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Evaluation of the Common Market Organisation (CMO) in the Cereal Sector

Executive Summary

Prepared for:

EU Commission — DG Agriculture and Rural Development
Rue de la Loi 130
B-1049 Brussels
Belgium

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LMC International Ltd
14-16 George Street
Oxford OX1 2AF
England
Tel: +44 1865 791737
Fax: +44 1865 791739
Email: analysis@lmc.co.uk

LMC International Ltd
1841 Broadway
New York, NY 10023
USA
Tel: +1 (212) 586-2427
Fax: +1 (212) 397-4756
Email: analysis@lmc-ny.com

Website: http://www.lmc.co.uk

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This Evaluation covers the cereals sector from 1995/96 to 2003/04, a time of major reform in the Cereals Common Market Organisation (CMO). Cereals are central to the CAP, as the major arable crop, accounting for a large part of the CAP budget.

- In 2003/04, the cereals area in the EU-15 totalled 11.4% of the total EU-15 land mass and 28.4% of the total utilisable agricultural area of the EU-15 states.

- The budgetary costs of the Cereals CMO totalled €16.85 billion in 2003/04. This was 36.2% of the entire net budgetary cost of €46.51 billion of the CAP that budget year, and 17.4% of the total EU budget of €96.96 billion.

Chapter 1: The Cereals CMO and the Associated Intervention Logic

The report opens with a description of the CMO measures and the policy logic that lay behind the measures and the reforms made to them in the period under review. Two reforms, in particular, played a key role in the evolution of the measures: the 1992 reform (often known as the MacSharry reform, after the Agriculture Commissioner at that time) and the Agenda 2000 reform of 1999. Since 2004/05, the year after the end of the period covered by this Evaluation, the reforms agreed in the Mid-Term Review of Agenda 2000 have started to be implemented.

The objectives of the Cereals CMO remain those first adopted in the Treaty of Rome in 1967: raising productivity; ensuring fair incomes in agriculture; stabilising markets; assuring the market of supplies; and achieving reasonable prices for consumers.

The balance of the cereals sector was transformed by the early CMO. The EU had a large cereal supply deficit throughout the 1960s and 1970s. Despite a smaller cereal area after the 1970s, EU-15 production expanded rapidly. Meanwhile consumption, having increased until the early 1980s, then declined over the next decade.

The effect of these changes was to make the EU a major cereals exporter by 1985-89. The changes met many of the objectives of the Treaty, but raised other issues. Among the more important was the fall in domestic cereals demand, notably for feed, since local cereal prices remained high in relation to competing feed ingredients. Another concern was budgetary. Sizeable supply surpluses led to budget costs in the form of export refunds and the public storage of cereal stocks sold into intervention.

Because of the complexity of the cereals sector, with a large number of different cereals grown under widely varying conditions throughout the Community and with cereals at the heart of the arable farm economy, evolution, not revolution, was the strategy adopted towards the CMO measures. The 1992 reform tackled the issue of weak feed cereal demand directly by reducing market support (the intervention price and the associated border measures that determined import tariffs and export refunds).

In order to assist the transition to the new market situation, the same reform introduced two new policy instruments: direct payments (also known as area payments or arable aids) and compulsory set-aside. The direct payments, determined by member states under national regionalisation plans, set reference yields (derived from historical data) for cereals and basic payments per tonne of cereals that, when multiplied by these yields, paid producers a fixed sum per hectare. In the 1992 reform the payments per hectare were viewed as compensation for internal price cuts; in later reforms, the element of compensation that was incorporated into area payments was removed.

To ensure supply control, while keeping within export subsidy commitments then being negotiated in the WTO, for larger farmers alone, the receipt of direct payments was tied to the compulsory set-aside of a proportion of their arable crop area and satisfying various environmental standards. Energy crops were allowed to be grown on set-aside land. Voluntary set-aside continued to be available to cereal producers on all holdings.

The Agenda 2000 reform continued the process of the evolution of the main measures. Market support was reduced further, while direct payments were raised. Differences that existed in basic payments per tonne in the calculation of direct payments for the main arable crops were reduced. Set-aside remained as a supply control measure.

The Mid-Term Review introduced four main innovations to the CMO. One was the replacement of direct payments by fully decoupled Single Farm Payments. The second was a greater emphasis upon meeting environmental standards. The third was the introduction of some moderation, by reducing income support payments to larger farms. And the fourth innovation was the abolition of the intervention of rye.

Chapter 2: Methodology

The complexity of the cereals sector and of the CMO measures, as well as the frequent changes in policy and the limited number of years covered by this Evaluation, all make it difficult to achieve significant results by means of econometric analysis. Therefore, although some econometric techniques are applied, the primary approach adopted to analyse the effects of the CMO measures is micro-economic.

The analysis in this report focuses upon different types of producers and end-users, with detailed research undertaken in selected regions in the six leading cereal producing EU-15 member states and in the two leading cereal producing new member states. These member states and regions have widely differing production structures, as well as a diverse range of cereal crops, which makes them valuable case studies.

Member States and Regions Selected for Detailed Research

- Denmark
- France: Aquitaine and Centre
- Germany: Mecklenburg-Vorpommern and Niedersachsen
- Hungary
- Italy: Piemonte and Puglia
- Poland
- Spain: Castilla y León
- UK: England and Scotland

The analysis also focused upon particular types and sizes of farms, in order to obtain representative data about different segments of the EU cereals sector. The EU's Farm Accounting Data Network (FADN) provides valuable time series about farm incomes; therefore, its classification formed the basis for the comparisons that were undertaken.

Farms were divided by specialisation in the FADN samples into (a) cereals, oilseeds and protein specialists (whom we also refer to as cereal specialists, since over 87% of the arable crop area is planted to cereals); (b) general field crop farmers; (c) mixed crop-livestock producers (who use significant amounts of cereal as on-farm feed); and (d) finally all other farmers (none of whom produce significant amounts of cereal crops).

