

Annexe 10 du rapport d'évaluation

**SET ASIDE
COMUNITARY MESURES
EVALUATION**

REGIONAL REPORT

Castilla y León
SPAIN



UNIVERSIDAD POLITÉCNICA DE MADRID
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2. REGIONAL CONTEXT

2.1. Synthetic description of the region at the agricultural level

Castilla y León is located in the north western half of the Spanish *meseta*. It covers 9.420.500 has and represents 18'7 per cent of the total national surface. More than 90% of the land is over 600 metres altitude. It is the biggest region in Spain. A map of the Region location appears in annex 1.

2.1.1. Climate

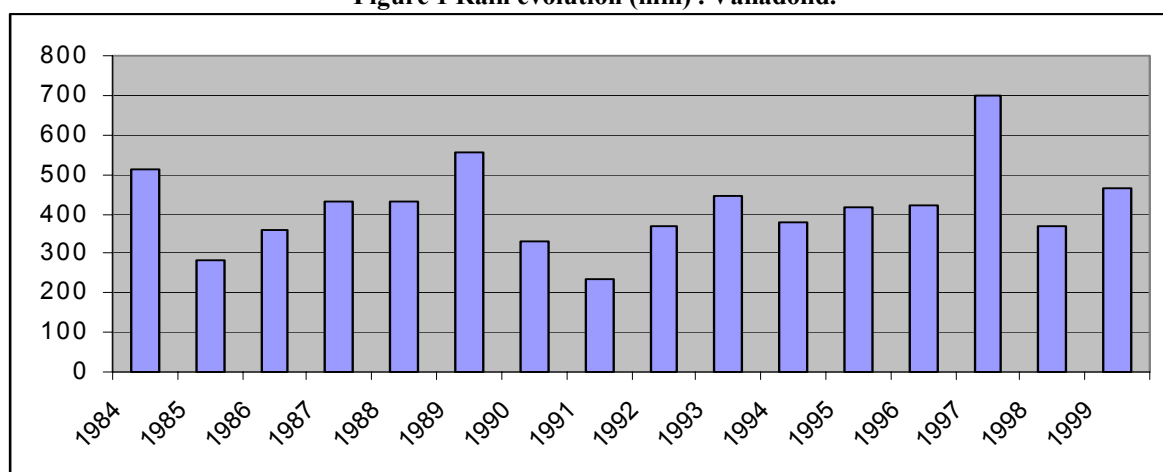
Climatological data detailed in Table 1 is the mean value registered in the observatories existing in the region during the period 1961-1990. Figure 1 shows annual rain registered in Valladolid from 1984 to 1999.

Table 1 Climatological data. Castilla y León. Average 1961-1990

	Rain (mm)	Rain days	Mean temperature	Frost days
Ávila	365	99,7	10,4	78,8
Burgos	573	120	9,9	54
León	560	106,2	10,8	79,1
Palencia	348	102,8	11,7	46,2
Ponferrada	651	148,5	12,6	43,2
Salamanca	388	75,5	11,6	80,6
Segovia	461	93,5	11,8	53,1
Soria	514	112,5	10,5	94
Valladolid	442	118,9	12	67
Zamora	388	117,7	12,5	50,5

Source: INM Spain

Figure 1 Rain evolution (mm) . Valladolid.



Source: INM Spain.

2.1.2. Population

Population in Castilla y León has kept up almost constant during the last century. From 2302417 inhabitants in 1900 to 2488876 inhabitants in 1998, reaching the maximum population in 1950 (2864378 inhabitants). At present more than 35 % of the population is over 65 years old. According to INE the share of rural population over total is 58 % in 1988. Agriculture employed over 10'22 % of the active population in 2000.

2.1.3. Types of holdings

The graphic shows that the surface belonging to holdings over 100 ha significantly increases from 1993.

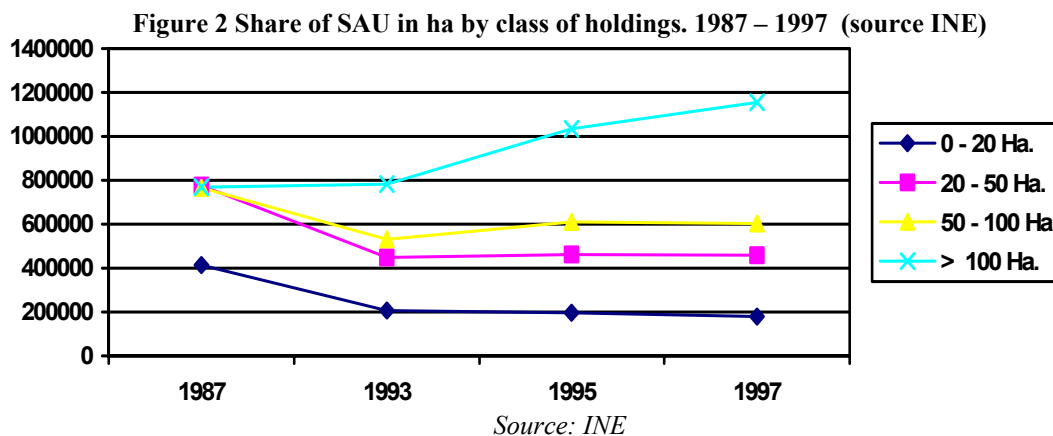
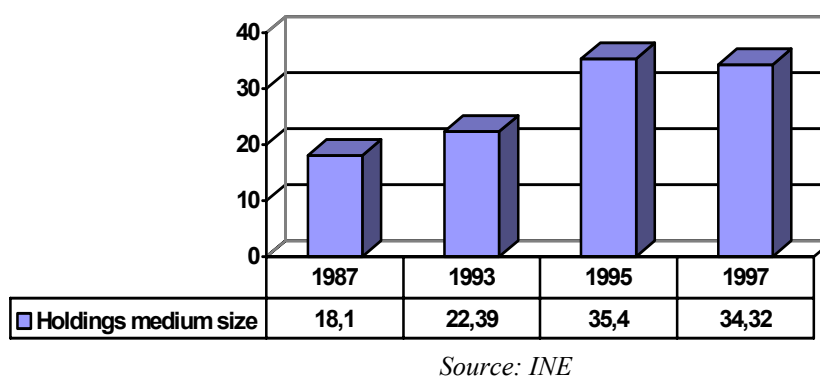


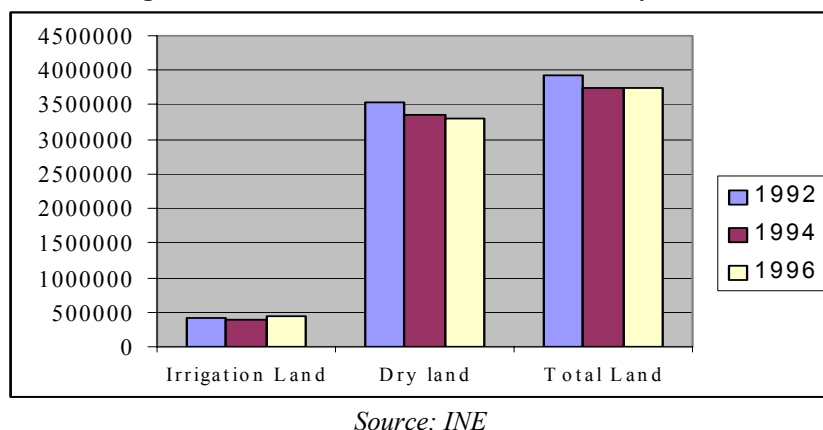
Figure 3 Holdings medium size evolution (source INE)

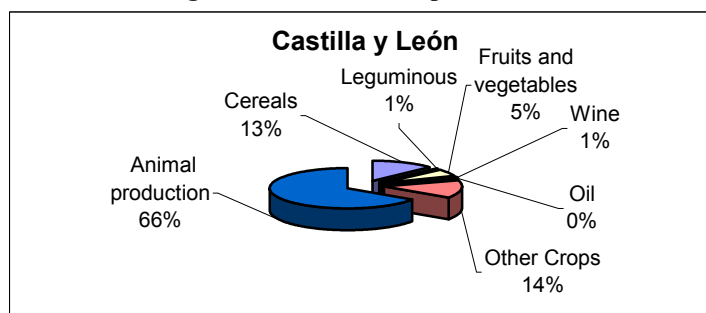


2.1.4. Irrigation land

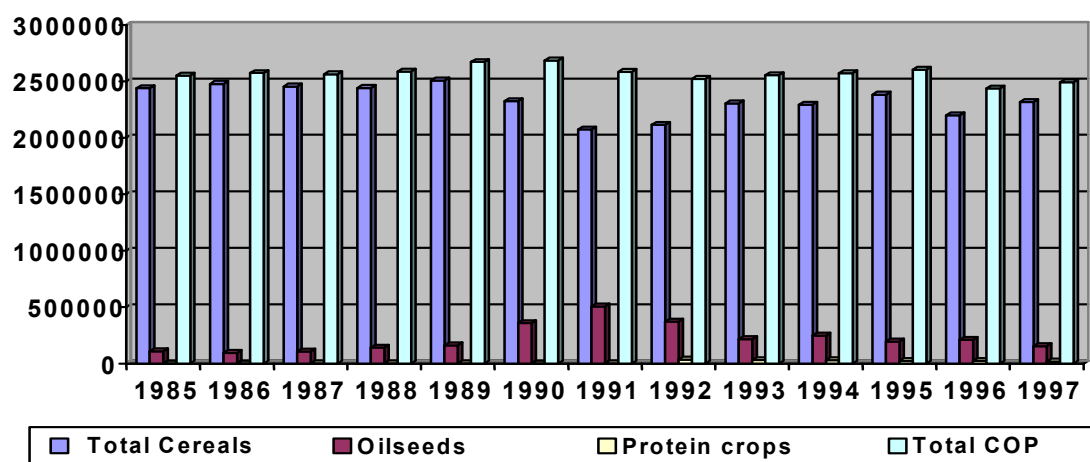
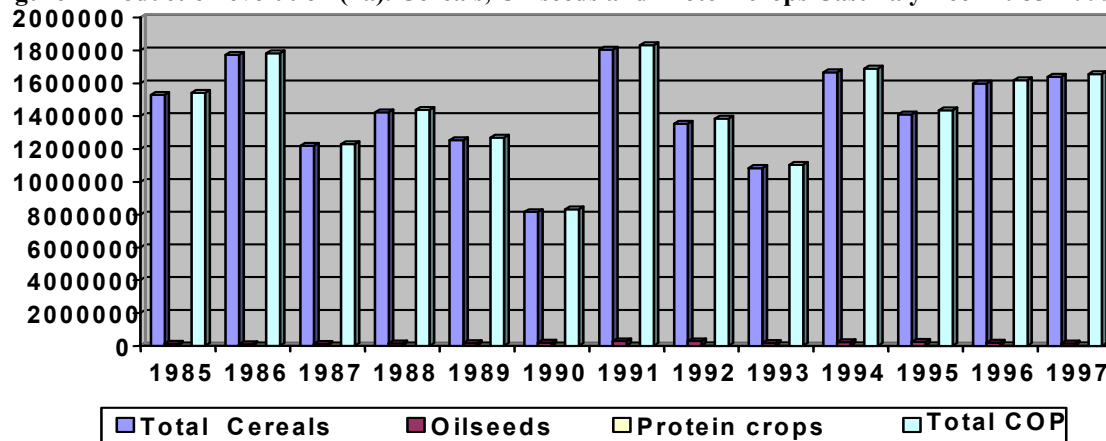
The figure below shows cultivated irrigation land evolution during the period 93-99 in comparison with dry and total cultivated land.

Figure 4 Cultivated land evolution in Castilla y León.



2.1.5. Main regional farm productions**Figure 5 Share of farm production***Source MAPA***2.1.6. Place of the COP over the period 1985 – 1999**

The figures bellow show surface and production evolution (by group of crops) in Castilla y León. Detailed data appears in annex 2.

