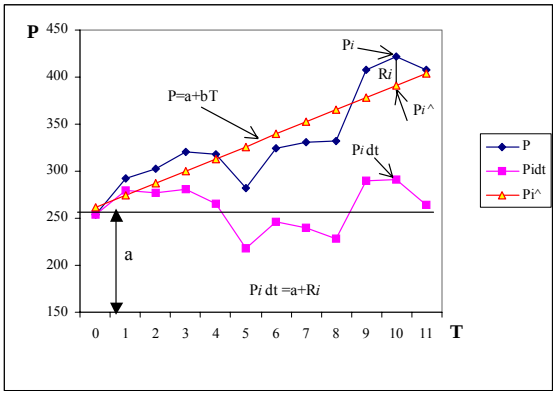
[67] With the aim of eliminating the possible effects of price trends, we decided to "de-trend" the time series of prices of the products analysed. This was achieved by first calculating the trend over the period using the linear regression: $P = a + bT$ (P is monthly price, T is the time (months), b is the slope of the line, a is the intercept (the value of P when T = 0), then calculating the residuals (the deviations from the fitted line to the observed values): Ri = Pi – Pi^ (Ri is residual, Pi is actual price in i month, Pi^ is the calculated price on the regression line in i month). The time series of the "de-trended" prices (P$i$dt) were then obtained as P$i$dt = a + Ri (i indicates the months from 0 to n). The following example shows the methodology



[68] One AWU unit refers to 2200 hours/year.

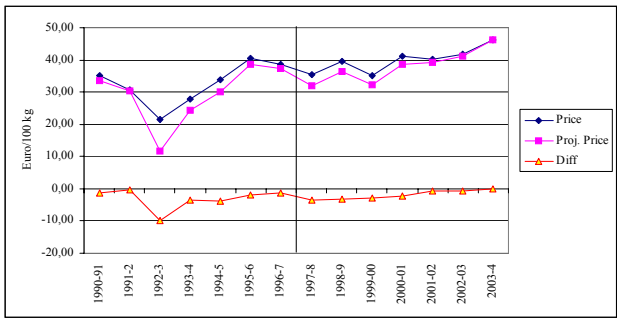
- We calculated the implicit prices received by the sample's farm for each year of the 1993-2003 period, prices specific to the product withdrawn (i.e., in the case of oranges, as the ratio: *Oranges output/Oranges tonnes)*[69]
- We calculated the implicit prices without withdrawal by applying the projected price variations to the implicit prices: *P = P imp x (P proj./P actual)*
- We recalculated the output by multiplying the price calculated for the marketed production (i.e., for oranges: *New oranges output = P x Orange tonnes)*
- We calculated the FNVA and FFI in the absence of withdrawals by subtracting the difference between the actual value of output and the newly calculated value of output from the FNVA and the actual FFI: *FNVAproj = FNVA- Δoutput; FFIproj = FFI- Δoutput;* this is correct under the (realistic) hypothesis that all costs would have remained the same, even in the absence of withdrawals.
- We then recalculated the value of the indicators FNVA/ha, FFI/ha, FNVA/AWU, and FFI/FWU, and made the comparison with actual indicators.
- Lastly, we calculated the variation % of the value of indicators and made the comparison with the variation % of prices.
- The variability of the above-mentioned indicators in the absence and presence of withdrawals (indicator 3.6) was calculated using the coefficient of variation (*(Standard Deviation / Average price)*100)* relative to the two sub-periods: before and after the 1996 reform. The calculation was made on the "de-trended" time series of the annual values in this case as well.

6.1.4 The level of prices with and without withdrawals

The analysis of the effect that withdrawals have on the prices of various products considered, was made on the Spanish, Italian, Dutch and French market level, and refers to all five products (including peaches) analysed in EQ1 criterion 3 and 4.

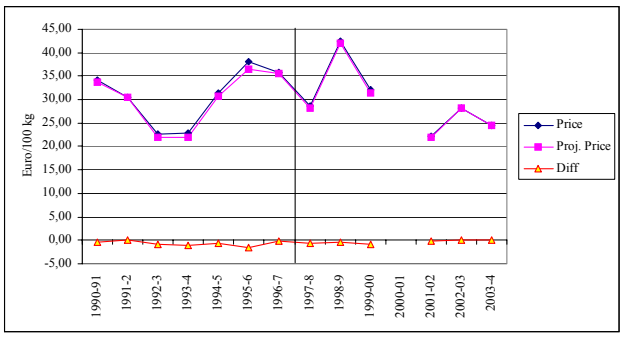
The results of the analysis are presented in the following figures.

Fig. 43 - Oranges: price and projected price in Spain



Source: based on data from Eurostat and on EQ1results

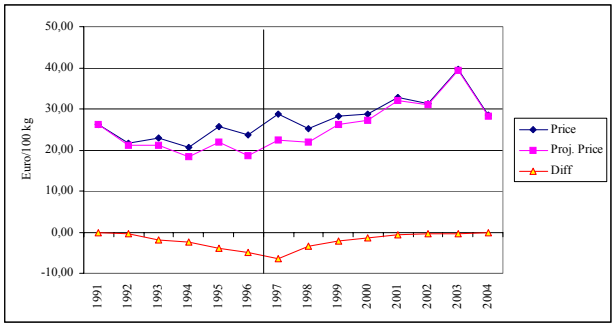
Fig. 44 - Oranges: price and projected price in Italy



Source: based on data from Eurostat and on EQ1results

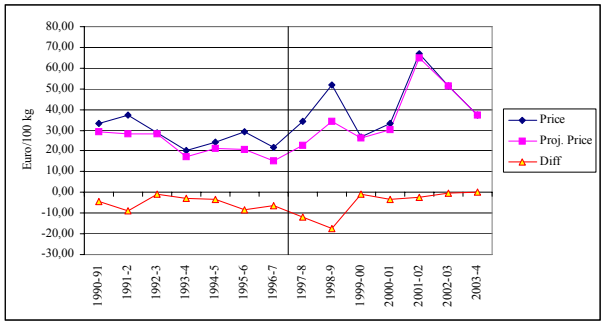
[69] As already noted when comparing CWC with official prices (from the AgriView database) and with production costs (as recorded by FADN), the implicit prices calculated from FADN data are sizeably higher than official ones, at which most producers included in the FADN sample would have made a loss on these products (see footnote 47).

Fig. 45 - Cauliflowers: price and projected price in Spain



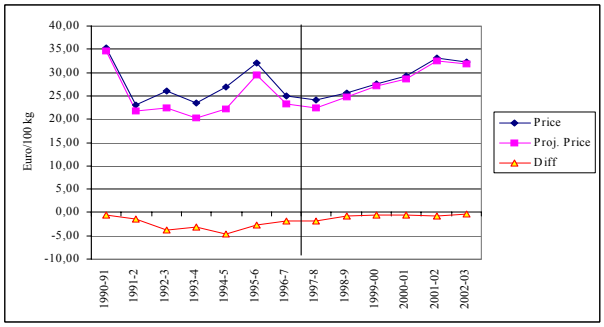
Source: based on data from Eurostat and on EQ1results

Fig. 46 - Cauliflowers: price and projected price in Italy



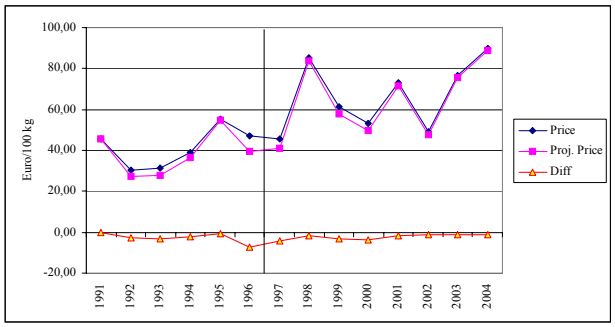
Source: based on data from Eurostat and on EQ1results

Fig. 47 - Cauliflowers: price and projected price in France



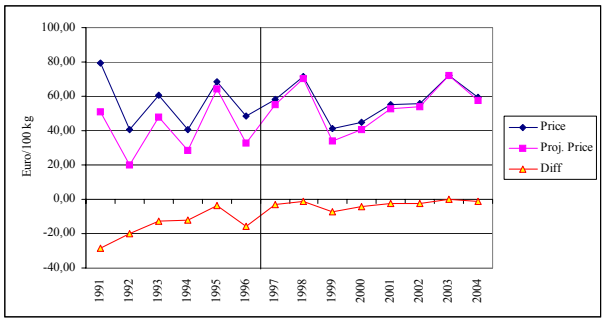
Source: based on data from Eurostat and on EQ1results

Fig. 48 - Peaches: price and projected price in Spain



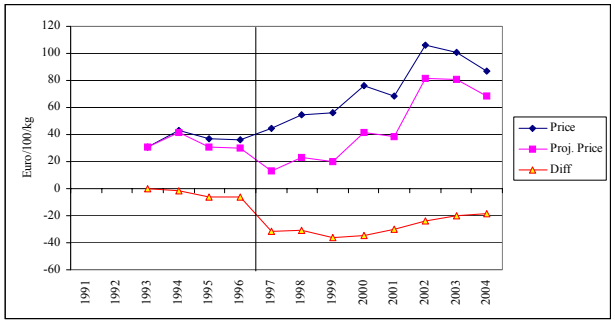
Source: based on data from Eurostat and on EQ1results

Fig. 49 - Peaches: price and projected price in Italy



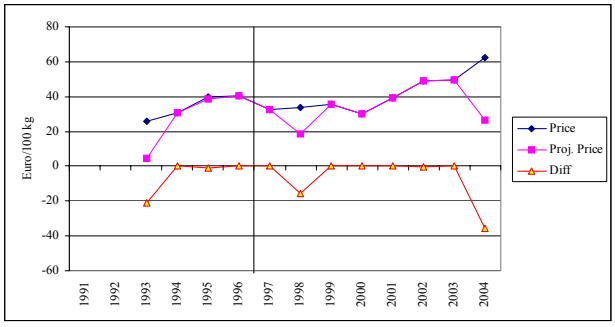
Source: based on data from Eurostat and on EQ1results

Fig. 50 - Tomatoes: price and projected price in Spain



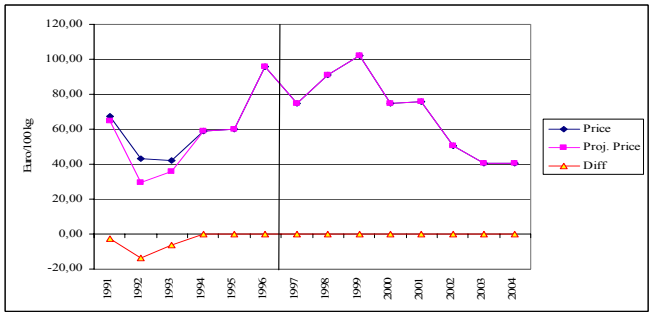
Source: based on data from Eurostat and on EQ1results

Fig. 51 - Tomatoes: price and projected price in Italy



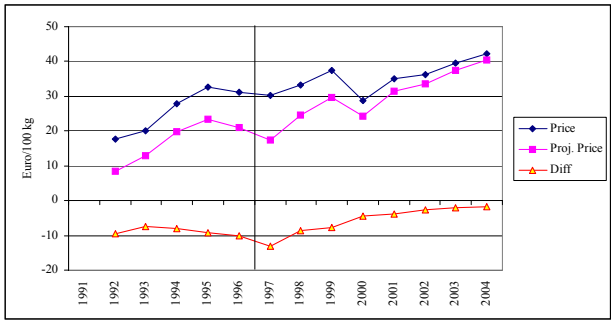
Source: based on data from Eurostat and on EQ1results

Fig. 52 - Tomatoes: price and projected price in Netherlands



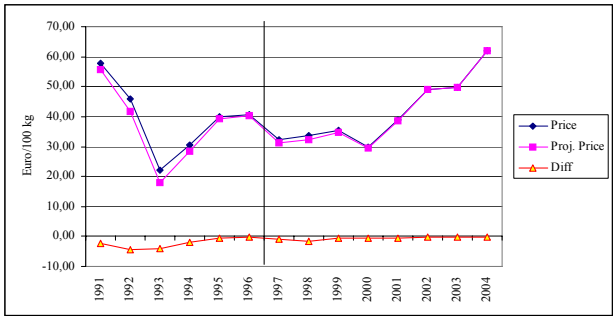
Source: based on data from Eurostat and on EQ1results

Fig. 53 - Apples: price and projected price in Spain



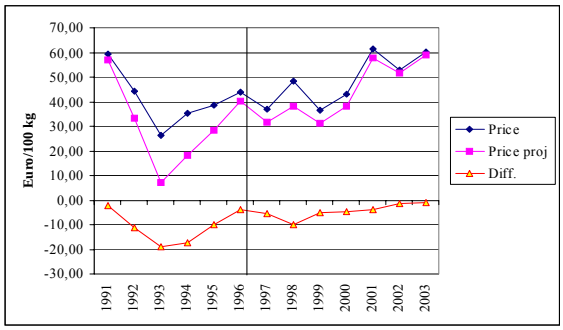
Source: based on Eurostat data and EQ1results

Fig. 54 - Apples: price and projected price in Italy



Source: based on Eurostat data and EQ1results

Fig. 55 - Apples: price and projected price in France



Source: based on data from Eurostat and on EQ1results

As for the level of actual prices, the following was noted:

- a substantial price adjustment of cauliflowers in Italy, Spain and France, and peaches in Italy and Spain;
- a lower level of prices for apples in Spain
- a higher level of prices for tomatoes in the Netherlands and Spain;
- a lower level of prices for oranges in Italy, along with a progressive widening of the spread with respect to Spain's prices.

In dynamic terms, a substantial difference between the Spanish, French and Italian markets was also noted. The prices of all products in Spain and France displayed a rising trend over the entire period considered. In Italy, prices revealed basically no trends for almost all products, except for cauliflowers and – in recent years – apples and tomatoes.

The price trends in these markets shows that there is a state of price-crisis in some of the years, and for some products. In particular:

- a strong orange crisis in the 1992-93 campaign in the two markets, and in the campaign following 2001 in Italy;
- a strong cauliflower crisis in 2004 in Spain and Italy; and in France in 1992-1996 and 1997;
- a strong apple crisis in 1993 in Italy and France;
- a tomato crisis in 1993, 1998 and 2004 in Italy; in 2003-2004 in the Netherlands; in 1997-98 in Spain;
- a recurring and non-continuous crisis for peaches, specially in Italy.

For the other years, observed price decreases were not suggestive of true crises.

The role that withdrawals seem to have played in dealing with crises (at least in terms of their ability to bring about price increases) appears to be highly diversified across both time and products. In general, a stronger effect is noted in the period prior to the 1996 reform, and a progressively weaker effect is seen in the years following the reform, reflecting the larger use of withdrawals before the reform, with the significant exception of tomatoes in Spain. In general, a stronger effect is also noted in Spain, if compared to other countries, perhaps with the exception of peaches in Italy, in the period prior to the reform.

However, the analysis of the trends of actual prices compared with projected prices, shows up several aspects that are, at first glance, inconsistent with the theoretical aim of the instrument. The purpose of withdrawals should be, in fact, to support the market price (and producers' incomes) in case of short-terms surpluses. The data show that this has not always been the case. In some cases recourse to withdrawals seems to have occurred independently from the presence of a short-term crisis, as revealed by lower than average prices.

With all the necessary caution owing to the limitations described above, the example of tomatoes in Spain and Italy appears emblematic:

- recourse to withdrawals occurred in Italy in 1993, 1998 and 2004, coinciding with possible short-term market crises as witnessed by price slumps in the series of projected prices. This can be taken as indirect evidence that withdrawals might have contributed to preventing short-term price drops.
- in Spain, withdrawals seem to have been used continuously, even during periods characterised by increasing price trends, something that would be at odds with the theoretical role of withdrawals.

6.1.5 Comparison of the variability of prices in the presence and absence of withdrawals

The comparison between the coefficients of variation of actual and projected **de-trended prices** (for the various products), before and after the 1996 reform shows that:

- in **Spain** there was a drop in the coefficients of variation, particularly in the case of tomatoes (-62 points)[70] after the reform, apples (-19.8 percentage points before the reform and –28.7 points after the reform), oranges (-10.6 points before the reform) and cauliflowers (-6.2 points before the reform and –7.5 points after the reform). In other cases, before and/or after the reform, the drop was below 5 percentage points.
- In **Italy** there was a more significant decrease in the coefficients of variation in the case of tomatoes (-19.6 percentage points before the 1996 reform and –12.8 points after the reform), peaches (-12.1 percentage points before the reform and –13.2 points after the reform) and cauliflowers (-8 percentage points before the reform and –32.2 points after the reform). In other cases, before and/or after the reform, decreases were much lower.
- In **France** there was a more significant fall in the coefficients of variation in the case of apples (-55.7 percentage points before the 1996 reform and –15.5 points after the reform). In other cases (cauliflowers) the decrease was below 5 percentage points.
- The decrease in coefficients of variation of tomatoes in the Netherlands was below 5 percentage points before the 1996 reform. After the reform, there were no withdrawals, so there has been no change in the coefficient of variation.

These results show that the recourse to withdrawals for all products in the markets analysed has enabled price variability to drop, to a more or less marked extent, depending on the products and markets.

However, the coefficient of variation:

- stayed above 30% in Spain in the case of tomatoes (32% before the 1996 reform and 110% after the reform), peaches (38% before the 1996 reform and 78% after the reform) and cauliflowers (38% after the reform). In other cases, variability ranged between 25 and 30%;
- stayed above 30% in Italy in the case of cauliflowers (54.6% before the 1996 reform and 106% after the reform), tomatoes (40% before the reform), apples (43.6% before the reform and 34.4% after the reform) and peaches (32% before the reform). In other cases, variability ranged between 15 and 30%;
- stayed above 30% in France in the case of cauliflowers (50% before the 1996 reform and 45% after the reform) and apples before the reform (45%);
- was always higher than 30% (46% before the 1996 reform and 57% after the reform) in Netherlands in the case of tomatoes.

The results of the analysis highlight the fact that despite recourse to withdrawals and their effects, variability remains high – at least for certain products. The recourse to withdrawals has therefore likely lessened variability (depending on the quantitative limits allowed), but perhaps not made it possible to stabilise producers' actual prices.

With regard to the variability of prices before and after the reform, the analysis shows:

- a significant increase in variability following the reform in the case of tomatoes (79 percentage points), peaches (40 percentage points), cauliflowers (8 percentage points) and apples (4.3 percentage points) in Spain; in the case of cauliflowers (51.4 percentage points), tomatoes (24.3

[70] For tomatoes in Spain, in some months the projected de-trended prices are negative. Since this does not have an economic meaning, to calculate the coefficient of variation the negative prices have been considered 0. In addition, in the first months of 2002, prices have some very high values. This has strongly influenced the standard deviation and the value of the coefficient of variation (very high in the post-reform period). Consequently, this value must be treated with particular caution.

percentage points) and oranges (2.7 percentage points) in Italy; in the case of tomatoes (10.6 percentage points) in the Netherlands;

- a decrease in variability after the reform in the case of apples (-9.2 percentage points) and peaches (-5.6 percentage points) in Italy, as well as apples (-19.7 percentage points) and cauliflowers (-4.9 percentage points) in France.

The analysis shows that, compared to the previous period, the variability of prices during the period subsequent to the 1996 reform increased or decreased according to products and markets. From this analysis, no general effect on the whole set of products can be linked uniquely to the 1996 reform.

6.1.6 Impact on producers' incomes

The results at country and region levels should be evaluated with a good deal of prudence due to both the limitations of the projected prices (see EQ1) and the limitations of the FADN data and FADN sample representativeness (see paragraphs 6.1.2. and 6.1.3.). In particular, the important limitations of the analysis of the effect on prices are reflected on the analysis of income. In fact, the impact on prices as determined according to the adopted methodology must be considered as an upper limit to actual effects that withdrawals actually had in practice (see EQ1). Consequently, the actual impact of withdrawals on producers' incomes is also likely to be lower than what the results of the analysis show.

6.1.6.1 Impact on orange producers' incomes: the case of Spain and Comunidad Valenciana, Italy and Calabria

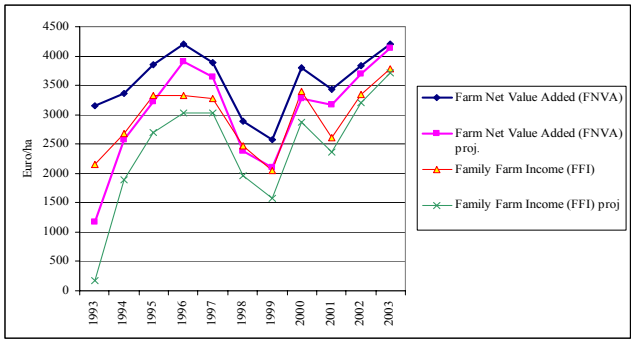
Analysis of the effects of withdrawal on the economic performance of orange producers was conducted at both country and region levels. In particular, we analysed: Spain and Comunidad Valenciana; Italy and Calabria.

6.1.6.1.1 The case of Spain and the Comunidad Valenciana

The output of oranges in the FADN sample represents 84% to 93% (depending on the years) of the total output of the farms. These farms are therefore highly specialised.

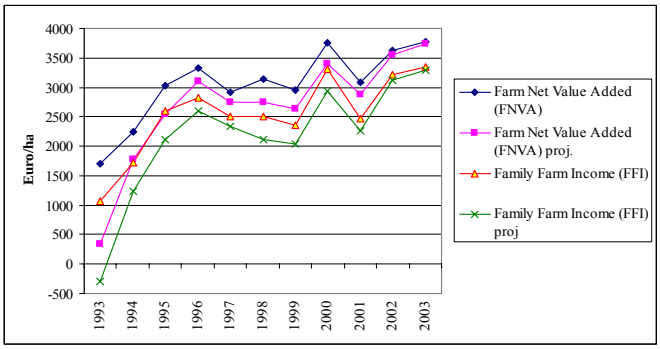
The trends of actual and projected *FNVA/ha and FFI/ha* indicators in the hypothesis of withdrawals are pointed out in the figures below.

Fig. 56 - Spain: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

Fig. 57 - Com. Valenciana: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

The results show a basically similar trend, but with generally lower absolute levels in the case of regional results. Within this trend we note the effects of the sharp decrease in actual prices in 1993 and of their rise over the three years that followed. As we have seen, 1993 was also the year when the highest volume of withdrawals allowed the price slump to be considerably limited.

In fact the analysis shows that the price decrease of about 36% in the absence of withdrawals in 1993 were reflected in a 63% reduction of the FNVA/ha and 92% reduction of the FFI/ha of Spain's farms.

In the years that followed the exceptional 1993 crisis, the role played by the more limited volumes of withdrawals in the formation of farms' income was obviously significantly lower, almost to the point of cancelling itself out during the last two years of the period.

With regard to the income per total and family work unit - expressed by the *FNVA/AWU and FFI/FWU* indicators - the trend basically reflects the trend of the area based indexes. It can be noted, in this case as well, that without withdrawals, the remuneration of the workforce would have been lower, particularly in 1993. It is nevertheless worth observing that, except for 1993, the income per total and family work unit (although with fluctuations during the period) would have remained rather high, even in the absence of withdrawals.

As for the role played by withdrawals on the stability of incomes (before and after the 1996 reform), the analysis of price coefficients of variation and of indicators used (de-trended) shows some significant elements:

- as already pointed out, recourse to withdrawals seems to have allowed a lower variability in prices, to a more significant extent during the period prior to the 1996 reform.
- likewise, recourse to withdrawals would have lessened the variability of incomes.
- however, the variability of incomes – and particularly the income of family units – seems to be significantly higher than the variability of prices, and remains very high (before the reform) or rather high (after the reform). This suggests that, in addition to the price of the product being considered, the variability of other components of the farm budget plays an important (and varying) role in the formation of producers' income.

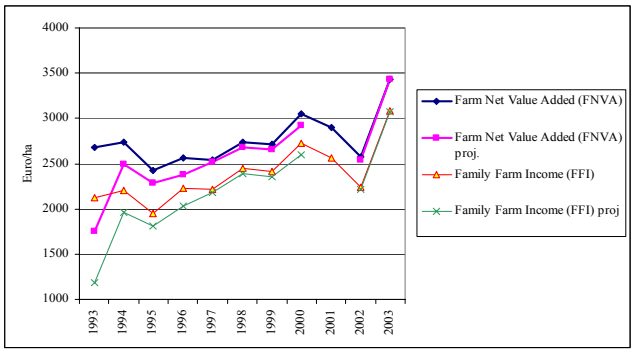
As a general conclusion, the analysis shows that recourse to withdrawals in Spain, and in the Comunidad Valenciana, would have allowed producers to obtain higher incomes and to reduce, to a limited extent, income variability.

6.1.6.1.2 The case of Italy and Calabria

The output of oranges in the FADN sample represents 83% to 95% (depending on the years) of the total output of farms. These farms are therefore highly specialised.

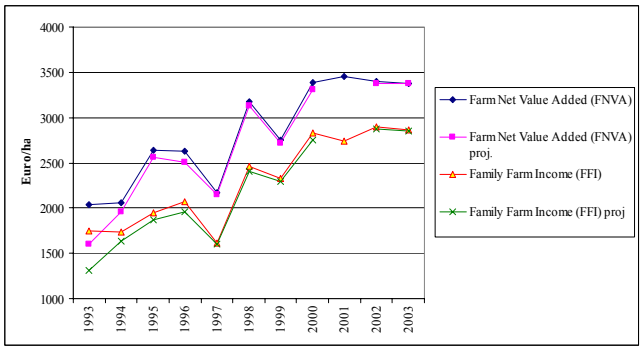
The trends of the actual and projected *FNVA/ha* and *FFI/ha* indicators in the hypothesis of withdrawals are given in the figures below.

Fig. 58 - Italy: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

Fig. 59 - Calabria: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

Unlike Spain, the results at the two levels of analysis - country and region – in the case of Italy show a somewhat different evolution, even if underlying trends appear to be upward in both cases. This is an indication of the fact that there are some differences in Calabria with respect to the national average as regards the structure and organisation of the market of factors.

In any case, the positive trend of income per surface unit may justify the low recourse (practically non-existent in recent years) to withdrawals. As a matter of fact, with the notable exception of 1993 (year of a peculiar market crisis, as occurred in Spain), the role withdrawals played on income trends seems to have been rather limited. In 1993 withdrawals might have restricted the price slump. In the absence of withdrawals, the farms' economic results would have been considerably lower, even if not in as a dramatic way as in the case of Spain. In fact, the price decrease of about 17% in the absence of withdrawals in 1993 would have reflected a 35% reduction in the *FNVA/ha* and a 44% reduction in the *FFI/ha* of Italy's farms, and 22% and 25%, respectively, for Calabria's farms.

With regard to the income per total and family work unit – expressed by the FNVA/AWU and FFI/FWU indicators – once again the trend reflects that of the other indexes. It is noted in this case as well that, in the absence of withdrawals, the remuneration of the workforce would have been lower in 1993, whereas the differences in income in the other years would have been much lower.

It is nevertheless worth observing that, unlike the national average, income per total and family work unit in Calabria has generally been falling, starting with the particularly high maximum level of 2000 (although the results might reflect differences in the composition of the 2000 FADN sample for the Region). This drop has brought the income per work unit back to values similar to the average national level.

Lastly, it is pointed out that the income per total and family work unit (although with fluctuations during the period) is higher than in Spain, even in the absence of withdrawals.

As for the role played by withdrawals on the stability of incomes (before and after the 1996 reform), the analysis of the price coefficients of variation and of the indicators used (de-trended) showed up some significant elements:

- recourse to withdrawals would have allowed a moderate decrease in the variability of prices in the period prior to the 1996 reform (variability strongly affected by the 1993 data). And no significant effect can be noted after the reform, given the limited recourse to withdrawals;
- once again, recourse to withdrawals would have lessened the variability of incomes;
- the variability of incomes per unit of area appeared to rise following the 1996 reform. Likewise, the variability of incomes per total and family work unit seems to have decreased on average in the country, whereas it seems to have risen considerably in Calabria.

In conclusion, the limited recourse to withdrawals in Italy (country and region) seems to have had a negligible effect on producers' incomes, at least after the 1996 reform.

6.1.6.2 Impact on apple producers' incomes: the case of French regions, Trentino (Italy) and Cataluña (Spain)

Analysis of the effects of withdrawal on the economic performance of apple producers was conducted:

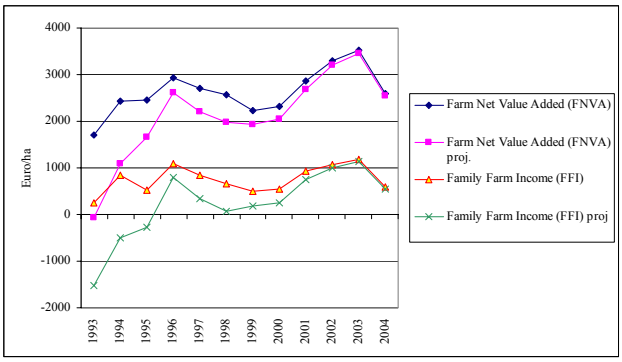
- for France on the *départements* considered as a whole (Lot et Garonne; Vaucluse; Maine-et-Loire Provence-Alpes-Côtes d'Azur, Aquitaine, Languedoc-Roussillon, Midi-Pyrénées et Pays de la Loire)[71];
- for the Trentino region in Italy;
- for the Cataluña region in Spain[72].