For all these categories, data were collected on farm incomes by source, and on input costs, to derive alternative measures of gross margins. These estimates were

complemented by national and regional data on incomes and inputs and other relevant information collected during the course of the researches into the case studies.

By size, the production units were divided into small farms (earning less than €9,600 per annum in gross margins); medium-sized holdings (earning €9,600 to €48,000 as gross margins); and large holdings (earning over €48,000 in annual gross margins).

An important element of the research was a series of structured interviews in the eight member states, covering a wide range of individuals and institutions actively involved in the cereal sector. In all, 129 such interviews were completed, and those interviewed included representatives of the farming, processing, trading, transport, warehousing, end-user, feed, academic and government sectors.

Samples of cereal farmers were selected in the six EU-15 member states, and lengthy questionnaires were submitted to them. 290 completed questionnaires were obtained.

Two other important methodological techniques applied to the research are:

- Welfare economics cost-benefit analysis to estimate the distribution of the costs and benefits of the set-aside system within the EU agricultural economy, and
- Transport algorithms to assess the effect of freight costs and the system of intervention stocks upon price differentials within the EU internal cereals market.

Theme of Chapter 3: The Income of Cereal Growers

Chapter 3 comprises three parts, each of which deals with a specific aspect of the effect of the Cereals CMO measures upon cereal producers' incomes.

Part 1 is devoted to a consideration of the **fairness and stability of producers' incomes** as a result of the CMO measures.

Where fairness is defined as an absence of systematic differences in incomes between producers by specialisation or geographical region from 1995/96 to 2002/03 (the final year for which FADN data were available), the analysis reveals that the measures were fair. The incomes received by cereal farmers were similar to those for other producers.

The major respect in which the effect of the measures on farm incomes may not be judged to be fair is by size of holding. For all farm types and regions, larger holdings record substantially higher incomes per worker than smaller holdings.

Market support played an important role in ensuring fair and stable incomes when world prices were weak. In general the shares of incomes from cereal market sales declined, while the shares from direct payments increased for all types of holdings. The importance of set-aside payments fell slightly following the Agenda 2000 reform.

Cereal producers' incomes were kept relatively stable by the measures. Diagram E1 depicts average EU-15 farm incomes per worker for small, medium and large cereal specialist farms between 1995/96 and 2002/03, as well as the maximum and minimum levels of these incomes during that period. The text boxes indicate the shares of direct payments and of direct payments *plus* set-aside payments in each group's incomes.

Unexpected effects of the measures included (a) rising annual rentals for cereal land, which were evidence of greater profitability over time; (b) shifts in cereal areas towards maize cultivation and irrigated farming, which received higher area payments under regionalisation plans; (c) producers, with assured income from direct payments,

assumed more risk and showed a greater reluctance to restructure holdings; and (d) set-aside was incorporated into farm rotations, reducing its effective cost to producers.

Part 2 of Chapter 3 focuses upon **producers' dependence upon direct payments**.

Diagram E1 indicates the considerable importance of direct payments in the incomes of all sizes of cereal specialist producers, ranging from an average of 57% on large farms to 70% on medium-size holdings. If, as we suggest, the derivation of more than 50% of farm incomes from direct payments is taken to be excessive over-dependence, the average cereal specialist producer is excessively over-dependent on direct payments.

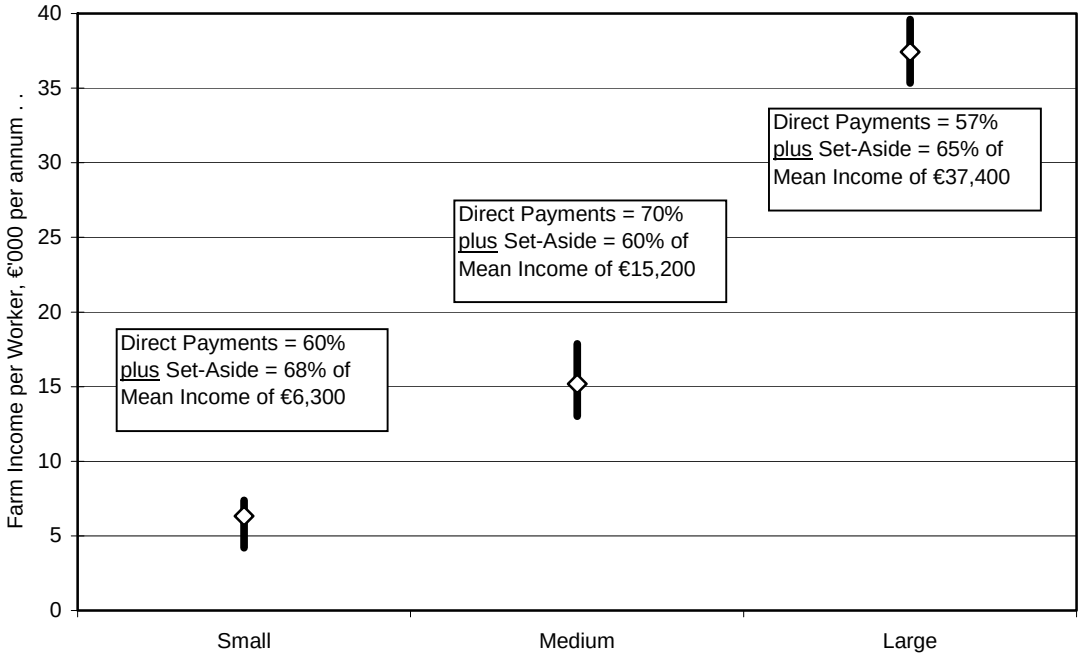
Analysis of the questionnaires completed by cereal producers revealed that, were it not for direct payments, most would reduce their arable farming "by at least 50%". Small and medium producers were more likely to make such cutbacks than larger farmers.