Figure 6 Surface evolution (ha). Cereals, Oil seeds and Protein crops Castilla y León 1985 –1999.*Source: MAPA***Figure 7 Production evolution (ha). Cereals, Oil seeds and Protein crops Castilla y León 1985 -1999***Source: MAPA*

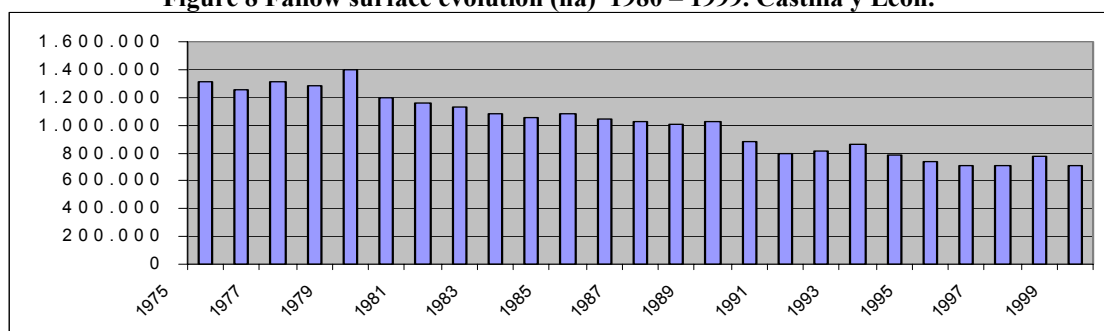
2.1.7. Fallow

Fallow data available includes other no occupied lands, that is to say, abandoned lands and temporarily out of use lands. So these surfaces are influenced by different factors and it is difficult to find a relation between them and set-aside rates.

Table 2 Fallow surface and compulsory set aside rate in the period 1985 to 1999

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Surface (ha)	1079400	1043600	1022930	1007910	1020490	877791	792566	809709	858671	783387	734081	709629	706070	771465	704714
Compulsory set-aside ratio									15 %	15 %	12 %	10 %	5 %	5 %	5 %

Source: MAPA

Figure 8 Fallow surface evolution (ha) 1980 – 1999. Castilla y León.

Source: MAPA

2.2. Set Aside implementation context**2.2.1. Implementation data****Table 3 Set aside implementation data. Castilla y León. Dry land.**

	1993/94	1994/95		1995/96		1996/97		1997/98		1998/99		1999/00	
Compulsory set aside rate	15%	15%		12%		10%		5%		5%		10%	
COP applicants number (professional scheme)	n.d.	n.d.		45523		n.d.		55875		n.d.		n.d.	
SCOP (ha) all producers (COP + set-aside)	2435877	2611051		2681766		2450249		2643865		2582052		2531738	
SCOP (ha) professional scheme (COP + set-aside)	1672251	1994435		2186237		2100980		2295078		2325920		2212675	
SCOP (ha) simplified scheme	763325	612935		495529		349251		348787		256132		319063	
Real set-aside scheme (set-aside/SCOP all producers)	11,13%	15,95%		16,73%		16,54%		13,03%		18,14%		14,94%	
Professional set-aside rate (set-aside/SCOP Professional scheme)	16,08%	20,64%		20,49%		19,29%		15,01%		20,14%		17,09%	
Total set-aside (ha)	271144	416337		448675		405287		344495		468433		378136	
Rotational set-aside (ha)	254087	317510		89688									
Total set-aside (ha) (apart from extraordinary)	271144	416337		448675		405287		344495		468433		378136	
Compulsory set-aside	271144	344941	83%	361109	80%	236580	58%	143918	42%	166402	36%	251481	67%
Voluntary set-aside		71396	17%	87566	20%	168274	42%	200046	58%	300631	64%	126655	33%
Paid at 48'3 ecus set-aside						46	0,0%	55	0,0%				



	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00
No paid set-aside							
No food set-aside		15652	3,8%	6214	1,4%	1320	0,3%
Five year set-aside (R.2328/91)	17056	13076		5043		2711	1507
Extraordinary set-aside							

Source CE DG Agriculture (MAPA)

Table 4 Set aside implementation data. Castilla y León. Irrigation land.

	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00
Compulsory set aside rate	15%	15%	12%	10%	5%	5%	10%
COP applicants number (professional scheme)	n.d.	n.d.	15858	n.d.	20095	n.d.	n.d.
SCOP (ha) all producers (COP + set-aside)	200718	158628	171592	129224	170093	164861	184291
SCOP (ha) professional scheme (COP + set-aside)	92870	99404	117845	93100	132163	135410	145656
SCOP (ha) simplified scheme	107849	59224	53747	36124	37930	29451	38635
Real set-aside scheme (set-aside/SCOP all producers)	6,95%	8,93%	9,56%	4,53%	2,72%	4,53%	4,28%
Professional set-aside rate (set-aside/SCOP professional scheme)	15,02%	14,25%	13,92%	5,89%	3,50%	5,52%	5,41%
Total set-aside (ha)	13951	14166	16404	5855	4628	7468	7881
Rotational set-aside (ha)	13951	11665	4837				
Total set-aside (ha) (apart from extraordinary)	13951	14166	16404	5855	4628	7468	7881
Compulsory set-aside	13951	12404	88%	15854	97%	5481	94%
Voluntary set-aside		1762	12%	550	3%	374	6%
Paid at 48'3 ecus set-aside							
No paid set-aside						2	0,0%
No food set-aside		114	0,8%	128	0,8%	21	0,4%
Five year set-aside (R.2328/91)			52	6			
Extraordinary set-aside							

Source CE DG Agriculture (MAPA)

2.2.2. Characteristics of the Regionalisation plan. Castilla y León**Table 5 Base Area Castilla y León (has)**

CCAA	1994			1997		
	Dry land	Irrigation land		Dry land	Irrigation land	
		Total	Maize		Total	Maize
CASTILLA Y LEÓN	2.458.914			2.646.042	258.000	94.500
ESPAÑA	8.096.192	1.123.521	720.360	7.848.624	1.371.089	403.360

Source: MAPA

COP base area in Castilla y León represents 33 '7 % in dry land and 18'8 % in irrigation land over total national COP.

Table 6 Yield cereals distribution. Mean value. Castilla y León

1994				1997			
Dry land	Irrigation land			Dry land	Irrigation land		
Mean yield Tm/Ha	Mean yield. Tm/Ha	Maize yield Tm/Ha	Other cereals yield Tm/Ha	Mean yield Tm/Ha	Mean yield. Tm/Ha	Maize yield Tm/Ha	Other cereals yield Tm/Ha
2.3	4.4	8.0	3.7	2.3	3.6	6.8	3.0

Source: MAPA

The following tables (Table 7 to Table 10) shows mean values in the region as a whole. The region is made up of rural areas each one being assigned different yields. Every rural area yields are detailed in annex 3 as well as a map showing homogeneous areas in relation to regionalisation plans.

Table 7 Regionalisation plan bases. Castilla y León. 1.

Professional Scheme - Dry land												
Year	Cereals			Oilseeds			Protein seeds			Set Aside		
	€/t.	t./ha.	€/ha.	€/t.	t./ha.	€/ha.	€/t.	t./ha.	€/ha.	€/t.	t./ha.	€/ha.
93	25	2,3	57,5	128,3	2,3	295	78,49	2,3	180,53	68,83	2,3	158,309
94	35	2,3	80,5	135,2	2,3	311	78,49	2,3	180,53	68,83	2,3	158,309
95	54,34	2,3	124,982	0	2,3		78,49	2,3	180,53	68,83	2,3	158,309
96	54,34	2,3	124,982	94,24	2,3	216,752	78,49	2,3	180,53	68,83	2,3	158,309
97	54,34	2,3	124,982	83,87	2,3	192,901	78,49	2,3	180,53	68,83	2,3	158,309
98	54,34	2,3	124,982	94,23	2,3	216,729	78,49	2,3	180,53	68,83	2,3	158,309
99	58,67	2,5	146,675	81,74	2,5	204,35	72,5	2,5	181,25	58,67	2,5	146,675

Source: MAPA , FEGA

Table 8 Regionalisation plan bases. Castilla y León. 2.

Simplified Scheme Dry land									
Year	Cereals			Oilseeds			Protein seeds		
	€/t.	t./ha.	€/ha.	€/t.	t./ha.	€/ha.	€/t.	t./ha.	€/ha.
93	25	2,3	57,5	25	2,3	57,5	25	2,3	57,5
94	35	2,3	80,5	35	2,3	80,5	35	2,3	80,5
95	54,34	2,3	124,982	54,34	2,3	124,982	54,34	2,3	124,98
96	54,34	2,3	124,982	54,34	2,3	124,982	54,34	2,3	124,98
97	54,34	2,3	124,982	54,34	2,3	124,982	54,34	2,3	124,98
98	54,34	2,3	124,982	54,34	2,3	124,982	54,34	2,3	124,98
99									

Source: MAPA , FEGA

Table 9 Regionalisation plan bases. Castilla y León. 3.

Professional Scheme - Irrigation land						
Year	Other Cereals			Maize		
	€/t.	t./ha.	€/ha.	€/t.	t./ha.	€/ha.
93	25	3,7	92,5	25	8,0	200
94	35	3,7	129,5	35	8,0	280
95	54,34	3,7	201,058	54,34	8,0	434,72
96	54,34	3,7	163,02	54,34	8,0	369,512
97	54,34	3	163,02	54,34	6,8	369,512
98	54,34	3	163,02	54,34	6,8	369,512
99	58,67	3,5	205,345	58,67	7,8	457,626

	Oilseeds			Protein seeds			Set Aside		
	€/t.	t./ha.	€/ha.	€/t.	t./ha.	€/ha.	€/t.	t./ha.	€/ha.
93	67,0455	4,4	295	78,49	4,4	345,356	68,83	4,4	302,852
94	70,6818	4,4	311	78,49	4,4	345,356	68,83	4,4	302,852
95	0	4,4		78,49	4,4	345,356	68,83	4,4	302,852
96	94,24	4,4	339,26	78,49	4,4	282,564	68,83	4,4	247,788
97	83,87	3,6	301,93	78,49	3,6	282,564	68,83	3,6	247,788
98	94,23	3,6	339,23	78,49	3,6	282,564	68,83	3,6	247,788
99	81,74	4,2	343,31	72,5	4,2	304,5	58,67	4,2	246,414

Source: MAPA , FEGA

Table 10 Regionalisation plan bases. Castilla y León. 4.

Simplified Scheme Irrigation land												
Year	Other Cereals			Maize			Oilseeds			Protein seeds		
	€/t.	t./ha.	€/ha.	€/t.	t./ha.	€/ha.	€/t.	t./ha.	€/ha.	€/t.	t./ha.	€/ha.
93	25	4,4	110	25	4,4	110	25	4,4	110	25	4,4	110
94	35	4,4	154	35	4,4	154	35	4,4	154	35	4,4	154
95	54,34	4,4	239,096	54,34	4,4	239,096	54,34	4,4	239,1	54,34	4,4	239,096
96	54,34	4,4	195,624	54,34	4,4	195,624	54,34	4,4	195,62	54,34	4,4	195,624
97	54,34	3,6	195,624	54,34	3,6	195,624	54,34	3,6	195,62	54,34	3,6	195,624
98	54,34	3,6	195,624	54,34	3,6	195,624	54,34	3,6	195,62	54,34	3,6	195,624
99												

Source: MAPA , FEGA

2.2.3. Traditional fallow Rate

Traditional fallow rates are specific for each rural area. The detail is in annex 3

3. ANSWER TO QUESTIONS 411 TO 421

To answer these evaluation questions we have performed a **quantitative analysis** of official data¹, finished off with a **quantitative analysis** taken from surveys² made to farmers and interviews performed to managers and experts³ familiarised with this sector or with some specific aspects of the implementation of the set aside of land.

To analyse surface area, production and yield of COP crops official data and the set asides and fallow, we have taken a reference period before the implementation of land set aside and we have extracted the trend of this period to compare it with the data obtained during the period of implementation of the set aside of land. The outcomes of this analysis were compared and finished off with the data obtained from the surveys made to farmers and the answers of managers and experts. Finally, we have summarised quantitative and qualitative information to give a synthetic answer to the evaluation questions.

3.1. Question 4.1.1:

Have voluntary and compulsory set aside of land measures significantly contributed to control the production of arable crops? What is its particular contribution to reduce cereal surplus production?

- **Synthetic answer**

Set aside of land have contributed to control the production of arable crops in Castilla y León since its implementation broke the upward trend of its cultivated surface area and the average total COP surface area for the period 93-99 keeps a 6 % below the surface area expected in this same period based in the trend of previous period.

Nevertheless, the set aside surface area represents a 13'62 % of total surface area along the implementation period, being this higher than the reduction of deducted cultivated surface area (6 %). Only a minority of the land declared as set aside land is effectively cultivated set aside land being some marginal land used to locate a great part of these set aside land. Also, the contribution to production control is diminished by an increase of yields in cultivated surface areas.