The apple output in the FADN sample makes up 40% to 56% (depending on the years) of the total output of French farms, and 46% to 59% of Trentino farms. Pome fruit (including apples) makes up 34% to 74% (depending on the years) of the total output of sample farms for Cataluña.

The income indicators of these farms are therefore significantly affected by the economic results of other crops, too.

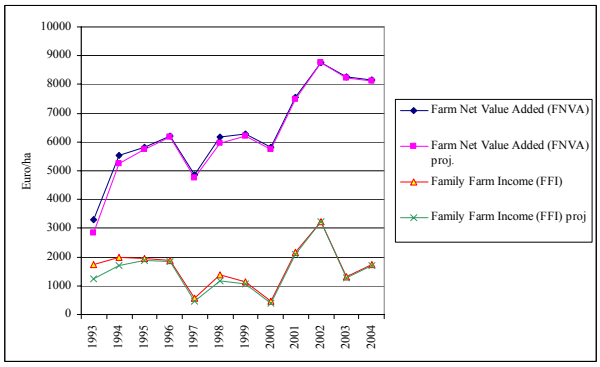
The trends of the actual and projected *FNVA/ha and FFI/ha* indicators in the hypothesis of withdrawals are given in the figures below.

Fig. 60 - France: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

Fig. 61 - Trentino: FNVA/ha and FFI/ha, with and without withdrawals

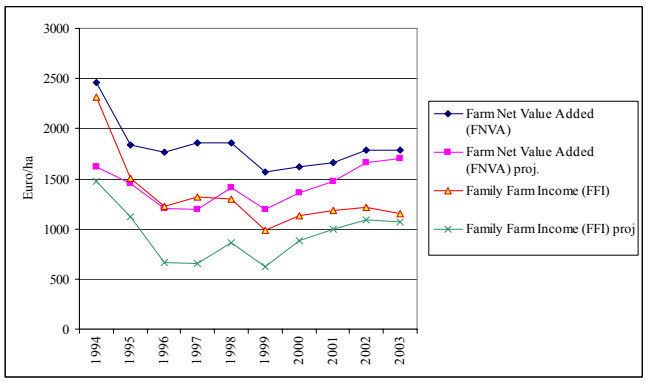


Source: based on data from FADN

[71] As already mentioned, the data were aggregately provided by the national French FADN service for the whole of the mentioned areas, since at an individual level the available farms sample did not reach the minimum number.

[72] As already mentioned, the data provided by EC FADN service for Cataluña relate to the farms that generally produce pome fruits, and not only apples. This limit must be kept in mind with regard to the results of the analysis.

Fig. 62 - Cataluña: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

In the case of France and Trentino, the trends of income per hectare indicators roughly follow the trends of apple prices in the two specific markets of reference (see paragraph 6.1.4). Indeed we can observe a growth in the actual FNVA/ha following the profound crisis of 1993-1996, after which there was a phase of slight depression and a subsequent phase of growth starting in 2001.

Nevertheless, the level and average rate of growth of the FNVA/ha appears highly differentiated (considerably higher in Trentino's case).

Also the FFI/ha level seems higher on average in Trentino's case, but with a narrower differential with respect to the FNVA/ha. Moreover, the FFI/ha in Trentino does not show an appreciable growth trend. This leads us to believe that the costs for external factors (wages, rents, interest paid) in this region have grown at a much faster pace than those in France.

In the case of Cataluña, the trends of income per hectare indicators significantly break with the trend of apple prices in the Spanish market (enjoying constant growth). A tendential drop in income indicators was indeed seen up until 1999, and only afterwards do we find growth consistent with the trend of market prices (this is probably due to the lower quality of Catalan apples and to the greater recourse to the processing industry).

As for the role withdrawals play on farm income, the analysis brings some significant differences to light.

In the case of France, the higher volume of withdrawals (particularly during the early years of the period considered) might have allowed the price drop, as well as the FFI, to be greatly curbed, in particular in 1993 and in the following two years.

The lower (and diminishing) volumes of withdrawals in Trentino seem to have had a much smaller impact on farm incomes. The price decrease of about 19% in the absence of withdrawals in 1993 (year of the most significant crisis) would have reflected only a 14.3% reduction in the *FNVA/ha* and a 27% reduction in the *FFI/ha.* However, the impact of withdrawals seems to be highly differentiated, depending on different economic situations. For example, the 3.4% price decrease without withdrawals in 1997 led to an 18.2% fall in the FFI/ha.

It is therefore obvious that the role withdrawals play on the income of producers is differentiated depending on the occurrence of positive circumstances (lower impact) or negative circumstances (greater impact) of other crops grown on the farms.

The high withdrawal volumes in Cataluña (particularly during the middle years of the period) might have played an important role in farms' income. In 1997 the drop of about 43% in the price of apples without withdrawals might have caused a 36% decrease in the *FNVA/ha,* and a 50% fall in the *FFI/ha*, which in any case would have remained positive.

With regard to the income per total and family work unit (*FNVA/AWU and FFI/FWU*), the trend basically reflects the income per hectare trend. In particular, the income per family unit without withdrawals of French farms would have been negative during the early years of the period, and not very positive during the middle years of the period. Similarly, the limited role of withdrawals on the income per work unit in Trentino, and the strong role they played in Cataluña, seems to be confirmed.

Furthermore, withdrawals in France might have contributed to generating a considerably higher income per family unit (on average during the period examined) compared to the income obtained by the producers of Cataluña and – above all – by those of Trentino (roughly half on average in the latter case).

As for the role played by withdrawals on the stability of incomes (before and after the 1996 reform), the analysis of price coefficients of variation and of indicators used (de-trended) show up some significant elements:

For France:

- recourse to withdrawals might have allowed price variability to be considerably reduced, especially during the period prior to the 1996 reform;
- likewise, withdrawals might have contributed to lessening the variability of incomes, to a more significant degree during the period prior to the 1996 reform in this case as well;
- however, the variability of income per family unit appears to be significantly higher than the variability of prices, and remains high (both before and after the reform) even in the presence of withdrawals. It is therefore deduced that in addition to the prices of apples, the trends of prices of other crops and other balance sheet components of the farm play an important (and variable) role in the formation of producers' income.

  One may therefore conclude that recourse to withdrawals might have allowed French producers to obtain higher incomes and to reduce relative variability.

For Trentino:

- the low recourse to withdrawals seems to have contributed to decreasing the variability of prices and incomes to a limited extent before the 1996 reform, and had little impact after the reform;
- variability of incomes therefore remained high, and in the case of the FFI/ha and FFI/FWU, it appears to have risen sharply during the period following the 1996 reform. However, the variability of income might have been influenced by other factors, also linked to the production of other crops.

For Cataluña:

- recourse to withdrawals seems to have contributed to reducing the variability of prices, particularly during the period following the 1996 reform;
- in the same way, withdrawals appear to have contributed to reducing the variability of incomes, especially after the reform, within absolutely acceptable limits (less than 20%);
- it should be pointed out that the variability of incomes after the 1996 reform would have dropped even if there had been no withdrawals. However, the variability of income might have been influenced by other factors, also linked to the production of other crops.

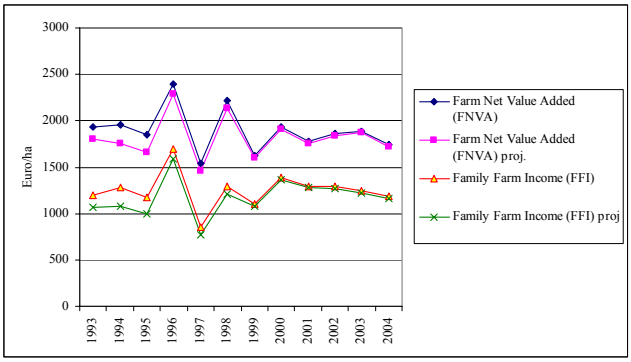
6.1.6.3 Impact on cauliflower producers' incomes: the case of Bretagne

The output of cauliflowers in the FADN sample represents 19% to 31% (depending on the years) of the total output of farms. Moreover, cauliflowers make up 30% to 38% of the TUA. The income

indicators of the farms are therefore heavily influenced by the economic results of other crops, whose profitability per hectare seems to be higher.

The trends of the actual and projected *FNVA/ha and FFI/ha* indicators in the hypothesis of withdrawals are given in the figures below.

Fig. 63 - Bretagne: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

The analysis shows that withdrawals seem to have had an impact on incomes per hectare of cauliflower farms above all during the early years of the period, whereas the impact might have been was marginal (in proportion to the lower volumes of withdrawn product) from 1999 onwards.

Unlike cases analysed up to this point, price variations without withdrawals reflected on FNVA/ha variations to a smaller extent, and to a basically similar extent in terms of FFI/ha variations. This is obviously due to the lower impact of cauliflower output on the formation of total farm output.

With regard to the income per total and family work unit (*FNVA/AWU and FFI/FWU*), the trend basically reflects the income per surface unit trend. Without withdrawals, remuneration of the workforce would have been lower in this case, too.

Furthermore, income per total and family work unit appears to be rising since 2000 (unlike income per surface unit). This appears to prove that Bretagne cauliflower farms might have introduced changes to their production methods – with more labour saving – during the latter years of the period, which might have contributed to achieving a higher unit income level.

As for the role played by withdrawals on the stability of incomes (before and after the 1996 reform), the analysis of price coefficients of variation and of the indicators used (de-trended) points to the fact that:

- recourse to withdrawals might have provided a rather small drop in variability of implicit prices of farms during the period following the 1996 reform, whereas they did not play any remarkable role in the pre-reform period;
- recourse to withdrawals might have led to a slight fall in variability of incomes during the period prior to the reform, which in any case would have remained within not particularly high limits even without withdrawals (less than 30%);
- the variability of incomes per hectare and per work unit might have dropped considerably during the post-reform period (even if with lower withdrawal volumes). Moreover, the variability of income might have been influenced by other factors, also linked to the production of other crops.

Therefore, recourse to withdrawals in Bretagne might have contributed to reducing the variability of incomes during the pre-reform period, whereas it seems to have played a smaller role during the subsequent period. Nonetheless, lower income variability during the post-reform period leads one to assume that effective stabilisation measures other than withdrawals were implemented.

6.1.6.4 Impact on tomato producers' incomes: the case of the Netherlands, Puglia (Italy) and Spain

Analysis of the impacts of withdrawals on farms producing tomatoes was carried out on a national level in the case of Netherlands and Spain, and on a regional level (Puglia) in the case of Italy.

As is known, tomatoes for end consumption can be produced in two ways: in the glasshouse and in the field. The structure, organisation and balance sheet items of farms using the two technologies are naturally totally different.

In Netherlands's case, all production is carried out in glasshouses.

In the case of Puglia and Spain, both technologies are used. The analysis, in this case, was therefore carried out by distinguishing farm samples by type of method.

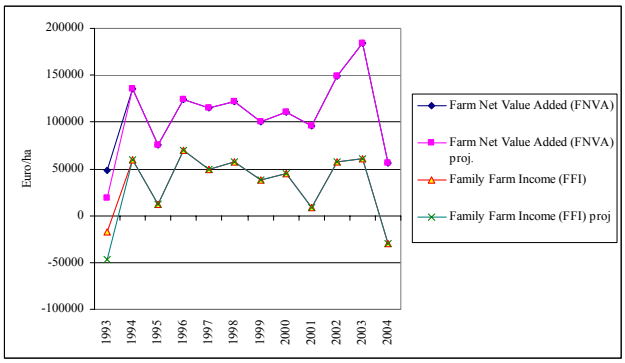
6.1.6.4.1 The case of the Netherlands

Netherlands's tomato production was never subject to withdrawals during the period examined, except for 1993. The analysis therefore - except for 1993 - did not regard the effects of withdrawals, but rather the trends of economic results of the farms that did not resort to withdrawals.

The output of tomatoes in the FADN sample made up more than 90% of the total output of farms. Moreover, tomatoes make up 59% to 88% of the TUA, depending on the years. Dutch tomato farms are therefore highly specialised.

The trends of actual and projected *FNVA/ha and FFI/ha* indicators in the hypothesis of withdrawals are given in the figures below.

Fig. 64 - Netherlands: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

The analysis undertaken shows there were two moments of strong crisis at either ends of the period under review. Limited recourse to withdrawals during the 1993 crisis seems to have contributed to restricting the price drop, which nonetheless did not prevent farms from recording a negative family per hectare income.

Farms made a negative income during the 2004 crisis as well, which (perhaps) could have been avoided by resorting to withdrawals.

Similarly, the income per family work unit reflects the trends of the family per hectare income, showing a heavy loss (but limited by resorting to withdrawals) in 1993 and an even heavier loss in 2004.

We can see that in the Netherlands a state of crisis seems to have reflected very significantly on family income (per hectare and per work unit), since recourse to wage-earning labour (semi-fixed cost factor) is very high in glasshouse production activities, making up 75% of total work on average.

This is also highlighted by the results of the variability analysis. An even modest average price variability translates into a much higher variability of family income, both per hectare and per work unit.

However, variability of the indicators used seemed to drop during the period following the 1996 reform in spite of the 2004 crisis, and even if no use was made of withdrawals. This leads one to think that effective stabilisation measures other than withdrawals were implemented.

6.1.6.4.2 The case of Puglia

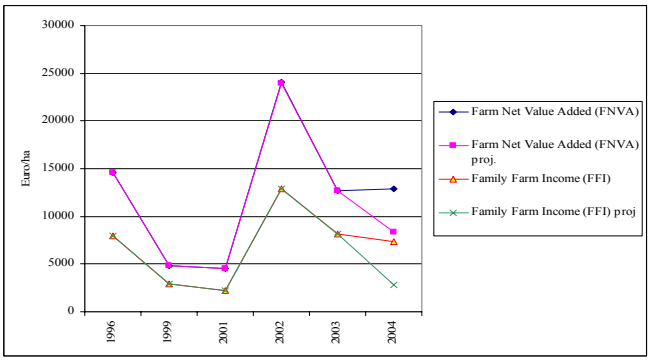
Puglia's tomato production was the object of withdrawals during the period examined only in the years 1993, 1998 and 2004.

The FADN sample of farms with glasshouses was very limited (fewer than 10 farms), and incomplete (the sample was less than the minimum number allowed for releasing data in some years). The output of tomatoes compared to total output is extremely variable in these sample farms, from a minimum of 23% to a maximum of 61%. Tomatoes also make up a minimum of 4% to a maximum of 26% of the TUA, depending on the years.

The FADN sample of farms with field-grown tomatoes (farms with less than 2 ha of tomatoes) is also limited (in some years), and incomplete (1998 and 2000 data are lacking for the same reason as above). The output of tomatoes compared to total output varies from a minimum of 13% to a maximum of 25% in these sample farms. Tomatoes also make up a minimum of 6% to a maximum of 12.5% of the TUA, depending on the years. The results of the analysis therefore reflect this strong variability, and results must be treated with due caution.

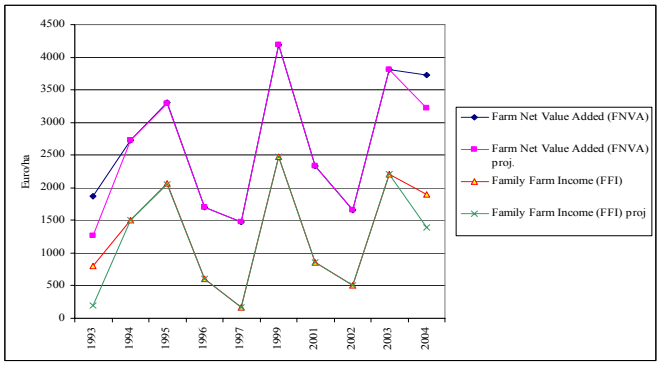
The trends of actual and projected *FNVA/ha and FFI/ha* indicators in the hypothesis of withdrawals are given in the figures below.

Fig. 65 - Puglia glasshouses: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

Fig. 66 - Puglia field: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

As might be expected, the analysis of results shows that the income per hectare level in farms producing tomatoes in glasshouses is much higher than in farms producing tomatoes in the field (about 5 times higher on average).

The analysis also shows that the impacts of withdrawals on farm income (measurable only for 2004 in the case of glasshouse farming, and for 1993 and 2004 for field farming) seem to be significant. In particular in 1993 – without withdrawals – the FFI/ha would have reached values very close to zero, with a drop of about 75%, compared to a drop in price of 82%.

Moreover, withdrawals would have allowed the FFI/ha drop to be limited in 2004, which would have been about -27% against a 57% price drop without withdrawals in the case of field farming, and 61.7% in the case of glasshouse farming.

In the case of field farming, the price fall without withdrawals would have had less dramatic effects on farm income since it would have been mitigated by the economic results of other farm activities.

Also worthy of mention is the existence of an income per hectare cyclicity (particularly evident in the case of field farming), whose trend presents some troublesome lows even in years when no withdrawals were effected.

As for income per work unit, the actual FFI/FWU is significantly higher in the case of glasshouse farming (about 2.2 times higher on average). The trend also reflects to some extent the income per hectare trend in this case as well.

As for the role played by withdrawals on income stability (before and after the 1996 reform), the analysis of price coefficients of variation and of indicators used (de-trended) shows that:

- For glasshouse farming[73], the withdrawals made in 2004 seem to have allowed a reduction in price variability, but this appeared to have an insignificant impact on income variability. Moreover, the latter remained at high levels due to strong cyclical fluctuations.
- For field farming, withdrawals would have contributed to a fall in price variability during the pre-reform period (1993 withdrawals) more than during the subsequent period (2004 withdrawals). This greater role was also seen in a reduction in income variability, both per hectare and per work unit, although to a smaller extent.
- However, income variability appears to rise considerably and reach high values during the post-reform period. The variability of income might have been influenced by other factors, also linked to the production of other crops.

6.1.6.4.3 The case of Spain

Spain's tomato production was always subject to withdrawals during the period under review.

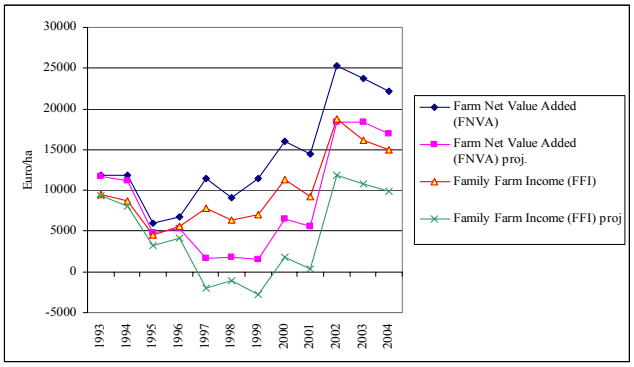
The tomato output of farms with glasshouses represents more than 63% of total output of farms in the FADN sample, up to a maximum of 78%. Moreover, tomatoes make up 16% to 85.3% of the TUA, depending on the years.

Tomatoes represent a minimum of 30% to a maximum of 55% of total output of farms with field farming. Moreover, tomatoes make up 4.5% to 12% of the TUA, depending on the years.

The trends of actual and projected *FNVA/ha and FFI/ha* indicators in the hypothesis of withdrawals are given in the figures below.

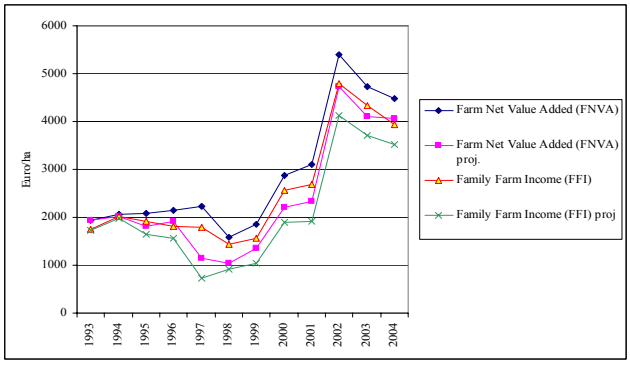
[73] The availability of data makes possible only an analysis of the period following 1996.

Fig. 67 - Spain glasshouses: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

Fig. 68 - Spain field: FNVA/ha and FFI/ha, with and without withdrawals



Source: based on data from FADN

The trends of income per hectare indicators roughly follow the trends of prices of tomatoes for fresh consumption in the Spanish market. It enjoyed particularly strong growth in the period starting in 1997-1998, with a slight downturn during the last two years of the period (see paragraph 6.1.4).

The analysis suggests that withdrawals might have played a very important role, above all during the middle years of the period, without which family income per hectare would have been negative in the case of farms with glasshouse farming, and relatively low in the case of farms with field farming.

The 71.4% price decrease without withdrawals in farms with glasshouse farming might have prompted an 85.5% drop in the FNVA/ha and a 125% fall in the FFI/ha in 1997. On the other hand, this price fall might have driven the FNVA/ha down by 48.6% and the FFI/ha down by 60% in farms with field farming (it is clear that the different impact on income depends on the different incidence of the tomato in the production structure of the two types of farms). It must however be stressed that recourse to withdrawals in more recent years appears to be less justified. In fact, without withdrawals incomes (rising considerably) would have been much higher than the incomes of Puglia's farms.

With regard to income per work unit, the trend basically reflects the income per hectare trend in this case as well. In particular, the FFI/FWU of farms with glasshouses would have been negative during the middle years of the period without withdrawals. Unlike income per hectare, the FFI/FWU appears to have risen further during the last two years of the period. While on the one hand this confirms previous reflections on the advisability of making withdrawals, on the other it proves that measures aimed at increasing production efficiency might have been progressively implemented in Spanish farms.

Lastly, the actual FFI/FWU is slightly higher in the case of glasshouse farming than field farming, unlike in Puglia.

As for the role played by withdrawals on the stability of incomes (before and after the 1996 reform), the analysis of price coefficients of variation and of indicators used (de-trended) shows that:

- for glasshouse farming, withdrawals might have allowed the variability of family income (both per hectare and per work unit) to be drastically reduced during the post-reform period.
- withdrawals might have played a greater role on the variability of prices and incomes during the post-reform period for field farming too. In particular, they might have contributed to reducing the variability of family income per work unit. Nevertheless, the variability of actual incomes per hectare appeared to grow sharply after the 1996 reform, even with withdrawals. As previously pointed out, the reduction in the variability of the FFI/FWU would appear to be attributable to other factors.

6.1.7 Evaluation judgement

An analysis of actual and estimated prices in the absence of withdrawals was performed for some products in the Spanish, French, Dutch and Italian markets.

Analysis of the impact on producers' income levels in the absence of product withdrawal was performed:

- on orange producing farms in Spain and Italy at a national level and in the Comunidad Valenciana and Calabria at a regional level;
- on apple producing farms in France at a multi-regional level and in Trentino and Cataluña[74] at a regional level;
- on cauliflower producing farms in Bretagne at a regional level;
- on tomato producing farms in Spain and the Netherlands at a national level and in Puglia at a regional level.

The results at country and regional levels should be evaluated with a good deal of caution due to both the limitations of projected prices and the limitations of the FADN data and FADN sample representativeness. In particular, important limitations affecting the price analysis have an effect on the income analysis. The impact on prices as determined according to the adopted methodology must be considered as an upper limit to actual effects that withdrawals had in practice (see EQ1). Consequently, the actual impact of withdrawals on producers' incomes is likely to be lower than what the results of the analysis show.

With all the necessary caution owing to the above limitation, we can say that the comparison between actual and estimated prices appears to reveal a greater role played by withdrawals in the period prior to the 1996 reform, albeit with some exceptions (most notably, tomatoes in Spain and cauliflowers in Italy).

The analysis also revealed that the withdrawal system might have played a significant role in sustaining prices in the Spanish market for all analysed products (oranges, cauliflowers, tomatoes, apples) as well as peaches in Italy and apples in France.

In most cases withdrawals might have contributed to a significant reduction in price fluctuation around the trend line despite price variability remaining particularly high for tomatoes in Spain and the Netherlands, for peaches in Spain and for cauliflowers in Italy and France. Moreover, for some products price variability might have risen in the period after the 1996 reform (tomatoes and cauliflowers in particular in all markets considered, and peaches and apples in Spain), but for some other products price variability fell in the period after the 1996 reform. Therefore, from this analysis, no general effect on the whole set of products can be linked uniquely to the 1996 reform.

As a general conclusion on price variability, we may say that the withdrawal system appears to have played a positive role, contributing to its reduction.

With regard to the impact of the system on income, the analysis of results of case studies did not permit uniform conclusions. Sizeable differences were found between the two analysed periods (pre- and post-reform) and across products and regions. Taking into account the limitations of the analysis the following table gives a summary of results[75].

[74] Owing to the impossibility of breaking down data by single product, data regarding farms producing pome fruits were used in Cataluña.

[75] The table summary is "qualitative", therefore it should be used with caution. For more detailed information see the EQ answer.

Tab. 70 - Level of impact of withdrawals on farm income

Product / Area	pre reform	post reform
Tomatoes		
NE national level	**L**	**no W**
ES MURCIA	**L**	**H**
IT PUGLIA	**L**	**L**
Cauliflowers		
FR BRETAGNE	**H**	**L**
Oranges		
IT nat. level and Calabria	**L**	**L**
ES nat. level and Com. Valenciana	**H**	**L**
Apples		
IT TRENTO	**L**	**no W**
ES CATALUÑA	**H**	**H**
FR national level	**H**	**L**

Legend:

H = High impact within the period
L= Low impact within the period
no W = no withdrawls within the period

In fact, it appears that the impact of withdrawals on incomes (FNVA and FFI both per surface unit and per work unit) was generally higher in the pre-reform period when compared to the post-reform period (which is not surprising taking into account a higher incidence of withdrawals in the pre-reform period). This seems particularly evident in Bretagne for cauliflowers, in Spain for oranges, in France and in Cataluña for apples. In the post-reform period the impact seems to be higher than before in Murcia for tomatoes and, persistently in Cataluña for apples. However, the variability of income might have been influenced by other factors, also linked to the production of other crops.

6.2 What are the impacts on the income of farmers of any other measures applied in case of surpluses in the fruit and vegetables sector? - EQ.6

The purpose of the evaluation question is to assess the impact of other measures applied in the case of surpluses in the fruit and vegetable sector.

Additional measures adopted at various levels (government, POs, individual producers) fall into three different categories, depending on the general objectives:

- Measures aimed at increasing market demand in general and/or the specific market demand of individual organizations.
- Measures aimed at reducing supply in the EU fresh-produce market.
- Measures aimed at protecting producers from income loss due to a crisis of overproduction.

6.2.1 Judgement criteria and indicators

The proposed method for answering this evaluation question is based on the following criteria and indicators:

Judgement criteria	Indicators
1. In the case of a surplus crisis, measures aimed at increasing market demand are activated at a national, local or farm level.	1.1 Identification of measures adopted at different levels, and their frequency
2. In the case of a surplus crisis, measures aimed at limiting supply are activated at a national, local or farm level.	2.1. Identification of measures adopted at different levels, and their frequency
3. In the case of a surplus crisis, measures aimed at protecting producers from income loss at the national, local or farm level.	3.1. Identification of measures adopted at different levels, and their frequency

6.2.2 Methodology, data sources and limits

The methodology used is based on the identification of strategies, adopted at various levels (government, POs and individual producers), aimed at preventing or limiting a market crisis due to a structural or short-term imbalance in the supply/demand relationship, in addition to or in place of product withdrawal. Furthermore, the analysis examined the measures available to protect producers from income losses following a market crisis and how those measures were implemented.

The analysis was carried out by collecting information directly (interviews) from the different production sectors under review at three levels:

- Central government (ministries of agriculture, funding agencies);
- Local government in the specific regions under examination;
- POs operating in the specific regions under examination.

Furthermore, the interviews attempted to identify particularly serious crisis periods and why they occurred. In addition to the strategies and initiatives adopted at various levels, the interviews attempted to gather quantitative information in order to estimate their effect on producers' income. In this case, however, the responses of interviewees were generally inadequate or totally absent. This made it impossible to develop simulation analyses. The answers therefore are purely qualitative in nature.

6.2.3 Measures aimed at increasing market demand

6.2.3.1 Institutional promotion of the product

This type of action is aimed at increasing general demand for a product, regardless of its origin and source. In some cases promotional activity was carried out by entities representing the product and subsidized by the European Community, in the context stipulated by EC regulations.

Institutional campaigns were launched in 1997/98 and in 1999/2000 for apples (in some Member States) and citrus fruit (particularly in Italy, Spain and in some non-producing Member States). These campaigns focused on publicizing the nutritional value and health benefits of citrus fruit and apples.

Specifically, the promotional campaigns focused on increasing awareness of the traditional advantages of the two products; that is, health. In particular, the campaign touted the products' disease-preventing benefits (in the case of apples, metabolizing cholesterol, prevention of cardiovascular disease, vitamin content and oral hygiene; in the case of citrus fruits, prevention of colds).

Young people were a major target of the campaigns because they represent the age group that is least informed and most vulnerable to advertising pressure from processed foods. The purpose of the campaign was to broaden the demand base.

In some cases campaigns promoted the use of the product in a variety of ways (for example, using apples in cooking).

It should be emphasized that operators did not have a particularly positive opinion of these initiatives. In fact, although the financial burden (limited, thanks to subsidies) was borne only by the promoting POs or APOs, the resulting benefits were enjoyed by all the producers and, paradoxically, even by producers from exporting countries (for example, apples from Chile and oranges from Morocco).

Other institutional campaigns were subsidized by the governments of Member States or regions, in order to increase demand of products.