In almost half the regional studies analysed for this report, direct payments contributed the entire net income of cereal specialists (Gross Margin II, as defined in the Glossary). In a similar proportion of studies, direct payments covered producers' full cash costs.

As noted above, regionalisation plans can influence the choice of cereal crop to a considerable degree. There is strong evidence that, where regionalisation plans established higher reference yields for particular cereals (notably maize and irrigated crops), producers switched to these crops to benefit from the higher direct payments that they offer. Special supplements for durum wheat were an important factor behind increased plantings of that particular cereal after that sector's 1997 reform.

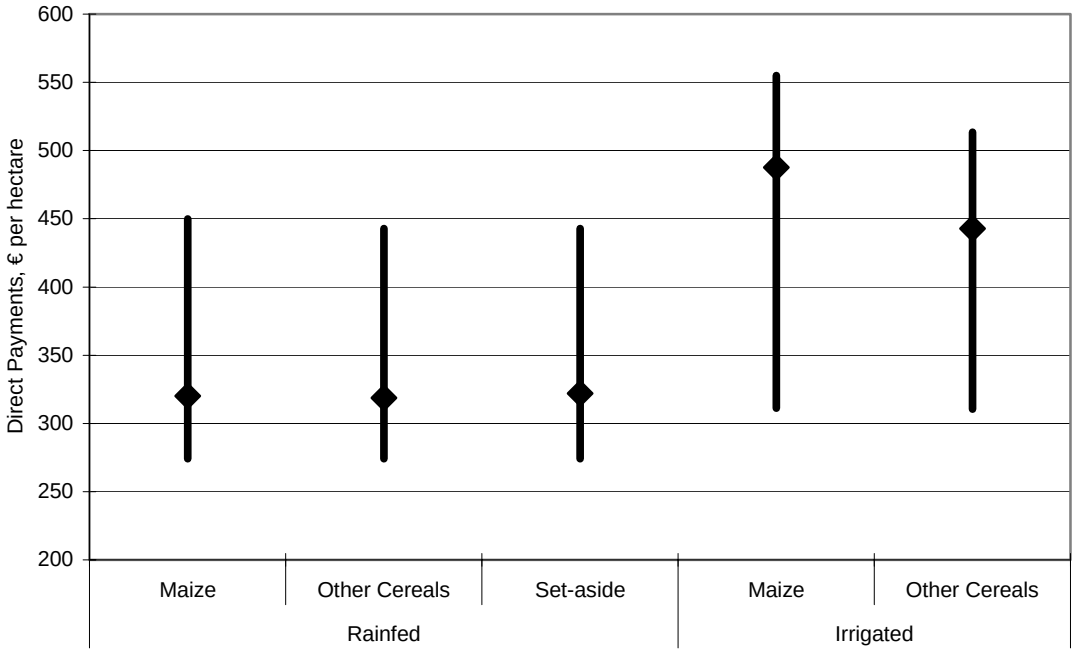
Diagram E2 illustrates the extent of the dispersion between the maximum, minimum and median values of the direct payments per hectare for different cereals and on set-aside land in the various sub-regions within just one region of France in 2003/04 as a result of the implementation of the local regionalisation plan.

Diagram E1: The Mean and Range of Farm Incomes per Worker by Specialisation of Production and by Farm Size in the EU-15, 1995/96-2002/03



Source: Derived from analysis of FADN data

Diagram E2: Maxima, Minima and Medians of Direct Payments from Cereal Crops and Set-Aside in Different Sub-regions Within One French Region, 2003/04



Part 3 of Chapter 3 examines **production structures on holdings**.

The overall effect of the CMO measures on resource allocation is the balance between the positive outcome of policies narrowing the gap between internal and world prices and the negative impact of non-price measures, notably direct payments and set-aside.

Immediately after the 1992 reform, there was a temporary acceleration towards more rational resource allocation, in terms of increasing importance of large farms and in faster declines in both capital and labour intensities. Once producers realised that the reforms would not reduce average incomes in the manner that had initially been feared, the process of resource reallocation slowed.

In the structure of landholdings, larger and smaller holdings increased their shares at the expense of medium-sized farms. The situation of this last group was made difficult by compulsory set-side, which did not apply to smaller holdings.

It was observed that, unlike with many large holdings, set-aside was often difficult to accommodate within the management of rotations on medium-sized farms. The greater importance of the smallest farms also reflected, in part, the growth in part-time farm households, who rely mainly upon non-agricultural sources of income.

On balance, changes in capital and labour intensities on cereal farms provide no strong evidence of more efficient labour or capital allocation as a result of the measures.

However, regionalisation plans have often led to more inefficient resource allocation. This is partly because they encouraged producers to shift from rainfed, low yielding cereals to irrigated cereals and crops with higher direct payments. It is also because two member states had their cereal reference yields increased in the Agenda 2000 reform. It is considered significant, that in one of these states cereal farming methods underwent noticeable intensification over the period under review.

Theme of Chapter 4: Market Equilibrium and Price Stability

Chapter 4 has three parts, which relate to the influence of the Cereals CMO measures upon different aspects of production decisions.

Part 1 considers the extent to which the **quantity and quality of cereal production have adapted to price signals**.

Questionnaires and interviews prepared for the case studies reveal that the reduction in market support improved the responsiveness of farmers' decisions on cereal production to market signals and to the requirements of users in terms of cereal quality.

However, non-price CMO measures have also affected cereal production decisions, with regionalisation plans once again identified as a major influence.