Consequently, although the decreasing of surface area, the average production of the period 93-99 increases a 29 % from the average production of the period 85-92, as a result of an increase of yields. However, we can say that, not having the set aside of land measure but keeping the compensatory payments, the production would be a 9 % higher. This increase of production does not correspond with the set aside land area (a 13'62 % of the total due to the location of the majority of this in marginal land)

All reductions of COP production are attributable to cereal since its production represents over a 95 % of COP production.

¹ VID annex 2 Data

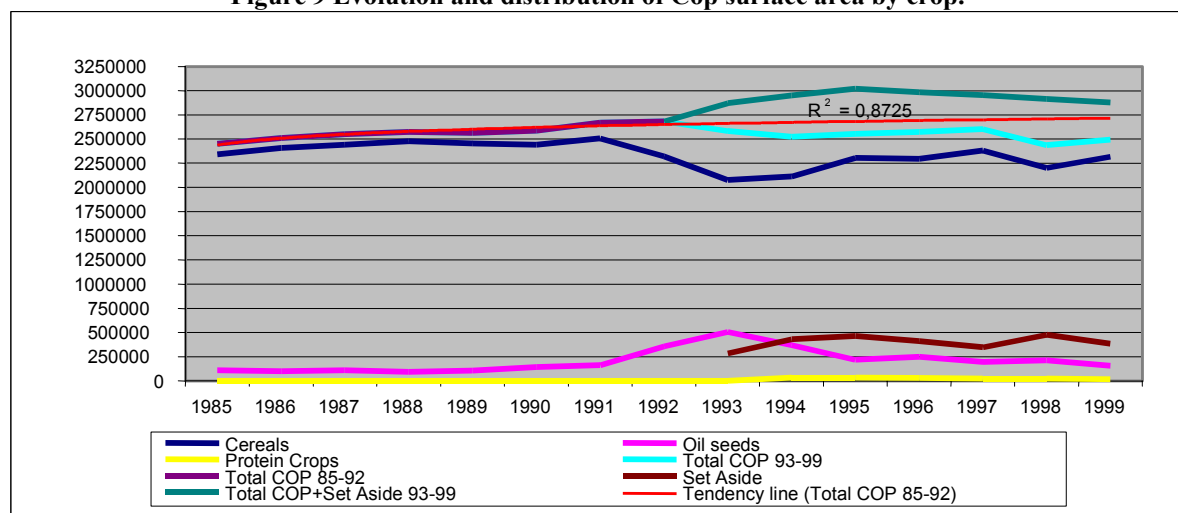
² VID annex 7 Survey Outcomes

³ VID annex 8 Interviewed Managers and experts

- **Detail of answer**

The Cop surface area in Castilla y León maintained an increasing trend in the period 1985-92 changing from 2.452.138 has in 1985 to 2.684.544 in 1992. From 1993 on, the surface area decreases in 100.000 has. and maintains a downward trend during the whole implementation of land set aside measure period.

Figure 9 Evolution and distribution of Cop surface area by crop.



Source: Data taken from MAPA

The total COP surface area for the period 93-99 (light blue line, Figure 9) remains in an average of a 6 % below the surface area that would be expected for the same period as indicated by the trend line extracted for the previous period (red line, Figure 9).

The total surface area (**COP + Set aside**) **increases** in relation to the cultivated surface area of the period 85-93, being above the trend line of this period (red line) during 93-99.

Figure 9. shows that the falling of surface area is a result of the implementation of the set aside measure because it causes an inflection point in 1993 when the upward trend of previous period broke. Nevertheless, only a minority of the land declared as set aside land is effectively cultivated set aside land being some marginal land used to locate a great part of these set aside land.

The distribution of COP surface by crop groups is as follows:

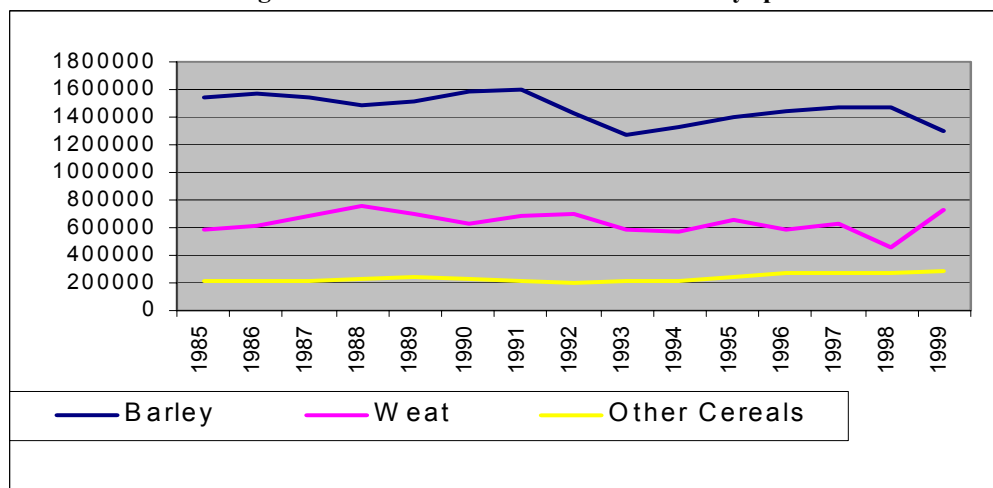
- Cereals took up almost all the COP surface area. They represented about a 95% of COP production in the period 85-92, in 1993 its surface area decreases due to a significant increase of sunflower surface area and it sets in an 80%, from this date on, it recovers surface reaching a 93 % in 1999.
- The surface area of **oil products** is the highest in 1993 representing almost a 20 % of COP surface area and descending along the period until reaching a 6 % during the last period having a surface area equivalent to the previous period. The increasing of 1993 is due to the appeal shown by the financial aids for sunflower.
- The protein products surface area multiplies itself by 10 during the period 93-99 despite what it only represents a 1 % of COP surface area.

- **The set aside surface area represents a 13'63 % of the total (COP + Set aside) in the period 93-99 while the cultivated surface area decreases only a 6 % with respect to the surface area expected in absence of the measure.**

By crops, cereals set the surface area decreasing trend, decreasing with more intensity than the whole arable crops, while oil products and protein products are increasing its cultivated area.

Evolution and distribution of COP surface area by species.

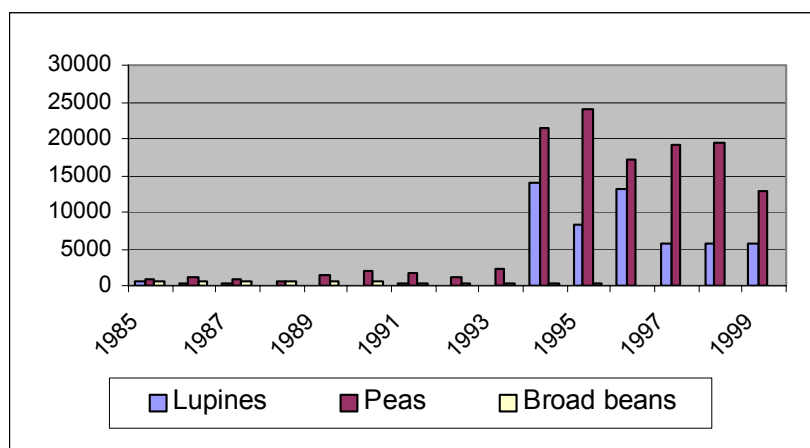
Figure 10 Evolution of cereal surface area by species



Fuente: MAPA

- In cereals, the most significant is barley, covering a 65 % of the surface area followed by wheat with a 25 %. The others cover a 10 %. The figure does not show a clear substitution of some species by others. The convergence of wheat and barley lines do not indicate a trend because it only happened during the last period being divergent during the previous one:
- Sunflower represents a 99 % of oil products surface area.

Figure 11 Evolution and distribution of protein products surface area

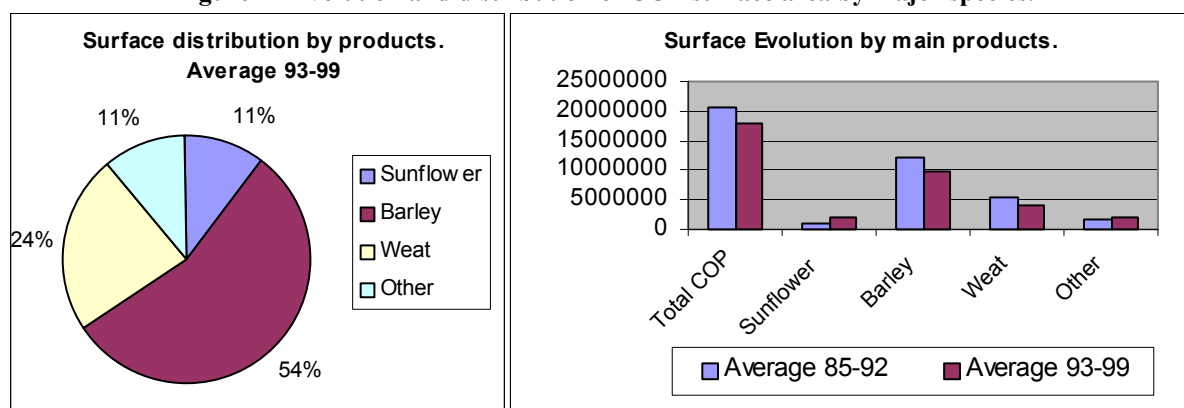


Source: MAPA

- Protein products surface area is divided between peas and lupines in an approximated ratio of 3 to 1. Beans have completely disappeared.

Globally only three species (barley, wheat and sunflower) represent an 89 % of the COP surface area. Barley and wheat areas decrease as a result of the implementation of the land set aside policy while sunflower area increases.

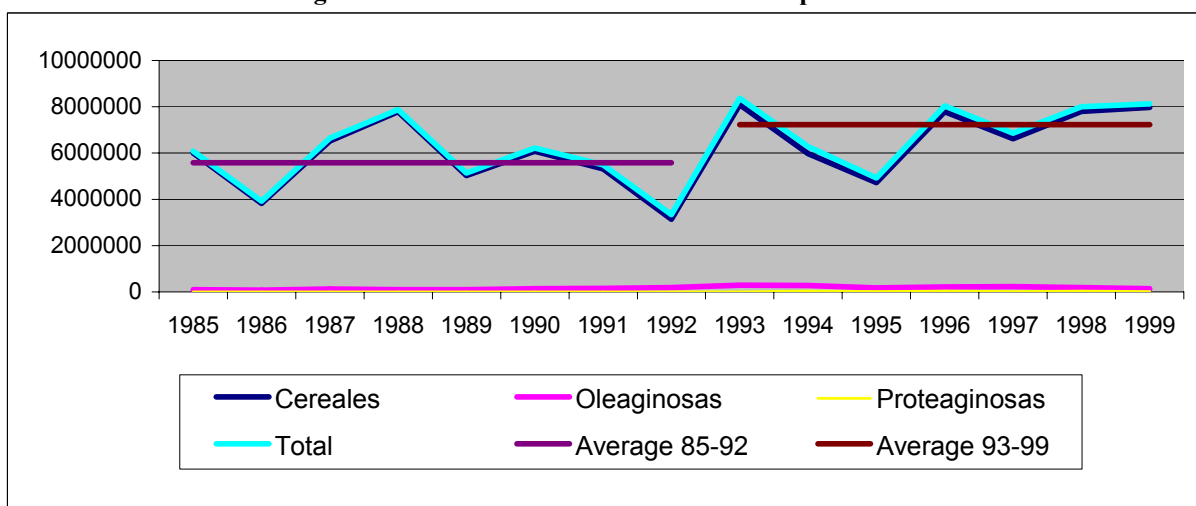
Figure 12 Evolution and distribution of COP surface area by major species.



Source: Data taken from MAPA

Evolution and distribution of COP production

Figure 13 Evolution and distribution of COP production



Source: MAPA.

Despite the decrease of cultivated surface area, **the average production for the period 93-99 increases in a 29 % with respect to the average production during the period 85-99** (Figure 13).

This increase of production is a result of an **enhancement of the average yields** increasing a 31% from 2'18 to 2'85 t/ha (average values of both periods). In opinion of farmers and experts this increase of yields is a result of the technological development (enhancement of seeds and fertilisers) that would have taken place even in absence of measure of set aside of land.⁴

Reduction of production attributable to the set aside of land

To estimate the production that would exist in case of absence of set aside of land policy; we may do the following:

- The area appeared below the trend line of cultivated surface area for the period 85-92 and above total COP 93-99 line as shown in Figure 9 (a total of 1.135.000 has. approx.) would be non-

⁴ Evolution of yields is studied in question 433.

marginal land and would have average yields equivalent to the rest of cultivated surface area (2'85 t/ha).