In the case of citrus fruits, campaigns were subsidized by the Sicily Region (at the end of the 1990s and beginning of the 2000s) to promote wider use of the product; specifically, increased use of oranges to make fresh juice in snack bars, using special juicers.

In the case of cauliflowers, POs and economic committees in the Bretagne Basin carried out regular institutional campaigns on a regional and national basis, with the assistance of national subsidies. There were two types of campaigns. The first, which was yearly, was aimed directly at the end consumer (communication about the product). The second, used exclusively in times of market crisis, targeted distributors (products with special packaging at the lowest prices) in order to sell large quantities rapidly.

In the case of apples, the French Ministry of Agriculture (National Department Apples) undertakes, every year and regardless of possible crises, a promotional campaign at a national level (televisionand radio ads and posters) to stimulate the national consumption of the product.

Moreover, in the case of short-term crises, marketing institutional actions are promoted at a regional level (e.g. by the *Conseil Général de Lot et Garonne* and the *Comité de Bassin Grand Sud Ouest*) close to the French GDO. Usually, these involve promotions in supermarkets aimed at promoting products subject to quality specifications.

In Spain (Murcia) an international campaign was undertaken to publicize the health benefits of fruits and vegetables, including tomatoes. The campaign (called "5 a day") was implemented from 2004 to 2006 and recommended that five servings of fruits and vegetables be eaten every day, specifically targeting young people. In Murcia, in addition to the "5 a day" campaign, national campaigns promoting the consumption of fresh tomatoes in schools have been carried out in the past.

Institutional initiatives aimed at increasing demand for products with origin label (Protected Designation of Origin-PDO, Protected Geographical Indication-PGI) are becoming increasingly important[76].

The PGI label was recently obtained for Trentino apples, Limousin apples, Calabria clementines, Calahorra (La Rioja) cauliflower and Valencia citrus fruits. Advertising campaigns have promoted labels to consumers as well as distributors using different methods (for example, campaigns for Calabria clementines included newspaper, radio and television advertisements, as well as participation in international trade fairs).

It should be pointed out, however, that these labels and publicity initiatives were aimed at stimulating a purchase choice by consumers in favour of labelled products, and therefore implied the use of particular products in the place of products from other sources. It therefore follows that (other conditions being equal) global demand remained fundamentally unchanged. Any benefits for producers from regions with label products were offset by a disadvantage for other producers (it was therefore a zero-sum mechanism).

6.2.3.2 Brand-name strategies and promotional and advertising actions for the brand

Brand-name strategies and related communications aimed at influencing consumers' buying habits are not particularly widespread because, to be effective, organizations must be large enough (critical product mass) to justify investment and generate positive financial returns.

It should be emphasized that, even more than in the case of promotion of labels denominated "original," the purpose of the strategies adopted by POs and/or private entities was (in general) to increase and/or maintain market share by building customer (and distributor) loyalty.

Aside from possible limited spillover effects on demand in general, these strategies were nevertheless implemented against competitors in the same business area. In essence, therefore, these actions did not lead to an increase in global demand, but tended to increase or maintain demand in the specific market of one organization to the detriment of products of other organizations.

The most significant case (because of the strong financial effort associated with the strategy) involved the apples of Trentino POs (the Melinda brand, since 1990, and Trentina), which were advertised and backed by significant investments in promotion using traditional media (television, radio, press).

Field interviews revealed additional brand-name strategies.

With regard to citrus fruits, a PO in Calabria had for some time used a commercial brand name (OSAS-Sibarit) that was widely distributed locally, nationally and in the European Community. This brand also profited from the promotion of the PGI label of Calabria clementines.

In the case of apples, some French POs use their own brand (e.g. *Ovalie* in Lot et Garonne; *Arlequine* and *La Reinette* in Maine et Loire)[77].

Brand-name strategies were carried out in Cataluña by an APO (Catalana Calidad brand) for apples and other APO produce.

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[76] A PDO (Protected Designation of Origin) covers the term used to describe foodstuffs which are produced, processed and prepared in a given geographical area using recognised know-how.
In the case of the PGI (Protected Geographical Indication) the geographic link must occur in at least one of the stages of production, processing or preparation. Furthermore, the product can benefit from a good reputation.

[77] However, in France, producers' brands have been progressively substituted by commercial brands of the GDO.

For table tomatoes, a brand-name strategy was developed by a PO from Murcia (La Vieja Huerta brand, also advertised on the radio), used exclusively by the distribution chain El Corte Ingles. In the Netherlands, the PO The Greenery developed a brand name for a specific variety of tomato (Tasty Tom). It should be emphasized that in the Netherlands advertising and promotional campaigns (television and radio) were generally adopted by POs and other private commercial entities, in collaboration (including financial) with large distribution chains.

In Bretagne POs commercialise through the CERAFEL brand (the economic agricultural committee for fruit and vegetables in Bretagne) [78]. The use of the brand is subject to the observance of trademark specifications.

Promotional campaigns are part of a general communication strategy for fruits and vegetables produced in Bretagne.

6.2.3.3 Actions to extend the period of availability of products on the market (delaying supply)

These actions were aimed at stemming a concentrated inflow of produce onto the market during a limited time period, which would cause a short-term imbalance between supply and demand and cause prices to fall. The objective was, therefore, to make the same quantity of produce available for purchase, but distribute it over a longer period of time. Extending the period in this way leads to increased demand (increased number of purchases by consumers).

Two steps were taken:

- Storage of the product: In addition to the need to fund this measure, implementing this type of action depended on whether the product could be stored for long periods under refrigeration (in a normal or controlled atmosphere). Apples can be stored for long periods (up to a year), but tomatoes and cauliflowers have an extremely limited storage life (10-15 days).

  Apples were typically refrigerated in a controlled environment (low oxygen concentration) by some POs in Cataluña, in Maine et Loire and in Lot et Garonne, and by POs in Trentino (which have made significant investments in this sector and use very advanced technology). According to Trentino operators, the extension of the marketing period of the product thanks to storage allowed them to recoup at least 30 percent of the price at the time of highest concentration of supply on the market. In the case of Trentino, the economic advantage of refrigeration (which involved depreciation and management costs of the facilities) was clear from the improved product/market position (premium price) achieved with the brand-name strategy. However, in other producing regions that were analyzed, investments in refrigeration have been of limited value. This is the case, for example, of POs in Vaucluse: in this region apple production is early (which represents a competitive advantage) and the strategy is to market produce as soon as possible, before the entry in the market of apples from other regions. Storage (some 10% of production) is aimed at slightly extending the regular supply to clients.

  Citrus fruit's harvest period (winter months) limits the need for refrigeration, even though some POs use it. In Calabria, for example, some POs have used funds from the *Piano Operativo Regionale* (Regional Operating Plan 2000-2006) to establish conditioning and storage centres. Some producers are however unwilling to pay warehousing and refrigeration costs.

  Cauliflowers are not currently kept in storage. However, initiatives are being developed in Spain (la Rioja) using subsidies from Operational Programmes.
- Delay in harvesting and/or harvesting in several stages. Here as well, implementing this type of action depended on the product involved, and was limited to citrus fruits and some varieties of tomato. In Calabria and in the Comunidad Valenciana, this practice was usually applied to citrus fruits (and was preferred by farmers to refrigeration), even though it extends the supply period

[78] Historically, the brand has been created by one PO. Subsequently, the brand was sold to CERAFEL.

only slightly (2-3 weeks beyond the critical period of greatest concentration of supply on the market). In Puglia, in the event of an overproduction crisis, delay in harvesting is implemented in the cherry tomato sector. For cauliflowers, it should be noted that harvesting cannot be delayed. Once ripe, cauliflowers must be harvested immediately and eaten within 5-6 days.

6.2.3.4 Actions to improve marketing

All actions aimed at improving marketing for the purpose of increasing demand were of strategic importance to the POs interviewed, regardless of their production sector. The marketing improvements (diversification of distribution channels, sales planning, stronger contracts with distribution chains, quality guarantees, packaging, etc.) were crucial competitive factors in guaranteeing (or at least facilitating) the sale of the product.

Among the principal actions aimed at improving marketing, the use of a variety of sales outlets – large distribution companies, wholesalers, brokers, traditional retailers and exporters – was the strategy chosen by many of the POs interviewed, in order to minimize risk. It should, however, be noted that using a variety of sales channels implies that the PO had the necessary size and organizational structure. In this sense, some forms of horizontal integration adopted by some POs have been helpful in realizing this strategy. This was the case with POs in Trentino (apples), in Lot et Garonne, Maine et Loire, Vaucluse (apples) and the Comunidad Valenciana (citrus fruits).

In Lot et Garonne, the *Union des Coopératives Blue Whale*, has created an independent commercial office (*Blue Whale SA*) with the status of a joint-stock company (separation between commercial and agricultural activity). *Blue Whale SA* trades not only the cooperatives' products but also other products of the *Vallée de la Loire*, of the South East and of the Alpes, with the aim of obtaining a critical mass able to satisfy national and foreign GDO needs. Similarly, four POs of the Maine et Loire adopted a common centralised office (BVL) to trade their products. In Vaucluse, some producers of a PO created a common sales office (Pom'azur).

In Comunidad Valenciana, the POs marketed through ANECOOP, which acts as a direct wholesaler and exporter.[79] In addition, Calabria POs (citrus fruits) have turned the marketing of their excess produce over to an import-export company (Boc Fruit), which works to find more profitable markets at the national and international levels.

Greater size and improved organizational structure also put the POs in a better negotiating position with large sales distribution centers. This has facilitated the growth and maintenance of market shares and the development of a more accurate sales plan. As an example, in Trentino, before 1996, 34 producer cooperatives managed the market and the marketing of apples. Today there are only 5 POs. As a result of this significant concentration process, POs have become a powerful force in the market. Four POs are organized in a single consortium (APOT), which, in the year 2000, was also given the right to regulate integrated production.

[79] ANECOOP currently includes about 800 cooperatives nationwide operating in various production sectors. The organization was founded in 1976 to facilitate fruit and vegetable marketing and to strengthen the influence of cooperatives in the marketplace.

6.2.4 Measures aimed at controlling product supply in the fresh-produce market

6.2.4.1 Production planning based on market trends

In general, production planning based on market trends was an effective measure, particularly in the countries/regions where supply is very concentrated and POs are able to coordinate most local production. On the other hand, as a whole, this measure was not (or would not be) effective in controlling market supply and price where there is a lack of organization at the agricultural level (that is, where more farmers are not members of POs and where product marketing is carried out by brokers or private wholesalers).

In general, depending on the specific case involved, production planning was carried out primarily in three ways:

- reduction of cultivated land and product conversion;
- reduction of per hectare yield;
- adjusting seasonal production cycles (tomatoes).

In the apple sector, POs in Trentino developed a planning policy to reduce and control per hectare yield, which was regulated by APOT.[80] In addition, land used for orchards was reduced on less specifically designated parcels. In Cataluña there has been a gradual reduction in the amount of land used for apple production (trees were uprooted, particularly in 1997/98 and in 2001), with conversion to perennial crops (nuts, peaches, plums, apricots), particularly in farms run by younger entrepreneurs. According to those interviewed, the quality of Cataluña apples is markedly lower than that of the French or Italian product, and cannot stand up to the competition. Gradually ceasing production was, therefore, a strategic decision. Due to the extirpation of the worst orchards, the quality of apples in Cataluña has improved.

In the French regions, the reduction of apple growing surfaces has been implemented several times through national extirpation plans (partial and/or total), and has concerned mainly the lowest quality orchards. For example, the adoption of this measure has allowed a reduction of 11-12% of the surfaces in Lot et Garonne and in Maine et Loire (vis-à-vis 1990). In Vaucluse, in addition to extirpation plans, the reduction of surfaces has been made through a change of destination of lands[81].

In the citrus fruit sector (Calabria and the Comunidad Valenciana), production planning through the reduction of yields per hectare has been most effective in the case of oranges, where about 60 percent of the product is managed by POs. Conversely, the measure has been less effective in the case of clementines, where POs manage only 40 percent (on average) of regional production.

In the cauliflower sector, reduction of planting is overseen by POs in Bretagne, where they control about 98 percent of production in the area, and production was switched to vegetable growing (broccoli, fennel) and non-vegetable cultivation of low-labour-intensive crops (cereals). Nevertheless, in some cases reducing the amount of land devoted to growing cauliflower was followed by abandoning the land altogether. In Spain, depending on market predictions (when possible), POs have tried to restrict the cultivation of cauliflower and encouraged member producers to grow other crops (tomatoes, broccoli or animal feed in Navarra, cereals in La Rioja).

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[80] The reduction of yield per hectare, achieved by means of pruning techniques, also produces a greater proportion of high-quality product (better commercial quality).

[81] In Vaucluse, which is a very touristy region, many producers have sold farmlands close to cities for building purposes.

In the tomato sector, production planning was carried out primarily through seasonal adjustments to production. This is possible only for farms with an "industrial" system of production (greenhouses and hydroponic cultivation). This is typically the case in the Netherlands (all tomato production takes place in greenhouses), where production is planned by POs based on supply contracts with distribution companies. To a lesser extent this technique is also used in Murcia, but would be difficult to apply in Puglia, where only 2 percent of production is controlled by POs and where there is less greenhouse cultivation.

6.2.4.2 Diversification of varieties

Diversification of varieties aims for a more effective adaptation of production to demand preferences. In the citrus fruit sector, both in Calabria and in the Comunidad Valenciana, the diversification of varieties led to less production of oranges and lemons in favour of clementines and mandarin oranges.

In the apple sector a five-year variety conversion plan was implemented in Cataluña to improve the degree to which supply met the needs of demand. In the French regions, POs have developed a strong re-conversion and variety diversification scheme (also using Operational Programmes) even if the standard varieties (such as Golden) remain. Some new varieties have been developed: *Pink Lady* in Lot et Garonne, *Ariane*, *Tentation*, *Jazz*, *Honey Crunch* in Maine et Loire. On the other hand, in Vaucluse variety diversification has been implemented only in the recent years (*Gala*, *Pink Lady*, *Tentation*, *Juliette*).

In the tomato sector, in general, diversification of varieties is an established practice. Dutch POs adapt varieties based on market demand, market studies (consumer preference) and distribution supply contracts. In Murcia there is an effort to develop the production of specific varieties that are not grown in other regions/countries (for example, the RAF and Kumato varieties, which are niche products, sold at higher prices), and to drop the varieties most widely available on the market.

In the cauliflower sector diversification is a less viable option. Only in Bretagne are POs carrying out the measure through the use of hybrid varieties that produce products of a different size. Moreover, the diversification of varieties allows production all year long.

6.2.4.3 Sending products to the food-processing industry

In the case of perennial crops (citrus fruits and apples) sending a more or less significant portion of production for food processing is limited by physical factors. Top-quality production (products that can be sold in the fresh-produce market) has always been associated with the production of second- and third-rate products that cannot be sold or are difficult to sell on the fresh-produce market. In Trentino second- and third-rate apples represent between 5 and 11 percent of total production, and are used in the distillation industry. In Cataluña, the percentage rises to 10-15 percent. In the French regions, 10%-20% of apple production does not meet quality rules for fresh products, and is directed to the processing industry (concentrated juices, direct juices, compotes, peeled apples). However, we can observe that, in these regions, a strategy is being implemented to reduce the refuse percentage (systems to prevent hail damage, changes to production and harvesting methods)[82].

Similarly, in Calabria and in the Comunidad Valenciana, second- and third-rate citrus fruit can represent 25-30 percent of production. Some of this production is routinely sent for juice production. As noted, in the citrus fruit sector production changes have been beneficial and are preferable to the alternative, which is to cease production altogether.

Beyond the physical factors, the most common reason for selling products for food processing is a crisis in the fresh-produce market in all areas of production. The food-processing industry, therefore,

[82] According to interviewed operators, following this strategy the apple supply to the processing industry has decreased, and prices have increased.

is a particularly useful safety valve when large amounts of surplus produce need to be removed from the market, even if the price paid is obviously very low.

As far as cauliflower is concerned, the extent to which this measure can be used depends on whether there is a local food-processing industry. In the case of Navarra, the presence of some food-processing industries (frozen foods) has allowed farmers to allocate a significant portion of their produce for processing. Furthermore, a portion of the product (about 60 percent) is routinely allocated for this purpose (the Matra variety). In the event of a market crisis, the portion sent for processing can be increased, within the limits of the demand from industry. Nevertheless, a PO in Navarra tended (in general) to limit the proportion of produce sold to the food-processing industry because of the low revenues it brought farmers. In the same way, a portion of cauliflower production (around 15 percent) was sent to food-processing plants in Bretagne (for freezing) [83]. In the La Rioja region, on the other hand, the absence of food processing plants precluded the use of this measure.

In the table tomato sector, the option of selling to the food-processing industry was not exercised.

6.2.4.4 Recourse to exportation to third countries

If there is a crisis of overproduction in the European Community market, the largest POs are able to export additional amounts (beyond the amounts normally exported) to markets outside the European Union in order to relieve pressure on the internal market. This measure is most easily carried out by organizations already selling in foreign markets, where consumer loyalty has already been established over time. In some cases the export differential is overcome with a sales promotion strategy (lowering prices with the aim of selling off substantial amounts in a brief period of time).

In the citrus fruit sector, Calabria and Comunidad Valenciana POs are able to sell additional production to European third countries (such as Switzerland, and North-East Europe countries).

In the apple sector POs in Cataluña have increased their exports to European third countries and to Brazil. POs in Trentino have increased exports to Russia and Ukraine. The French POs have enlarged their exports to Russia, South America and to the Middle and Far East. Furthermore, in France measures have been implemented to facilitate and subsidise exports. In particular:

- *Maghreb* operation: in the case of a surplus crisis, a state aid was paid for exports (through a professional fund of the National Department of Apples). However, after 2003, this aid has been removed.
- *Outre Mer* operation: this is a national financial institution aimed at favouring exports to the Far East, Asia and American countries. This institution is financed to the extent of 50% by Viniflhor and 50% by operators (POs, exporters, etc.)

In the tomato sector, Dutch POs have increased exports to third countries in Europe, to Russia, the United States and Japan.

On the other hand, in the cauliflower sector, this measure has occasionally been adopted by some POs, until 2003, through “Fresh contracts”.

6.2.4.5 Not harvesting the product

Not harvesting the product in the event of a market crisis avoids harvesting expenses, which are a significant part of total production costs (from 40-60 percent, depending on the product and the extent to which harvesting is mechanized). This measure was therefore based on an economic evaluation (on

[83] It should be pointed out that the food-processing option is of limited value. It is effective only if years of overproduction are sufficiently far apart, in order to allow the industry to sell off any reserve. If there are already high stock levels, or there is too much production surplus, the demand from the food-processing industry will be limited.

the part of producers) of the different options, including the withdrawal of products. Still, according to interviewees, the choice not to harvest products was implemented very rarely because of its negative impact on the environment (pollution of water and soil, increase in phytopathogens) and on productivity (lower yield the subsequent year).

In the case of cauliflowers, a Navarra PO stated that the decision not to harvest was made only in a few cases when it was absolutely necessary, when supply was greater than market demand (for fresh and processed products). In La Rioja a limited amount of product was not harvested only in 2001, and the decision not to harvest, rather than to withdraw products, was based on cost. Harvesting expenses and administrative costs associated with withdrawing products would not have made the operation economically feasible. In Bretagne the option of not harvesting is never practised because it is considered extremely harmful to the soil and waterways.

In the citrus sector, produce was occasionally partially harvested, only in the case of second- and third-crop clementines and mandarin oranges[84], both in Calabria and in the Comunidad Valenciana. In these cases not harvesting does not mean leaving the fruit on the tree but picking it and leaving it on the ground. Leaving the fruit on the tree would negatively affect the productivity of the tree in the following year. Still, leaving fruit on the ground is an environmental hazard. In any case, the decision not to harvest was not made by the POs but by individual producers. The option of not harvesting was adopted only in years with a large surplus, when excess produce was greater than the amount of expected withdrawals (5 percent of production brought to market) and the amount under contract with the food-processing industry.

In the tomato sector in Puglia, the decision not to harvest part of the product was rarely made and was limited to field production.

In the apple sector (Cataluña and Trentino) the option not to harvest was not exercised because of its negative agronomic consequences (increase in parasites and harm to tree roots). In the French regions the use of the "not harvesting" measure for the apples of second and third range has been implemented since 1996 (in particular in 2005) if processing industry demand is saturated. However, the decision "not to harvest" is taken voluntarily by the single operator and not by POs. This can happen when producers judge the recourse to withdrawals not economically convenient, due to harvesting and disposal costs.

6.2.5 Measures aimed at insuring producers in the event of income loss due to a crisis of overproduction

These are purely financial measures aimed at insuring against any loss of producer revenue due to a crisis in the market. They are *ex post* initiatives that have nothing to do with either product supply or demand. The interviews emphasized two potential instruments: insurance contracts to cover lost income and the creation of funds to cover risk during periods of crisis.

6.2.5.1 Insuring producers' revenue

From the interviews conducted, it became clear that nothing of this type had been implemented to cover a crisis in overproduction in the countries and regions studied. In all the regions (with the exception of Calabria), insurance systems are in place to cover against damages or lost revenue due to natural disasters (hail, drought, etc.), which would obviously apply in the event of lost productivity, but not overproduction.

[84] Unlike oranges, clementine and mandarin harvesting is done in several stages. If there is a crisis, some producers prefer not to harvest in the final stage.

6.2.5.2 Funds to cover crisis risk

In general, no funds to cover crisis risk have been created in any country or region, with the exception of Bretagne. In Bretagne, CERAFEL (the economic agricultural committee for fruit and vegetables in Bretagne) established an equalization fund. Until 2002 payments to this fund were made both by members and the government. As of 2003 the government no longer makes payments to the fund. Member payments are made by deducting from cauliflower sales. If there is a seasonal overproduction crisis, the fund is activated, compensating producers for part of their revenue lost because of increased sales to the food-processing industry (at lower prices) and from the withdrawal of products.

In some cases individual (particularly well-organized and large) POs have acted independently. A PO in Navarra established a "median price fund" that allowed its members to receive the same median price over the course of the entire season and thus to have a more stable income. In greater detail, the PO, through production planning and the study of price trends, calculated the weighted average of prices for a season (the weight is the amount produced for each week of the year). In this way the same price was guaranteed for all producers and they were therefore not subject to sudden price changes during the year. At the end of the season, the high- and low-price variations, in general, evened out.

In the Netherlands, a PO in the tomato sector established a communal fund maintained by its members. The purpose of the fund was to promote initiatives for the common good, and a small portion of it was occasionally used to compensate members during a market crisis.

In France, in the apple sector, a system of storage contracts was implemented by the *Association Française Interprofessionnelle des Fruits et Légumes à Destination Multiples* (AFIDEM) in order to favour supply to the processing industry. The principle of the contract is that producers commit themselves to store a part of their production, at a price established in advance, for the processing industry. A financial institution, at a national level, has been designated to indemnify both the processing industries and producers in case of price fluctuations during the marketing year. This institution was financed, until 2002, by the "*Plans de Campagne*" and by operators. Since 2003 this support (*Plans de Campagne*) has been removed further to a request from the European Commission. At the present time, the financial institution is financed only by operators (producers and processing industries).

6.2.6 Evaluation judgement

Analysis of the field interviews at different levels (national and regional government, PO) revealed that wide arrays of actions were used as an alternative or in addition to withdrawing products. These measures were aimed at both preventing and managing crises of overproduction. Those actions were always part of general strategies involving the synergistic and/or complementary use of various measures aimed, on the one hand, at sustaining intermediate and final demand (both as a whole and at the individual farm level) and, on the other, reducing supply pressures on the European Union market by exploring alternative outlets.

Adopted measures varied among the different regions and for different products. As the table below (which summarises the results of the analysis) reveals, apples (in Trentino, in the French regions and in Cataluña) and citrus fruit (in the Comunidad Valenciana and Calabria) were the products/regions where alternative/complementary measures to withdrawals were used most frequently, whereas the cauliflower sector in La Rioja and tomato sectors in Murcia and Puglia made less use of initiatives other than withdrawals.

Improved marketing was the most frequently adopted measure aimed at increasing demand, and the diversification of varieties was the most frequently used strategy to reduce supply pressure on specific production segments, those most vulnerable to recurring market crises.

Tab. 71 - Summary of steps taken in different production sectors and regions

			CITRUS		CAULIFLOWER			APPLES					TOMATOES			Total
			Calabria	Comunidad Valenciana	Bretagne	La Rioja	Navarra	Cataluña	Lot et Garonne	Maine et Loire	Vaucluse	Trentino	Murcia	The Netherlands	Puglia	
A - Measures to increase demand	A.1. Institutional promotional activity		&	&	&	&			&	&	&	&				8
	A.2. Promotional activities of the brand-name product		*		*			*	*	*		*	*	#		8
	A.3. Supply delay	A.3.1. Product storage						*	*	*		*				4
		A.3.2. Delaying harvest	§	§											§	3
	A.4. Activity to improve marketing		*	*	*	*	*	*	*	*	*	*	*	*	*	13
B - Measures to reduce supply	B.1. Production planning	B.1.1.Reduction of cultivated land			*	*	*	&	&	&	&	*				8
		B.1.2. Reduction of per hectare yield	*	*								*				3
		B.1.3. Seasonal adjustment of production cycles											*	*		2
	B.2. Variety diversification of the same product		&	&	*			&	*	*	*	*	*	*	*	11
	B.3. Recourse to food-processing industry		*	*	*		*	*	*	*	*	*				9
	B.4. Recourse to exporting to third countries		*	*				*	&	&	&	*		*		8
	B.5. Recourse to not harvesting a portion of the product		§	§		§	§		§	§	§				§	8
C - Measures to insure producers against lost revenue	C.1. Insurance on producers' revenue															0
	C.2. Funds				*		*		#	#	#			*		6
Total			9	8	7	4	5	7	10	10	8	9	4	6	4	

Legend:

& = governments or governments + POs

* = POs

= POs + private operators

§ = single growers

Source: based on case studies data

Since POs have implemented a significant part of those measures, it is reasonable to believe that most of the benefits have accrued to the members of POs rather than to producers that do not belong to these organisations.

Generally speaking, these measures are likely to have had a positive impact on producer incomes. However, the lack of quantitative information makes it impossible to express a quantitative evaluation about their actual impact.

7. THEME 3: THE ENVIRONMENT

The destruction of withdrawn products may have a negative impact on the environment, and that is why, with the reform of the CMO in 1996, it was decided to take into consideration potential risks and adopt or correct necessary prevention measures.

Council Regulation (EC) 2200/96, in force since 01/01/1997, establishes that Member States define a national framework for drawing up general conditions relating to disposal methods that respect the environment. Furthermore, Council Regulation (EC) 2200/96 limits Member States' possibility of destroying withdrawn products solely through biodegradation or composting techniques[85], and only allowing this when no other destination is possible.

7.1 To what extent is the existing legislative framework sufficient to ensure that environmental damage is not caused by the disposal of fruit and vegetables products withdrawn from the market? - EQ.7

The evaluation question seeks to assess the extent to which the regulatory framework is able to prevent potential environmental damage caused by the disposal of products withdrawn from the market, by verifying whether regulatory frameworks at Community/national and regional level exist and how they perform.

The logical route to replying to the evaluation question starts by assessing the incidence of destruction vis-à-vis other possible destinations of withdrawn products, as already discussed in EQ 4, then proceeds to explore, within the time limit of the present evaluation (1997-2005), Community and national ambits of environmental protection regulations applicable to the disposal of products withdrawn from the market. It is also appropriate to examine the instruments provided by Member States to ensure that withdrawal operations do not lead to damage to the environment, and thus the role and duties of those involved in the management/operation and control of these procedures.

7.1.1 Judgement criteria and indicators

The judgement criteria and indicators used for answering the evaluation question are as follows:

Judgement criteria	Indicators
1. Do regulations guarantee environmental protection during the withdrawn product disposal phase	1.1. Typology and quantity of products destroyed and disposal process.
	1.2. Elements of environmental protection in regulations relative to withdrawn product disposal in the period 1997-2005.

[85] Biodegradation is a natural phenomenon, by which natural materials are assimilated by micro-organisms and entered in natural cycles: all organic materials making contact with soil tend to gradually decompose and then to disappear. Composting is based on a spontaneous phenomenon, but can be effected in composting facilities, where the natural phenomenon is controlled and optimised with a view to reaching high conversion speeds, controlling liquid residues and controlling the quality of the initial compost. At the end of the process, the initial waste is transformed into a substance called compost, which has the smell and appearance of fertile soil and is sanitised and stabilised, being devoid of pathogenic microbes and putrefiable material.

Judgement criteria	Indicators
2. Existence of an organisational level that guarantees compliance with current regulations and environmental protection. Existence of good technical-organisational practices.	2.1. Existence of manuals (instructions) for PO use in disposal operations.
	2.2. Specific provisions for withdrawn product disposal operations.
	2.3. Role of actors involved in disposal operations
	2.4. Control methods applied and results obtained.
	2.5. Verification of other environmental assessment studies, where available.

7.1.2 Data sources and limits

The answer to the evaluation question was developed starting with national frameworks submitted by each Member State implementing Council Regulation (EC) 2200/96.

It should be pointed out that Community regulations do not provide specific criteria, parameters or indicators in order to ensure that environmental damage is not caused by the biodegradation and composting of fruit and vegetable products. Moreover the survey we conducted at European Commission offices revealed that there are no available evaluations or assessments on biodegradation and composting processes in order to provide specific criteria or parameters necessary for a comparative analysis with those defined by Member states. Thus the following analysis is based on the existence and completeness of specific national regulations concerning the destruction of withdrawn F&V products.