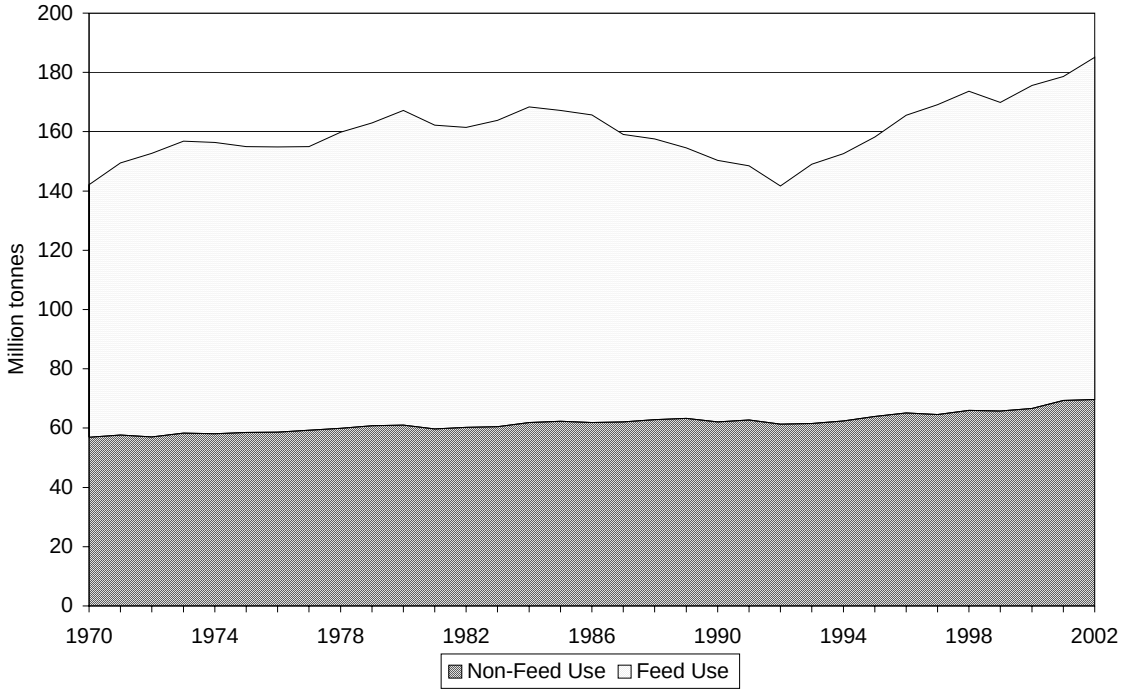
In the animal feed sector, there is strong evidence that the CMO measures have improved the competitiveness of cereals against other feed ingredients.

As a result, there have been sizeable increases since 1992/93 in the percentage of cereals in the mixing of feed ingredients. This growth in the cereal incorporation rate reversed a decline that occurred in the absolute tonnages of cereals used in feed between 1984/85 and 1992/93. The turnaround is illustrated in Diagram E3.

Other factors too, many unrelated to price signals and to demand patterns, influence supply, and, thus, how supply responds to demand.

For example, the different experiences of the German and UK soft wheat sectors in their average wheat protein contents demonstrate that the development of higher yielding new varieties can have a major influence, downwards, as well as upwards, upon the quality of cereal output.

Diagram E3: EU-15 Feed and Non-Feed Demand for All Major Cereals, 1970-2002



Source**:** FAO

Part 2 studies **producers' decisions on their choice of crop and land use**.

Analysis of the effect of the CMO measures on the profitability of different cereal crops and alternative land uses fails to reveal a statistically significant causal relationship between the relative profitability of individual crops in one year and planting decisions in the following year. This is partly the result of the limited time series available.

The evidence from the case studies, however, is that the measures influenced crop choice, notably away from oilseeds towards cereals, as higher oilseed area payments ceased. There has also been a shift towards simplified farming systems, with shorter and less varied rotations, so as to reduce the fixed costs of equipment for minor crops.

The main CMO measures affected the margins on individual crops in differing ways. Direct payments were particularly important in maintaining the profitability of rye output; they had their smallest impact on the margins on soft wheat and maize farming. Regionalisation plans had a special influence upon producers' choices between irrigated and rain-fed cereals in countries that opted for such differentiation.

The role of border measures in 2001/02-2003/04 in supporting gross margins was much greater for rye than for other cereals. The end of rye's eligibility for intervention in 2004/05 will end this imbalance in the benefits from these measures.

The effects of set-aside upon decisions about crop production have been less than intended because set-aside land is concentrated on less productive fields; also fallow periods on set-aside land give rise to rotational benefits for later crops. A rising share of the set-aside area, but still a small one for cereals, is now used for energy crops.

Part 3 examines whether **the measures have limited the intensification of cereal production**, as would be expected to have occurred with declining producer prices.

The contrasting experience of maize and other cereals reveals how different CMO reforms have influenced variable input use per hectare of cereals in differing ways.

In general, maize input intensities have risen. This is due, in part, to regionalisation plans that have established higher area payments for irrigated maize, and also to developments in maize hybrid seeds, which are more intensive in input use.

For other cereals, the measures have tended to reduce the intensity of production, but the rate of change in intensity is not appreciably different from that in earlier periods.

The case studies prepared for different member states highlight the manner in which national decisions, such as those with respect to regionalisation plans or environmental regulations, have influenced trends in the intensification of cereal production.

The most striking contrast among the six EU-15 member states selected for special examination as case studies is that between the experiences of Spain and Denmark.

Spain not only adopted a regionalisation plan that created sizeable differences in direct payments for more intensive (particularly irrigated) crops, and so induced producers to switch towards such crops, but these incentives were later increased in Agenda 2000, when the Council agreed to a Spanish government request for higher reference yields. These factors have led to a clear trend towards greater intensification since 1995/96.

In Denmark, intensities have, in general, declined. The decline has been most marked in fertiliser use, where national environmental regulations have been steadily tightened.

Theme of Chapter 5: Price Formation, Competitiveness of Cereals on the Internal and Export Markets

Chapter 5 contains six parts. These concern the effects of the CMO measures upon the competitiveness of domestic cereal output in internal and export markets, and the development of local consumption and cereal export demand.