- The surface area above the trend line and below total COP + set aside line (a total of 1.668.000 has. approx. we assume that it corresponds to marginal land and it would have minimum yields. (1'2 t/ha)⁵

$$Pr = (1.135.000 * 2'85) + (1.668.000 * 1'2) = 5.235.500 \text{ t. Approx. 750.000 t by period.}$$

According to these estimations, as a result of the set aside of land the total production is reduced in a 9% with respect to the production that would have been expected in absence of the measure while the set aside area represents a 13'62 % of the total surface area.

The outcomes of the survey regarding rotation and the situation of set aside lands are the following:

The **data from the survey** regarding rotation and situation of the set aside are:

- a 78 % of them perform rotational set aside
- a 3 % perform fixed set aside
- a 18 % rotate part of the set aside and fix the other part.

Only a 16 % situate part of the set aside in small, extended, not very rich or non-watered, sloped, or rarely cultivated holdings.

It is important to note that the set aside is free, rotational or fixed set aside does not indicate an acquired commitment but a decision of the producer to rotate set aside or to set it always in the same holdings.

The analysis of data regarding evolution of surface areas indicates that a significant part of the set aside is located in marginal lands. This does not correspond to the outcome of surveys where only a few locate the set aside in marginal holdings. This is because the survey is being performed at the *Tierra de Campos* a very flat homogeneous and isotope area. Also, the concept of marginality is wider than the one expected with the survey: a land may be marginal due to other reasons, e.g. for being located far away from the farm or having difficult road access. Also, a farm can be marginal for not having much technology or for having inadequate infrastructure.

Particular contribution to the reduction of production of surplus cereals

All reduction of COP production is attributable to cereals as shown in Figure 13, the cereal production curve is coincident with the total production curve. Cereal production represents more than a 95 % of the total.

• **Limits**

To give an answer to the particular contribution of COP reduction to surplus production of cereal we have assumed that the distribution of COP groups in set aside land will be the same as the one for the rest of areas.

⁵ 1'2 t/ha is the minimum assigned yield appearing in Regionalisation Plan.

3.2. Question 4.1.2:

In what proportions has the remuneration of the voluntary set-aside strengthened the effectiveness of the set-aside instrument? Estimate the share of the voluntary set-aside areas that would have been unproductive in the event of absence of the measure.

The estimation of set aside surface areas non-productive in absence of the measure will be done under two assumptions: in absence of the set aside of land measure and in absence of compensatory payments policy and continuation of the previous system.

- Synthetic answer**

The voluntary set aside reinforces in a 34 % the efficacy of the measure of set aside of land

In absence of this measure, the whole surface area will be sowed to get all compensatory payments

We estimate that a 70 % of the surface area of set aside (without reference to compulsory or voluntary set aside) would be non-productive in absence of the compensatory payments policy.

- Detail of answer**

The proportion of voluntary set aside which reinforces set aside of land will be equivalent to the proportion of voluntary set aside over the total set aside, because farmers do not distinguish between the fields of both types of set aside.

$$P_v = S_v / (S_v + S_o) = 958717 / (958717 + 1841777) * 100 = 34'20 \%$$

The **outcomes of the survey** indicate that a 34 % have performed voluntary set aside, the reasons given were the following:

- Preventive measures for not to have penalties in case of being under the maximum set aside rate: 81 %
- Economic reasons (payments for the best set aside in relation with the crop): 34 %
- Reduction of the on-going activity: 28 %
- Chance to enlarge the lifetime of the machine: 19 %
- Others: 34 %, a 90% of them indicate climatological reasons.

Due to the specific climatological conditions of this last period, farmers could not finish sowing when the surveys were done, this is why a so many farmers point to climatological reasons to perform a voluntary set aside.

- Limits**

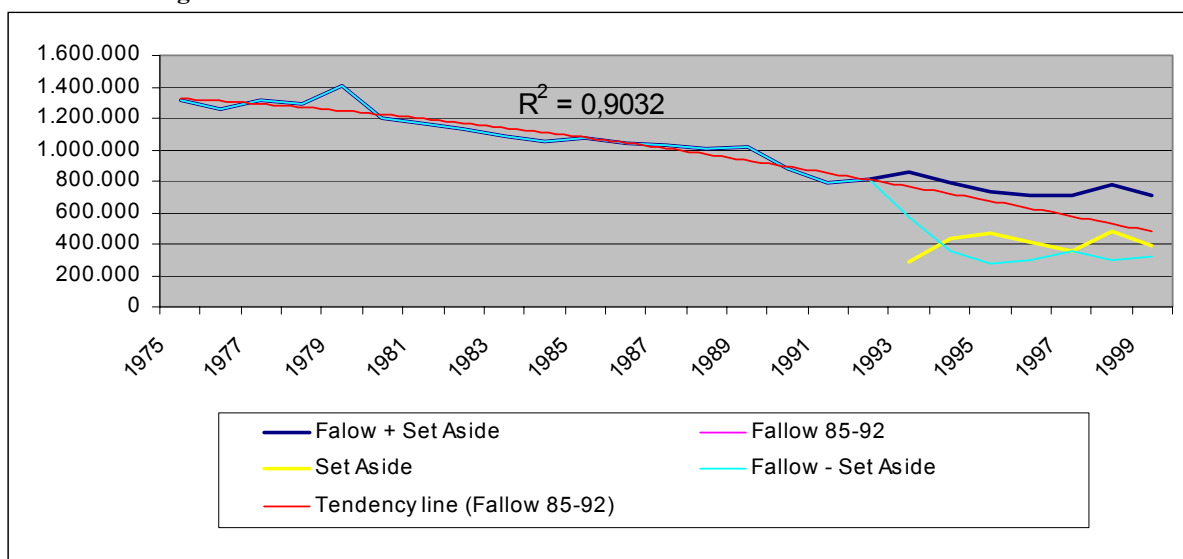
We can not distinguish between voluntary and compulsory set aside due to the fact that both are having the same bonus and the farmers do not distinguish between them when located in the fields. Nevertheless we can understand that in most cases the compulsory set aside is located in more productive lands than the voluntary set aside, due to the fact that the farms which only perform voluntary set aside are the richer ones. The estimation done to know how much the voluntary set aside reinforces the efficacy of the set aside may be reduced.

The share of the voluntary set-aside areas that would have been unproductive in the event of absence of the measure.

As shown before, marginal land is recovered and the set aside is located there. In opinion of all people asked, if the possibility of set aside a part of the surface area would not exist, the land would be recovered anyway and sown to get the compensatory payments. This happened in 1993 when most of sunflower seeds were sown in marginal land and the increase of surface area does not correspond with an increase of production. See Figure 9 and Figure 13.

If compensatory payments policy does not exist and the system of previous period is still on going there will be non-productive land. To estimate the surface area of set aside that would be non-productive we have to look at the trend followed by total fallow land and other lands not used during the last period and compare them with the period of implementation of set aside of land.

Figure 14 Evolution of fallow land and other unused lands and set aside of land



Source: Data taken from MAPA and FEGA

The total fallow land and other unused lands follow a clearly downward trend during the period before the implementation of the set aside of land policy. If we compare the non-productive total area for the period 93-99 with the trend line taken from the previous period we can see that the increase of surface area is lower than the surface area declared as set aside.

In Figure 14 we can estimate that the difference between the total surface area not used minus the set aside surface area (light blue line) and the extrapolation of the fallow trend line period 75-92 (red line) represents the set aside surface area that would be non-productive in absence of compensatory payments. The graphic indicates that this surface area is equivalent to a 70% approximately of the total set aside area. This is concordant with the crop surface area data.

But this estimation has different **limitations**:

- The fallow data and other unused lands (pink line), and fallow and other unused lands + set aside (dark blue line) came from the same historical series in the yearbook of Ministerio de Agricultura Pesca y Alimentación. It had some methodological changes when obtaining the data, precisely during the years when the 1992 reform came into force.
- The set aside of land data (yellow line) came from declarations of crops presented to the payer organisms, so this source is different from the fallow data, although both are official data.

3.3. Question 4.1.3:

To what extent was the set-aside instrument determining in the no-food crop production trend?

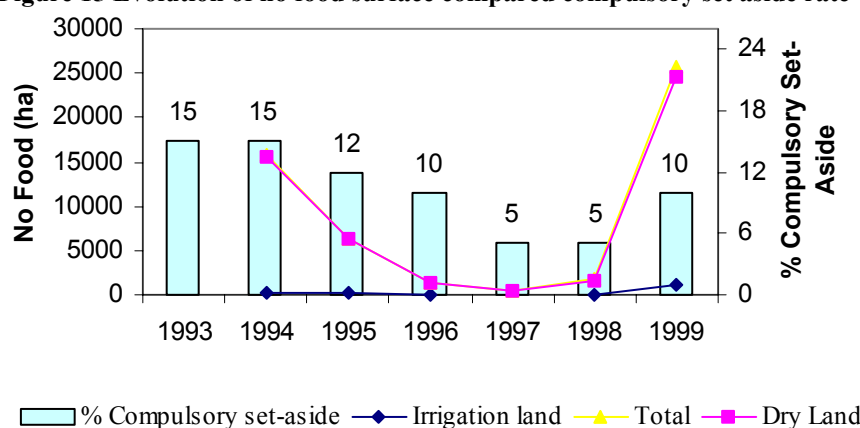
The existing data and the opinion of experts confirm that the production of non-food crops was almost non-existent until the beginning of the set aside policy. Consequently, the **set aside measure was determinant in the non-food crop production.**

Table 11 Percentage of no food production at set aside land. Castilla y León

	1993	1994	1995	1996	1997	1998	1999
Total Set Aside	285095	430503	465079	411142	349123	475901	386017
Total No Food	0	15766	6342	1341	478	1776	25647
%	0,00%	3,66%	1,36%	0,33%	0,14%	0,37%	6,64%

Source: Data taken from MAPA and FEGA

Figure 15 Evolution of no food surface compared compulsory set aside rate



Source: Data taken from MAPA and FEGA

The crop was almost disappeared during the periods 96, 97 y 98. During the last period 25647 has. were sown representing a 6'64 % of the total set aside because cereals came as a result of a ecofuel transformer industry.

Almost all non-food crops are sown in dry land. The reason is that irrigated land surface area of this region is a minority. The irrigated land area belonging to professional scheme and so subject of compulsory set aside represents a 9 % of total COP surface area.

The reasons given by producers for not to perform set aside with non-food crops are the following::

- Not profitable: 43 %
- So many contractual requirements: 33 %
- Others: 30 %

Two of the producers asked have performed set aside with non-food crops. The reason given was profitability.

4 ANSWER TO QUESTIONS 422 TO 434

There is a double criterion to answer these questions.

In the one hand, we used the set of indicators used to answer the previous questions, as well as the conclusions, to establish the practical impact of the implementation of set aside of land on surface areas and productions.

Also, we have made other specific indicators regarding to yields of crops and market conditions. To make this we took a reference period previous to the implementation of the set aside of land.

In the other hand, we have analysed the behaviour of farmers and the opinion of managers and experts was required. This second element has more significance in this second set of questions than in the other, because we have evaluated in a direct way the criteria followed by farmers of this region for the set aside implementation. The surveys to managers and experts were used as a validation element for the surveys to farmers, to use them as generalised of the whole region.

Finally, the analysis of information shown by the answer is summarised in a synthetic answer following every question.

- **Limits**

The sample size for the area where surveys were performed is very small and is not representative enough. Also the farmers can give their opinions with the intention of giving the image of being good producers.

So it is important to compare the outcomes of the analysis with the global image of managers and regional experts.

4.1 Question 4.2.2:

Is the impact of the compulsory set-aside rate and of the payment level on the large producer's income likely to amend their crop choice so as to answer better the requests of the market? This question will be analysed at the level of the selected production regions for the question 411. The consultant will carry out then a synthesis at the Community level of the main conclusions.

- **Synthetic answer**

The set aside rates and its payment had a sensitive impact in the crop rotations in the region, thus 87% of farmers have modified their alternatives.

66% of surveyed farmers answered they have not suffered decrease of incomes. But more than a half of them said that current system damages them. Percentage is bigger in the case of big farmers (59%) than in little ones case (47%). The reason is that in answers there have been considered other factors besides of economic ones, as the fact of dependence feeling created by aids system non existing under the previous system of aids by prices.