Information gleaned from the national frameworks were supported by deep interviews conducted in the four Member States to which the 13 case studies referred, at a national, regional and local level.

The overall data referring to EU-15 in our possession do not make it possible to differentiate the quantities disposed of by composting, biodegradation or other destruction processes.

The processing of information and data made it possible to provide the legislative situation regarding environmental protection during withdrawal operations, referring to both Member States and case study areas. Furthermore it was possible to survey the organisation of activities and control functions at various levels.

7.1.3 Environmental protection regulatory framework concerning product disposal phase

To answer the evaluation question, a preliminary assessment was made of the state of the withdrawal disposal phenomenon in the various countries, with special reference to quantities destroyed and to destruction processes. Then we explored whether or not the regulatory framework as adopted by Member States, according to directions given in Council Regulation (EC) 2200/96, contained all elements needed for withdrawal operations to be performed in such a way as to cause no harm to the environment[86]. This second step has been based on the analysis of available national frameworks and on the examination of case studies, which made it possible to draw a picture of the measures actually adopted in favour of environmental protection in those Member States to which the case studies refer.

[86] This means that the national framework for withdrawals must provide regulatory elements for formulating specifications, such that POs can apply techniques that are compatible with environmental protection standards when carrying out withdrawals.

7.1.3.1 Typology and quantity of products destroyed and disposal process

Since the early 1990s total withdrawn quantities have been declining, as shown in detail in EQ 4, and consequently also the quantities withdrawn using the destruction destination. The following table shows the large drop in quantities destroyed in the period after the 1996 CMO reform (-82% between 1997/98 and 2004/05). However in relative terms, the share of quantities destroyed out of all quantities withdrawn remains rather high (in 2004/05 it represented over 65% of the total withdrawn) even if the trend was decreasing.

Tab. 72 - Quantities disposed of by destruction processes and respective share of all withdrawn products (tonnes and % in EU-15)

	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005
Total withdrawn quantities	1.401.108	916.249	1.660.398	1.112.654	595.832	314.494	204.078	315.818
Destruction processes	**1.152.384**	**655.012**	**1.358.571**	**790.610**	**408.482**	**171.302**	**130.501**	**206.516**
% on total withdrawn	*82,2%*	*71,5%*	*81,8%*	*71,1%*	*68,6%*	*54,5%*	*63,9%*	*65,4%*

Source: based on data from European Commission – DG AGRI

The analysis by Member State shows some differences.

Tab. 73 - Share of quantities disposed of by destruction out of all withdrawn products by Member State

	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005
Austria	-	100%	100%	-	-	-	-	-
Belgium	20%	10%	35%	69%	2%	19%	10%	17%
Germany	69%	23%	62%	18%	69%	96%	47%	51%
Denmark	-	-	-	-	-	-	-	-
Finland	-	-	-	-	-	-	-	-
France	82%	74%	86%	77%	82%	78%	75%	76%
Greece	89%	98%	98%	95%	84%	54%	35%	91%
Ireland	64%	-	-	-	0%	-	-	-
Italy	66%	36%	69%	56%	53%	22%	24%	38%
Luxembourg	-	-	-	-	-	-	-	-
Netherlands	0%	0%	0%	1%	0%	0%	0%	0%
Portugal	83%	41%	61%	50%	14%	0%	0%	0%
Spain	87%	87%	82%	69%	67%	62%	70%	70%
Sweden	-	-	-	-	-	-	-	-
United Kingdom	94%	95%	89%	80%	70%	88%	67%	48%

Source: based on data from European Commission – DG AGRI

In boldface are indicated the Member States with significant quantities of destroyed products during the entire period

(-) Indicates those cases in which products were not withdrawn.

It is clear that during the analysed period some countries did not carry out any product withdrawal, such as Denmark, Finland, Luxembourg and Sweden, and that product destruction has been a sporadic phenomenon for other countries, such as Austria, the Netherlands and Ireland.

In other cases there was a significant drop in the percentage of withdrawn products disposed of by destruction, such as in Portugal and Belgium, and a more moderate fall in Italy and the United Kingdom. German trends were more fluctuating, while Greece, after a significant drop over the years, recorded a fresh rise in the percentage of destroyed products. Spain and France continue to dispose of a large amount of products through destruction.

Surveys on destruction practices actually used in the four Member States to which the case studies refer revealed that in the post-reform period (1997 to 2005):

- the biodegradation process was the only one used in France throughout the period, and in Italy was the technique used since 2003;
- destruction by dumping or incineration at authorised public disposal sites was the only disposal practice adopted in Italy from 1997 to 2002 and in Spain[87] throughout the period (1997-2005);
- the composting process was practically non-existent throughout the period (1997-2005) and in all the 13 case study areas except in Cataluña, where it accounted for some 0.3% of all destructed products;
- in the Netherlands for tomatoes no destruction processes were used throughout the period.

7.1.3.2 Elements of environmental protection in regulations relative to withdrawn products disposal in the period 1997-2005

Art. 25 of Council Regulation (EC) 2200/96 stated that Member States shall have established, since its coming into force, a national framework for drawing up general conditions relating to withdrawal methods that respect the environment. Moreover, Member States shall have submitted their proposed framework to the European Commission, which may request changes if it finds that the proposal fails to foster the aims set out in Article 130r of the Treaty and in the Community policy and action programme pertaining to the environment and sustainable development.

The drafting of frameworks required a long preparatory phase on the part of Member States, and not all Member States have yet submitted national frameworks to the European Commission. Furthermore, as will become clear below, not all of the submitted frameworks meet the conditions established by the European Commission despite repeated calls for revisions and additions.

The submitted frameworks have been split up into three groups:

- Frameworks deemed to be satisfactory by the European Commission, conforming to the provisions of article 25 of Council Regulation (EC) 2200/96: France, Finland and Hungary. The frameworks of Cyprus, Spain and Greece were submitted in 2005, and no comments from the European Commission are available, but in the opinion of the appraiser appear to be in line with Community regulations. All of these national frameworks provide specifications for biodegradation and composting.
- Frameworks deemed to be unsatisfactory by the European Commission, and that require further details: Portugal, Netherlands, Italy, Sweden, Austria, United Kingdom and Belgium. The national framework submitted in 2001 by Germany, based on existing national legislation, has not yet received a positive comment from the European Commission.
- Cases in which no framework has been submitted for withdrawal operations: Slovenia, Denmark, Ireland, Luxembourg, Estonia, Latvia, Lithuania, Malta, Czech Republic, Slovakia and Poland.

The tendency has been for some Member States to consider national/regional legislation in force as already sufficient to meet environmental protection needs for withdrawal operations. On several occasions the European Commission has considered this approach as inadequate, since it "fails to define specific rules for withdrawal operations" and moreover does not enable POs to dispose of products in compliance with clear and circumscribed rules.

In other cases Member States did not deem it necessary to draft a specific framework, since in those countries products were not withdrawn at all. In this case too the European Commission rejected this approach, and asked respective countries to present the framework in accordance with Community regulations.

For many of the submitted frameworks the European Commission highlighted a number of shortcomings in terms of contents, for which greater details were required on techniques deployed and

[87] Except Cataluña, where this destruction practice accounted for some 99.7% of all destructed products.

controls put in place to achieve environmental protection goals and to provide greater clarity, in this sphere, to the POs that perform product withdrawal and disposal operations.

It should be added that Commission Regulation (EC) 659/97, in force until 2004, did not specify the structure and contents of the framework. This was probably a reason why frameworks have been drafted very differently from country to country. Only Commission Regulation (EC) 103/04 contains definitions, albeit brief ones, of the framework's characteristics.

Moreover Community regulations do not provide specific criteria or parameters in order to identify and regulate biodegradation and composting processes[88]. This determined a different legislative approach by Member States. The survey we conducted in the Member States, to which the case study refer, revealed that while France has provided specific provisions for biodegradation and composting, Italy and Spain have interpreted as to be adequate for environmental protection the destruction at authorised disposal sites by dumping and incineration.

Through these findings we can conclude that, also if in the period from 1997 to 2005 the situation was changing constantly and Member States worked to revise frameworks according to European Commission's recommendations, the situation of national frameworks still appears to be inadequate.

Furthermore, we have analysed - for the four Member States that the case studies refer – whether the existing national legislative framework in force in the period from 1997 to 2005[89] was sufficient to attain the aims set out in Art. 25 of Council Regulation (EC) 2200/96 (environmental protection in case of disposal of fruit and vegetables products withdrawn). Below is a summary of the analysis results:

FRANCE

The first framework drawn up by France in 1997 specified disposal procedures for fruit and vegetables products withdrawn from the market. It defined disposal criteria for all fruit and vegetables products, with special reference to surface spreading and the recording of control operations.

For surface spreading, the provisions pertained to the composition of the product in terms of soil properties and constituents (P, K, N, Ca, Mg, water) in order to avoid excess concentration of products, leading to an environmental impact. The framework relates in particular to the disposal of cauliflowers, apples, peaches and nectarines, indicating for each of these products the optimal method of destruction and specifications for carrying out these methods. In detail:

Type of disposal	Products	Specific provisions
Biodegradation	Cauliflower	100 tonnes/ha are allowed. It is preferable that the product be degraded on producers' plots.
	Apples	300 tonnes/ha are allowed. Scattering over the land, crushing, burial. Subsequent tillage of the ground.
	Peaches/nectarines	130 tonnes/ha are allowed. Scattering of the product over the ground/burial.
Composting	Cauliflower	It is the preferred method, and creation of composting units is advisable.

The national framework was revised in 2001 and, with the Ministerial order of 2 August 2004, France has established procedures for the application of Commission Regulation (EC) 103/04. Both the 1997

[88] Art. 22 of Commission Regulation (EC) 103/04 establishes that "The frameworks referred to in paragraph 1 shall lay down the terms under which producer organisations are authorised to avail themselves of Article 30(2) of Regulation (EC) 2200/96, including the composting and biodegradation processes authorised by a Member State".

[89] It should be pointed out that the provisions - set out in the revisions of the manuals or frameworks – which came into force following implementation of Commission Regulation (EC) 103/04 do not fall within the time limit of the present assessment.

framework and the 2004 Ministerial order contain practical indications for carrying out product destruction so as to safeguard the environment.

Through these elements we can conclude that in France regulations to attain the aims set out in Art. 25 of Council Regulation (EC) 2200/96 (environmental protection in case of disposal of fruit and vegetables products withdrawn):

- were in force in the entire period 1997-2005,
- provided specific provisions to prevent environmental damage in case of destruction of withdrawn products.

Combining the findings of our legislative survey we can conclude that, in the entire period 1997-2005 to which this evaluation refers, national provisions in France could have been sufficient to ensure that environmental damage was not caused by the disposal of F&V products withdrawn from the market.

ITALY

The national framework since the first draft of 1997 establishes the principle of waste disposal without causing harm to the environment, and that withdrawal operations must be performed in compliance with the principles of responsibility and cooperation among all actors involved. This first national framework does not provide specific procedures but refers to existing legislation (the so-called Ronchi Decree)[90].

To identify products that may be used for composting, reference is made to the Decree of the Environment Ministry of 5 February 1998[91], which identifies non-dangerous waste that may be subjected to composting techniques, waste properties and the recovery technique through the identification of procedures for the composting process. With regard to the introduction of modern composting technologies, the framework refers to the Ministerial Decree of 27/03/98[92], "New provisions for rules on fertilisers", allowing the use of materials of different origin.

In the national legislative framework there are no specific provisions for Biodegradation processes performed on farmers' plots, as the Ronchi decree states that "withdrawn products may be destroyed only at authorised public disposal sites", and provides specific provisions to prevent environmental damage in case of destruction by incineration or dumping.

Specific allowance for biodegradation on farmers' plots and provisions for this and for composting processes, though with many limits[93] as we shall see in the following paragraph 7.1.4.1, appeared for the first time in 2002 in the "Procedures manual" published by AGEA (Italian Payment Agency, AIMA in the years prior to 1996).

Through these elements we can conclude that in Italy regulations to attain the aims set out in Art. 25 of Council Regulation (EC) 2200/96 (environmental protection in case of disposal of fruit and vegetables products withdrawn):

- were not included in a single national framework in the entire period 1997-2005,

[90] Legislative Decree 22 of 5 February 1997: "Implementation of directives 91/156/EEC on waste, 91/689/EEC on dangerous waste and 94/62/EC on packaging and packaging waste".

[91] "Identification of non-dangerous waste subjected to recovery procedures pursuant to articles 31 and 33 of Legislative Decree 22/97".

[92] Amending attachment 1/C of Law 748 of 19 October 1984.

[93] In Italy **manuals for PO use, and specific provisions** for disposal operations concerning withdrawn products:
- were not included in a single "procedures manual" in the entire period 1997-2002,
- were not sufficiently specified in the entire period 1997-2005.

- were in force in the entire period 1997-2005, for composting and destruction at authorised public disposal sites. For these two disposal destinations existing legislation provided specific provisions to prevent environmental damage,
- were not in force in the period 1997-2002 (because not allowed) and were not specified in the period 2003-2005, for biodegradation processes on farmers plots.

Combining the findings of our legislative survey we can conclude that, in the entire period 1997-2005 to which this evaluation refers, regulations adopted in Italy could have provided a sufficient environmental protection during disposal of fruit and vegetables products withdrawn only for "composting" and "incineration or dumping at authorised public disposal sites" processes. On the other hand regulations adopted in Italy, in the same period, could have provided an insufficient environmental protection for "biodegradation" process.

It should be pointed out that up to 2005 there has been a significant improvement in regulations. The 2006 updated release of the "Procedures manual" establishes in particular:

- quantitative restrictions allowed for biodegradation process;
- those cases in which biodegradation cannot be carried out[94];
- specific provisions for the transport of withdrawn products.

SPAIN

The first framework drafted in Spain in 1998 identified as "product destruction processes" the use of products as organic fertiliser (composting) or degradation via incineration or dumping in controlled disposal sites. The framework does not indicate either methodologies or checks procedures. Only in 2005 was drawn up a new framework for withdrawal operations.

In the period observed (1997-2005) national legislation was based on Circular Dispositiva 3/92 of 31 July 1992 of the Ministry of Agriculture, Fishing and Food (MAPA), which established implementing provisions for market withdrawals: "*Normas de actuacìon del senpa sobre retiradas del mercado de productos hortofrutìcolas frescos*". On the basis of this Circular the autonomous regions of Spain have drafted and updated, on a yearly basis, their own procedures manuals for product withdrawal and disposal activities.

Circular 3/92 remained in force until 2005, and underwent numerous changes and additions as a result of Community regulatory changes[95]. It should be pointed out that Circular 3/92 and subsequent additions do not give any definition or specifications (allowed amounts, environmental constraints and limitations, etc.) for disposal processes such as Biodegradation and Composting, since this Circular is based on Council Regulation (EEC) 1035/72, which did not include among possible destinations the destruction of products withdrawn from the market.

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[94] In particular: proximity to ground water, proximity to towns, areas subject to restrictions, land already affected by the spreading of other substance (liquid sewage, liquid sludge)

[95] In greater detail. two Circulars were adopted:
- Circular Memorandum 13.602 of 19/05/97 of the MAPA Fondo Español de Garantìa (FEGA), established that by virtue of article 25 of Council Regulation (EC) 2200/96, POs had to communicate measures adopted to ensure the fulfilment of legal obligations during withdrawal operations. With regard to controls, the Oficio Circular maintained existing FEGA legislation, i.e. full control over withdrawals for all destinations.
- Circular 026762 of 17/12/99 of the MAPA Fondo Español de Garantìa (FEGA) confirmed the need to carry out checks on withdrawn products disposed of by destruction via composting, incineration or treatment at controlled disposal sites. It also established that controlled biodegradation, incineration or public or proven controlled disposal sites had to be authorised by the authority competent for the environment in the area in which the site was located, also in those cases in which destruction operations are performed on the plots of producers' organisations

Through these elements we can conclude that in Spain regulations to attain the aims set out in Art. 25 of Council Regulation (EC) 2200/96 (environmental protection in case of disposal of fruit and vegetables products withdrawn):

- were in force in the entire period 1997-2005, as regards composting and destruction via incineration or dumping at authorised disposal sites,
- did not provide specific provisions to prevent environmental damage in case of composting of withdrawn products,
- were not in force for biodegradation on the farmers' plots, because it was not an allowed disposal process, in the entire period 1997-2005 .

Combining the findings of our legislative survey we can conclude that, in the entire period 1997-2005 to which this evaluation refers, regulations adopted in Spain could have provided a sufficient environmental protection during disposal of fruit and vegetables products withdrawn only for "incineration or dumping at authorised public disposal sites" process. On the other hand regulations adopted in Spain could have provided an insufficient environmental protection for "biodegradation" and "composting" processes.

It should be pointed out that in 2005 Circular 3/92 was repealed by Circular Dispositiva 29/05 of the Ministry of Agriculture, Fishing and Food (MAPA), Fondo Español de Garantìa (FEGA). This Circular, more detailed than Circular 3/92 as described in paragraph 7.1.4.1 below, implements Commission Regulation (EC) 103/04.

At present the national framework submitted in 2005 to the European Commission has not received comments, but in our opinion appears to be in line with Community regulations.

NETHERLANDS

The national framework for withdrawal operations was drafted in 1998, and is basically a description of existing national legislation concerning waste disposal and environmental protection. It states particularly that, for destruction via composting or biodegradation, there has to be a specific authorization, and the provisions of the EMA (Environment Management Act) and of the Decree on Other Organic Fertilisers must be complied with.

It should be pointed out that the provisions defined within both legislative acts are clear for composting, but for biodegradation processes there are no specific provisions.

From the interviews conducted with Dutch authorities, it appeared that in the marketing year 2000/01 products were not destroyed (as they were almost entirely disposed of by animal feed), accordingly it was not deemed necessary to draft any document (circulars, manuals, procedures) to govern destruction activities.

Through these elements we can conclude that in the Netherlands regulations to attain the aims set out in Art. 25 of Council Regulation (EC) 2200/96 (environmental protection in case of disposal of fruit and vegetables products withdrawn):

- were not included in a single national framework in the entire period 1997-2005,
- were in force in the entire period 1997-2005, for composting destination, and existing legislation provided specific provisions to prevent environmental damage,
- were in force in the period 1997-2005, but without specific provisions, for Biodegradation disposal destination.

Combining the findings of our legislative survey we can conclude that, in the entire period 1997-2005 to which this evaluation refers, regulations adopted in the Netherlands could have provided a sufficient environmental protection during disposal of fruit and vegetables products withdrawn only for "composting" process. On the other hand regulations adopted in the Netherlands, in the same period,

could have provided an insufficient environmental protection for "biodegradation" process, although it has not been used in the entire period 1997-2005 for the disposal of withdrawn products.

The picture resulting from these four case studies highlights the different regulatory approach given at a national level, in the period from 1997 to 2005, as regards both: product destruction practices deemed by Member States to be in compliance with Art. 25 of Council Regulation (EC) 2200/96, and specific operational provisions relating to withdrawal methods that respect the environment.

7.1.4 Existence of an organisational level that guarantees compliance with current regulations and environmental protection and good technical-organisational practices

Processing the specific information obtained from the case studies, it was possible to analyse the existence, in the four Member States analysed, of an appropriate organisational level in order to ensure the management of withdrawal operations and to perform environmental protection checks.

7.1.4.1 Existence of manuals (instructions) for PO use, and of specific provisions, for disposal operations concerning withdrawn products

As previously discussed in paragraph 7.1.3.2, the situation presented by the four Member States involved in the case studies is somewhat heterogeneous, and depends to a large extent on both: the regulatory approach adopted by Member States for product withdrawal and disposal operations, and on the national provisions to which Member States refer. The most significant results of our analysis are as follows.

FRANCE

As previously discussed, the first framework drawn up by France in 1997 specified disposal procedures for withdrawn products. It defined disposal criteria for fruit and vegetables products, with special reference to surface spreading and the recording of control operations. Moreover with the Ministerial order of 2 August 2004 France has established provisions in compliance with Commission Regulation (EC) 103/04. Both the 1997 framework and the 2004 Ministerial order contain practical instructions[96] for carrying out product destruction so as to safeguard the environment.

Through these elements we can conclude that in France manuals for PO use, and specific provisions, for disposal operations concerning withdrawn products:

- were in force in the entire period 1997-2005,
- provided specific provisions to prevent environmental damage in case of destruction of withdrawn products.

Combining the findings of our survey on specific procedures we can conclude that, in the entire period 1997-2005 to which this evaluation refers, manuals for PO use, and specific provisions adopted in France could have provided a sufficient environmental protection during disposal of withdrawn fruit and vegetable products.

ITALY

In the period up to 2002 there was no single "Procedures manual", and reference legislation for withdrawal operations, as already discussed in the previous paragraph, consisted of national and Community legislation, through the provisions of the Agricultural Ministry and the AGEA (or the AIMA in the years prior to 1996).

[96] Details on the specific provisions are given in the previous paragraph 7.1.3.2.

In 2002 the AGEA drafted a "Procedures manual" in compliance with existing legislation and with the framework submitted to the European Commission. This first draft identified the information management scheme and the various checks that must be carried out during withdrawal and disposal operations, and also defined the procedures for disposal via biodegradation and composting, but with the **limits** shown in the following table:

Type of disposal	Products	Specific provisions
Biodegradation	**Not specified**	Preferably on the plot of POs producers. **Allowed quantities are not specified**.
		Complete denaturation[97] of product at the farm or at the authorised disposal site
		Burial within 48 hours
Composting	**Not specified**	**Not specified**

Through these elements we can conclude that in Italy manuals for PO use, and specific provisions for disposal operations concerning withdrawn products:

- were not included in a single "procedures manual" in the entire period 1997-2002,
- were not sufficiently specified in the entire period 1997-2005.

Combining the findings of our survey on specific procedures we can conclude that, in the entire period 1997-2005 to which this evaluation refers, manuals for PO use, and specific provisions adopted in Italy could have provided an insufficient environmental protection for "biodegradation" and "composting" processes.

As already discussed in the previous paragraph, it should be pointed out that in 2006 the AGEA, implementing Commission Regulation (EC) 103/04, published a revision of the "Procedures manual" which includes specific provisions for "biodegradation" and "composting" and for the control scheme.

SPAIN

As previously discussed Circular 3/92 and subsequent additions do not give any definition or specifications for disposal activities (allowed quantities, environmental constraints and limitations, etc.), as shown in the following table:

Type of disposal	Products	Specific provisions
Degradation via incineration or dumping in controlled disposal sites	**Not specified**	Operations must be authorised by the competent environmental authorities of the disposal site area, even when the disposal operations are carried out on the organisation's plot.
Composting	**Not specified**	**Not specified**

The case studies conducted in Spain reveal that since 1996 the autonomous regions of Spain have actually defined environmental protection procedures and regulations, although they are very heterogeneous and do not always provide sufficiently clear specifications. On the other hand, the control scheme and check provisions are clear in all the analysed cases.

Through these elements we can conclude that in Spain manuals for PO use, and specific provisions, for disposal operations concerning withdrawn products:

- were not included in a single "procedures manual" in the entire period 1997-2005,
- were not sufficiently specified in the entire period 1997-2005 .

Combining the findings of our survey on specific procedures we can conclude that, in the entire period 1997-2005 to which this evaluation refers, manuals for PO use, and specific provisions adopted in

[97] Denaturation must occur in order to render the product absolutely non-removable for fresh consumption.

Spain could have provided a sufficient environmental protection during disposal of fruit and vegetables products withdrawn only for "incineration or dumping at authorised public disposal sites" process. On the other hand, regulations adopted could have provided an insufficient environmental protection for "biodegradation" and "composting" processes. As already discussed in the previous paragraph, it should be pointed out that the new Circular Dispositiva 29/05 of the Ministry of Agriculture, Fishing and Food (MAPA), Fondo Español de Garantìa (FEGA), implements Commission Regulation (EC) 103/04 and defines national provisions for disposing withdrawn products by biodegradation. In particular:

- specifications for preventing contamination of the soil and water (land with a gradient of less than 3% to prevent runoffs, distance from streams of at least 50 m);
- specifications for preventing any potential health problems, bad odours or visual impacts (areas far from towns and from communication routes);
- scattering methods and allowed quantities (500-3,500 tonnes/ha per year, depending on the type of land – more or less filtering) are indicated, in addition to the maximum time it can stay on the land (30 days), after which time the remains will be buried.

At present the national framework submitted in 2005 to the European Commission has not received comments, but in our opinion appears to be in line with Community regulations.

NETHERLANDS

As previously discussed it was not deemed necessary, by Dutch authorities, to draft any document (circulars, manuals, procedures) to govern disposal processes such as biodegradation, and composting[98]. Moreover the provisions defined within both legislative acts (Environment Management Act – EMA - and the Decree on Other Organic Fertilisers) are clear for composting but for biodegradation processes there are no specific provisions.

Through these elements we can conclude that in the Netherlands manuals for PO use, and specific provisions, for disposal operations concerning withdrawn products:

- were not included in a single "procedures manual" in the entire period 1997-2005,
- were not sufficiently specified for biodegradation processes in the entire period 1997-2005.
- Combining the findings of our survey on specific procedures we can conclude that, in the entire period 1997-2005 to which this evaluation refers, manuals for PO use, and specific provisions adopted in the Netherlands could have provided a sufficient environmental protection during disposal of fruit and vegetables products withdrawn only for "composting" process. On the other hand specific provisions adopted in the Netherlands, in the same period, could have provided an insufficient environmental protection for the "biodegradation" process, although it has not been used in the entire period 1997-2005 for the disposal of withdrawn products..

The picture resulting from these four case studies confirms the different approach given at national level, in the period from 1997 to 2005, not only for regulatory instruments as discussed in the previous paragraph, but also as regards manuals (instructions) for PO use and specific operational provisions for the disposal of withdrawn products.

[98] For both destruction processes a specific authorization is needed, and the provisions of the EMA and of the Decree on Other Organic Fertilisers must be complied with.

7.1.4.2 Role of actors involved in disposal operations and results obtained by the control methods applied

The deep interviews held in the case study regions provided information for defining the role of actors involved in withdrawal operations and for determining whether the four Member States have a good local and national organisation.

Analysis of the national frameworks and operations manuals as well as the in-depth interviews conducted in the case study areas allowed us to verify whether: A) the POs, and regional and national authorities in the concerned Member States, have well-defined roles for the various scopes of management and operations; B) the checks established by Member States comply with the provisions (procedures that must be carried out within the scope of withdrawal operations) established by Commission Regulation (EC) 659/97[99].

For all cases it emerged that:

- The regional Authorities are appointed to provide the authorisations for the sites to be used for product destruction activities.
- The POs are obliged to manage withdrawal operations, prepare products to be destroyed, and to record all of the product disposal operations for control authorities purposes.
- The regional Authorities are appointed to make physical and documentary checks[100] on product disposal operations.
- The national Authorities perform documentary checks on the completeness and results of the control procedures.

As regards the control system in particular, the survey on the four Member States involved revealed the following picture.

Tab. 74 – Most relevant elements of control systems adopted by Member State

Member State	Regional level	National level
France	The douanes perform the documentary and physical checks on withdrawal operations and on the product denaturation phases. The DDAF (Direction Départementale de l'Agriculture et de la Forèt) performs physical checks aimed at verifying that the scattering operations comply with declarations. It may also perform checks and analyses of the soil to verify that there is no environmental risk and that the instructions contained in CTIFL specifications are observed.	Viniflhor checks the documents and registers and checks "destroyed quantity declarations".
Italy	Regional Control Commissions perform the physical and documentary checks pursuant to the provisions. Physical checks are extended up to the time of completed denaturation or burial in case of dumping.	AGEA reviews the regional checks, the documents and registers as a whole, and checks "destroyed quantity declarations".
Spain	Officials of the autonomous regions perform checks. They inspect the land earmarked for dumping activities and provide authorisations. The quantity and destination of productions are checked.	FEGA performs documentary checks of regional documents.

[99] Commission Regulation (EC) 659/97 was repealed in 2004 with Commission Regulation (EC) 103/04, which distinguishes between first-level and second-level checks. See chapter 2 on the regulatory framework for more detailed information.

[100] As will be stated in the next chapter, the role of the regional authorities carrying out physical and documentary control operations is well-defined, particularly for control operations, as required by the provisions.

Member State	Regional level	National level
Netherlands	The destroyed quantities of withdrawn products prior to 1993-94 were checked by the QCB (Quality Control Bureau). Product destruction activities have no longer been carried out since that time.	

Source: based on information from national provisions and deep interviews

Moreover we have analysed the results of the European Commission checks on product withdrawals, and particularly those regarding environmental protection. The inspection, carried out by the European Commission via 6 audits at regional level between 1999 and 2003, specifically pertained to withdrawal problems that raised the Commission's objections. Analysis of the results of these audits showed that:

- with regard to the organisation of control systems, the European Commission had no objections, so the breakdown of tasks at local, regional and national levels was considered satisfactory;
- there were a few problems concerning the number of checks performed. In particular, the provisions require that 100% of withdrawn products shall be checked during the biodegradation and composting phases, whereas a few cases (several regions in Spain and Italy) in which checks were performed on lower percentages were discovered. This is generally due to an incorrect interpretation of the provisions, which led (in Italy) to assimilating products earmarked for destruction with products earmarked for other non-food destinations, for which provisions require checks on 20% of products;
- amongst the regions examined, management irregularities were noticed in only one case (Calabria, Italy): insufficient checks, documentary checks not performed on all of the POs, delays in forwarding documents, lack of documents, contradictory information;

Criticisms was therefore relatively minor, and limited to a few regions. It is therefore believed that Member States have adequately defined their control and information management systems.