Part 1 considers the **effects of the drop in institutional prices upon cereal demand**.

The CMO reforms significantly improved the competitiveness of domestic cereals in two major end-use sectors. One, noted above, was animal feed; cereals regained market share from cereal substitutes, many of which were imported. There was also some evidence of the substitution of cereals for protein meals, and of increases in on-farm use of cereals on holdings that combined cereal farming with livestock operations. Diagram E3 illustrated the extent to which the measures revived cereal use for feed.

The other end-use where a significant increase was observed in the competitiveness of domestic cereals was starch manufacture; wheat starch produced from locally grown common wheat has expanded its market share considerably at the expense of maize starch, which is manufactured from a cereal in which the EU is a net importer.

In two other end-uses, the gains have been less clear. In biofuel, cereals have lagged behind oilseeds in benefiting from the measures permitting non-food crops to be cultivated on set-aside land, but this is due to the preferences of fuel companies, rather than cereals' lack of competitiveness. For bakery products, local production of top grade high protein wheat has remained inadequate to meet the demand. The share of imported hard wheat in total EU common wheat sales for human use has increased since the 1992 reform to its current level of approximately 8%.

In contrast to the success of the measures in stimulating internal demand for cereals, the greater competitiveness of domestic cereals in the world market, revealed by the declines in export refunds (except for rye) and import protection, has not been sufficient to enable exports to be made without any need for refunds and has not increased the EU share of the world trade.

Part 2 is devoted to the **effects of the measures in restricting competition**.

Analysis reveals that, during the early years of reform, monthly increments in the intervention price over-compensated traders for storage costs. This encouraged them to delay making sales over the months (November to May), for which increments were paid, thereby artificially increasing the internal price. The incentives to postpone sales have since weakened, but there is evidence that the monthly increments introduced a distortion into the cereal sector by artificially raising internal market prices for cereals until 2003/04. Since then, the increments were halved in the Mid-Term Review reform.

An unexpected effect of the measures, by increasing the price risk in the internal market, was to hasten concentration among cereal traders, and in the ownership of storage facilities. Producer cooperatives have become more important in both respects. These changes have boosted the market power of the remaining traders.

Part 3 examines whether the **measures gave rise to *sufficient* price stability in the internal market**.

We define *sufficient* price stability to be less price volatility than that in world market prices. On this basis, the level of stability afforded by the CMO measures is definitely sufficient. This is true both within marketing years and in inter-year comparisons.

One consequence of the price stability provided by the measures has been to prevent the emergence of sufficient trading liquidity to allow cereal futures markets to provide market-based forms of price risk management. Instead, there is evidence that producers have chosen to become riskier in some of their activities.

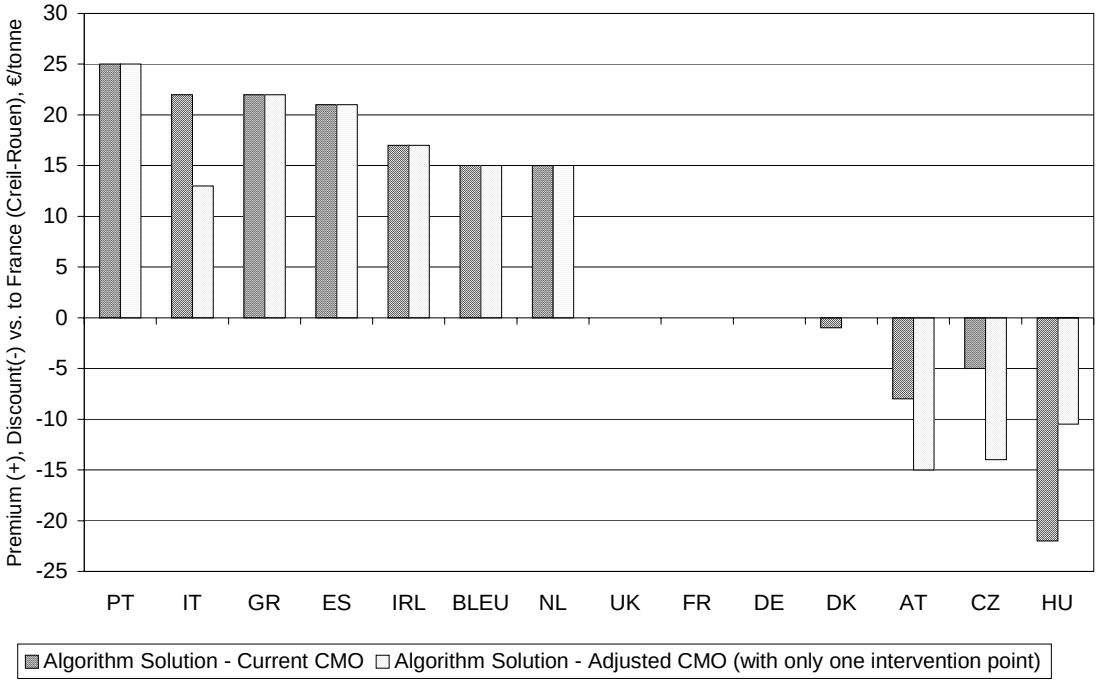
Part 4 applies linear programming techniques to transport algorithms to determine whether **transport costs support the geographical segmentation of the market**.

The transport algorithm computes the optimal regional price differentials that minimise the overall transport costs of supplying the domestic cereals market. This reveals that observed regional price differentials within the EU-15 at the end of 2004 matched the results of the model fairly closely. Thus, the geographical allocation of cereals within the EU-15 is fairly efficient.

However, in the enlarged EU-25, a single EU intervention price is a barrier to efficiency in the internal market. In 2004/05, inter-regional price differentials were too low to cover freight costs from some surplus regions to deficit areas. The result was high levels of intervention stocks that could only be exported with freight subsidies.