The agroenvironmental conditions of Castilla y León limit the options of diversification of crops. The greater part of the modifications resulted from the set aside have meant some substitutions between different COP products.

The adaptations experienced by the alternatives are not due to the lack of productive area as a result of the set aside, but they are directed by the set of CAP effects on the markets.

- **Method**

The evolution of the surfaces of the different crops along the periods 85-92 and 93-99, (see **Erreur ! Source du renvoi introuvable.** and **Erreur ! Source du renvoi introuvable.**), states the global effect of the possible modifications experienced by the individual crop alternatives of producers. These surveys were used to estimate how much these estimations are influenced by the implementation of set aside or other reasons.

The claims of the market are estimated across the evolution of prices for the main COP products along this period. The other elements that influence the determination of crop rotation must be established to differ the effects of set aside of land.

- **Detail of answer**

The average yields of Comunidad autónoma de Castilla y León are 2,3 t./ha. for dry land and 3,6 t./ha. for irrigated land. Given these values, the limit to be considered great producer is 40 ha. of dry land or 25 of irrigated land. Classifying like this, more than the 80% of Castilla y León's COP surface area are a part of big holdings, so we can assume that the behaviour of the variables at regional level is representative of the reality of big farms.

4.1.1.1 Yield of the farms

Among the farmers surveyed, the 28 % affirm having a decrease in their global yields due to CAP, while a 66 % did not have a decrease in their incomes.

The 81 % of the farmers agreed to point that the payments of the set aside meets its task of helping to keep yields, and the 69 % also declared that these aids are directed to provide for the maintenance costs of the set aside holdings, without giving any other complementary tasks.

Most of surveyed farmers (94%) agreed to be conscious of set aside maintenance costs. **The average set aside maintenance cost declared by surveyed producers is 127 €, below the amount of aids to these surface areas, being the average cost by hectare in Castilla y León 135 € in dry land and 211,25 € in irrigation land.** The data obtained show which aids compensate the maintenance costs of set aside holdings, and also give a compensation margin of the loss of income due to non-cultivation of set aside areas. But this margin is very small in case of dry land holdings.

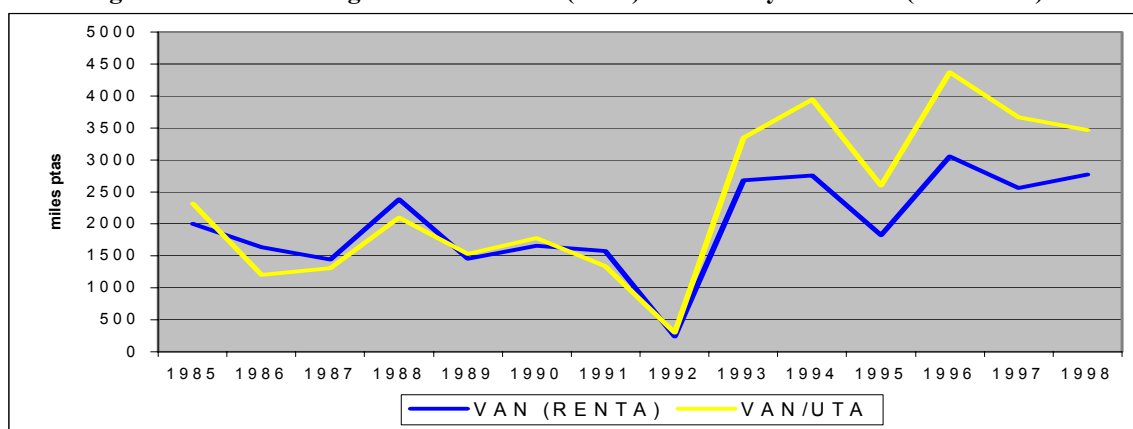
The 34 % of surveyed farmers refer to economical reasons to perform voluntary set aside. On the other hand, only a 6% of the total would like to exceed the maximum set aside limit. We can go as far as to say that set aside is considered a profitable activity in this 6%, and that the remaining 28% are influenced by other economical reasons as well as the income rate produced between set aside and crop. We have to note that a 64% of surveyed farmers do not perform voluntary set aside regularly, because they consider the crop more profitable. All these factors drive us to conclude that the set aside has a negative impact on the yields of crops, due to the fact that the natural trend is to minimise it.

The impact of set aside is more sensitive in the case of big producers, which consider the current system as negative in a 59% of the cases, faced to a 47 % in small producers. These percentages are not agree with the percentage of 28% of surveyed farmers who declare to have decreased their incomes, thus there have been taken into account other factors besides of rents to consider the present system as negative. The following graph shows agrarian income evolution in Castilla y León:

The beginning of CAP and set aside measures suppose an inflexion of Castilla y León agricultural average rent. The decreasing tendency stops and average rent raises as consequence of new measures application.

Rent evolution is tightly related to market conditions. As Figure 2 shows, products prices decrease less than there was thought, because of the low productions in other regions. Thus the first half of the regarded period are years of good profitability for regional COP producers.

Figure 1 Evolution of agricultural income (VAN) and rent by work unit (VAN/UTA)



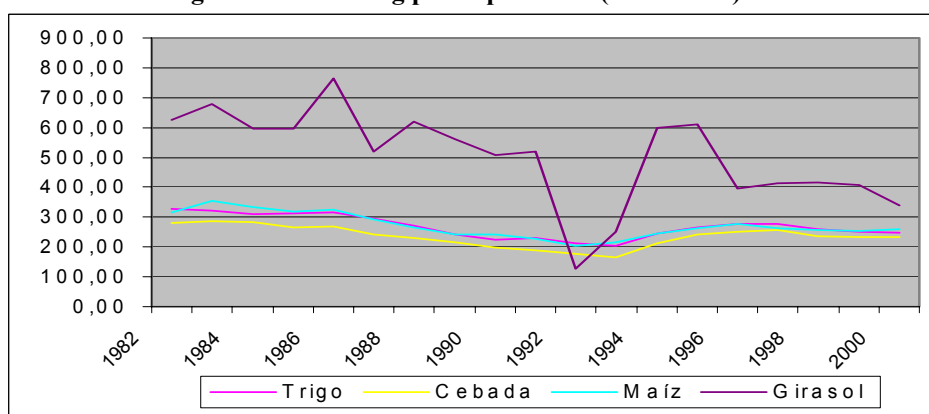
Source: MAPA

When people consider the actual system as unfavourable, they regard other factors different than economic one, thus the percentage of unhappy farmers should be the 28% who declare have suffered a rent decrease. There also influences the dependence feeling created by surface aids, nonexistent in the case of price aids tied to production.

4.1.1.2 Cultivation choices and market claims

The 72% of surveyed farmers agreed that they have performed changes in the crop choices to maintain their yields. As shown in **Erreur ! Source du renvoi introuvable.**, the implementation of set aside causes a decrease of cereals surface area. **Erreur ! Source du renvoi introuvable.** shows that barley is the crop most affected by the set aside, so we can say that the place set aside currently has in the crop rotation is obtained to the detriment of barley cultivated surface area. These modifications are not only due to a reduction of crop surface area derived from the compulsory set aside, but for a search for efficiency of crops to face market claims. These claims are established in Figure 2 as the addition of aids plus market price received by the farmer.

Figure 2 COP selling prices plus aids. (Real terms) €/t.



Source: Data taken from INE.

Market conditions at the period 92-99 are not more favourable than at period 85-92. excluding the case of oil seeds, they keep at the average of previous period.

Market conditions at period 92-99 get better than those at the last years of the previous period, but worse than those at the former years.

A 100% of farmers consider set aside as something essential, but they also consider that as a unavoidable condition to have access to the rest of CAP aids. **Most of producers do not consider as significant the impact of set aside on the yields, but consider the CAP effects globally.**

On the other hand, we can not establish a direct relation between set aside of land and the transformations performed in crop rotations, due to the fact that the agricultural production in Castilla y León is mainly determined by environmental limitations (dry climate and poor land). Also, the set aside did not make significant changes in crops because farmers were performing traditional fallow and they were used to these practices.

4.1.1.3 Relation with surplus productions

Regarding the modifications made in the crop rotations, the majority of them were made in COP crops. As derived from the data of the following table, the 95% of surveyed producers have either increase or reduced the significance of COP crops in their rotations. Also we have noted a net increase of non-COP crops in a 13 %, and of other activities different from agriculture in a 9%.

There is a clear trend of re-balance going through an **enhancement of the significance relations among COP crops**, according to the functions of each one, as well as a slower **diversification trend, through the implementation of new non-COP crops**, and the development of other non-agricultural activities.

Table 1 Percentage of activity variation at surveyed holdings due to set aside

	Variation of activity	Developed activities	Reduced activities
COP crops	95 %	85 %	64 %
Non-COP crops	59 %	37 %	24 %
Other activities	9 %	9 %	0 %

Source: Data taken from surveys to producers.

Regarding the main criteria based on what the rotation of crops is planned (see Table 2), we can note that the main trend is profitability, minimising the risk factor due to this reason. This is why crops under subvention represent the main choice for the production in extensive holdings of Castilla y León, which means a guaranteed minimum yield.

Table 2 Base criteria to manage surveyed holdings

Main criterion	Agronomic	Profitability	Easiness	Environment
	0 %	94 %	3 %	3 %

Source: Data taken from surveys to producers.

Among the diversification options out from the COP, there are beetroot (25% of cases) and lucerne (42%). These crops, being very interesting for producers, have the disadvantage of the unavoidable risk, and in the case of beetroot, of the contract with the industry, so its development is very limited, and its efficacy as an alternative for COP is very rare.

4.2 Question 4.3.1:

Did the existence of a remunerated set-aside encourage good crop rotation and which were the alternative crops in the plots where a set-aside was established?

- Synthetic answer

Voluntary paid set aside has sensitively contributed to favour an adequate rotation of crop, as seen in the 28 % of surveyed holdings, in 63% has had a neutral effect and only in 9% the effect is considered as negative. Set aside has quite enhanced crop rotation, contributing neatly to sep former crop rotation practices.

Non-food cultivation of set aside has very few scope, so the effect of set aside on rotations have not decreased.

The 97% of farmers rotate regularly the whole or a part of their set aside surface. Non-food cultivation of set aside has very few scope (3% of surveyed), so the effect of set aside on rotations have not decreased.

Voluntary paid set aside inserts an element of flexibility and security into the profitability of the holdings of the region, with climatic and soil limitations that will affect the crop rotations.

Set aside of land have become an alternative for the main COP crops, not removing the minority crops, so the relative significance of these in the choices have increased, and hence, of rotation.

Despite the practice of fallow followed a downward trend in the years before 1992, the fallow tradition existing in the area have assured that, from the first year on, there were performed optimum labours in set aside lands.

- **Detail of answer**

The existence of set aside lands, both voluntary and compulsory, and the current laws on the management of them, has increased the performance of some cultural works as well as developing new ones.

The set aside of land have generated in the choice of traditional crops a rebalance between surface and cultural practices.

The payment of set aside has included a new economic factor, lacked from the traditional practice, that influenced the rebalance of the new choices.

As shown in **Erreur ! Source du renvoi introuvable.** the fallow surface in Castilla y León has a continuous downward trend, as well as that because of set aside measures, this decrease is stopped. This points out that the set aside of land have a direct influence on the crop choices, due to the fact that this have modified the prevalent downward trend of cultivation surface areas.

The practice of fallow has had a basic significance on crop rotations before 1992 in the driest areas of Castilla y León, but not in the ones of more profitability (see Annex 3). This is due to the particular soil and weather conditions of Castilla y León (much variation of crop conditions according to the geography).

A 25% of surveyed farmers have performed fallow before the implementation of compulsory set aside, with an average surface of 15,5 ha. equivalent to the 15% of the average COP surface area. Fallow was been generally performed in a rotational way (75% of surveyed farmers), with a trend to concentrate it in the worst lands (13%). We can observe that Tierra de Campos is an area with moderately adequate cultivation conditions for cereal production and COP, fact that justifies the intensification experienced by this production and the reduced practice of fallow within the eighties.

Despite the fallow was not a customary task in many of the holdings taken into account, the fact that the **97% of surveyed farmers had not have problems** at the beginning **with the management of set aside of land**, and that this percentage keeps currently in a 94%, stands out. So we can say that in this region there is a tradition of fallow management, and that this practice have decreased due to technological enhancements.