These findings, as a whole, lead us to conclude that during the observed period (1997-2005) in the four Member States involved in the case studies:

- Organisation of the activities and separation of the roles of the actors involved appeared to meet operational needs for the disposal operations through destruction of withdrawn products.
- The control scheme and necessary checks so that withdrawal and disposal operations were implemented with respect for the environment, as set out in Community provisions, were effective to a large extent.

Combining these findings we can conclude that, in the entire period 1997-2005 to which this evaluation refers, the overall organisation and control scheme adopted in the four Member States, to which the case studies refer, provided a sufficient environmental protection during disposal of withdrawn fruit and vegetable products.

7.1.4.3 Checking of other environmental assessment studies

Surveys carried out with national and local authorities in the case study areas did not reveal a knowledge of specific environmental assessment studies, with particular reference to environmental protection during product withdrawal and disposal operations.

7.1.5 Evaluation judgement

The quantitative analysis showed a large fall in the quantity of destroyed products in the period following the 1996 CMO reform (-82% for the marketing year 2004/05 vis-à-vis 1997/98), but at the same time there is compelling evidence that the same quantities, as a percentage of total withdrawn products, remained rather high (over 65% of all withdrawn products) despite a decreasing trend. We can conclude from this that the Community regulation's aim of "avoiding destruction of withdrawn products" was only partially achieved.

Community regulations do not provide specific criteria, parameters or indicators to ensure that environmental damage is not caused by the biodegradation and composting of fruit and vegetables products withdrawn from the market. Moreover, the survey we conducted with European Commission offices revealed that there are no available evaluations or assessments on biodegradation and composting processes on which to base a comparative analysis of those possibly defined by Member States. Thus, the following conclusions are based on the analysis of the existence and completeness of specific national regulations concerning the destruction of withdrawn F&V products.

Analysis of the national frameworks in force in the period 1997 to 2005 showed that the "*definition by Member States of an appropriate national framework to prevent environmental damage during the disposal of withdrawn products operations*" has not been completed at a European level. Until 2005, the European Commission approved only the frameworks submitted by France and Finland. The reasons why no approved framework has been recorded for other countries range from non-implementation of withdrawal operations to the application of regulations already in force. Furthermore, the downward trends of withdrawn and destroyed product quantities may in some way have influenced the choice to not consider the preparation of specific rules as a necessity.

Combining the results of the analysis on the appropriateness of the "national framework" by Member States with the relevance of quantities of product destroyed by each of them in the period 1997-2005, it is seen that only in France have specific provisions and regulations been used to govern the possible environmental damage of withdrawn F&V products. On the other hand, for Italy, Germany, United Kingdom, Greece and Portugal, all of which have resorted to product destruction in large quantities, national frameworks were deemed to be inappropriate.

It should be noted that this should not necessarily be interpreted as "low attention behaviour" towards environmental protection (given the existing national legislation on this theme), rather as a sign of the difficulty in harmonising procedures and practices used by public administrations. Nevertheless it is essential to govern the product destruction phenomenon within a specific legislative framework, with the aim of maintaining the necessary control over possible environmental risks.

The survey conducted in the four Member States (France, Italy, Spain and the Netherlands) to which the case studies refer revealed that:

1. Among the disposal methods that lead to the destruction of products, composting was practically non-existent during the period 1997 to 2005, while biodegradation in France (and Italy since 2003) and "degradation via incineration or dumping at authorised disposal sites" (in Spain until 2005 and Italy until 2002), were the only practices used.
2. Since Community regulations do not provide specific criteria or parameters in order to identify and regulate biodegradation and composting processes, different legislative approaches have been adopted in different Member States. While France has provided specific provisions for biodegradation and composting of withdrawn products, Italy and Spain have considered themselves to be in compliance with Council Regulation (EC) 2200/96, deeming the destruction at authorised disposal sites by means of dumping and incineration adequate for environmental protection purposes.

3. During the entire period (1997-2005) specific operating manuals and procedures to achieve the aims set out in Art. 25 of Council Regulation (EC) 2200/96 (environmental protection in case of disposal of F&V products withdrawn) were:
   - in force and specified for biodegradation and composting processes in France and for degradation, via incineration or dumping at authorised disposal sites, in Spain and Italy,
   - not specified for biodegradation in Italy and in the Netherlands,
   - not specified for composting in Spain.

Combining these three findings we can conclude that the different regulatory approaches adopted by Member States have resulted in national provisions that could be insufficient to ensure that environmental damage is not caused by the disposal of F&V products withdrawn from the market.

On the other hand, the control scheme and checks required Community provisions for withdrawal and disposal operations appear to be appropriate. This picture emerges from national procedures analysed for Member States included in the case studies and from the substantial lack of criticism reported by European Commission audits conducted in several areas.

These findings, as a whole, lead us to conclude that in the observed period (1997-2005) at a Community level, the effectiveness of Community regulation's aim of "preventing the environmental damage caused by the disposal of products withdrawn" was only partially achieved.

It should also be pointed out that since 2005, following the implementation of Commission Regulation (EC) 103/04, Member States involved in the case studies, except Netherlands, drafted new procedures manuals in which procedures for withdrawal management, disposal operations and checks are presented in much greater detail. The trend for coming years is therefore towards an improvement of disposal practices, paying special attention to environmental protection.

8. THEME 4: MANAGEMENT AND EFFICIENCY

8.1 To what extent are the withdrawals an efficient tool for responding to crises caused by surpluses in fruit and vegetables sector? - EQ.8

The evaluation question invites an opinion on the efficiency of withdrawals as a tool to stabilise market prices and agricultural producers' incomes over time. We interpret the term efficiency as the relationship between the operating costs of the instrument compared to the results observed relative to the objectives of the Regulation. Although it was not possible to conduct a full analysis of efficiency, a partial analysis of the following themes has been undertaken.

The framework of the analysis has been built on the basis of data availability, and the evaluation judgement is formulated as a synthesis of specific, parallel analysis routes, which dealt with the following themes:

- an assessment of withdrawal efficiency, by comparing the cost of the support instrument with the results obtained as found in terms of price and income stabilisation (comparison between the costs of withdrawals and the results achieved in reducing price and income variability).
- an assessment of coherence, by comparing the cost sustained by the public sector with the cost of similar measures included in other CMOs (specifically, distillation in the Wine CMO) or in the same CMO (comparison between withdrawal expenditure and overall CMO expenditure).
- an assessment of the "administrative complexity" of withdrawal management, by evaluating the administrative and management complexity of the instrument and its modification over time, as well as the impact of the instrument on the public/private administrations involved in system operation/management and on complementary aspects such as reporting and control systems (looking at the simplification aim).

The results of the analyses that are presented in the sections below, and which have been conducted starting from available data, allow only a partial evaluation judgement on the efficiency of withdrawals as a tool for responding to crises caused by surpluses in the fruit and vegetable sector.

8.1.1 Judgement criteria and indicators

The judgement criteria and indicators used for answering the evaluation question are as follows:

Judgement criteria	Indicators
1. The cost of withdrawals to the public is justified (or not) relative to the results achieved in terms of the level of stabilisation of producers' income	1.1 Withdrawals Budget
	1.2 Ratio: withdrawals budget/withdrawals volume
	1.3 Ratio: expenditure incurred for withdrawals for each point of reduction of the price variability index
	1.4 Ratio: expenditure incurred for withdrawals for each point of reduction of the income variability index

Judgement criteria	Indicators
2. The cost of withdrawals is in line (or not) with the cost of distillation in the Wine CMO.	2.1 Comparison of the ratios: - Budget/area cultivated (for withdrawn production) - Budget/AWU - Budget/value of products withdrawn
3. The weight of withdrawals expenditure in the Community budget is coherent with overall CMO measures	3.1 Ratio: Budget for withdrawals/Total CMO fruit and vegetables Budget, weighted for area cultivated and subject to withdrawal
4. Withdrawal management for the actors involved (producers, POs, public administrations) is (or is not) complex.	4.1 Qualitative indicators of the complexity of the withdrawals instrument as per procedures
	4.2 Opinion of key witnesses expressing a positive/negative perception of "administrative complexity"

8.1.2 Data sources and limits

The response to the evaluation question requires the adoption of quantitative indicators sourced partially from the statistical data used to respond to previous EQs, and partially from the Commission.

The efficiency of withdrawals has been evaluated by considering the costs of withdrawal measures (Reg. 1035/72 and Reg. 2200/96) and by comparing them with the results achieved in terms of reduction in the variability of prices and incomes. Data used to perform this analysis were obtained from several sources, with reference to the period 1990-2004.

Data on withdrawals budget and on the volume of production withdrawn were obtained from the DG Agriculture and Rural Development with reference to financial years 1990-2004. As for the products withdrawn, data on area cultivated, annual working units (AWU) engaged in agricultural production and on quantities produced have been obtained from Eurostat statistics.

Data on the variability of prices have been derived from the results of EQ1. These results were only available for some of the sixteen products to which the withdrawal mechanism applies. Nevertheless, the products selected (peaches, dessert apples, oranges, nectarines, cauliflower) are a representative sample, as the expenses for withdrawing these products are, on average over the 1990-20004 period, 80% of total withdrawal costs. Information on the variability of income was obtained from EQ5 analysis.

Also prices used to compute the value of products withdrawn were derived from EQ1 and, for the products for which these data were not available, by Eurostat statistics.

The assessment of the efficiency of withdrawals has been limited by the quantity and quality of information available, and has focused only on those products for which price variability data (apples, peaches, cauliflowers and oranges in France, Italy and Spain) and income variability data (oranges in Italy and Spain, tomatoes in Netherlands and Spain and apples in France) were available. Nevertheless, the products selected are by far the most representative to assess the efficiency of withdrawals: in fact, the share of withdrawal expenses for selected products out of total withdrawal expenditure was, on average for the whole 1989/90-2003/04 period, above 72%.

The coherence of the assessment of the withdrawals system has been pursued by comparing the costs of withdrawals with the cost of similar measures adopted in other sectors (deciding to focus on the costs of distillation measures within the Wine CMO, considered as the most meaningful measure to take into consideration in this analysis even considering the limits explained in paragraph 8.1.4.1) and with processing aid costs sustained for the other products (peaches, pears and citrus) within the whole fruit and vegetables CMO.

As for distillation measures within the Wine CMO, necessary data were derived from information reported in the document of the wine CMO evaluation (DG Agriculture and Rural Development, Tender AGRI/EVALUATION/2002/6). As regards the expenses for processing aids of selected products (peaches, pears and citrus) within the fruit and vegetables CMO, data were derived from the previous evaluation undertaken by Agrosynergie[101] and referred to the processing aids for citrus, peaches and pears.

With reference to the evaluation of the management/operation system, the analysis has been conducted on the basis of system monitoring indicators obtained from various levels. The complexity of the withdrawals instrument is based on qualitative indicators of the complexity of withdrawal management (analysis of the texts provided a comparative framework of the complexity of the management/operation of the aid regime). The analysis is supplemented with qualitative information sourced through interviews with a group of expert witnesses in Member States expressing a positive/negative perception of "administrative complexity". Data used to make an assessment of the complexity of the withdrawals instrument were derived from the results of case studies.

8.1.3 An assessment of the efficiency of withdrawals

This section deals with an assessment of the efficiency of the withdrawals system, and is aimed at examining whether or not the costs of withdrawals measures (Reg. 1035/72 and Reg. 2200/96) are justified by the results achieved in stabilising agricultural producers' income. In other words, the goal of this part of the analysis is the identification and appraisal of achieved results in comparison with the costs of the withdrawals tool.

As highlighted above, only a partial analysis of efficiency is conducted here, because only budgetary expenditure (and not all the costs of withdrawals) are taken into account. Also, it should be considered that due to the limits of the present analysis in terms of datasets used and information derived from the previous answer to EQ1, the results presented below as regards the achievement of price and income stabilisation objectives should be considered as limited and partial. Therefore, taking into account these limitations and results, it will be difficult to draw firm conclusions on the efficiency – even partial – of withdrawals, as the analysis provided in this subchapter will show.

First, the costs of withdrawals measures were examined by looking at the withdrawals budget (by country and by product) in absolute terms as well as in relation to the quantity of product withdrawn. Second, the costs of withdrawals measures were compared with results achieved in terms of agricultural producers' income stabilisation, by analysing the reduction in price variability (which directly affects farmers' incomes) and, when possible, the changes in farm incomes.

Thus, this section is based on the discussion of the following indicators:

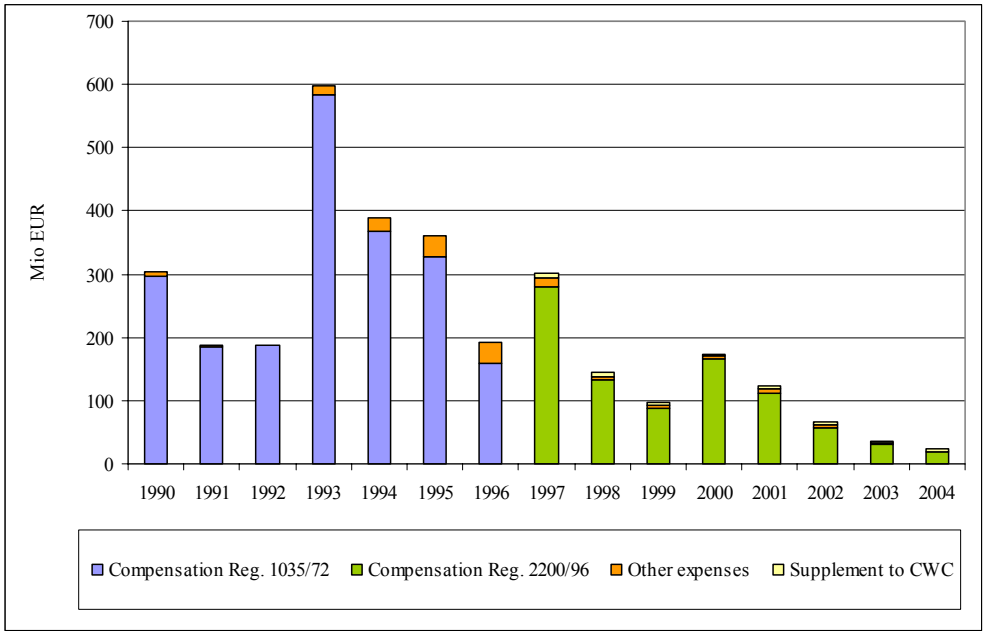
- Withdrawals Budget;
- Ratio: withdrawals budget/withdrawals volume;
- Ratio: expenditure incurred for withdrawals for each point of reduction of the price variability index;
- Ratio: expenditure incurred for withdrawals for each point of reduction of the income variability index.

8.1.3.1 Withdrawals – budgetary expenditure

This paragraph refers to the analysis of EU withdrawals expenditure trends before and after the 1996 CMO reform, which is part of the description of the fresh fruit and vegetable sector reported in the first part of this evaluation report.

[101] Agrosynergie, October 2006 (http://ec.europa.eu/agriculture/eval/index_en.htm).

Fig. 69 - Total withdrawals expenditure (1990-2004, Mio EUR)



Source: European Commission - DG AGRI

Withdrawals expenditure trends as represented in Fig. 69 show that total withdrawal costs have fallen substantially over the whole period 1993-2004 (from €597 million in the financial year 1993 to only €23 million in the financial year 2004[102]). It should be noted that total costs fell below 150 million Euro in 1998, and that from 2001 on total withdrawal costs have fallen sharply.

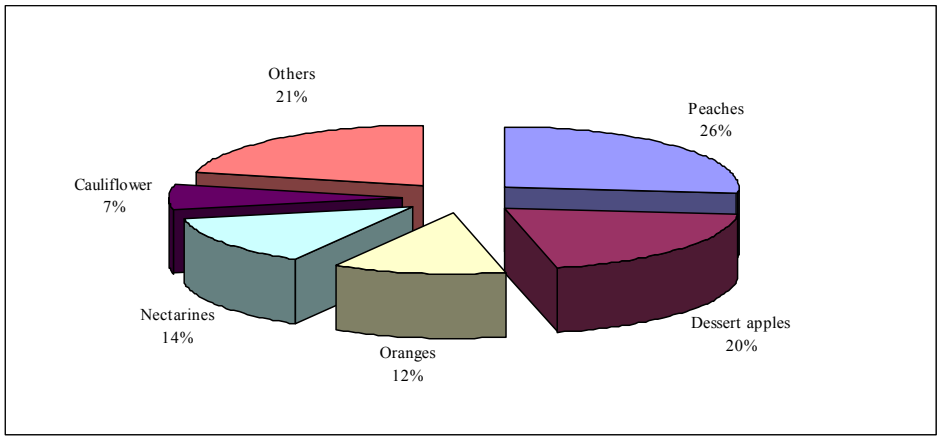
Total cost dynamics reflect the trends of total quantities of product withdrawn. As withdrawals were particularly used in the years in which production surpluses occurred, the decrease in withdrawals costs (and volumes withdrawn) can be related to the increasing importance of channels alternative to withdrawals (exports, production of processed fruits and vegetables, and so on). This can be related to the dynamics of Community withdrawal compensation (CWC), a single amount valid throughout the Community which has generally fallen for most products to which withdrawals refer from 1997 onwards, with the consequent loss in "profitability" of withdrawals as a possible destination.

Also, Council Regulation (EC) 2200/96 established maximum limits ("ceilings") in relation to quantities commercialised by POs that could benefit from withdrawal compensation. This could have contributed to the fall in withdrawals costs in 1998. Lastly, Commission Regulation (EC) 659/97 and the obligations introduced by Commission Regulation (EC) 398/00 may have increased the administrative burden, thus reducing the interest of POs in adopting this tool.

The products for which the withdrawals scheme has been most applied are: peaches, dessert apples, oranges, nectarines and cauliflowers. The expenses for withdrawing these five products represented, on average over the 1990-2004 period, 80% of total withdrawals costs (Fig. 70).

[102] The figure does not include the financial year 2005 for lack of data on the buying-in expenses paid, which will be available only during the financial years 2006 and 2007.

Fig. 70 - Share of total withdrawals expenditure by product (average 1990-2004)

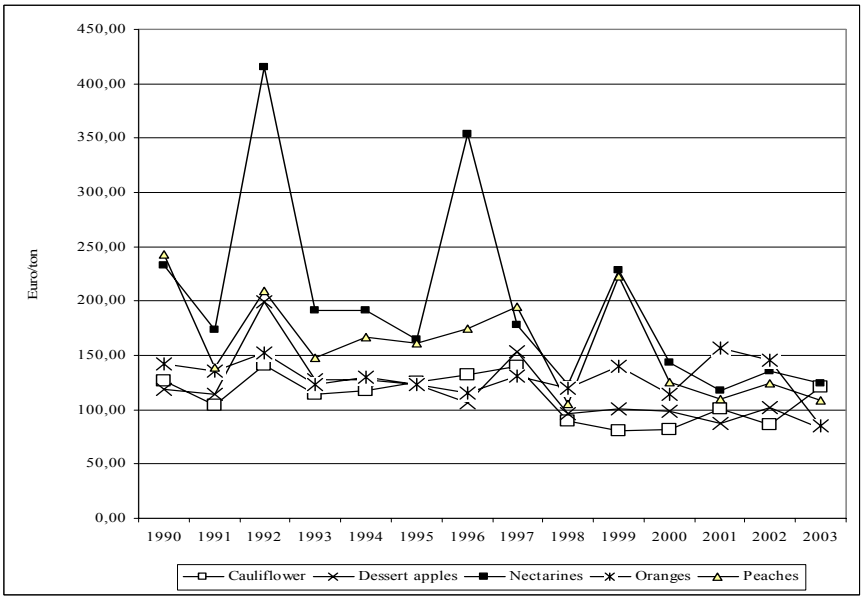


Source: based on data from European Commission - DG AGRI

The costs of withdrawals have been weighted by the quantity of products withdrawn, as per the ratio: withdrawals budget/withdrawals volume. This ratio measures the unit cost borne by the EU budget for each product withdrawn, and will be used to compare withdrawals costs with the results achieved for each product.

Fig. 71 shows withdrawals costs per metric tonne of product withdrawn, with reference to the five most relevant fruit and vegetable products, as previously selected. Average unit costs vary between almost 200 €/t for nectarines and less than 115 €/t for dessert apples, and seem to decline slightly after the 1996 CMO reform. In any case, the data show that – for all the 16 products identified in Annex II of the EC Regulation for which the EU guaranteed producers withdrawal from the market and payment of the buying-in price – the average unit cost declined after the 1996 CMO reform (the average cost was 192 €/t over the 1990-1996 period, while it decreased to 111 €/t over the 1997-2004 period).

Fig. 71 - Average unit withdrawals expenditure by product (1990-2004)



Source: based on data from European Commission - DG AGRI

The costs of withdrawals have also been related to the cultivated area (only the area yielding the withdrawn production), annual working units involved in agricultural production of withdrawn products and the value of withdrawn products. The value of withdrawn products has been computed

using the average real market price recorded in the EU-15. Thus, computed data represent the value of production hypothetically sold on the market at the real market price.

Tab. 75 shows the following ratios calculated with reference to withdrawals: budget/area cultivated, budget/AWU, budget/value of withdrawn product.

Tab. 75 - The unitary costs of withdrawals

	1990	1991	1992	1993	1994	1995	1996
	Withdrawal expenditure/area cropped subject to withdrawal (EU 15)						
000 euro/ha	4,27	2,10	3,66	2,63	2,39	2,26	2,57
	Withdrawal expenditure/annual working units (EU 15)						
000 euro/AWU	17,76	9,32	14,85	11,42	10,43	10,63	10,94
	Withdrawal expenditure/value of the products withdrawn (EU 15)						
%	41,60	27,40	45,33	31,57	31,51	29,47	35,61

	1997	1998	1999	2000	2001	2002	2003	2004
000 euro/ha	2,84	2,02	2,17	2,12	2,10	2,16	2,35	2,31
000 euro/AWU	13,57	7,49	7,30	8,05	9,78	9,04	9,79	7,83
%	34,21	22,90	21,42	20,41	18,91	15,66	17,99	17,46

Source: based on data from European Commission - DG AGRI and Eurostat

The results of the analysis show that the unitary costs of withdrawal have fallen over the period considered, especially after the 1996 CMO reform. This is particularly true for the ratio budget/value of withdrawn product, which shows the percentage share of the cost of withdrawing over the hypothetical market value of the withdrawn product. The fall in this ratio from an average of 34.5% over the 1990-1996 period to 19.9% over the 1997-2004 period may depend on the growth in the difference between the withdrawal price and the real market price.

The withdrawal price did not change significantly over the period under review (see Fig. 71), while real market prices have increased over the same period, thus reducing the incentive for producers to make use of the withdrawals scheme. As the level of compensation has fallen drastically (now around 10-20% of the market price), the "profitability" of withdrawals as a destination has fallen, hence the quantity of withdrawn product has fallen over the years.

Therefore, due to the 1996 CMO reform (introduction of ceilings) and to contingent market price trends, the total cost of withdrawals has decreased without creating any equilibrium difficulties, unlike the situation for other products within the same CMO (e.g. the cost for processing aids for tomatoes increased after the 1996 CMO reform due to the elimination of production quotas, which caused an increase in the supply of tomatoes for processing).

8.1.3.2 A comparison between withdrawals budgetary expenditure and results achieved

In this section, expenditure measures for the withdrawals budget have been compared with results achieved in terms of reduced agricultural market price variability and increased producers' income stabilisation. These two effects are closely related, as market prices directly affect farmers' incomes. In order to give some indications on the efficiency of withdrawals, the following efficiency indexes (EI) were built:

- expenditure incurred for withdrawals for each point of reduction of the price variability index; and
- expenditure incurred for withdrawals for each point of reduction of the income variability index.

8.1.3.2.1 Expenditure incurred for withdrawals for each point of reduction of the price variability index

The first index (EI_1) seeks to compare expenditure incurred for withdrawals with the results of the withdrawals scheme in terms of price variability reduction (one of the basic objectives of the withdrawals scheme itself). The reduction in price variability has been estimated by comparing price variability with and without the withdrawals scheme.

Price variability with the withdrawals scheme is measured by the coefficient of variation of time series price data recorded on selected markets for selected products (see EQ1). Hypothetical price variability without the withdrawals scheme is measured by the coefficient of variation of prices estimated using a demand function (i.e. the prices that would have formed, in each month in which there have been withdrawals, if the same quantity had been sold on the market instead of being withdrawn) (see EQ1). The difference between the calculated coefficients of variation measures the change in price variability as a result of the withdrawal scheme and estimates the fall in the price variability index.

Thus, the ratio expenditure incurred for withdrawals for each point of reduction of price variability index is computed by dividing the costs of withdrawals by the calculated difference between the coefficients of variation:

EI_1=[costs of withdrawals/(price CV* $_{\text{without withdrawals}}$ − price CV $_{\text{with withdrawals}}$)]

where: price CV=coefficient of variation of price time series, and the sign * indicates that it is the result of an estimation procedure using the estimated demand function.

EI_1 measures the cost of reducing the price variability by 1% per each tonne of product withdrawn. A negative ratio indicates that price variability increased as a result of the withdrawals, while a positive ratio indicates that the withdrawals was efficient in reducing price variability. For example, if EI_1 is equal to 1.6 (as is the case for peaches in France), this implies that 1.6 € is spent per metric tonne of peaches withdrawn to reduce by 1% price variability in the peaches market.

EI_1 was computed for the main products to which the withdrawal mechanism refers and for which data on estimated prices and their related variability are available (see EQ1). Results show that, in general, withdrawal measures have been efficient in reducing price variability for the products and countries selected (EI_1 is always positive), although the cost by point of reduction of the price variability index changes considerably by product and country (ranging from less than 15 €/t for apples and peaches in France and Italy to more than 48 €/t for peaches in Spain and almost 60 €/t for cauliflowers in France).

One possible reason for this variability is that each product has its own specific market, and the wholesale markets on which prices have been recorded are local ones, due to the physical and commercial characteristics of traded production (fresh fruits and vegetables). Thus, it is not surprising that differences in price variability are recorded among different countries. For example, in France the withdrawal scheme has been more efficient for apples and peaches (cost lower than 2 €/t) than for cauliflowers (almost 60 €/t). In Italy and Spain results are different. The analysis also showed that with the 1996 CMO reform, the efficiency of withdrawals decreased for apples, peaches and oranges, while it increased for cauliflowers.

It is worth remembering that the limits of the analysis in answering EQ1 create serious limitations for the above analysis. Therefore, the results presented here should be treated as being merely indicative.

8.1.3.2.2 Expenditure incurred for withdrawals for each point of reduction of the income variability index: the case of orange production in Italy.

The second index (EI_2) (expenditure incurred for withdrawals / point of reduction of the income variability index) seeks to compare the costs of withdrawals with the results of the withdrawals scheme in terms of income variability reduction (one of the goals of the withdrawals scheme itself).

The reduction in income variability has been estimated by comparing income variability with and without the withdrawals scheme.

Income variability with the withdrawals scheme is measured by the coefficient of variation of farm income computed using data from the FADN database (see EQ5). Hypothetical income variability without the withdrawals scheme is measured by the coefficient of variation of incomes estimated using prices projected through a demand function (see EQ1 and EQ5). The difference between the calculated coefficients of variation measures the change in income variability as a result of the withdrawal scheme and estimates the reduction in the income variability index.

Thus, the ratio expenditure incurred for withdrawals for each point of reduction of the income variability index is computed by dividing the costs of withdrawals by the computed difference between the coefficients of variation:

EI_2=[costs of withdrawals/(income CV* $_{\text{without withdrawals}}$ − income CV $_{\text{with withdrawals}}$)]

where: income CV=coefficient of variation of income time series, and the sign * indicates that it is the result of an estimation procedure using the estimated demand function.

EI_2 measures the cost of reducing income variability by 1% per tonne of product withdrawn. A positive ratio indicates a fall in income variability as a result of withdrawals. For example, if EI_2 is equal to 16.3 (as is the case for oranges in Italy after the 1996 reform), this implies that 16.3 € is spent per metric tonne of oranges withdrawn to reduce by 1% the income variability of orange producers in Italy.

EI_2 has been computed only for some products in some countries, depending on the availability of data on the variability of farmers' incomes (see EQ5): oranges in Italy and Spain, tomatoes in Netherlands and Spain and apples in France.

Results show that withdrawals have been quite efficient in reducing income variability, as the EI_2 ratio is always positive (values range between less than 2 €/t for most products in most countries to 6 €/t for tomatoes in Spain before the 1996 reform and more than 16 €/t for oranges in Italy). As was the case of price variability (EI_1), for some products the efficiency of withdrawals in reducing income variability fell after the 1996 CMO reform. This may be linked to the declining importance of withdrawals over the years (lesser quantities withdrawn) and to the consequent lower dependence of producers' income on the withdrawals scheme: producers in fact have found it more convenient to sell their products on the market than to ask for withdrawal compensation. This conclusion is consistent with the "profitability" loss of withdrawals as a possible destination for agricultural production, as previously discussed).