Diagram E4 depicts the solution of the algorithm under two assumptions; the first is that open market export refunds cause all wheat exports to be made from France and Germany, with all other internal market prices adjusting to reflect transport costs and flows from deficit to surplus areas. This implies that, if logistical efficiency, rather than the intervention price, determined price gradients in the interior of the Community, then prices in Hungary, for example, would settle over €20 below those in France. In practice, however, the intervention system ensures that when there is sizeable internal over-supply and the world price is below the intervention price, then wheat prices are the same in France and Hungary and intervention stocks accumulate in Hungary.

Diagram E4: Contrasting Price Differentials for Common Wheat Under Current Intervention Rules with Those with Intervention in Only One Location (Hungary)



The other set of price differentials depicted in Diagram E4 shows the results of applying the transport algorithm to a *liberalised* internal wheat market, where intervention is assumed to provide a safety net in just one member state and where all other prices adjust accordingly. It reveals that a price gradient of €35 per tonne is required between the lowest priced surplus regions and highest priced deficit regions to achieve fluidity within the internal market. This is much larger than the price gradients observed when the intervention safety net is effective in all member states.

In this context, it should be noted that internal transport costs are high by international standards, for example, when compared with the corresponding situation in the US.

The analysis demonstrating that a single intervention price throughout the Community for one cereal restricts the fluidity of the internal market may be extended to analysis of the effects of a single intervention price for all eligible cereals. This erects barriers to the ease with which surpluses of one cereal may be used to fill deficits of a close substitute (this is particularly valid, for example, in feed) in another region.

Part 5 examines the **development of cereal consumption inside the Community**.

The most important result of the CMO reforms in terms of domestic demand was the greater competitiveness of local cereal supplies and the recapture of feed ingredient markets from cereal substitutes, as noted above. However, evidence of transmission of lower cereal prices to mixed feed and animal product prices is inconclusive.

Within the cereal sector, the use of imported feed cereals rose until 2002, but the 2003 introduction of tariff rate quotas on feed wheat and barley should cap imports in future.

The main gains in cereal sales for feed were the result of higher rates of incorporation of cereals in feed. There is no evidence that greater competitiveness of cereal prices led to faster growth in the production or consumption of any major meat products.

For cattle and sheep, BSE and foot-and-mouth disease hit both output and demand; also, dietary preferences have moved away from red meat. Poultry and pig meat consumption might have been expected to benefit from these changes, but for these products, too, growth of both production and consumption has slowed since 1995/96.

Among other non-food uses of cereals, fuel ethanol production from cereals grown on set-aside land has made much less progress than that of biodiesel from rapeseed. Legislation on engine efficiency and the EU fuel trade balance (with deficits in diesel and surpluses in petrol) explain the slow growth of ethanol sales as a petrol substitute.

Starch uses of cereals are the main non-food/non-feed outlet for cereals. They have grown substantially, most notably in the case of wheat starch, assisted by the CMO framework. Since 2000, starch output growth has slowed, as a result of lower starch refunds and tighter rules on granting production and export refunds.

Part 6 is devoted to a consideration of **the EU's position on the world market**.

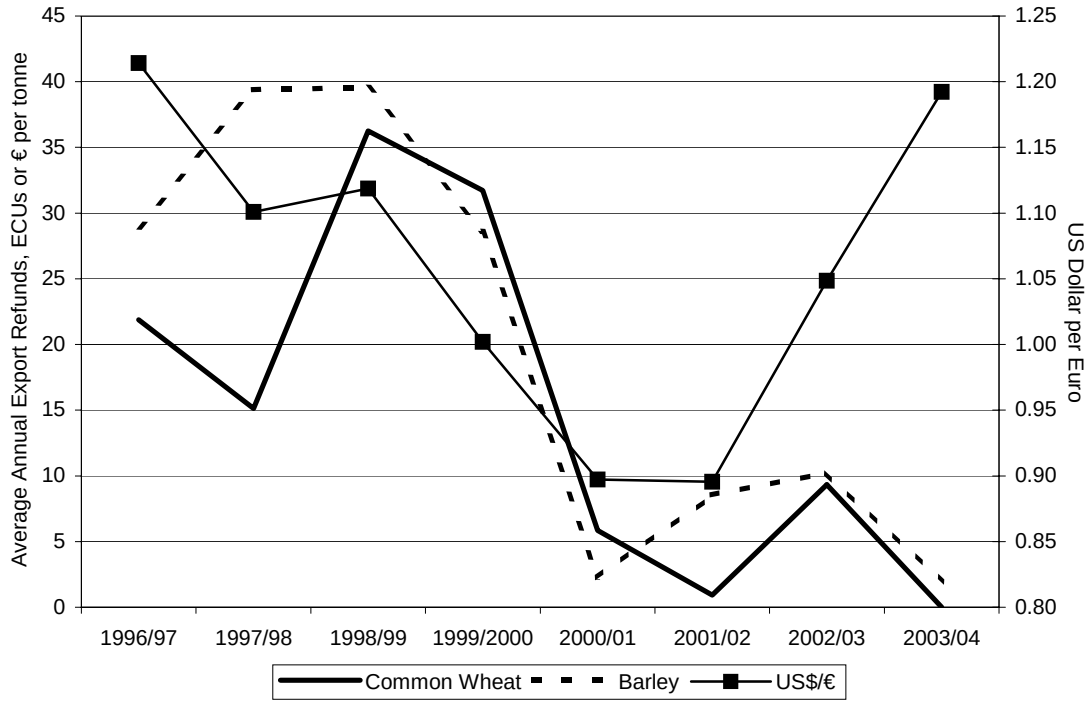
The Cereals CMO measures did not improve the share of EU cereals on the world market after 1995/96. The Community's share of world exports tended to decline, while its share of output was fairly stable. (These may seem to be contradictory outcomes; the difference is explained by the growth in domestic feed demand for cereals).