With the implementation of paid set aside, a **34% of producers asked have always practised voluntary set aside**. Among the reasons given we can highlight that in a 72% this is due to a

precaution measure to guarantee the fulfilment of the subvention standards in force. Moreover, they argued direct economical reasons (25%), or indirect, as for reduction of activity (19%), continuation of the life span of machinery and its better amortisation (13%), or other reasons, as climatological (34%).

The criteria followed for the study of the influence of set aside in crop rotations of surveyed producers are the following:

Table 3 Matrix to analyse the effect of set aside in the rotation system

Type of effect of set aside in the rotation system	Rotation disfavoured by set aside	Neutral effect of set aside on the rotation	Rotation favoured by set aside
Cross-sections of cultivation practices regarding rotation system that allows for a classification (to be validated by interviewer according to the features of the region)	<ul style="list-style-type: none"> • High percentage of fixed set aside • Protrude of a crop from the rotation as a result of set aside • Increase of single crop farming trend • Not sowing of plants that enhance fertility (e.g. Leguminous plants in set aside) 	<ul style="list-style-type: none"> • Continue with the same crops and rotations before and after set aside • Cultivation of set aside lands with the same species but devoted to non-food cultivation 	<ul style="list-style-type: none"> • Mainly rotational set aside • Use of set aside with vegetable cover to enhance fertility • Cultivation of set aside with new species (for production or not)

Source: Self made criteria regarding main regional features

The classification obtained from this analysis matrix reveals an effect of set aside which is mostly non-disfavourable about an adequate rotation:

Table 4 Effect of set aside on crop rotation

Type of effect taken into account	Rotation disfavoured by set aside	Neutral effect of set aside on the rotation	Rotation favoured by set aside
Classification of holdings according prevalent practices	9 %	28 %	63 %

Source: Data taken from surveys to producers.

Most of the surveys performed have shown that set aside did not displace minor crops of the choices, but powered them, having most of areas of more extensive cultivation. **Erreur ! Source du renvoi introuvable.** and **Erreur ! Source du renvoi introuvable.** indicate how set aside surface area is got in detriment to barley, major COP crop. In addition to the increase of set aside, and the agronomic benefits it has for the land and crop, the production of other minor and more demanding COP crops on water conditions and land is increasing, as wheat, and, in a lesser way, protein crops.

As 97 % of farmers practice rotation of all their set aside lands, we can establish the same conclusion.

Table 5 Percentage of set aside rotation at surveyed holdings

Type of set aside rotation	100% of rotational set aside	Mixed system of set aside rotation	100 % fixed set aside
Farms classification according to set aside rotation	79 %	18 %	3 %

Source: Data taken from surveys to producers.

As mentioned in the previous question, the modifications of choices are performed in a 95% of cases in COP crops, but only a 59 % are modified in non-COP crops.

Non-food cultivation of set aside does not promote rotation, because barley is the crop most cultivated, so it tends to single crop farming. But it has a poor scope. Only a 6% of surveyed farmers have practised non-food cultivation of set aside, in a 64% of their set aside surface area.

4.3 Question 4.3.2:

Did the location of the plots set-aside in use encourage better cultivation methods?

- Synthetic answer**

We can not establish a direct relation between the location of set aside plots and the evolution of cultural techniques, but we can affirm that it have contributed to consolidate and recuperate a series of good traditional cultural practices.

Set aside plots are rotated if they do not mean a complication added to cultural labours, in these cases the trend is to remain it fixed.

Fixed set aside is used to optimise the management of holdings performing it in these plots where cultivation is not profitable for the holding.

With the set aside of land fallow is revaluated in crop rotation, as well as the specialisation in the different techniques of management

When favourable conditions, they tend to locate set aside plots in areas less adequate to use by the holding, which have contributed to increase the global efficiency of cultural practices.

- Detail of answer**

The payment of set aside, as well as the compulsory feature of it, have included new judgement elements when deciding the location of set aside plots, that were not significant for the decision of traditional fallow.

In a context of compulsory set aside, the benefits derived from this new situation tend to be maximised instead of minimise the losses caused with respect to the previous period.

Starting from the reality of land, where fallow practice was not very usual before 1992, due to the fact that only a 25% of farmers performed fallow, the locations chosen for set aside plots are the following:

Table 6 Location of set aside lands at surveyed holdings

Option		4.3.1.1.1.1
<i>Rotational set aside</i>	Use of rotational set aside	4.3.1.1.1.2
	Location of set aside along water courses	4.3.1.1.1.3
<i>Fixed or voluntary set aside</i>	Location of set aside in very small plots	4.3.1.1.1.4
	Location of set aside in little rich or non-watered plots	4.3.1.1.1.5

Source: Data taken from surveys to producers.

Absolutely, a 73 % of surface area of the region is rotated regularly. By holdings, a 78% practises only rotational set aside, an 18% performs both rotational set aside and fixed set aside, and a 3% of remaining holdings does not rotate the set aside. Generally, the trend is to use set aside as traditional fallow, to make the best of its agronomic crops for the following crop. This practice is made at the

same time as fixed set aside, so set aside is also used as an optimiser of holdings, taking out from the crops the less efficient surface areas.

The poor scope of this second option (fixed set aside) is due, mainly, to the high homogeneity of the land of Tierra de Campos.

To evaluate the agronomic effect of set aside of land, we have analysed the information taken from the surveys according to the degree of fulfilment of the following criteria:

Table 7 Main criteria to evaluate the agronomic effect of set aside of land

Positive agronomic effects	Negative agronomic effects
- Increase of average yield of holding.	- Abandonment of rich soils.
- Benefits for cultivation of next crop.	- Fragmentation of crop units

Source: Self made criteria regarding main regional features

The classification obtained according to the degree of fulfilment of the criteria reveals a non-negative effect of set aside according to agronomic practices and in a 66% of the cases it is considered as positive:

Table 8 Agronomic effects of set aside on surveyed holdings

Type of effect taken into account	Positive agronomic effect	Neutral agronomic effect	Negative agronomic effect
Classification of holdings according to agronomic effect of set aside	66 %	34 %	0 %

Source: Data taken from surveys to producers.

Also, we consider as positive the effect of rotation of set aside. At Table 5 can be seen that a significant percentage of it is rotated regularly:

There is a double trend: on one side the trend is to maximise the agronomic benefit of rotation of set aside, but on the other, it is used in a fixed way, as to optimise the surface of holdings.

It is noted how set aside is rotated if this does not mean a complication of cultural labours of holding.

To evaluate the economic effect of set aside of land, we have analysed the information taken from the surveys according to the degree of fulfilment of the following criteria:

Table 9 Main criteria to evaluate the economic effect of set aside of land

Positive economic effects	Negative economic effects
- Increase of productiveness of the next crop	- Abandonment of rich agronomic soils.
- Increase of average yield of holding.	- Fragmentation of crop management units.

Source: Self made criteria regarding main regional features

The classification obtained according to the degree of fulfilment of the criteria by surveyed farmers, reveals a not negative effect of set aside according to economic results of holdings.

Table 10 Economic effects of set aside on surveyed holdings

Type of effect taken into account	Positive economic effect	Neutral economic effect	Negative economic effect
Classification of holdings according to economic effect of set aside	34 %	34 %	32 %

Source: Data taken from surveys to producers.

There must be considered as a limit the fact that at selected area, property structure is good and plots have a considerable size and farms are concentrated, being unusual dispersed farms and little plots. There the agronomic use of set aside is favoured by the land concentration, thus rotational set aside use is high. At other areas of region, where property is more divided, fixed set aside is more used, because little, far and hard to reach plots are more usual.

4.4 Question 4.3.3:

Did the existence of the remunerated compulsory set-aside cause production intensification in the other plots?

- **Synthetic answer**

The average yield of cereals significantly increases during the period of implementation of set aside of land.

This increase is mainly due to the technological development and to some favourable climatologic conditions.

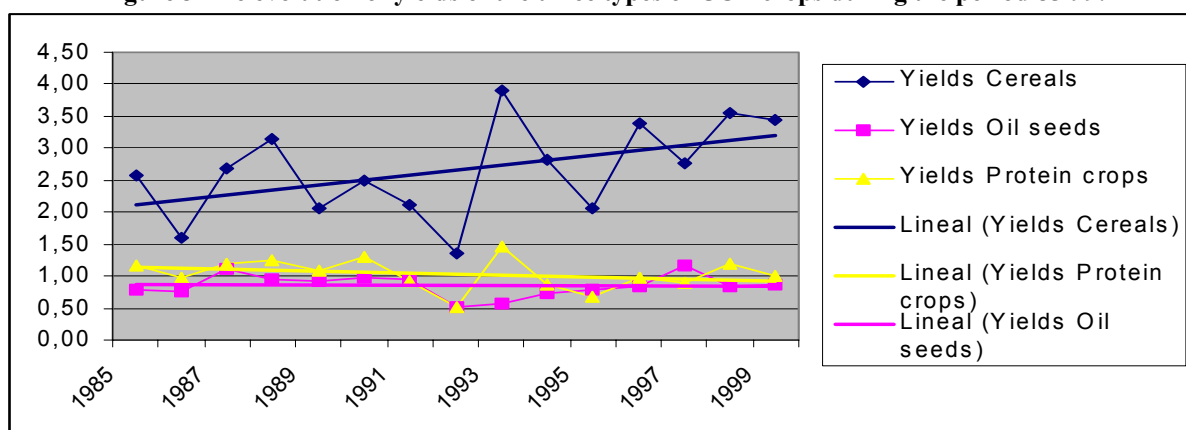
The fact that they have increased over the trend of the last 40 years, indicates that there are other causes influencing it. (seeing the evolution of yields in a 40 years' period, according to the recommendations of the World Meteorological Organisation, the climate effects are corrected).

Set aside of land has a partial influence in the increase of yields due to a double reason: First, the rotation of crops enhances soil fertility and influences an increase of productivity of the plots being under fallow a year before; then, some producers intensify production of cultivation plots when their holdings were decreased.

- **Detail of answer**

The observation of the evolution of average yields make us possible to infer if they vary differently within the period 93-99 than during the period 85-92. The surveys to farmers and managers were used to estimate how this difference is influenced by the set aside of land implementation or other causes.

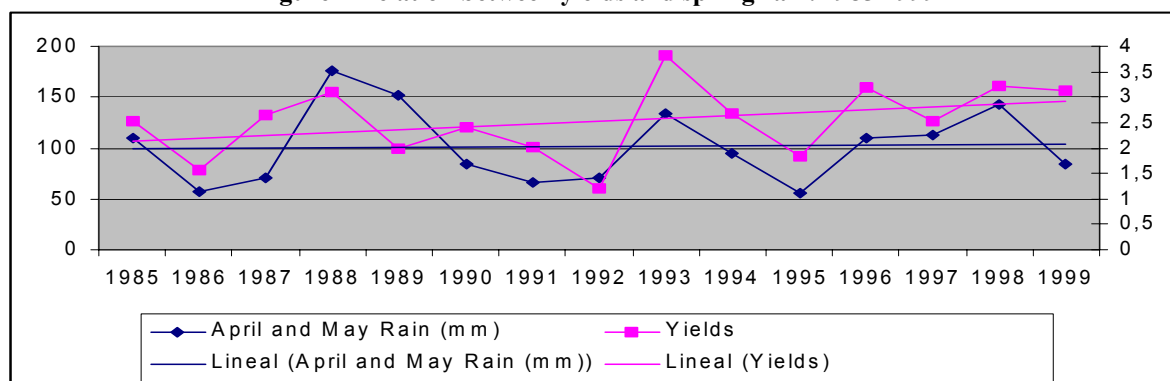
Figure 3 The evolution of yields of the three types of COP crops during the period 85-99.



Source: Data taken from MAPA.

Figure 3 shows that, along the period, the yields of cereals have significantly increased whereas oilseeds and protein seeds have decreased. The opinion of managers is that this increase of yields is due to:

- Higher rainfall during these last years
- Technological development (usage of better seeds and better cultivation techniques)
- Increase of productivity in plots which were under set aside the year before (influence of fallow in land fertility enhancement).

Figure 4 Relation between yields and spring rain. 1985-1999

Fuente: Elaboración propia. Datos MAPA e INE

Climate influences yield, that depend on quantity and quality of rain, temperatures, etc. The main influence of climate is seen crossing spring rain (April and May) with yields, as has been confirmed by agronomical engineers experts at climatology¹. Figure 4. shows a great parallelism between spring rain and yields. Nevertheless it is observed that yields have an increasing trend along the whole period which does not correspond with an equal increase of rain.