Nevertheless, in order to avoid the interpretation that the scheme applied before 1996 was more efficient than the actual scheme, it should be remembered that the limitations of the price analysis (data from EQ1) affect the results presented in this section, and that the results of only a partial analysis of efficiency (not a full analysis of efficiency) are discussed here. Also, it should be remembered that for both indexes, due to the high variability of results, it is not possible to draw any general conclusion, and each single case should be analysed separately. Also, due to many assumptions made on computing indexes, the results obtained in this part of the analysis and discussed above should be considered only as purely indicative.

8.1.4 An assessment of the coherence of withdrawals

This section deals with the second part of the analysis, that is assessment of the coherence of the withdrawals system, carried out by comparing costs sustained for withdrawals by the public sector with the costs of similar measures included in other CMOs (specifically, distillation in the Wine CMO) or in the same CMO (comparison between withdrawals expenditure and overall CMO

expenditure). In this sense, the comparison with wine distillation as well as processing aid measures have been used as additional indicators to look into efficiency.

The section is based on the discussion of the following indicators:

- comparison between the withdrawals scheme and wine distillation measures using the ratios: Budget/area cultivated, Budget/AWU, Budget/value of products;
- ratio: Budget withdrawals/Total CMO fruit and vegetables Budget, weighted for area cultivated and subject to withdrawal

8.1.4.1 A comparison between withdrawals budget expenditure and budget expenditure for similar measures: distillation in the wine CMO

This section seeks to assess whether the Community expenditure of withdrawals is in line (or not) with the expenditure of similar measures adopted in other sectors. In this sense, only distillation measures within the wine CMO have been considered as comparable with withdrawals in the present analysis. In fact, withdrawals of fruits and vegetables on the one hand and wine distillation on the other are similar measures as regards the methods of intervention and objectives of the tool itself.

Nevertheless, it should be said that the analysis is only a partial comparison between two instruments that are specific to two separate CMOs whose structure and level of complexity are very different. Also, the expenditure for the application of these tools within the respective CMOs has a very different weight: wine distillation is in fact the main instrument used for market intervention under the Wine CMO, with the objective of withdrawing production surpluses from the market at a guaranteed minimum producer price, in order to stabilise producers' incomes and ensure a certain quality level. On the other hand, the importance of withdrawals within the CMO for fruits and vegetables is more limited.

Therefore, the results presented here should be considered only as purely indicative and do not allow a clear statement about the coherence of costs of the withdrawals system in relation to the costs of a similar measure in the sphere of wine distillation.

Depending on its technical characteristics, alcohol produced through distillation takes the form of either raw alcohol and spirits, which are sold for the manufacture of potable alcohol, or raw or neutral alcohol, which is taken into public intervention storage for subsquent use in industrial processes or as a biofuel. Over the last 25 years an average 26 million hectolitres of wine, i.e. 15% of production, has been distilled each year. However, the percentage has varied considerably in recent decades, reaching a high (25%) in the 1980s and a low (5%) in 1995/96. Since 2000, it has fluctuated around the 10% mark.

The distillation schemes applied according to EU Regulation 1493/1999, which are of interest for our purposes of comparison with fruit and vegetable withdrawal measures, are as follows:

- Distillation for potable alcohol (optional)
- Crisis distillation (optional, all wines)
- Distillation of by-products (mandatory)

The aims of distillation for potable alcohol are to withdraw the expected surplus from the market at the beginning of the marketing year in order to exert a positive influence on prices (and, consequently, on producers' incomes), and to supply the potable alcohol market by making available to the spirits industry and to producers of brandy and liqueur wines raw materials (wine alcohol) from the Community at a price rendered competitive through aid. This measure comprises:

- primary aid paid to distillers to compensate for the average minimum purchase price paid to producers for the wine to be distilled (around €175 per hectolitre of pure alcohol or €20 per hectolitre of wine);

- secondary aid paid to distillers to cover part of the cost of private storage of the alcohol (around €12 per hectolitre of pure alcohol or €1.3 per hectolitre of wine).

This makes an average cost for the CMO budget of €21.3 per hectolitre of wine.

The aims of crisis distillation are to eliminate specific pockets of surplus. This measure also comprises two parts:

- aid to distillers to compensate for the minimum price paid to producers (around €112 per hectolitre of pure alcohol or €12 per hectolitre of wine);
- as regards the obligation to take over alcohol, the storage costs and financial losses borne by the Commission for disposing of the alcohol resulting from such distillation and placed in public storage (a net amount of around €90 per hectolitre of pure alcohol or €10 per hectolitre of wine).

This makes an average cost of around €22 per hectolitre of wine.

Tab. 76 shows the withdrawal costs for fruit and vegetables, while in Tab. 77 a comparison between the average costs of the withdrawals (computed over the 2000/01-2003/04 period) in the two sectors is presented.

Tab. 76 - Withdrawal costs for fruit and vegetables (EUR/100 Kg)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Apricots	58,73	0,62	324,09	74,19	18,43	5,33	84,37	20,02	15,27	15,51	14,19	15,40	11,39	18,18	11,87
Cauliflower	12,63	10,42	14,13	11,39	11,81	12,58	13,24	13,99	8,92	8,07	8,20	10,10	8,57	12,13	12,91
Clementines	8,63	32,43	32,17	11,71	12,87	13,21	13,63	15,65	12,14	7,08	9,96	14,51	11,56	22,84	35,10
Dessert apples	11,91	11,38	19,95	12,71	12,80	12,36	10,66	15,33	9,65	10,02	9,87	8,68	10,16	8,31	6,65
Dessert pears	10,72	9,90	54,17	9,95	16,53	12,27	18,60	10,99	8,89	9,37	9,47	7,97	9,00	7,42	7,33
Egg-plant	5,81	0,31	13,93	38,55	5,72	8,39	7,91	7,66	5,26	0,98	4,11	4,09	5,12	5,29	12,85
Lemons	11,55	25,58	19,56	16,55	10,60	17,81	13,76	13,76	10,07	10,40	24,54	8,22	17,90	24,06	9,24
Mandarins	36,28	19,07	25,42	11,75	14,77	11,30	16,47	15,93	15,40	9,72	16,51	6,67	26,57	1,79	0,00
Melons	-	-	-	-	-	-	-	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Nectarines	23,24	17,35	41,51	19,13	19,19	16,45	35,37	17,81	12,34	22,80	14,30	11,73	13,52	12,47	11,17
Oranges	14,18	13,53	15,27	12,31	13,00	12,32	11,55	13,11	12,00	14,01	11,44	15,72	14,54	8,51	27,08
Peaches	24,27	13,90	20,93	14,73	16,71	16,15	17,50	19,50	10,51	22,31	12,49	10,97	12,38	10,83	13,54
Satsumas	1,57	0,00	0,00	6,93	9,56	8,63	10,67	9,90	10,41	8,29	6,98	5,72	10,23	9,71	25,05
Table grapes	0,54	13,28	12,39	13,09	14,22	13,21	15,87	14,17	9,47	15,32	9,61	10,68	11,79	10,93	7,11
Tomatoes	5,82	6,83	16,34	5,62	7,37	10,69	9,20	10,00	6,05	5,03	4,47	5,26	3,95	5,84	4,57
Water melons	-	-	-	-	-	-	-	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Source: European Commission - DG AGRI

Tab. 77 - A comparison between the average costs of withdrawals and the costs of wine distillation measures (2000/01-2003/04)

Fruit and vegetable withdrawals cost €/100 Kg	Distillation for potable alcohol cost €/100 l	Crisis distillation cost €/100 l
11.3	21.3	22.0

Source: based on data from European Commission - DG AGRI

The analysis shows that the average cost for withdrawing fruit and vegetables is around half of the cost for withdrawing wine to be distilled (for both the distillation for potable alcohol and crisis distillation measures)[103].

8.1.4.2 An assessment of the coherence between withdrawals expenditure and overall CMO expenditure

This section seeks to assess whether the budget expenditure of withdrawals is coherent with overall CMO fruit and vegetables expenditure. This assessment has been undertaken by comparing costs for

[103] It should be noted that the comparison between withdrawal costs, in terms of €/100 Kg, and distillation costs, in terms of €/100 l, is possible since the specific weight of wine is equal to 1.

withdrawals with costs for support to peaches, pears and citrus fruits (processing aid). Community expenditure has been weighted by the area cropped. It should be specified that due to the limited availability of data, the analysis did not take into consideration management costs relating to the support system. The results of the analysis are shown Fig. 72 and Fig. 73.

Fig. 72 - The unit cost of withdrawals for peaches, pears and citrus fruits (EU-15, EUR/t)

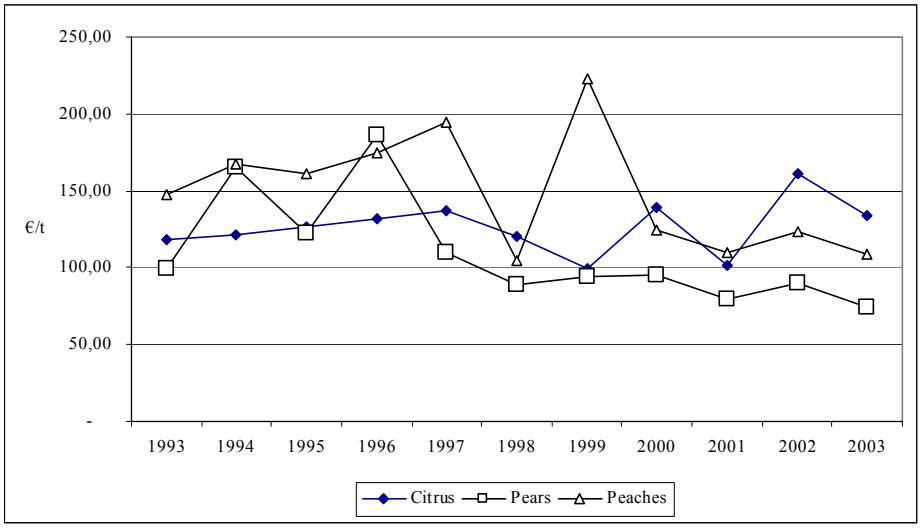
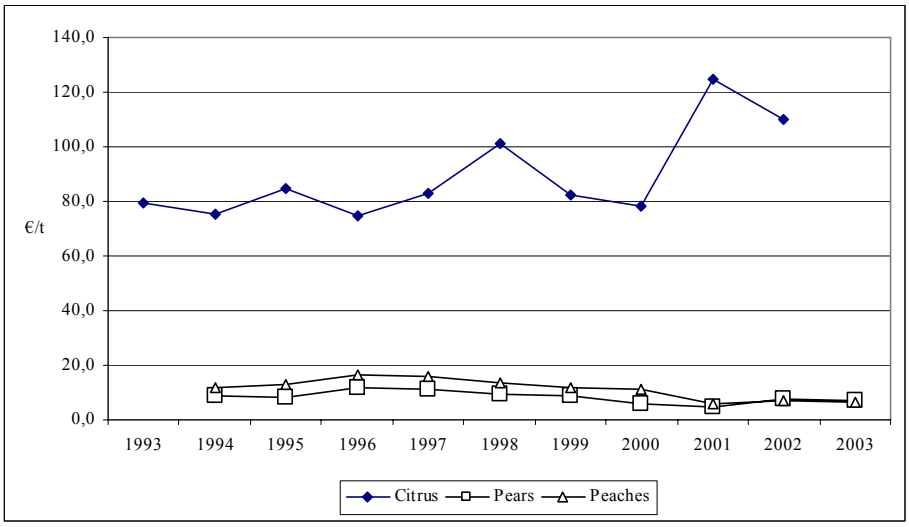


Fig. 73 - The unit cost of processing aid for peaches, pears and citrus fruits (EU-15, EUR/t)



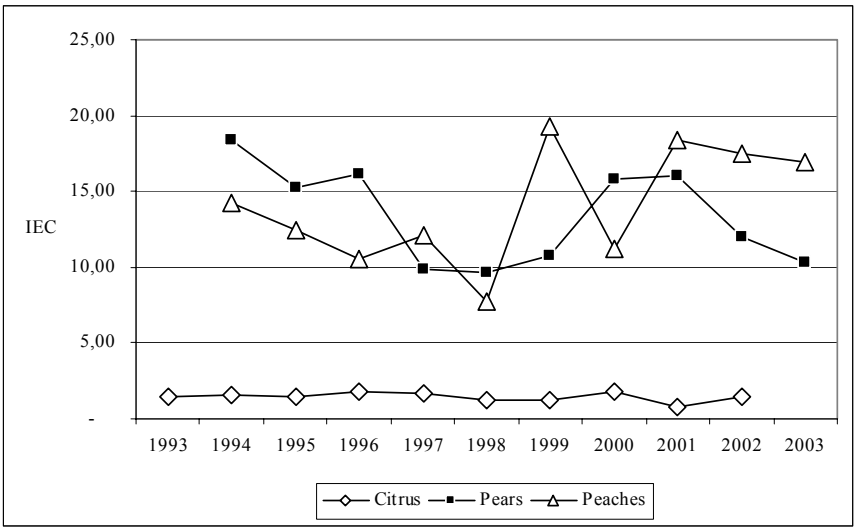
€/t	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Withdrawals											
Citrus	118,51	121,59	126,53	132,17	136,71	120,05	99,01	138,85	101,65	161,59	133,81
Pears	99,50	165,28	122,69	185,97	109,86	88,87	93,74	94,67	79,71	89,95	74,21
Peaches	147,31	167,15	161,49	175,04	195,02	105,11	223,11	124,88	109,74	123,82	108,33
Processing aid											
Citrus	79,2	75,4	84,8	74,5	82,9	100,9	82,4	78,3	124,9	109,9	
Pears		8,97	8,04	11,5	11,11	9,17	8,73	5,98	4,96	7,47	7,21
Peaches		11,76	12,97	16,56	16,04	13,62	11,55	11,13	5,97	7,06	6,4

Source: based on data from European Commission – DG AGRI

In order to make the analysis more effective, an index of expenditure comparison (IEC) was built as the ratio between the expenditure per tonne of withdrawn product and the unit expenditure of processing aid (€/t) for peaches, pears and citrus fruits. If the index is greater than 1, the costs of withdrawals are bigger than the costs of supporting peaches, pears or citrus. IEC results are shown in Fig. 74.

IEC_{crop}= [costs of withdrawals (€/t)]/[costs of supporting that crop (€/t)].

Fig. 74 - Index of expenditure comparison (IEC) for peaches, pears and citrus



IEC	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Citrus	1,50	1,61	1,49	1,77	1,65	1,19	1,20	1,77	0,81	1,47	
Pears		18,43	15,26	16,17	9,89	9,69	10,74	15,83	16,07	12,04	10,29
Peaches		14,21	12,45	10,57	12,16	7,72	19,32	11,22	18,38	17,54	16,93

Source: based on data from European Commission – DG AGRI

The IEC shows that citrus production is the only sector for which expenditure is similar to that for withdrawals (IEC approximately around 1). In fact, the IEC for peaches and pears is much higher than the IEC for citrus. Also, it should be noted that, although the unit cost of withdrawals decreased from 1997/98 onwards, after the 1996 CMO reform, the expenditure for withdrawals in relation to processing aid expenditure for peaches and pears increased.

This should be related to the large drop in processing aid costs for peaches and pears which occurred as result of the 1996 CMO reform. In fact, as already discussed in the previous evaluation on peaches and pears, after 1996 the quantity of production sold on the market for processing decreased: producers found it more profitable to sell their production in the fresh produce market (because of higher prices). Withdrawals have been a marginal measure used only for small residual production that could not been sold on the market for fresh products or for processing products.

8.1.5 The perception of "administrative complexity" in withdrawal management

The chapter on the regulatory framework traces the evolution of the regulatory process for market crisis and withdrawal management. This process is based on the cardinal principles of Council Regulation (EEC) 1035/72, which was the subject of subsequent amendments and specifications on the nature of products and features of pertinent commercialisation campaigns.

With the 1996 Common Market Organisation (COM) reform in the fruit and vegetables sector, in line with withdrawal-system reforms, intervention procedures were greatly revamped. They had now to focus on the axis of "Producer Organisation (PO) self-determination and regional control". Council Regulation (EC) 2200/96 gives local players, in particular POs, the right to determine withdrawal interventions.

Another distinctive feature of the 1996 reform, which "overturns" procedural aspects and control systems, is the identification of quantitative and withdrawal-indemnity thresholds, which have decreased over the years.

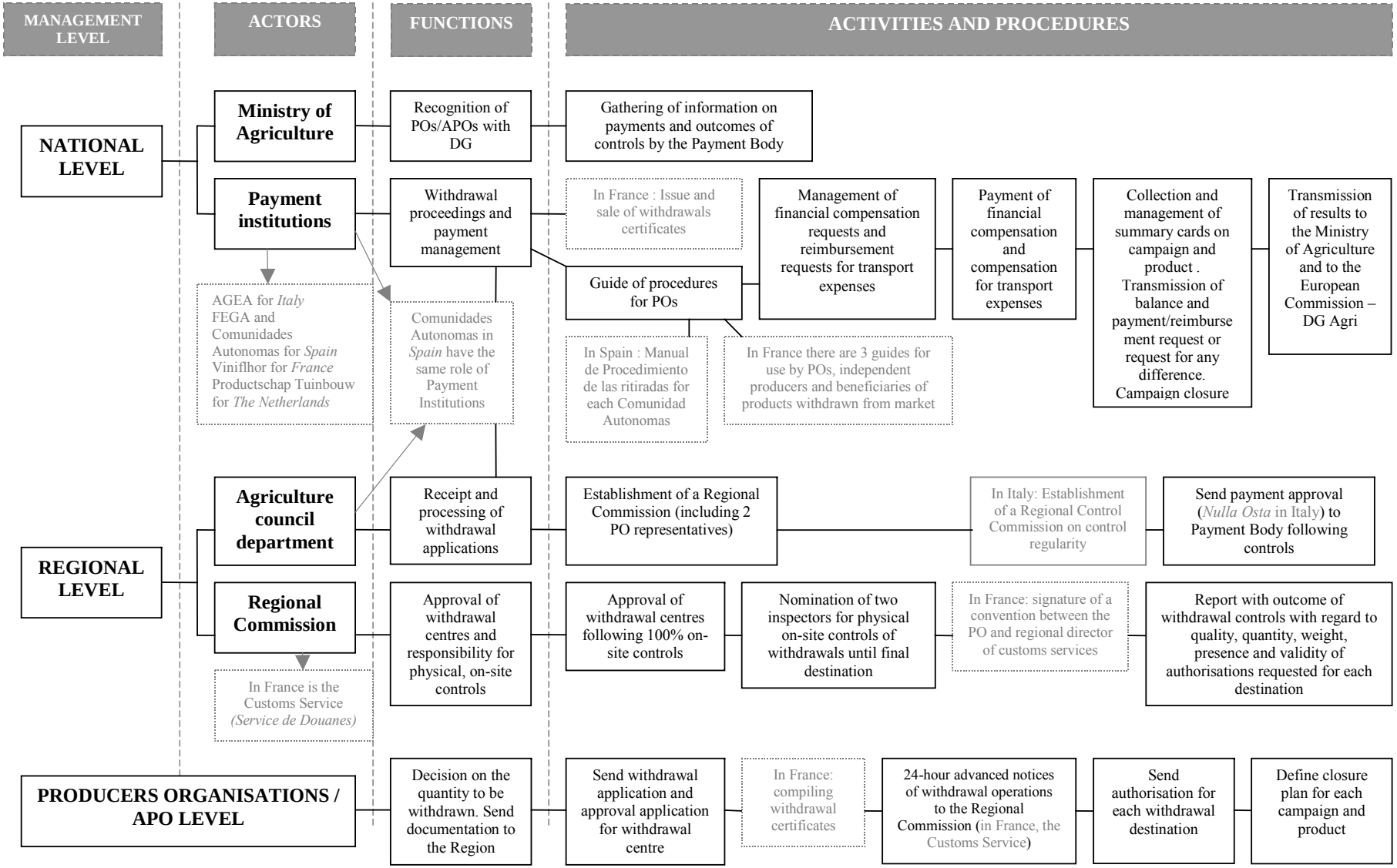
The implementation of Council Regulation (EC) 2200/96 was regulated by Commission Regulation (EC) 659/97 and subsequently by Commission Regulation (EC) 103/04 of 21 January 2004, which embraces the changes that gradually took place in the previous 5 years. At present, national and/or regional regulations in force in Member States are based on the procedural framework defined by the aforementioned Commission Regulation (EC) 103/04. In some cases, said framework is harmonised with national and/or regional regulatory procedures, particularly with regard to environmental protection (see EQ7).

Current withdrawal management is outlined in the following chart, which is the result of an analysis of interviews carried out in four Member States.

The leading actors in the implementation, organisation and management of withdrawals are broken down by intervention level (national or regional) and individual POs/APOs:

- National level: the Ministry of Agriculture deals primarily with recognition of POs and the transmission of national data to the European Commission, delegating withdrawal and payment administrative procedures to a national body. The exception is Spain, where the Regions, as Autonomous Communities, also take on the role of a payment body; therefore, all bureaucratic proceedings, control and payment operations are no longer carried out at the national level.
- Regional administrations are responsible for authorising withdrawals and controlling their completion in accordance with national and EC regulations. Regional control commissions are set up at a regional level. These are responsible for carrying out local checks, from withdrawal centre approval to the final destination of withdrawn products. During controls, regional administrations can request the intervention of public law and order forces.
- Producer Organisations (POs) decide independently when and how much to withdraw.

Fig. 75 - Withdrawal management and actors involved – General procedures chart



Jurisdictions redrawn by implementation regulations of Council Regulation (EC) 2200/96 are concentrated mainly at the local level. This means that those parties most sensitive to the complexities or otherwise of the management system have previously been functionaries **at the different regions and PO operators.

Regional operations have been standardised and digitalised: forms greatly facilitate management. On the other hand, bureaucratic authorisation procedures (from withdrawal intent declarations to final product destinations) weigh heavily on POs.

The perception of "administrative complexity" emerged from the deep interviews carried out with the actors involved in withdrawal management. The results should be interpreted in an exclusively qualitative key, since the sample of interviewees is not universally representative.

The opinions gathered on this matter generally emphasise that the administrative documentation that POs must submit to obtain withdrawal authorisation is very substantial and complex. In addition, the cost to both the Public Administration and POs is viewed as excessive in terms of workload (required documentation, bureaucratic procedures and time necessary to complete administrative procedures), compared with the contribution received. In particular, it was pointed out that the control system is excessively demanding both for the competent administrations and the controlled organisations. Furthermore, all this is often for paltry amounts of withdrawn goods.

Altogether, weak points in the system include:

- The difficulty in identifying the exact amount of withdrawals and, therefore, the consistency between the quantity indicated in the Withdrawal Intent Declaration and that actually withdrawn.
- Product quality controls to avoid withdrawal, even for rejected products not destined for the market[104]; this task has been further overburdened by recent regulations on environmental protection.

From a comparison of interviews, it emerged that the perception of lesser or greater administrative complexity as regards withdrawal markets depends on the following:

- volumes withdrawn,
- nature of the product,
- withdrawn product destination,
- organisational level of POs,
- characteristics of the reference social-economic reference.

In terms of withdrawn volumes, the analysis of some case studies has revealed that, in the event of small quantities for withdrawal, some POs have opted to destroy the product or give it away to charity without demanding any financial compensation. For these POs, the implementation of procedures under community and national regulations is an organisational burden which, for lesser quantities, is far too demanding.

The nature of the product to be withdrawn influences the efficiency but also the effectiveness of the withdrawal itself. Indeed, the premise that leads a PO to request market withdrawal reflects the need to act rapidly to contain the offer. When the necessary authorisations entail a considerable bureaucratic burden and excessive time spent completing administrative procedures, there can be waiting times of over a week in order to withdraw the product in question, by which time most of the reasons for withdrawal are obsolete. This general principle is even clearer in cases in which the product for withdrawal is perishable.

[104] Quality controls differ depending on the destination of the withdrawn product. The parameters become more restrictive for free distribution or animal feed destinations.

The administrative complexity of withdrawal management seems to weigh especially on POs, and in relation to the destinations of the quantities withdrawn. In addition to all of the standardised procedures of specific regional forms, organisations must obtain authorisations from a number of competent bodies. In Italy, for example, in the sphere of biodegradation, ASL (*Azienda Sanitaria Locale* – Local Health Unit), the Regional Control Commission, (ASL health authorisation for the use of a set amount of land, regional authorisation for environmental protection, outcome of controls and relative authorisation by the Regional Commission, report by *Carabinieri* police or Financial Police present during controls), and animal feed. In addition to the above, there is also the agreement signed between POs and the livestock farm receiving the product, and documentation on the latter regarding the regularity of health and environmental-protection issues. It just takes the delayed issue of one these authorisations by the competent authority to see the entire process grind to a halt.

Therefore, the complexity of procedures plays an important role in deciding product destination. The following charts compare destination procedures (standardised by us using a European "model").

Fig. 76 - Chart of the general procedures for the various destinations

PO: initiates the withdrawal procedure with a Withdrawal Intent Declaration, specifying: the product to be withdrawn; the surface area cultivated for said product type, estimate of obtainable production; presumed quantities; any price integration for listed products; and compensation for unlisted products in Annex II. Subsequently, the PO sends the Region an Approval Request for the withdrawal centre.

PO: **prepares the weekly intervention programme** and sends it to the Region. The programme contains indications on **product destination** and the quantity to be withdrawn for each destination. POs have to specify quality characteristics of the product and to enclose the Quality Declaration in conformity with commerce regulations.

Region: sets up an approval Commission for the withdrawal centre. It opens approval-request proceedings. After seeking the Commission's opinion, the Region issues a formal approval document to the withdrawal centre.

Region: prepares the table summary of weekly programmes of withdrawals notified by POs.

Biodegradation and composting	Animal feed	Distillation	Free distribution
Authorisation request to use the site for product destruction	Authorisation request for product disposal at livestock farms to benefit from withdrawal	Withdrawal request by PO with destination of product transformation via distillation	PO requests to Prefecture, or requests by beneficiaries directly to POs
Site authorisation for product destruction from the Region	Signature of agreement between the PO and livestock farms	Payment Body issues tender call to allocate withdrawn product to distilleries	Signature of preliminary agreement between authorised beneficiary bodies (Institutions that give the authorisation: Viniflor in France, Préfectures in Spain and Prefetture or Banco Alimentare in Italy)
Send list of areas authorised by the Region for destruction (POs, payment body and control bodies)	Product denaturation in presence of regional inspectors	Payment Body divides the amount into lots and binds distillation to a security	In Spain, quality check made by the Negociado de Control Tecnico is obligatory
Authorisation for disposal by biodegradation or composting to the Regional Department of Environmental Protection			

The First-level checks carried out by the Region cover 100 % of the quantity of products withdrawn from the market during the marketing year for each product. In case of free distribution to charitable organizations and foundations (approved to that effect by the Member States), the Member States may check a smaller percentage, provided it is not less than 10 % of the quantities concerned during the marketing year.

Authorisation for biodegradation or composting from the Regional Environmental Protection Agency	General control of withdrawal operations by the Region	The Payment Body informs the Region of the adjudication and lots, with reference to adjudication prices for each individual lot	General control of withdrawal operations by the Region
Update technical card on distribution of biodegradation operations	Control of compulsory documents (tax and administrative) and financial transactions	The Payment Body releases the distillation's security only when all the alcohol obtained from fruit transformation in that lot has been denatured	Control of compulsory documents (tax and administrative) and financial transactions
Update technical card on all authorised sites	Controls last until completed denaturation, and if necessary, at the livestock farm itself	The Region carries out tax and document controls regarding fresh products and verifies effective delivery to the distilleries	Controls to the PO last until the moment the product leaves the withdrawal centre
Ground sample analysis to check for the absence of environmental risks		Controls last until tare weighing at the distilleries, that is, after offloading	
Physical controls to verify operation-distribution compliance compared with pertaining declarations			
Controls last until denaturation completion at the agricultural firm and / or withdrawal centre			

The Second-level checks are made each year on at least 30 % of the POs concerned and the recipients associated with those organisations and, for each PO concerned, at least once every five years during which withdrawals are carried out. Each check shall include a sample representing at least 5 % of the quantities withdrawn during the marketing year by the producer organisation.

The opinions gathered show that, in theory at least, the fastest and least complex procedural solution for POs would be to destine withdrawn production to animal feed: livestock farms are generally present in the area in question and the acquisition of withdrawn products entails an immediate economic benefit. Nevertheless, based on what has effectively emerged from case studies, the fragmentation of livestock farms, limits on the unit quantity that livestock farms can absorb, and, above all, the type of formal controls to which these farms are subjected, mean that the burden of administrative complexity shifts from POs to the "beneficiary" farms.

The actors involved in withdrawal management agree that free distribution is the destination that requires the greatest administrative management. In this case, aside from logistical difficulties that have been analysed in depth in EQ 4, the POs interviewed revealed how free distribution management entails a full-time organisational commitment for them. The burden is due mainly to specific logistics, coordination among beneficiary organisms, management of obligations to the region (tax and financial controls) and, sometimes, assistance to the beneficiary bodies themselves. Free distribution is therefore a channel that can be used easily only by large POs endowed with a complex organisational structure[105].

Finally, interviewees' opinions on the complexity of the procedures under review seem to be influenced by the characteristics of the reference social-economic context and of the local organisational level. Here are some examples:

- low representation of POs in certain regions (for example, in Puglia for table tomatoes). In such cases, PO pressure to implement withdrawals is not able to influence the dynamics of a depressed local market;
- the difficulty of livestock farms which, in some cases, are not always able to prove possession of the parameters requested by manuals and procedures established by payment authorities,
- the lack of a traceable system for withdrawn production, as explicitly requested by current legislation.