The CMO reforms helped to bring internal cereal prices more closely into line with world market prices, and lowered the level of export refunds on the two main exported cereals, common wheat and barley.

Diagram E5 plots average export refunds since 1996/97. The €/US$ exchange rate is included because the weakness of the € until 2002 meant that EU intervention prices and market support levels fell in terms of US$. This reduced the need for export refunds in order to make export sales. The € was strong in 2003/04, but so, too, were world cereal prices, which cut the refund on common wheat to zero.

For rye, the measures taken until 2003/04 did not facilitate exports without refunds. Refunds averaged over €40 per tonne each year from 2001/02 to 2003/04. Rye's eligibility for intervention was to blame, since its intervention prices were far above export prices. Ending intervention for rye in 2004/05 will help to resolve this problem.

Diagram E5: Average EU-15 Cereal Export Refunds for Common Wheat and Barley vs. Euro-US Dollar Exchange Rates, 1996/97-2003/04



Source: DG Agriculture marketing year data

Unless export refunds are reduced to an average of zero, two factors, in particular, may restrict the EU's ability to raise its competitiveness in external markets. These are the WTO commitments on subsidised cereal exports and freight logistics.

The WTO commitments to keep the values and volumes of subsidised exports within limits have hitherto been a major potential, rather than actual, constraint on exports. Analysis suggests that the volume ceilings are likely to become more significant, especially in the light of greater competition in export markets from Black Sea origins. This growing competition will make it more difficult to make export sales without refunds in future, unless reductions are made in cereal intervention prices.

Competition has increased from Black Sea cereal exporters in many traditional export destinations in the Mediterranean, where the EU is at a freight disadvantage to these relatively new competitors. As noted in Part 4, internal transport costs within the EU are relatively high. These logistical inefficiencies limit the EU's ability to compete without export refunds in many export markets.

Theme of Chapter 6: Efficiency and Cost of the Measures

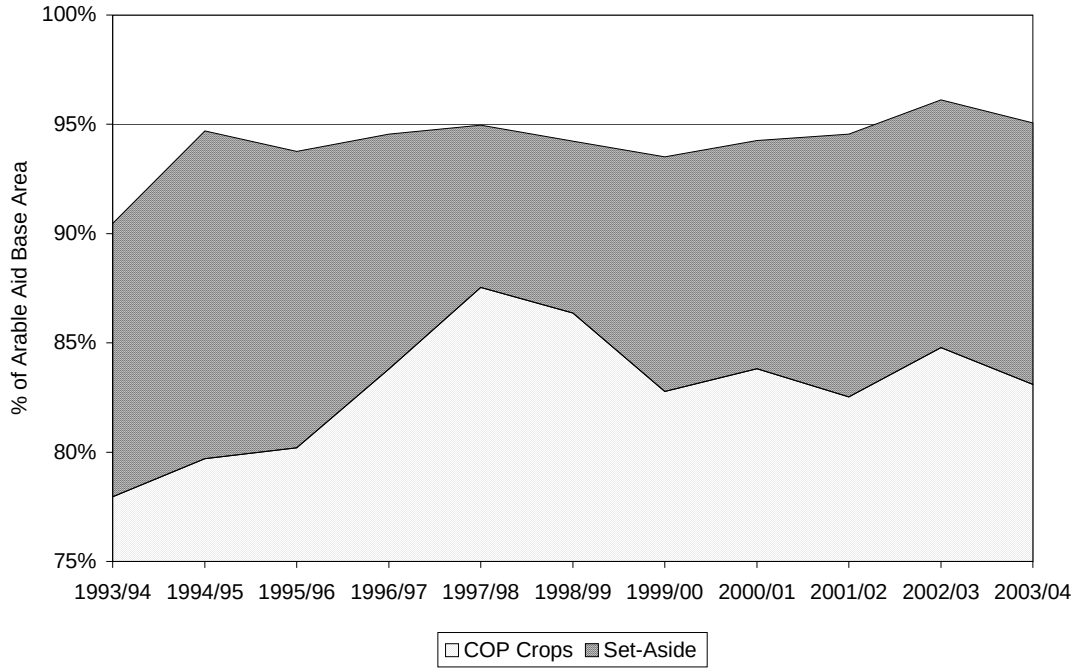
Chapter 6 comprises two parts. These examine the budgetary cost-efficiency of the measures and, for intervention, the consequences of enlargement.

Part 1 considers the **efficiency and cost of the Cereals CMO and any possible associated deadweight, policy inefficiency and adverse effects.**

This section analyses the extent to which the measures created deadweight and policy inefficiency.

One effect, which presents a combination of policy inefficiency and low utility for society, was that after the 1992 reform, member states over-stated the base areas for arable aid payments. As a result, despite the adoption of compulsory set-aside as a means of supply control, the cereal area actually increased after the start of the reform. Diagram E6 depicts the growth in the cultivation of crops on base areas since 1993/94. Within the total area under COP crops, the share of cereals increased over this period.

Diagram E6: Use of the Base Area for Arable Crops, 1993/94-2003/04



Source: Derived from Table 1.4 in Chapter 1

An adverse effect of the CMO (when beneficiaries do something they would not otherwise have done) is associated with rye production. This continued to be supported by CMO measures, although some output was produced solely for sale into intervention, so that intervention stocks remained high. To sell the rye supply surplus, export refunds continued at high levels, long after they had fallen for other cereals.

Because of the scale of the cereals sector within the CAP, the effects were examined assuming that an appropriate basis for assessing policy inefficiency in the application of the CMO measures to producers was to contrast cereal producers' incomes with entrepreneurial incomes outside agriculture.