Cereals, being the major crop, indicate the global trend of Cop crops. The evolution of yield in winter cereals is compared using a reference period. To analyse if the yields are influenced by reasons different from technological development and climate, the reference period must be long enough to correct climate effects. Table 11 details the optimum period of years that the data series to perform climate studies must have, according to the World Meteorological Organisation. Following the W.M.O. guidelines, and to correct climatic effects affecting the evolution of yield, a reference period of forty years is taken. Within this period happened drought years, and years of much water, due to the fact that climatic incidences are cyclic.

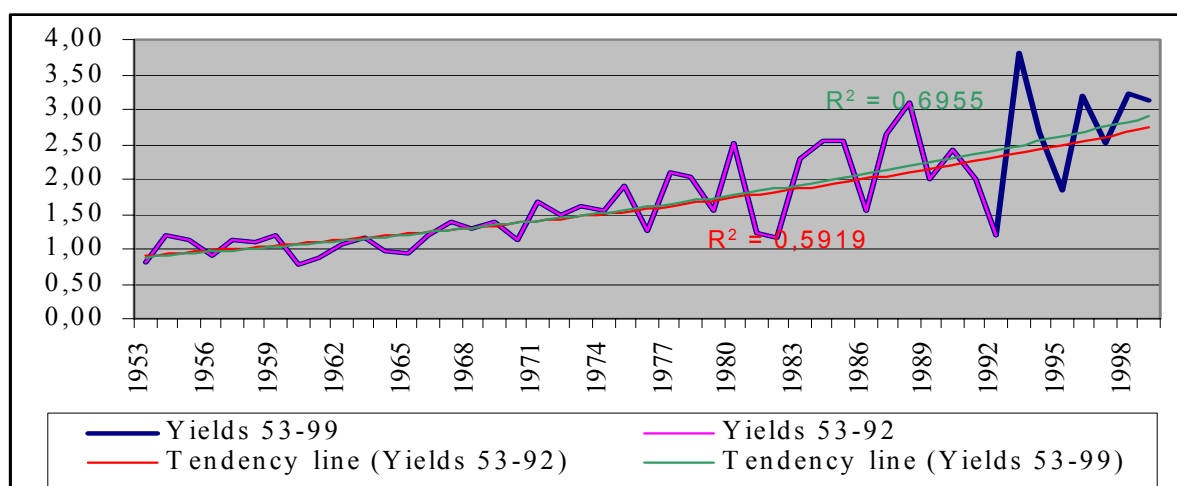
Table 11 Minimum number of survey years to climatological study (O.M.M.)

ELEMENTS	ISLANDS	COASTS	PLAINS	MOUNTAINS
Temperatures	10	15	15	25
Humidity	3	6	5	10
Cloudiness	4	4	8	12
Rainfall	25	30	40	50

Source: Landsberg y Jacobs, 1951

Figure 5 shows the evolution of cereal yields and its trend. Looking at the historical evolution of yields, 40 years series (53-92), extrapolating the trend of this period to the period of implementation of set aside of land (red line) and comparing it with the trend line of the whole period (53-99) (green line), we deduced that the increase of yield is very similar, unless a little bit higher than what expected if the condition of the previous year were maintained.

¹ VID Annexe 4 People met.

Figure 5 Cereal yield evolution.

Source: Data taken from MAPA

Consequently, although technological development is the main reason for the increase of yields, the fact that they have increased over the trend indicates that there were other causes as well.

Surveyed producers show a higher trend to intensify production. A 43 % said that they have tried to increase yields facing a 28 % that affirm that they have decreases production costs.

Therefore, we can conclude that set aside of land is partially responsible for the increase of yields due to a double reason: first, the rotation of crops enhances soil fertility and influences an increase of productivity of the plots being under fallow a year before; second, some producers intensify production of cultivation plots when their holdings were decreased.

4.5 Question 4.3.4:

To what extent has the existence of the compulsory set-aside modified the farm competitiveness by an adaptation of the productive structures? (e.g. farm size, farming prices, land prices, etc.)

- **Synthetic answer**

Set aside and payments joined to surface area have influenced in many ways the competitiveness of cultivation holdings. Among these we may note: Price of leaseholds, size and number of holdings and land price.

The average size of cereal holdings increases in a higher rate of growth during the period 93-99 (2 ha /year), than in the period 87-93 (0'7 ha /year). In 93-99 this increase is due to a recovery of surface area while in the previous period the main reason is a decrease in the number of holdings. We see that, from implementation of direct payments linked to land, the cultivation of last period abandoned lands was again profitable.

A 84 % of surveyed think that as a result of the CAP subvention a market of eligible lands is created, fact that is confirmed with the land prices evolution survey published by MAPA. This survey shows that the price of land that decreases during the previous years is increasing from 1993 being this increase higher in dry lands than in irrigation lands. We can estimate that this increase in the price of land is parallel to an increase of leaseholds price and it is a result of the

compensatory payments policy, and not only of set aside of land policy. So it impedes the competitiveness of medium holdings wanting to enlarge their sizes.

- **Detail of answer**

4.5.1.1 Size of holdings

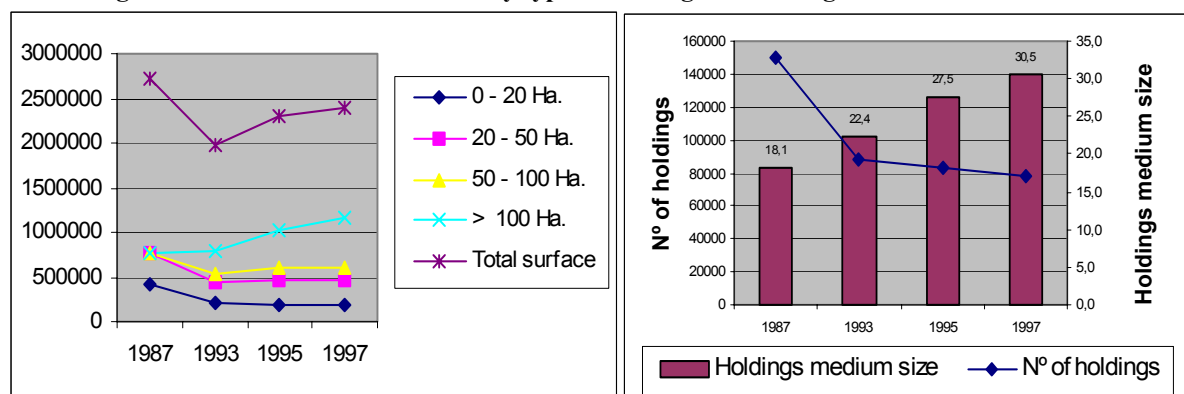
Figure 3 shows that the CAP reform influences the allocation of cereal surface area. During the period 87-93 there is a decrease in cereal surface area in all types of holdings so the total surface area decreases in a 28 %. From 1993 the surface included in holdings with less than 100 ha (that had a decreasing trend in the previous period), is maintained. The lost surface area in small holdings during the period 87-93 is being incorporated from 1993 in holdings bigger than 100 has. Whose area increases up to a 20% in the period 93-99 being this increase significantly important during the first years.

The **average size** of cereal holdings increases in a higher rate of growth during the period 93-99 (2 ha./year), than in the period 87-93 (0'7 ha./year).

- In the period 87-93, despite the reduction in surface, the average size of holdings grew due to a higher reduction in number.
- In the period 93-99, the number of holdings remained stable and the growth in average size is a result of increased surface.

We see that, from implementation of direct payments linked to land, the cultivation of last period abandoned lands was again profitable. The surface area included in very small holdings (less than 20 has.) still decrease. During first years the surface area included in medium size holdings (20 to 100 has.) increases a little and then it maintains.

Figure 6 Cereals surface evolution by type of holding and holding medium size evolution.



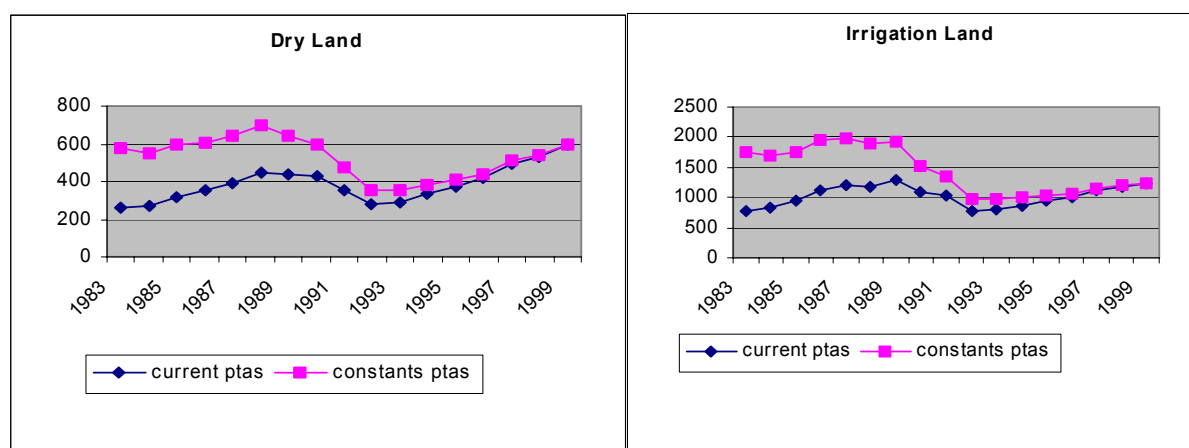
Source: Data taken from INE

4.5.1.2 Eligible lands market

The data from the survey to farmers are the following:

- A 37 % have increased their holding during the period 87-92 , in an average rate of 24'8 has.
- A 41 % have increased their holding during the period 92-99, in an average rate of 30'8 has.
- A 69 % said that they have difficulties when purchasing or renting cultivable land from 1992, and a 45 % think that set aside of land may be one of the reasons.
- A 75 % think that there is a land market susceptible of subvention as a result of CAP reform.

The data from the *survey of land prices of MAPA* (Figure 7) show that the payments policy clearly influences the evolution of **land prices** because from 1993 the downward trend is broken beginning a lineal upward trend in dry lands as in irrigated lands, although in this moment this increase is higher in dry lands.

Figure 7 Labour land prices evolution at Castilla y León.

Source: Data taken from MAPA and INE

Regarding the **leaseholds prices** there are no statistical data. The references we have are that direct payments linked to surface area have created an increase in the rent prices of labour lands, driving up to pay in areas of better yields, the totality of the amount of subvention.²

4.5.1.3 Adaptation to set aside

The data regarding the adaptation to set aside are the following:

- Farmer's purchase or lease to recover the previous surface area: 31 %
- Increase of yield of other lands in the holding: 44 %
- Decrease of inputs and/or cultural labours to decrease expenses: 28 %
- Rebalance or change to other more profitable crops: 63 %

² Information taken from producers

5 ANSWER TO QUESTIONS 441 – 444 REGARDING ENVIRONMENTAL IMPACT

To answer this questions we have used a qualitative focus, due to the fact that environmental impacts are very difficult to quantify without making mistakes or vagueness. So, the behaviour of farmers surveyed is analysed, and the criteria for this analysis are supported by interviews with experts and managers³, as well as in the existing bibliography⁴.

5.1 Question 4.4.1:

Did the adoption of the set-aside have a significant impact on the improvement of the soil management (erosion, fertility, structure, etc)?

- **Synthetic answer**

The implementation of set aside has had a negative effect regarding erosion and a positive effect with respect to fertility and structure of land in a long term.

In the surveyed area, the comparison of both effects take us to consider set aside as mainly neutral in a 81 % of cases and positive in a 6 %.

At regional level, the impact is mainly neutral too, due to the fact that it scarcely produces a change in the management of land with respect to the preceding situation.

The **data of the survey** regarding the type of cover of set aside lands are:

- Bare set aside: 97 %
- Spontaneous vegetation: 12 %.

Regarding the problems for maintenance of set aside plots, only a 6 % declare to have or had problems. E.g.: weed control: 100%; erosion problems 50 %; development of disease 50%; parasites 50%; abandonment aspect 50 %.

The bare set aside influences the erosion, fertility and soil structure. Regarding the **erosion**, the impact is negative because the soil is directly exposed to wind and rain and it favours the loss of superficial layers. Table 12 shows that the percentage of land affected by erosion is very high.

Table 12 Percentage of land affected by erosion according to its degree

	Severe	Moderate	Mild	Inappreciable
Castilla y León	18'7	36'3	14'0	31'0

Source: MOPU, 1989

Instead, from the point of view of **structure**, the maintenance of land with bare set aside is positive and also regarding to the **long-term fertility**. Leaving the soil rest, giving it air, allow it to recharge water, etc, are traditional agricultural practices that, as a whole, are considered as positive to the management of land.