The fact that some POs today do not have an organisational structure that guarantees consumer traceability of their own products indicates that the perception of administrative complexity is a subjective element, which probably transcends specific withdrawal management procedures. The complexity of administrative procedures relating to product commercialisation implies the existence of an organisation that POs cannot always guarantee.

8.1.6 Evaluation judgement

The answer to the evaluation question has been developed with the aim of examining the efficiency of withdrawals as a tool to stabilise market prices and agricultural producers' incomes over time. Nevertheless, due to the lack of detailed data needed to perform a full analysis of efficiency, the results presented here reflect only a partial analysis of efficiency, and the evaluation judgement is formulated as a summary of specific and parallel analyses which have dealt with the comparison between: withdrawals expenditures (only costs from the EC budget) and results achieved in terms of reducing price and income variability (efficiency); withdrawals expenditure and the cost of distillation in the Wine CMO as well as overall CMO expenditure (coherence).

[105] Although not sufficient to elaborate statistics, the quantitative elements gathered in the interviews indicate that the professional effort, in terms of business days dedicated by POs to withdrawal management, is, on average, 0.4 annual working units. Meanwhile, data on the effort of competent public administrations (manpower days) in withdrawal management vary considerably from 4 annual units in some regions in Spain to less than one unit in Italian regions. This relation between Italy and Spain is clearly overturned as regards manpower days dedicated by the respective national authorities.

It is necessary to remember that, in addition to the partial nature of the analysis of efficiency, the limitations of price analysis (data from EQ1) affect the results presented in this section. Also, due to the high variability of results and to the many assumptions made when conducting the analysis, it is not possible to derive any general conclusion, and the case of each single product should be analysed separately. Therefore, a firm conclusion on the efficiency of the measure cannot be drawn and the results obtained in this part of the analysis should be considered as purely indicative.

The analysis showed that the level of withdrawal expenditure has been extremely variable over the past 15 years, with a clearly identifiable decreasing trend for withdrawal expenditure over the period 1993-2004. This can be related to some factors that may have contributed to reducing the interest of producers in the adoption of this tool, such as: the reduction of CWC for most of the products to which withdrawals refer as from the financial year 1997, with the consequent reduction in incentives for using withdrawals as a possible destination for excess supply; consequently, the importance of channels as an alternative to withdrawals (e.g. exports, production of processed fruits and vegetables) has increased; the introduction of "ceilings" to the quantity allowed for withdrawals by Council Regulation (EC) 2200/96; and the increased administrative burden as a consequence of the coming into force of Commission Regulations (EC) 659/97 and 398/00.

In fact, the intensity of EU support granted through withdrawals (either as unit costs of withdrawals – per metric tonne, per hectare or per annual working units) has fallen over the post reform period. Furthermore, the ratio between withdrawal expenditure and the value of products withdrawn has fallen over the entire period taken into consideration (especially after 1996). However, we cannot conclude that the overall level of income protection against market variability, as granted by withdrawals to agricultural producers, has fallen. It could also be that market for fresh products has become more profitable, and the option of withdrawals has been exercised only for marginal quantities of products. Despite a considerable decrease in quantities withdrawn after the 1996 reform, no disruptive effects on markets and incomes seem to have been recorded.

Together with the loss of importance of withdrawals, the efficiency of withdrawal expenditure in reducing price and income variability also appears to have changed over the years. In fact, by comparing budgetary costs (data from EC budget), withdrawals seem to be efficient in reducing price variability for the few products examined (peaches, citrus, apples, cauliflowers and broccoli), such efficiency seems to have fallen (higher costs for the same price variability reduction) after the reform, although the evidence is not strong enough to allow us to draw a general conclusion. Similar results have been obtained by examining the effects on income variability for some products (oranges in Italy and Spain, tomatoes in Holland and Spain and apples in France).

The limited number of products examined in this part of the study and the many assumptions that we needed to make because of lack of detailed data make these results only indicative.

As far as budgetary costs are concerned, withdrawals seem to be in line with the costs of similar measures adopted within the CAP framework, in particular with the average budgetary cost of wine distillation (which have been considered as similar to withdrawals in terms of its goals and tools) and with the budgetary costs of processing aids for peaches, pears and citrus (weighted by volume of products). This conclusion is also valid for comparisons made, and cannot be deemed as an indication of absolute cost efficiency.

The analysis has been supplemented with an evaluation of the administrative complexity of withdrawals through interviews with expert witnesses (selected professionals involved in the management of withdrawal operations). Withdrawals have not benefited from administrative simplification, which was one of the goals of CMO reform. The general recorded perception is that withdrawals are still a very costly tool to use (in terms of administrative burden).

The analysis of administrative schemes confirmed this perception: due to the long and complex administrative procedure, destruction of products often is preferred to other destinations (free

distribution or animal feed). Also, the costs of withdrawal management have been increasingly transferred to POs as well as regional administrations.

Finally, it is important to highlight the fact that the administrative burden has an impact on the effectiveness and efficiency of the withdrawal itself. Indeed, the reason why a PO might want to resort to withdrawals is the need to act rapidly to contain the offer. When the necessary authorisations entail a considerable bureaucratic burden and excessive time spent completing administrative procedures, there can be waiting times of over a week in order to withdraw the product in question, by which time most of the reasons for withdrawal are obsolete.

8.2 Based on the analysis carried out within this evaluation are there or would be there be any alternative measures for coping with crises caused by surpluses in the fruit and vegetables sector? - EQ.9

The concept of crisis has been defined as an event having significant negative consequences on farm income (European Commission, 2005). The evaluation question refers to a well defined kind of crisis, deriving from short term surpluses of fruit and vegetables. Because of both low demand elasticity at the farm level and limited storage ability, such surpluses can determine a reduction in producers' incomes whenever coordination among producers fails, and excess production gets sold, thus causing a sharp price decrease. Currently, the functioning of the common market organization aims to reduce the negative effects of short term crises through encouraging withdrawals effected by POs, and the entire evaluation has already explored the possible consequences of withdrawals on prices and quantities (cf. EQ1) while addressing the extent to which the mechanism might constitute an incentive for surpluses (EQ2), as well as the overall efficiency of the measure (EQ8).

In this section, we focus on the role that other measures, as alternatives to withdrawals, might play in the management of short-term crises caused by surpluses in the F&V sector and compare their effectiveness vis-à-vis the withdrawals scheme. It is important to consider that our attention is limited to withdrawals considered as a risk coping mechanism and not as an income enhancing one.

The role of policies in relation to risk management in agriculture is twofold: (1) to help farmers to adopt individual strategies, facilitating access to risk management instruments; and (2), to reduce the overall presence of risk, for example by directly performing market stabilisation activities

The reply to the evaluation question identifies further measures of crisis management that could be used to complement withdrawals, or more effective measures of crisis management, alternative to withdrawals. We analysed both insurance and mutual funds to deal with short-term crises, as well as other measures, which have been proposed, in other studies or by experts interviewed in the evaluation process.

Our answer is divided into four parts. First, based on the analysis carried out in the previous parts of the study, the pros and cons of the withdrawal scheme and the way in which it is currently in place are summarized. In particular, we tried to link the results achieved (or lack thereof) to the technical, political and administrative elements, which might in principle be reformed in order to improve the functioning of the withdrawal mechanism.

Second, based in particular on the results of the analysis conducted in answering EQ 6, the potential role of other options which have already been explored in the past (if any) has been examined, as an alternative or as a complement to the withdrawal scheme.

Third, we analyzed the possibility that commercial insurance and mutual funds among producers might be alternative options for the management of short term surpluses.

Fourth, we identified other possible measures that could be used to cope with short term crises. Attention has been given to the possibility of enhancing the role of producers' organisations and of other forms of associations in collecting individual members' risks and transferring them to third parties, through insurance or financial markets.

The analysis is based on the data and information collected throughout the entire study, and in particular on data relative to EQ 1, 2 and 6, and on relevant literature on risk management in agriculture.

8.2.1 Judgement criteria and indicators

The judgement criteria and indicators used for answering the evaluation question are as follows:

Judgement criteria	Indicators
1. Ability of the withdrawal scheme to be the main mechanism for short-term crises management	1.1. Analysis of the theoretical conditions under which withdrawals are an effective means to manage short-term surplus crises
	1.2. Analysis of the performance of the withdrawal mechanism as it has been in place
2. There exist other measures which have been applied in the past to cope with short term surplus crises	2.1. See EQ 6
3. Participation to the payment of Insurance premiums paid by farmer as an option to cope with the consequences of short-term crises.	3.1. Analysis of the theoretical conditions under which insurance can be used to manage price risk induced by the possibility of short-term surpluses
	3.2. Analysis of national programmes of agricultural income insurance as adopted by EU Member States
4. Contribution to the operation of financial funds set up at the Member State level as an option to cope with the consequences of short-term surplus crises	4.1. Analysis of the theoretical conditions under which mutual/solidarity funds can be used to manage price risk induced by the possibility of short-term surpluses

8.2.2 Data sources and limits

The analysis has been based both on the results of previous evaluation questions and on theoretical findings from existing literature on the ability of different policy tools to stabilise the income of fresh F&V producers. Therefore the analysis has on the one hand the limits already discussed in the previous evaluation questions and on the other the limitations of assumptions made when building the theoretical models.

8.2.3 Withdrawal as a mechanism for short term crisis management

8.2.3.1 Theoretical conditions for withdrawals as a short-term surplus crisis management tool

The mechanism of withdrawal has been built on the idea that reducing the quantity supplied to the market avoids prices decrease below a minimum acceptable floor. Therefore the effect of withdrawals is an increase of the average price that will also result in a revenue increase if the price elasticity of demand is larger than -1. As the analysis developed in answering the EQ1 shows, there is evidence that in today's main wholesale reference markets, such elasticities are in a range between -1.265 and -0.11, and the elasticity of demand for most products is indeed larger than -1, thus suggesting that withdrawals do have a potentially revenue-enhancing effect.

In these conditions, a sustained and useful role for public intervention in this area is however very limited. The fundamental point is that, if they can do it, it would be in the producers' own best interests to regulate the quantity being sold in order not to depress revenues. One reason why producers may fail to do so can be related to information flaws or other problems which undermine the possibility of coordination among them. In fact, if producers cannot perfectly interact, there will always be an incentive for any single producer to sell its entire production when other producers withdraw some of theirs. Effective coordination among producers, therefore, would automatically

guarantee that, if needed, product withdrawals will be implemented, without the need for any publicly provided incentive.

There are two issues limiting such actions:

- coordination should be consistent with EU competition rules that apply to agriculture with some exemptions - laid down by Council Regulation (EC) 1184/2006 of 24 July 2006 - to POs whose activity is aimed at attaining common agricultural policy objectives;
- benefits of POs decisions on marketed supply would also flow to non-member producers that would increase their production, reducing the effectiveness of coordination.

When withdrawal is triggered by a floor price, as it was in the EU before the 1996 F&V CMO reform, it can be thought as a type of "price insurance" freely offered by the government to agricultural producers. However, this particular form of "price insurance" suffers from the many problems of insurance without the possibility of correcting them. The major problems with insurance are: moral hazard, adverse selection and systemic risk (Chambers, 1989; Miranda and Glauber, 1997).

In insurance literature, moral hazard is defined as the situation in which the insurance coverage induces, on the part of the insured party, behaviour that is less oriented in avoiding risk. As a consequence, the probability of losses increases, thus raising the amount of the indemnities that the insurer will have to pay. To avoid such effects, insurance must meet higher costs of monitoring of the insured party's behaviour. Therefore, moral hazard results in an increase in premiums, which will no longer reflect the actual risk linked to the activity. In the case of withdrawals, that we defined as a form of freely provided "price insurance", moral hazard might result in the investment of a larger amount of resources in the activities covered by the insurance than otherwise expected, and possibly also in lower care being devoted to achieving high quality attributes.

Adverse selection occurs when the insurer is not able to identify the true risk exposure of each insured party, thus being unable to charge correspondingly diversified premiums. If premiums are based on average risk, individuals with lower risk exposure will not buy the policy. Therefore, only individuals carrying higher-than-average risks will insure. This will cause higher than expected average losses to the insurance fund, and therefore the insurer will have to charge higher premiums to maintain the viability of the fund. In the case of "price insurance", adverse selection is the incentive for producers to enter the activity without the resources needed for that activity. Moral hazard and adverse selection can cause the failure of the insurance market, as explained by Akerlof (1970).

Systemic risk is said to be present when there is a high positive correlation of risks among insured parties. It hinders the possibility of sharing risks among the pool of insured parties and might cause large losses to the insurance fund because of the large number of contemporary claims caused by unfavourable outcomes. Systemic risk is rather frequent in agriculture because of the strong dependence of production on weather conditions. One possible way to deal with systemic risk is through reinsurance, which allows transferring, at least partially, risks to other insurance firms. Systemic risk in "price insurance" is very common because a low price will affect all producers of an agricultural good at the same time.

The 1996 CMO reform, by separating the possibility of withdrawals from an automatic low price trigger, has effectively eliminated the problems of moral hazard and adverse selection which characterized the previous withdrawal system. However, the systemic character of price risk is still present, although to a lower extent.

Withdrawals cannot and should not be considered a "normal" marketing mechanism, even for products such as F&V that cannot be easily stored. The possibility remains that they might be used as occasional coping mechanisms for short term surplus crises, as is correctly prescribed in the current F&V CMO. However, the possibility that it would have the general revenue enhancing and stabilizing effects that theory suggests depends heavily on the existence of effective coordination among the various POs involved in the same market in the management of market intervention, and on the

relevance of the share of products sold through POs, which should be sufficiently high to affect market price.

Regardless of the theoretical conditions that must be met in order to make withdrawals an effective short-term surplus crises management tool, it must be thought that such a scheme is no longer consistent with the reformed CAP. There are two aspects of the withdrawal scheme whose coherence must be considered. The first relates to the feasibility of market intervention to stabilise prices that is not in line with the stronger market orientation of the reformed CAP.

The second relates to its environmental effects. The answer to EQ4 highlighted that the objective of the 1996 CMO reform of minimising the destruction of fruit and vegetables withdrawn from the market has not been accomplished because of the difficulties in increasing the share of withdrawn products sent to other destinations. At the same time, the answer to EQ7 underlined that the national frameworks to prevent environmental damage through biodegradation and composting have not been completed. Although the quantity of fruit and vegetables withdrawn from the market fell substantially after the 1996 reform, it is difficult to justify a measure whose management in many circumstances could be conflicting with environmental protection objectives as well as the requirement of keeping all farmland in a good agricultural and environmental condition.

8.2.3.2 The performance of the withdrawal mechanism

The main findings of the analysis developed in answering evaluation question 1, 2, 5 and 8 are summarised in the box below.

- the extent of the use of withdrawals, measured by the share of withdrawn quantities out of total production, fell sizeably after the 1996 CMO reform (EQ1);
- withdrawals apparently contributed to the reduction of price and income variability, but the pattern followed after the 1996 reform does not show regular differences from the previous period (EQ5);
- after 1996 reform budget expenditure for withdrawals clearly fell (EQ8);
- the expenditure per unit of product withdrawn from the market also fell after the 1996 reform (EQ8);
- the effectiveness of withdrawals is jeopardised by red tape and by the lengthy time spent completing administrative procedures to obtain the necessary permission (EQ8).

The analysis carried out in answering evaluation questions 1 and 5 did not gather enough empirical evidence on the effectiveness of withdrawal as an instrument to cope with short term market crises. Price variability of the main products to which withdrawals refer after the 1996 reform increased for tomatoes in France, Spain and Netherlands and fell in Italy, while for cauliflowers it rose in Spain and Italy (Fig. 77). In the case of fruits, price variability increased only for peaches in Spain. Therefore the strong constraints introduced after the 1996 CMO reform on the use of withdrawals to manage short term crises have not increased overall market instability. This performance may be due to two causes:

- the high levels of compensation existing before the 1996 CMO reform were an incentive to produce and supply in order to access that compensation. Withdrawals would therefore merely reduce the additional variability that the anticipation of access to compensation would create;
- a larger use of alternative private risk management tools induced by the 1996 reform.

In fact, as we will see in the paragraphs below, institutions such as POs can be effective in avoiding surplus crises and in reducing both farm income and price variability, even without recurring to product withdrawals.

Fig. 77 - Increase (+) or decrease (-) of coefficient of variation of prices between 1997/98 - 2003/04 and 1990/91 - 1996/97

	France	Italy	Netherlands	Spain
Tomatoes	+	-	+	+
Cauliflowers	-	+	-	+
Peaches	-	-		+
Apples		-		-
Oranges		-		-

Source: based on data from EQ1

8.2.4 Other measures applied in the past to cope with short term surplus crises

This judgement criterion is based on the findings of EQ6 that identifies and discusses the strategies adopted by governments, POs and individual producers in order to prevent or limit the negative effects of market crises. The set of measures discussed within EQ6 can be classified in two categories:

i) measures aiming to prevent market imbalances, acting on both demand and supply sides, with effects in the medium and long term;

ii) short term measures aiming to alleviate negative effects of market crises on producers' incomes.

The discussion of this judgement criterion refers to the second group of measures more suited to coping with short term market crises.

Deep interviews identified only a few actions that could properly be classified as short term crisis management tools:

- promotional sales to consumers;
- use of saving accounts;
- equalization of prices among members of POs.

Direct promotional sales to consumers reduce the length of the commodity chain and the size of distribution margins, thus helping in the management of crises. Price elasticity of demand at the farm gate is lower (in absolute values) than final consumer demand elasticity, and the difference is proportional to marketing margins. Therefore, given the relationship between demand elasticity and price variability, the larger the margins the higher the price variability at the farm gate. It is worth noticing however that the presence of monopoly powers in the retail sector might reduce the effectiveness of direct promotional sales to consumers, and this may explain the incentive for the vertical integration of producers in processing and sales activities that have been seen in some of the surveyed sectors.

The use of saving accounts is a technique for smoothing the effects of time variation of revenues. In years in which income is higher than expected, savings permit the building of financial reserves that make it possible to cope with income crises in following years. Of course, credit market trough borrowing also allows the smoothing of income variability.

The equalization fund adopted by CEFAREL in Brittany (Fr) for cauliflower producers was backed by a national government contribution which ended in 2003. The scheme was rather similar to those operating in Canada (the former NISA program and the currently working CAIS program), and the evidence shows that such programmes are quite effective in eliminating much of the need for other risk management devices, such as product withdrawals. Savings funds were also used by other POs interviewed during the evaluation (see table 1 in EQ6).

Price equalization spreads price risk among PO members. It is a rather frequent feature of the way in which prices are transferred to producers who sell their products through cooperatives, when there are no relevant product quality differences. Every producer receives an average price for the entire

product that has been sold through the cooperative, regardless of daily price variations. The effectiveness of this practice as a risk management tool, from the point of view of a producer, depends on the spatial and time span of the cooperative marketing operation. It would be more effective when the season is long and when the PO diversifies its marketing outlets and operates in several markets. Price equalization requires POs to directly manage the sale of their members' products; moreover its effectiveness is conditional upon the ability to plan their members' deliveries.

As a matter of fact, other activities as developed by POs can be price risk reducing:

- forward contracting with large retail chains, especially if the delivery price is agreed in the contract;
- shortening of the retail chain by negotiating directly with retailers, in this way reducing marketing margins, with positive effects on price variability;
- planning members activities with the aim of regularly supplying the product over the whole marketing season;
- providing storage facilities.

However, it must be noted that increasing the share of product sold through contracts makes traditional wholesale markets thinner. This has two effects: on the one hand, the efficiency of price signalling is reduced, on the other wholesale price variability is increased, because excess supply that cannot be delivered to contractors would likely be sold in the wholesale markets.

From the deep interviews we conducted, two aspects emerged:

- first, in the few cases in which POs managed short term crises through use of financial tools, the role of the government has been rather limited. In the past, the French government had supported precautionary saving funds, but intervention ended because it was deemed not consistent with EU competition rules;
- second, commercial insurance is never used as a tool to manage surplus crises, thus suggesting that there are reasons why such an instrument is not effective, as we will discuss in the following section.

8.2.5 Participation in the payment of insurance premiums paid by farmer as an option to cope with the consequences of short-term crises.

8.2.5.1 Insurance as a tool to manage price risk induced by short-term surpluses

Insurance is an instrument that allows the transfer of risk. As we have seen previously, insurance typically suffers from problems related to asymmetric and hidden information, that causes adverse selection and moral hazard. Both adverse selection and moral hazard can be eliminated or reduced by designing appropriate insurance contracts (Miranda and Glauber, 1997; Mahul, 1999). Agricultural insurance also suffers from the so-called systemic risk, given by the high correlation of risks among insured parties. These problems are among the reasons why in many countries agricultural insurance is subsidised by governments in the form of both subsidies to premium payments and public reinsurance to cope with systemic risk. However, subsidising premium payments for such contracts may have two negative effects. The first is the low efficiency of government support for farm insurance. In many countries the system appears to be heavily subsidised with transfers from taxpayers to both farmers and insurance companies, although with a low transfer efficiency (Glauber, 2004). The second negative effect of agricultural insurance can be the incentives to increase production, thus possibly raising the likelihood that surpluses will occur (Roberts et al., 2004).

Some of the limits on the use of insurance as a risk management tool in agriculture, and in the fruit and vegetable sector in particular, might be overcome by letting POs and APOs negotiate collective policies for their members. By internalizing part of the cost of monitoring, they will eliminate the adverse selection problem and might be able to sustain insurance contracts with larger deductibles,

thus lowering the cost of insurance. We will elaborate more on this issue later when discussing the possible role of mutual funds (see below).

8.2.5.2 Analysis of national programmes of agricultural income insurance as adopted by EU Member States

Agricultural insurance programmes have not played a central role in the common agricultural policy. There is no insurance scheme supported at the EU level, while only France, Greece, Italy and Spain have managed programmes at the national level providing subsidies to premium payments as well as supporting re-insurance. The main insurance schemes adopted in these countries are based on single-peril contracts, particularly against hail. In recent years attempts have been made to promote sales of multi-peril contracts. In countries such as Italy and Spain, Governments are trying to promote the use of such contracts.

The traditional crop insurance, however, is only concerned with yield risks, while the effects of short-term market crises are best dealt with in terms of revenue or income variability, which is the result of the combination of both yield and price variability and must account for the negative correlation that may exist between yield and price, which can reduce revenue and income variability, particularly in the F&V spot markets, where price is often determined by local supply conditions (natural hedging). However, while yield insurance contracts can be offered, price insurance does not exist. The reason for the non insurability of prices is the high systemic risk involved.

One possible form of price risk management is the use of future markets contracts. With a future price contract a farmer can hedge price risk, becoming certain of the price he will receive at the end of the contract. However, because contracts are referred to a particular market, while farmers may sell on different markets, farmers will carry the so-called basis risk given by the possible difference between the prices on which the contracts are based and the cash price they receive delivering the product. The basis risk may also include differences in grading and between the maturity of the contract and the time of delivery. Also, futures trading is difficult for products such as fresh fruits and vegetables, which are not easily stored.

The management of agricultural income risk would require the integration of yield insurance with the coverage of price risk with futures or options on futures (Mahul and Wright, 2003). Such types of insurance contracts, at the present time, are not available for fresh F&V producers because of the lack of a market for futures for such products, which has not developed because of limited storageability, the wide range of products actually offered and differences in quality attributes.

8.2.5.3 Other risk management options

Financial markets could offer interesting opportunities to manage the risks of F&V producers.

Although the development of traditional derivatives based on price, such as futures contracts and options on futures, have traditionally been difficult for fresh F&V, part of the price risk could still be hedged with the use of derivatives based on the price of processed products, such as orange juice or processed tomatoes, to the extent that the latter is strongly correlated to the former.

In some special cases other financial derivatives might be devised. The high price risk for cauliflower producers, which depends on the effects of weather conditions on both yield and harvesting time, for example, could be hedged by use of suitable weather derivatives or weather index-based insurance.

The holder of weather derivatives would receive a payment according to the difference between the underlying weather index and an agreed strike level. Such securities are based on indexes of weather phenomena measured in a certain place and are traded both in formal exchange markets and over the counter (Richards, Manfredo and Sanders, 2004).

Weather insurance is a contract based on the outcome of the underlying weather phenomena. It has several advantages over traditional crop insurance because it is not affected by moral hazard and

adverse selection, it therefore does not require monitoring costs. Moreover, administrative costs are also much lower than traditional crop insurance contracts (Turvey et al., 2006).

Of course, the relationship between both the local climate index and the reference weather derivative or weather insurance index on the one hand and price on the other is not perfect. This can reduce the suitability of such financial instruments to manage individual producer income risks.

The development of all these instruments, however, would depend crucially on the possibility that a sizeable market could form to justify the fixed cost for their establishment, and that the needed institutional environment exists, something for which the public sector may play an active role. Moreover, the management of risk by use of financial instruments can be rather difficult to access by individual farmers, requiring the introduction of suitable arrangements.

8.2.6 Analysis of theoretical conditions under which mutual/solidarity funds can be used to manage price risk induced by the possibility of short-term surpluses

Mutuality has historically played an important role within the agricultural sector: many institutions such as cooperatives and producer organisations are rooted in this tradition. The main objective of cooperatives and other forms of farmers' associations has been to achieve a better distribution of power relationships within the agricultural sector. In performing such tasks they already contribute to risk management for their members.

Mutual funds have been used as insurance tools spreading individual risks among members. They are based on trust and shared knowledge among their members, in this way they have an advantage over traditional insurance, given that the shared knowledge of risks faced by individual members eliminates problems of adverse selection. Moral hazard too is reduced because of the mutual commitment that binds the group of members. However, the use of mutual funds to manage short-term crises such as those common in the F&V industry could be limited by the systemic nature of risks that, especially at the beginning of the funds' functioning, could hinder their ability to cope with large contemporary producer income losses.

The risk management capability of mutual funds can be increased by the combined use of other financial instruments which might allow the transfer of a share of the total fund's risk exposure to other agents. This could be achieved either by insurance or by securitization. The main foreseeable obstacle to such activity is the dimension that funds should have to reach to access the professional skills needed to operate on financial markets.

Management of short-term income crises through mutual funds would be possible by broadening the scope of POs to include such financial activities as well as the establishment of precautionary saving funds.

8.2.7 Evaluation judgement

The theoretical analysis has highlighted the fact that, given the prevailing conditions of demand at the farm gate, withdrawals would have positive effects on producer revenues. This implies that public support would not be justified. The assumptions on which this finding is based require perfect coordination of producers' decisions by POs. However, it must be fully consistent with EU competition rules. Moreover, coordination benefits all producers, whether they belong to POs or not, hindering the effectiveness of their action.

Withdrawal systems, when triggered by a minimum floor price, work as a kind of free "price insurance". They suffer from the negative drawbacks plaguing insurance, without the possibility of correcting them. The 1996 F&V CMO reform, by bringing in a reduction in CWC and eliminating the automatic link between market prices and withdrawals, has strongly reduced the negative effects of such insurance–like mechanisms without increasing overall market instability.

Empirical analysis, however, does not allow us to conclude that the latter result is attributable to the improved effectiveness of the new withdrawal system. It could be due, indeed, to the effect of the changes that have occurred within the marketing chain of F&V in which the increasing relevance of Organized Retail in the sales of F&V in EU countries has led to a wider use of stricter contractual agreements between producers and buyers, thus reducing the relevance of traditional sales channels. This result in itself might have been facilitated by the 1996 reform, which contributed to creating incentives to the operations of POs by supporting their role in organizing EU F&V supply. However the analysis showed that the consistency of the current withdrawal scheme with the reformed CAP is rather weak, because it does not fit the objectives of both a stronger market orientation and high environmental protection.

For these reasons it is legitimate to ask whether there are other more effective ways of assisting F&V producers in managing surpluses crises, and we explored this issue. Among the policy tools that have been considered recently, public support for income insurance does not appear to be potentially effective in stabilising F&V producers' income, given the nature of such production and the lack of active futures markets to hedge the price component of income variability. The analysis has also shown that other possible risk management tools, such as those based on the use of financial derivatives, might have better chances, but their diffusion, particularly in the EU, is still limited.

On the other hand, the analysis conducted during the evaluation process has shown that some POs have managed price risk in other ways. However, withdrawals could contribute to price increases not only for POs members but also for other producers, the use of other risk management activities by POs can only benefit their members. In the current state of the EU F&V industry, in which the spread of POs, as well as their dimension, is rather scattered (European Commission, 2006), it could mean that a large share of producers would not have access to the benefits of instruments adopted by the POs.

Combining all these findings, from the previous discussions we can draw some policy suggestions aimed at improving the management of short-term surplus crises. These suggestions are based on broadening the role of POs both in pooling the risks faced by their members and in negotiating with firms with larger market power.

Possible actions include:

1. Strengthening the role of POs within the EU F&V market, on the account that the many functions already carried out (in particular the planning of members' deliveries, negotiating with large retail chains), also have a price stabilising effect for their members, avoiding situations of short term crisis.
2. To broaden the function of POs and the scope of Operational Funds to formally include risk management features, which could be based on the use of insurance and financial markets. In situations where the small size of many POs and their managerial skills would constitute a barrier when accessing those markets, it would be wise to enhance the role of APOs that could collectively perform these tasks for their members.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

Some preliminary remarks

This section of the report summarizes the main conclusions of the study and presents the recommendations that we deem to be justified in light of the results of the analysis.