The assumption that non-farm entrepreneurs' average incomes are 50% above the average annual wages of workers in industry and services was analysed in detail. The premium is added to reflect risk and managerial responsibility.

The major share of large producers in total cereal output led to an examination of policy inefficiency in two ways: for all cereal farmers as a group, and for large farmers alone. Results included:

- With either estimate of non-farm entrepreneurial incomes, average large cereal farm incomes exceeded non-farm entrepreneurial incomes.

- For cereal producers as a group, no policy inefficiency (in the sense of over-payment to these producers in relation to equivalent non-farm incomes in the same member state) was identified if 50% is the appropriate premium to apply to determine non-farm entrepreneurs' incomes in relation to non-farm wage earners.

In addition an unexpected effect was an increase in average land rentals for cereal specialist holdings. This gave rise to a significant leakage in the form of higher rental payments to landowners who were not the farm operator.

Regionalisation plans stimulated changes in crop choice from cereals with lower reference yields to others with higher reference yields, notably maize.

Set-aside gave rise to several forms of policy inefficiency.

- One was the creation of deadweight when set-aside payments were made on land that would have been left fallow in the absence of set-aside.

- Another was where full set-aside payments were made on low productivity land.

- The Evaluation report on set-aside demonstrated that, in 1998/99 and 1999/2000, a higher budgetary cost for "non-production" than would have been the case if there had been no set-aside and consequent "over-production". However, we cannot conclude whether there was, on average, policy inefficiency in this sense during the period under review.

- Welfare cost-benefit analysis revealed that set-aside imposed substantial policy inefficiency via the loss of producer surplus caused by supply control. Non-EU cereal producers (and, in particular, the US government) were the main beneficiaries from set-aside, which raised world market prices.

Management costs of intervention stocks, when contrasted with private costs of stock management, were judged to be high. This was largely because the CMO requires public stocks to be kept physically intact, adding to stock management costs..

Part 2 examines the **management efficiency of the intervention system.**

The inter-temporal efficiency of the intervention system was low in the 1992 reform; it made it unduly profitable to store cereals privately at minimal risk. The profitability of private storage was reduced in the Agenda 2000 measures, but not removed entirely.

The management of intervention stocks for common wheat and barley was efficient in that it kept producer prices in surplus areas close to intervention prices at times when export prices were below domestic prices. For rye, the system was less efficient on this criterion. This failing will be remedied with rye's removal from eligibility for intervention.

Assessing the management of intervention stocks as safety nets over the cycle, rather than as a form of structural support to the internal market, we again conclude that most cereals were managed in an efficient manner. Rye was singled out as an exception.

Examination of the budgetary costs of managing intervention reveals that technical costs of storage were high. The costs of stock depreciation were considerably too high, as a result of out-dated rules regarding physical stock management.

The experience following enlargement, with the accumulation of large intervention stocks in land-locked new member states, highlights the conclusion from Chapter 5, Part 4. This is that the application of a single intervention price for all regions and all eligible cereals is a major obstacle to the inter-spatial fluidity of the market. We conclude that the intervention system in its existing form is not sustainable.

Theme of Chapter 7: Conclusions and Recommendations

The final chapter summarises the main conclusions of the report and notes that the Mid-Term Review of Agenda 2000 has resolved many of the problems that are identified. In particular, with the introduction of Single Farm Payments, the new CMO measures will end the link between direct payments and the cultivation of cereals. Also, the ending of the eligibility of rye for intervention ends the distortion whereby some producers specifically grew rye for sale to intervention.

However, enlargement has created other problems for the CMO, notably the accumulation of intervention stocks, which is exacerbated by the application of a single intervention price for all member states and all cereals. Furthermore, since the new member states are exempt from compulsory set-aside, the future use of set-aside as a supply control measure will be less effective than it has been hitherto.

The recommendations that flow from the analysis, taking account of the consequences of enlargement, are as follows:

Market Support: We recommend that the role of intervention prices and stocks should be transformed so as to allow the internal market to perform its proper role of allowing surpluses to flow at the lowest cost to meet deficits internally or find outlets in the export market.

There should no longer be a single intervention price for all member states. Instead, we propose that intervention should be restricted to a small number of limited locations. Intervention buying should be restricted to areas with the greatest deficits and most vulnerable to crop failures. We therefore recommend that intervention should be confined to Spain and Portugal.

Another recommendation is that the system of a single intervention price for all cereals should cease. The example of rye illustrates the inefficiencies that can be created by this system. Our preferred option would be to select a single cereal — we recommend that it should be breadmaking wheat — and then to apply intervention solely to this cereal. Virtually all other cereals compete with common wheat in one of its outlets, whether as a feed or as an input for starch or as energy crops. Therefore, through competition in the market and substitution, other cereals will find their appropriate market clearing price relativity vs. wheat, with the common wheat intervention price acting as an indirect safety net for the entire cereal complex.

Border Measures: Import tariffs would have to be adapted to reflect changes in the system of intervention prices.

Public Stocks: The management of intervention stocks should permit a wider range of private storage instruments, such as those employed in the pig meat CMO.

Direct Payments: Regionalisation plans have created a lack of fairness in income between producers of the same cereal in different regions, and of different cereals in the same region. Single Farm Payments are inheriting many of these distortions.

Area payments are the main cause of inefficiency in payments to large cereal farms. If this inefficiency is to be removed, while retaining incentives for more efficient cereal farming, greater moderation is required than that envisaged in the Mid-Term Review reform.

Set-Aside: The effectiveness of set-aside as a supply control measure has lessened after enlargement, since the new member states do not apply compulsory set-aside. In addition, decoupling Single Farm Payments from cereal production should remove some of the need for supply controls, since market prices will guide farm decisions. The analysis of the consequences of the Cereals CMO measures identifies the set-aside system as a major source of policy inefficiency.

Accordingly, it is proposed that set-aside should be phased out.