As requested by the Terms of Reference, the study has been structured around four themes: stability of the market, income of producers, the environment and management and efficiency of measures, and we will draw our conclusions accordingly.

To frame the discussion and to help link the various parts together, it is useful to present a summary of the main conceptual elements that have informed the analysis throughout, and on which many of the conclusions and recommendations heavily depend, given the general problem of obtaining relevant information that in theory one might need to precisely assess many of the requested impacts in quantitative terms.

We have been requested to evaluate, ex-post, intervention that has been in place for a long time and whose presence has likely conditioned the behaviour of economic agents in ways that would prove extremely difficult to perfectly characterize by only observing actual outcomes. Such an endeavour is akin to trying to evaluate the results of an experiment based only on the observation of treated samples, with a blank as reference, and in our case this has been particularly problematic because of the lack of records of several aspects which would have been extremely valuable, such as the actual amounts of daily and/or weekly traded quantities of products subject to withdrawals. For this reason, we have been guided by strong theoretical assumptions to complement the limited officially available data.

The starting point was the consideration of theoretical conditions that would make the withdrawal of a product an effective measure in sustaining otherwise falling revenues from the sale of an agricultural product, and we have linked those conditions to: the value of the relevant elasticity of demand (given that the evaluation task is mostly concerned with farmers' returns, this would be the elasticity at the farm gate); and to the timing of sales, since if sales could be diluted in time, short-term surplus crises would have rather limited consequences on the actual variability of returns.

In order to assess the real effect of withdrawals, in principle we might have needed information on the actual markets where the withdrawn product would have been sold, if it had not been withdrawn, and on the week, if not the day, when that would have happened. In addition, detailed information on the functioning of those markets and on the characteristics of demand should have been used to correctly predict the effect of short-term sales on closing prices. This information, as can be easily understood, is not available in general. Records of withdrawals can only be found in official statistics which collect aggregate data on total monthly withdrawals and at the level of whole countries, thus averaging out many details that could be relevant. Also, most wholesale markets do not record daily or weekly transactions in terms of quantities traded, contenting themselves with the collection of closing prices for the day.

Apart from physically recorded data, another possible source of information, of course, is collection by those who have been involved in the process, and that is the reason why we have based many parts of the study on data gathered through interviews with people who, at various levels, have been actors and witnesses of the phenomenon we are trying to understand. Unfortunately, the quantity and the quality of the information that can thus be gathered is inversely proportional to the time span that divides the fact from the interview.

With a broader time span to devote to data gathering, of course, the amount of data of good quality that can be accessed always increases, but we found ourselves facing a stringent trade-off between this and the need to have timely results, and therefore what we present here reflects our best effort to reach valid conclusions in time for the contract deadline.

Despite all these caveats, we nevertheless feel that the results we are presenting are robust and of such validity as to serve the purpose.

Theme 1: Stability of the market

The analysis conducted has attempted to discover the fundamental effects of the functioning of withdrawals on the markets of fresh fruits and vegetables in the European Union. Through analysis of the time series of data on withdrawals, as recorded in official EC statistics, we have been able to highlight how the reform of the CMO that occurred in 1996 has been associated with a drastic change in the intensity of the phenomenon, which was sensibly higher in the pre-reform period.

Although possible, it is highly unlikely that other changes to the structure of the sector could justify the recorded difference in the use of the withdrawal mechanism that has occurred in such a short time span. We can therefore confidently conclude that the reform has indeed contributed significantly to modifying the structure of incentives for fruit and vegetable producers, bending them towards a less intense use of withdrawals than in the past.

To assess the impact of withdrawals on the level and variability of prices and quantities of the product involved, we have made a series of assumptions to be able to obtain an estimate of the hypothetical prices that might have formed without withdrawals. The most relevant of such assumptions is that no other mechanisms would have been adopted by producers to limit the impact of excess production on prices, and therefore all withdrawn products would have been added to the actually traded quantity. By making this assumption, what we have estimated is the **maximum effect that could be ascribed to withdrawals alone,** and it must thus be deemed as **an upper limit to the actual effect that withdrawals did have in practice**. In the analysis, we have also maintained a simplifying assumption about the fact that the elasticity of demand has not changed over time. Also, we have abandoned the idea of trying to model all other factors that might have affected it because of lack of sufficiently detailed data.

In our opinion, these simplifications do not undermine the general validity of the results, based on the consideration that we are fundamentally interested in the role that can be attributed to withdrawals only, and that all these other effects do not interact directly with withdrawals and therefore might, on average, cancel each other out.

The answers that can be given to the general theme, namely, whether or not withdrawals had any impact on the level and stability of prices, and if so, how relevant the impact has been, have been extensively detailed in the body of the report. They can be thus summarized:

- Withdrawals have been a non-negligible phenomenon for many products, and especially for cauliflowers, tomatoes, apricots, apples, peaches and nectarines, over the period under review. However, for all of these products except nectarines, and with the exception of tomatoes in Spain, the incidence fell significantly following the reform of 1996. For other products (both within and outside the scope of Annex II of Council Regulation (EC) 2200/96) recourse to withdrawals has been negligible.
- In general, withdrawals have contributed to the stabilization of quantities marketed, and especially for fruits, although the results are somewhat diversified across countries and commodities, suggesting that there have been also cases when withdrawals have not necessarily been invoked at the time of production peaks, and this is especially true for the pre-reform period.
- In terms of price levels, although with the caveats that the analysis must have been, by necessity, highly theoretical and - because of lack of detailed data - not very robust, we conclude that withdrawals have contributed to keeping average prices above the level that they would have

otherwise reached for all products involved, and especially so in the pre-reform period, reflecting the higher incidence of withdrawals. However, although the mechanism has been systematically used when prices were lower, it has not in general been so intense as to invert the direction of price changes. In other words, withdrawals do not seem to have been capable of structurally affecting the level of prices in a significant way in the desired direction, that is completely preventing price drops from occurring.

- The effects of withdrawals on price variability, on the other hand, are more heterogeneous. Under our modelling hypotheses, in the absence of withdrawals the standard deviation of prices would have been larger for many products if we consider the entire period up to 2004. In the pre-reform period, however, there is evidence of products for which withdrawals seem to have actually increased price variability. If supported by stronger evidence, this conclusion might raise questions about the fact that withdrawals had been used only as a risk coping mechanism, to prevent excessive price drops. In the post reform period, on the other hand, the change in standard deviation is almost always in the direction of a reduced variability, thus adding to the evidence that the reform might have contributed to re-aligning instruments to the intended objective of risk reduction, limiting the potential distorted incentive for using withdrawals as an instrument to cope with the consequences of structural excess production. Due to the limited time span of the analysis and to the number of maintained hypotheses, no ultimate judgement on the effects of the mechanism on price variability can be obtained.

Linked to this last aspect, the analysis relative to the potential of withdrawals to induce structural surpluses suggests that none of the two possible sources of incentives in that direction, namely, the risk reducing effect and the price-like incentive determined by the presence of the Community Withdrawal Compensation, has likely been relevant in the post reform period. The limited degree of effective residual risk aversion by producers and the low level of compensation granted to producers, coupled with the incomplete coordination of supply for most products, leads us to conclude that the mechanism of withdrawals, and the way in which it has been regulated since 1996, cannot be deemed responsible for the creation of structural surpluses, the fear of which was clearly one of the main motivations for the reform. Only for those products and regions where production is highly coordinated, the presence of CWC that exceeds the extra costs need to properly dispose of the withdrawn product might generate incentives to increase production above what would be planned without it.

According to our findings, one other objective of the reform, namely that the mechanism be such as not to disturb the regular functioning of the market for fresh and processed products, has also been met to a great extent by the current regulation. Analysis of the data on the actual destination of withdrawals, backed up by the opinion of experts, has confirmed that most of the withdrawn products are destroyed, and therefore do not reach the market under other forms. Obviously, the same evidence leads to conclude that the objective of minimising the destruction of withdrawn products has not been accomplished. Procedural difficulties and transaction costs related to other possible destinations that would have not disturbed the market and that ought to have been preferred, have, *de facto*, rendered destruction the only truly viable option in most cases.

As regards the possible interference of processing aids, although it is possible that its presence might have contributed to reducing the amount of withdrawals, no sufficient evidence has been found to reach a definite conclusion of an interference of processing aid with the mechanism of withdrawals.

Finally, the disposal of withdrawn products does not appear to be incompatible with any relevant Community policy. This study explored in particular the compatibility of free distribution to third countries with the general principles applied by the Community on the subject of "in kind" food aid (Council Regulation (EC) 1292/96 of 27 June 1996 on food aid policy and food aid management and special operations in support of food security). Despite the limited quantitative data gathered, we conclude that the amounts sent to third countries are not such as to distort their internal markets.

In summary, and with due prudence in interpreting findings, the main conclusions we reach regarding the first evaluation theme are as follows:

- In terms of **price stabilization**, the mechanism can be deemed partially effective. Our analysis has shown that withdrawals may have contributed to reducing price variability, especially in the post reform period, for most products subject to withdrawals. -. Some evidence of the opposite effect (that is, increased price variability) for the pre-reform period might be the result of the fact that withdrawals might have responded to the incentive provided by over high compensation levels rather than simply the desire to avoid excessive price drops.
- The analysis has demonstrated that none of the two possible sources of incentives towards the creation of structural surpluses, namely, the risk reducing effect of withdrawals and the price-like incentive determined by the presence of CWC, has likely been relevant in the post-reform period. Therefore the mechanism of withdrawals, as regulated since 1996, cannot be considered responsible for the creation of structural surpluses and withdrawals and **do not constitute an alternative outlet to the market in current conditions for most products, where POs control less that 100% of production**. With regard to those products and regions where total production is effectively controlled by POs, the possibility remains that positive compensation might induce a supply response leading to structural excess production.
- Since the 1996 reform with the only exceptions of tomatoes in Spain and of nectarines, the amount of fruit and vegetables being withdrawn has been negligible in all producing countries, and therefore **not such as to disturb the regular functioning of the market**, also because most of the withdrawn products have been destroyed. However, this clearly means that **the objective to minimise the destruction of withdrawn production has not been achieved**.

Theme 2: Income of producers

This evaluation theme sought to assess the effects on producers' incomes of withdrawals, and of any other measure adopted to cope with crises.

To assess the impact on the levels of producers' income, an analysis of actual and estimated prices in the absence of withdrawals was performed for some products in the Spanish, French, Dutch and Italian markets. The results at country and region levels should be evaluated with a good deal of prudence due to both the limitations of the projected prices and the limitations of the FADN data. In particular, the important limitations of the analysis of the effect on prices are reflected on the analysis of incomes. In fact, the impact on prices as determined according to the adopted methodology, must be considered as an upper limit to actual effects that withdrawals did have in practice. Consequently, the actual impact of withdrawals on producers' incomes is likely lower than what the results of the analysis show.

With all the necessary caution owing to the above mentioned limitation, we can state that:

- it seems that a greater role was played by withdrawals in the period prior to the 1996 reform, albeit with some exceptions (most notably, tomatoes in Spain and cauliflowers in Italy);
- in most cases, it is possible that withdrawals might have contributed to a reduction in the fluctuation of prices around the trend line, although it is worth noting that overall price variability remained particularly high for such products as tomatoes in Spain and Netherlands, peaches in Spain and cauliflowers in Italy and France.
- from this analysis, no general effect on the whole set of products can be linked uniquely to the 1996 reform.

As a general conclusion, in terms of price variability we may say that the withdrawal system seems to have played a positive role, but not sufficient to stabilize prices.

With regard to the impact of withdrawals on producers' income, the results of the cases analysed did not make it possible to draw homogenous conclusions. Significant differences were found between the two analysed periods (pre- and post-reform) and across products and regions. In fact, it appears that

the impact of withdrawals on incomes () was generally higher in the pre-reform period compared to the post-reform period (which is not surprising taking into account the higher incidence of withdrawals in the pre-reform period). This seems particularly evident in Bretagne for cauliflowers, in Spain for oranges, in France and Cataluña for apples. In the post-reform period the impact seems to be larger than before in Murcia for tomatoes and, persistently in Cataluña for apples. However, the variability of income might have been influenced by other factors, also linked to the production of other crops.

In order to see whether any other measures aimed at coping with short-term surplus crisis had been adopted and assess whether they had any impact on producers' income, a specific survey was conducted through interviews at different levels (national and regional government, POs), for 13 case studies. The survey revealed that a wide array of actions was used as an alternative or in addition to withdrawing products. Those actions were always part of general strategies involving the synergistic and/or complementary use of various measures, aimed, on the one hand, at sustaining intermediate and final demand (both as a whole and at the individual farm level) and, on the other, reducing supply pressures on the European Union market, by exploring alternative outlets.

Adopted measures varied among the different regions and for different products. Apples in Trentino, in the French regions and in Cataluña, and citrus fruit in the Comunidad Valenciana and Calabria, were the sectors/regions where alternative/complementary measures were used most frequently, as opposed to the cauliflower sector in La Rioja and tomatoes in Murcia and Puglia, where less use was made of initiatives other than withdrawals.

Improved marketing was the most frequently adopted measure aimed at increasing demand, and the diversification of varieties was the most frequently used strategy to reduce supply pressure on specific production segments, those most vulnerable to recurring market crises.

Since POs have implemented a significant part of all the measures analysed, it is reasonable to believe that most of the benefits have accrued to the members of POs, rather than to producers who did not belong to these organizations. Whereas it is conceivable that these measures have had positive effects on producer income, the lack of quantitative information has made it impossible to make a precise evaluation about their impact.

Bearing in mind the limitations of the analysis, the main conclusions to this theme are as follows:

- In terms of **producers' income stabilization**, a generally higher impact of withdrawals on incomes seemed to result prior to 1996 when compared with the post-reform period. In the post-reform period, the impact appears greater than before only in Murcia for tomatoes and persistently in Cataluña for apples. However, due to the limitations of the analysis and non-homogenous results, no ultimate judgement on the effectiveness of withdrawals in terms of income stabilisation can be drawn.
- **Measures other than withdrawals** have been used by POs and are likely to have had positive results on income stability, although, due to lack of quantitative information, no precise assessment of their actual impact can be made.

Theme 3: Environment

The destruction of products withdrawn from the market may have a negative impact on the environment, and that is why, with the reform of the CMO in 1996, it was decided to take into consideration potential risks and adopt or correct necessary prevention measures. In particular, Council Regulation (EC) 2200/96, in force since 01/01/1997, establishes that Member States define a national framework for drawing up general conditions relating to disposal methods that respect the environment. Furthermore, Council Regulation (EC) 2200/96 limits Member States' possibility of destroying withdrawn products solely through biodegradation or composting techniques, and only allowing it when no other destination is possible. This evaluation theme is aimed at assessing the extent to which the regulatory framework is able to prevent potential environmental damage caused by

the disposal of products withdrawn from the market, by verifying whether regulatory frameworks at Community/national and regional level exist and how they perform.

To answer the evaluation question, a preliminary assessment was undertaken on the withdrawal disposal phenomenon in various countries, with special reference to quantities destroyed and destruction processes. The quantitative analysis showed, in absolute terms, a strong fall in quantities of destroyed products in the period following the 1996 CMO reform (-82% between 1997/98 and 2004/05), but at the same time there is compelling evidence that in relative terms the share of the quantities destroyed out of the total withdrawn remained rather high (in 2004/05 it represented over 65% of all withdrawn products) despite a decreasing trend. This leads us to conclude that the Community regulation's aim of "avoiding destruction of withdrawn products" was only partially achieved.

Community regulations do not provide specific criteria, parameters or indicators to ensure that environmental damage is not caused by the biodegradation and composting of fruit and vegetables products withdrawn from the market. Moreover the survey we conducted with European Commission offices revealed that there are no available evaluations or assessments on biodegradation and composting processes on which to base a comparative analysis of those possibly defined by Member States. Thus, the following conclusions are based on the analysis of the existence and completeness of specific national regulations concerning the destruction of withdrawn F&V products.

Analysis of the national frameworks in force in the period 1997 to 2005 showed that the "*definition by Member States of an appropriate national framework to prevent environmental damage during the disposal of withdrawn products operations*" has not been completed at a European level. Until 2005, the European Commission deemed to be appropriate only the frameworks submitted by France and Finland. The reasons why no approved framework has been recorded for other countries range from non-implementation of withdrawal operations to the application of regulations already in force. Furthermore, the downward trends of withdrawn and destroyed product quantities may in some way have influenced the choice to not consider the preparation of specific rules as a necessity.

Combining the results of the analysis on the appropriateness of the "national framework" by Member States with the relevance of quantities of product destroyed by each of them in the period 1997-2005, it is seen that only in France have specific provisions and regulations been issued to govern the possible environmental damage of withdrawn F&V products. On the other hand, for Italy, Germany, United Kingdom, Greece and Portugal, all of which have resorted to product destruction in large quantities, national frameworks were deemed to be inappropriate. It should be noted that this cannot be necessarily interpreted as "low attention behaviour" towards environmental protection (given the existing national legislation on this theme), rather as a sign of the difficulty in harmonising procedures and practices used by public administrations.

Nevertheless, it is essential to govern the product destruction phenomenon within a specific legislative framework, with the aim of maintaining necessary control over possible environmental risks.

The survey conducted in the four Member States (France, Italy, Spain and the Netherlands) to which the case studies refer revealed that the different regulatory approaches given by Member States have resulted in national provisions that could be insufficient to ensure that environmental damage is not caused by the disposal of F&V products withdrawn from the market. On the other hand, the control scheme and checks required by Community provisions for withdrawal and disposal operations appear to be appropriate. This picture emerges from national procedures analysed for Member States included in the case studies and from the substantial lack of criticism reported by European Commission audits conducted in several areas.

These findings, as a whole, lead us to conclude that in the observed period (1997-2005) at Community level, **the effectiveness of the Community regulation's aim of "preventing environmental damage caused by the disposal of withdrawn products" was only partially achieved.**

It should also be pointed out that since 2005, following the implementation of Commission Regulation (EC) 103/04, Member States involved in the case studies, except for the Netherlands, drafted new procedures manuals where procedures for withdrawal management, disposal operations and checks are presented in much greater detail. The trend for coming years is therefore towards the improvement of disposal practices, paying special attention to environmental protection.

Theme 4: Management and efficiency of the measures

The final theme around which the evaluation has revolved concerns the efficiency of the withdrawal system as a policy mechanism for short-term surplus crises management.

The fundamental questions to answer have been that of whether or not:

- the costs associated with maintaining the system of withdrawals are justified and in line with those of measures adopted in other sectors for similar purposes, and
- there are possible alternative measures that might serve the purpose of assisting fruit and vegetable producers in managing short term crises.

To answer the first question we analysed the level of costs involved in the programme scheme over the years, with the aim of examining the efficiency of withdrawals as a tool to stabilise market prices and agricultural producers' incomes over time. Nevertheless, due to the lack of detailed data needed to perform a full analysis of efficiency, the results reflect only a partial analysis of efficiency, and the evaluation judgement is formulated as a synthesis of specific and parallel analyses which dealt with the comparison between: withdrawals budgetary expenditure and results obtained in terms of reducing price and income variability (efficiency); withdrawals expenditure and EU expenditure for distillation in the Wine CMO as well as overall CMO expenditure (coherence).

The analysis showed that the level of withdrawal expenditure has been extremely variable over the past 15 years, with a clearly identifiable decreasing trend for withdrawal expenditure over the period 1993-2004. This can be related to some factors that may have contributed to reducing the interest of producers in the adoption of this tool, such as:

- the reduction of CWC for most of the products subject to withdrawals as from financial year 1997, with the consequent reduction in incentives for using withdrawals as a destination for excess supply; consequently, the importance of channels as alternatives to withdrawals (e.g. exports, production of processed fruits and vegetables) has increased;
- the introduction of "ceilings" to the quantity allowed for withdrawals by Council Regulation (EC) 2200/96;
- the increased administrative burden as a consequence of the coming into force of Commission Regulations (EC) 659/97 and 398/00.

In fact, the intensity of EU support granted through withdrawals has fallen during the post reform period. Furthermore, the ratio between withdrawal expenditure and the value of products withdrawn fell over the entire period taken into consideration (especially after 1996). However, we cannot conclude that the overall level of income protection against market variability, as granted by withdrawals to agricultural producers, has been reduced. The tendency remains that of a less intense use of the instrument, and more so in the period after the CMO reform. It could also be that the market for fresh products has become more profitable, and the option of withdrawals has been exercised only for marginal quantities of products. Despite a considerable drop in quantities withdrawn after the 1996 reform, no disruptive effects on markets and incomes seem to have been recorded.

Together with the decline in importance of withdrawals, the efficiency of withdrawal expenditure in reducing price and income variability also appears to have changed over the years. Although the withdrawals seemed to be efficient in reducing price and income variability, for the few products examined (peaches, citrus, apples, cauliflowers and broccoli), such efficiency seems to have decreased

(higher costs for the same price variability reduction) after the CMO reform, although the evidence is not strong enough to allow us to draw a general conclusion.

These results should be considered with due caution, as the analysis of efficiency conducted does not provide a complete picture of efficiency, since only budgetary expenditure (and not all the costs of withdrawals) are taken into account here. Also, it should be considered that due to the limits of the present analysis in terms of the dataset used and information derived from price and income analysis, the results in terms of the achievement of price and income stabilisation objectives should be considered as limited and partial. Therefore, taking into account these limitations and results, it has been difficult to draw any firm conclusions as to the efficiency – even partial – of withdrawals.

As far as EC budgetary expenses are concerned, withdrawals seem to be in line with the costs of similar measures adopted within the CAP framework, in particular with the average budgetary cost of wine distillation (considered as being similar to withdrawals in terms of its goals and tools) and with the budgetary costs of processing aids for peaches, pears and citrus (weighted by volume of products). This conclusion is also valid for comparisons made, and cannot be deemed as an indication of absolute cost efficiency.

Evaluation of the administrative complexity of withdrawals has been developed through interviews with expert witnesses (selected professionals involved in the management of withdrawal operations). A major finding is that withdrawals have not benefited from administrative simplification, which was one of the objectives of CMO reform. The general recorded perception is that withdrawals are still a very costly tool to use (in terms of administrative burden). The analysis of administrative schemes confirmed this perception: due to the long and complex administrative procedure, the destruction of products is often preferred to other destinations (free distribution or animal feed). Also, the costs of withdrawal management have been increasingly transferred to POs and to regional administrations.

Finally, it is important to highlight the fact that the administrative burden has an impact on the effectiveness and efficiency of the withdrawal itself. Indeed, the reason why a PO might want to resort to withdrawals is the need to act rapidly to contain the offer. When the necessary authorisations entail a considerable bureaucratic burden and excessive time spent completing administrative procedures, there can be waiting times of over a week in order to withdraw the product in question, by which time, most of the reasons for withdrawal are obsolete.

To discover which other measures might be adopted to cope with short-term surplus crises, we have taken stock of what producers have done in the recent past, but also conducted a careful analysis of the theoretical basis of the mechanism.

The analysis has shown that a withdrawal system triggered by a minimum floor price may have positive effects on producers' income but, being a kind of free "price insurance", it would suffer from the negative drawbacks plaguing insurance without the possibility of correcting them. The 1996 F&V CMO reform, by bringing in a reduction of CWC and eliminating the automatic link between market prices and withdrawals, has strongly reduced the negative effects of such insurance–like mechanisms without increasing overall market instability. Empirical analysis, however, does not make it possible to conclude that the latter result is attributable only to the improved effectiveness of the new withdrawal system. The result could also be due to the effect of changes that have occurred within the marketing chain of F&V in which the increased relevance of Organized Retail in the sales of F&V in the EU countries has led to wider uses of stricter contractual agreements between producers and buyers, thus reducing the relevance of traditional sales channels. This result in itself might have been facilitated by the 1996 reform, which contributed to creating incentives to the operations of POs by supporting their role in organizing EU F&V supply. However the analysis showed that the consistency of the current withdrawal scheme with the reformed CAP is rather weak, because it does not fit in with the objectives of both stronger market orientation and high environmental protection. For these reasons it is legitimate to ask whether there are other more effective ways of assisting F&V producers in managing surpluses crises, and we explored this issue.

The fundamental point is that, if producers can do it, it is already in their best interests to regulate the quantity being sold according to market conditions, in order not to depress revenues, and therefore there would be no need for further incentives such as that provided by compensation. The main reason why producers may fail to do so can be related to information flaws or other problems that undermine the possibility of coordination up to the point of becoming a cartel. When producers cannot perfectly interact, withdrawals are likely to be ineffective, given the incentive for any single producer to sell its entire production when other producers withdraw some of theirs. Although a cartel proper would violate competition policy rules, effective coordination by POs would be consistent with such rules, provided that their activity is aimed at achieving the objectives of the Common agricultural policy.

This may well be the reason why some POs have managed price risk in other ways, as the analysis conducted during the evaluation process has shown. However, while a withdrawal would contribute to price increases not only for PO members but also for other producers, the use of other risk management activities by POs can only benefit their members. In the current state of the EU F&V industry, in which the spread of POs as well as their dimension is rather scattered (European Commission, 2006), it could mean that a large share of producers would not have access to the benefits of instruments adopted by POs.

In conclusion, combining all these findings, and bearing in mind all the highlighted limits, the main conclusions that we can draw are as follows:

- **EC budgetary expenses** for the withdrawal system, in the way it is currently administered, are in line with those of similar measures adopted within the CAP
- The objective of **administrative simplification has not been achieved**. Withdrawals are still perceived as a burdensome tool.
- **Potential new measures**, which might be introduced to improve short term crises management, should be based on:
  - strengthening the role of POs within the EU F&V market;
  - broadening the role of POs both in pooling the risks faced by their members and in negotiating with firms with larger market power;
  - broadening the scope of Operational Funds to formally include risk management features.

9.2 Recommendations

In addition to providing the answers to specific evaluation questions, as stated in the previous paragraph, the analysis conducted led us to formulate recommendations aimed at making possible improvements to the short-term surplus crises management framework in the EU F&V sector.

As a caveat, it should be borne in mind that these recommendations do not take into account the proposals for reform of the F&V CMO currently being discussed at various levels, by the Commission and other bodies, and therefore are based on the *status quo* that we have found and considered throughout the report.

With this premise, our main **recommendations towards possible ways of improving the current system based on withdrawals** are as follows:

1. Despite the fact that Council Regulation (EC) 2200/96 gives priority to destinations other than destruction (mainly "free distribution") as a way of disposing of withdrawn products, this evaluation has highlighted a series of difficulties faced by both POs and charitable organisations/livestock farms regarding the practical use of such options. These difficulties are linked both to factors exogenous to the regulatory framework (i.e. limited absorption capacity of charitable organisations and livestock farms, limited storage capacity, inadequate infrastructures, high costs) and to the administrative complexity of the system. This is particularly evident in the case of "free distribution" and "animal feed", which are also potentially more environmentally friendly. All of the above leads us to make the following recommendations:
   - to improve the technical feasibility of "free distribution" destination.
   - as an alternative or in addition, to promote the development of a more efficient information system in order to facilitate relations between POs and charitable organisations;
   - to simplify control procedures that directly involve charitable organisations and livestock farms receiving withdrawn products.

2. The analysis emphasized that eight EU Member States drafted "*national frameworks to prevent environmental damage during the disposal operations of withdrawn products"* that were deemed to be unsatisfactory by the Commission, and that eleven other Member States did not submit any specific "national framework". Therefore we recommend that more intensive actions be taken by the Commission to ensure that all Member States conform to an agreed set of rules.

   Moreover, the analysis showed that, since Community regulations do not provide specific criteria or parameters to identify and regulate biodegradation and composting processes, different legislative approaches have been adopted by Member States, resulting in national provisions that might not be sufficient to ensure that environmental damage is not caused by the disposal of F&V products withdrawn from the market. Thus we recommend that the development of the Community's regulatory framework provides: a specific and technical definition of biodegradation and composting processes; criteria and parameters to be adopted for environmental protection during the disposal of withdrawn products.

3. Despite the existence of a significant monitoring and control system, we encountered serious difficulties in gathering some relevant data, and have some concern as to their effective usefulness for analyses such as this one. The main problem refers to price data. The current system requires that Member States periodically communicate to the Commission an average monthly price by product. In order to have more useful statistical data, it would be advisable for data on prices to be accompanied by data on volumes traded, in order to be able to weigh the price with traded quantities when forming averages.

   Other problems concerned the gathering of data on both the quantity and destination of withdrawn products that are listed as disposed of by "free distribution in third countries". Although this related to very small quantities, the gathering of relative data has been extremely difficult if not

impossible. Moreover, data relating to the quantity disposed of by biodegradation and composting are only available as rough aggregates. We thus recommend that actions be taken to improve the current monitoring system, and that data on the actual destinations of withdrawn amounts be made available at a more detailed level.

The results of Theme 4 show that POs are the best actors to manage possible instruments and measures to cope with short-term crises. Therefore **with a broader perspective, in order to improve the management of short-term surplus crises** in the fruit and vegetables sector, we also suggest an **evolution of the current framework, strengthening and broadening the role of POs in managing the risks faced by their members**. Useful actions could include:

- strengthening the role of POs within the EU F&V market, since many tasks already carried out (in particular, the planning of members' deliveries, negotiating with large retail chains) also have a price stabilising effect for their members, avoiding short term crises.
- broadening the scope of operation of POs and of Operational Funds to formally include risk management features.
- publicly funded compensation for withdrawals, if any, should be limited to covering the costs incurred for disposing of the withdrawn product in environmentally friendly and socially acceptable ways.