A good labour enhances soil structure and facilitates permeability. Also, adventitious vegetation is a consumer of soil humidity. Keeping the land clean of vegetation means great benefits in this aspect (R. Dihel, J.M. Mateo Box (1989)).

³ VID annexe 4 managers and experts met.

⁴ VID annexe 7 bibliography.

This idea is shared by some of surveyed managers. Even, they pointed to set aside and its positive influence in soil fertility as one of the causes for the increase of yields noticed during the period 93-99⁵.

A bare fallow, well-ploughed and free from vegetation is traditionally understood as a good management of fallow. This practice goes together with the feeling of farmers that associate fields with vegetable residues or spontaneous vegetation with certain idleness and even laziness of the owner of land (Almorox, J.; Diaz Alvarez M.C. (1997).

All these facts said above take us to adapt the criteria of the analysis matrix of the relation of agricultural practices in fallow and in management of land (Table 13) and to consider set aside with bare soil as a correct management of set aside, because it is also a traditional behaviour in soil management in fallow.

A 47 % of surveyed people takes part of the agroenvironmental program of cereal areas whose target is the maintenance and/or reintroduction of agrarian production methods compatible with the maintenance of the fauna, through the suitability of crops and agrarian techniques used. A 14 % of them consider that they are taking part in soil protection with this.

Table 13 Matrix to analyse relation between agricultural practices at fallow lands and soil management

Type of behaviour	Negative changes: behaviour that does not drive to a better management of soil in set aside	Invariable behaviour in the management of land with respect to the preceding situation	Mainly positive change: behaviour that drives to an enhancement in the management of soil in set aside lands
Types of practices linked to soil management that allow for a classification:	<ul style="list-style-type: none"> Bare set aside or with a poor cubierta in areas of erosion risk Usage of weedkiller (non-innocuous) in non-cultivated set aside lands Fixed set aside in areas with erosion risk 	<ul style="list-style-type: none"> Cultivation of set aside land to non-food use Proper management of set aside Fixed set aside in areas without erosion risks 	<ul style="list-style-type: none"> Sowing of plants that will enrich set aside lands Non-usage of pesticides Long duration Plantations (forestation) Farmer takes part in any type of agroenvironmental measure to protect soils
Classification of holding according to prevalent practices.	12 %	81 %	6 %

Source: Self made criteria regarding main regional features

5.2 Question 4.4.2:

Did the adoption of the set-aside of land have a significant impact on the improvement of the water management (pollution, water resources maintenance including ground waters, floods etc)?

• Synthetic answer

The results in the surveyed area indicate that the impact of set aside in the management of water is neutral in a 97% and positive in a 3%.

In the whole region, the impact is neutral as well, because a great part of the set aside surface area (97'5 %) is located in dry land and there are not changes in the management of water with respect to the preceding period.

⁵ See answer to question 433

At national level, the higher consumption of nitrogenous fertilisers might have a negative impact when increasing the nitrogen content in superficial and underground waters. We can not say that this behaviour in the usage of fertilisers is a result of the set aside of land policy

- **Detail of answer**

5.2.1.1 Management of a scarce source

Only a 9 % of COP surface of Castilla y León is irrigation land. This proportion is not maintained in set aside lands due to the fact that only a 2'5 % of set aside lands are located in irrigation land plots. This is because a 15 % of irrigation land surface area is included in holdings belonging to simplified scheme and are not liable to the compulsory set aside and mainly to the possibility of transfer the set aside from irrigation land to dry land. So, the influence of set aside in water management is virtually non-existent. It only minimally influences in water preservation of some aquifer.

No one of surveyed producers irrigates set aside lands, nor is under any agroenvironmental program related to water protection.

The only influence of set aside in water management is in a better proficiency of water in dry lands that allows for the agronomic fallow. Nevertheless we have to consider this impact as neutral because does not mean change in relation to the preceding situation.

Table 14 Matrix to analyse relation between agricultural practices at fallow lands and water use (excluding watererosion considered at soil question)

Type of behaviour	Negative changes: behaviour that does not drive to a better management of water in set aside	Changes: Invariable behaviour in the management of land with respect to the preceding situation	Mainly positive change: behaviour that drives to an enhancement in the management of water in set aside lands
Types of practices linked to water management that allow for a classification (to be validated by the surveyor according to the agricultural characteristics prevalent in the region)	Usage of pesticides or nitrates in non-cultivated set aside lands. Irrigation of set aside land	Cultivation of set aside land for non-food use Proper management of set aside land	Fixed set aside in humid areas along water courses Sowing of plants that will enrich soil in set aside lands Non-irrigation in set aside lands Non-usage of pesticides Farmer takes part in any type of agroenvironmental measure to protect water.
Classification of holding according to prevalent practices (only one category)	0 %	97 %	3 %

Source: Self made criteria regarding main regional features

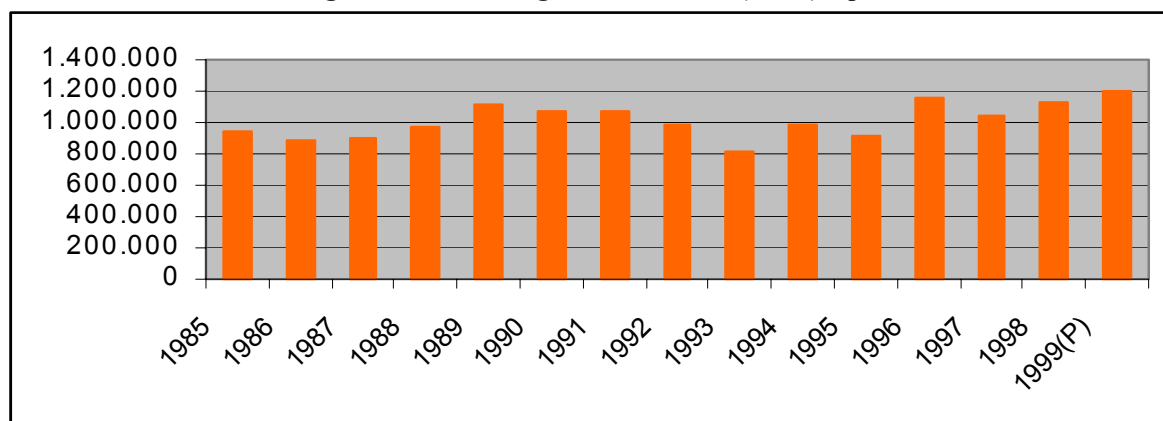
5.2.1.2 Water contamination due to the usage of nitrogenous fertilisers

The main environmental problem generated by the use of fertilisers in agriculture is water contamination by nitrates. Regarding the use of nitrogenous fertilisers there are no data available at regional level. National data show that from 1993 the downward consumption trend is reverted (Figure 8).

Spain does not stand out by an extreme use of chemical fertilisers, according to data of 1988, as shown in the following table.

Table 15 Units of macronutrients used by hectares (FAO , 1988)

	N	P ₂ O ₅	K ₂ O	TOTAL
España	56,2	26,3	16,4	98,9
Europe (mean)	111,7	55,7	59,9	227,3

Figure 8 Use of nitrogenous fertilizers (t of N) Spain

Source INE

With respect to 1988 the consumption at national level have increased, but we can not say that this trend is a result of the implementation of set aside of land policy.

At Castilla y León exist a well agricultural practice code published by Junta de Castilla y León. That code contains a reference to correct practices using nitrogenous fertilizers.

Existing data of nitrogenous fertilizer regional consumption beguine at 1991, non existing former data. The consumption refers to all the crops addition.

5.3 Question 4.4.3:

Did the adoption of the set-aside of land have a significant impact on the improvement of the landscape management ?

Due to the fact that the evaluation of landscape has a subjective object, to estimate the impact of set aside the traditional regional landscape is described and the change produced as a result of the implementation of the set aside of land is observed.

- **Synthetic answer**

Set aside plots does not influence in the landscape. In the cereal producing areas set-aside is incorporated by the color full mosaics with a great chromatic variety, ranges of browns and reds (bare set-aside and fallow) and green (crops) taking part of the traditional landscape.

5.3.1.1 *Traditional landscape*

Castilla y León constitutes a big plain area, located at more than 600 m over the sea level, altered only by the peripheral range. Dry land agricultural areas are characterised by a mixed agrostock usage, extensive generally, based in the cereal cultivation. This type of land prevails in the area of Castilla y León, and it is characterised by a very plain, homogeneous and isomorphic orography. Hot summers and cold winters. There are scarcely any trees. The spontaneous vegetation, in old times richer and larger, has suffered along the centuries a deep degradation. Plain conditions of the land make that we can see a wide surface area of monotonous landscape lands, where the cereal crops are combined with fallow constituting a colourful mosaic with a great chromatic variety. This landscape is reflected in the photography included in the answer of the following question.

5.3.1.2 Influence of set aside in the landscape

Set aside does not influence in the landscape we have described because the set aside surface area represents a small percentage of the total fallow surface area and other non occupied lands. The **survey data** are the following:

- A 97 % declare not having any comments about the abandon situation of the lands.
- A 62 % declare that the maintenance of set aside lands make them be remarked in the landscape.
- A 9 % declare that they concentrate their set aside lands in the same area of their holding to facilitate the management but any one said that there were more holdings that locate the set aside in the same area.
- A 44 % of them declare that they are taking part of an environmental program and a 14 % refer to the preservation of landscape.

The maintenance of set aside of land as ploughed fallow make it be seen from far (to be remarked in landscape) but it is integrated into the alternative of crops and the colour of ploughed land and without vegetable cover presents some ranges of browns and reds that are part of traditional landscape.

The landscape formed by the fallow have been described in literature and poetry: *Cruzan por Tierra de Campos, desde Zamora a Palencia - que llaman Tierra de Campos lo que son campos de tierra-* (Ramón Perez de Ayala)

With these data and according to the criteria set in matrix 5.4 set aside has no influence on the landscape in an 88 % of cases.

Table 16 Matrix to analyse the relationship between agricultural practices for fallow land and their impacts on the landscape⁶

Type of behaviour	Uses of set aside land with a change of practices that have negative impact on landscape	Usage of set aside lands with practices that have not effect on the landscape
Types of practices linked to landscape that allow for a classification (to be validated by the surveyor according to the agricultural characteristics prevalent in the region)	Poor management of set aside High concentration of set aside lands in a single area	Good management of set aside Cultivated set aside
Classification of holding according to prevalent practices (only one category)	12 %	88 %

Source: Self made criteria regarding main regional features

5.4 Question 4.4.4:

Did the adoption of the set-aside have a significant impact on the bio-diversity maintenance?

Considering that the management of species is closely linked with the preservation of their habitat (María Dolores Fernández Guillén; Rob H. G. Jongman (1994)), the influence set aside has on the preservation of biodiversity is estimated as it contributes to the maintenance of habitats.

- **Synthetic answer**

The implementation of set aside does not have a negative impact in the preservation of biodiversity because the set aside plots are taking part of the traditional habitat cereal-fallow.

Otherwise, it contributes to consolidate an extensive productive ecosystem, with a low consumption of fertilisers and agrochemistry, that offers habitat and food to very interesting,

⁶ This matrix examines the impacts of set aside in comparison to the impacts if the land had been cultivated

unique or very rare species in Europe. So, it is a productive agrarian ecosystem that fulfils the multifunctional character promulgated by the European Commission in the reform of Agenda 2000.

*Also, set aside of land complements and reinforces the agroenvironmental program directed to preserve the fauna, specially great bustard (*Otis tarda*) which has in the area of implementation of the program a 22% of the world population. The studies performed show that due to the implementation of this program, the population of this specie has increased*

- **Detail of answer**

Cereal arable crops, with low consumption of fertilisers or agrochemistry, keeping the colourful crop mosaic formed by cereal, leguminous plants, pasture and fallow, offer habitat and food for many interesting, unique or very rare species in Europe. The symbol of these species is great bustard, of which we have here in Spain around 17.000 or 19.000 animals, representing the 80 % of European population and make our country the most important place in the world for this animal. Also here lives the 50 % of world population of little bustard, with 50.000-70.000 individuals, as well as some typical species of pseudo steppe environments, what gives cereal environments a great interest among the European context. (Dolores Manteiga López, Carlos Sunyer Lachiondo 1997)

Great bustard needs big open spaces where fallow, cereal and leguminous plants exist, to find their optimum habitat. The maintenance of these species is linked to traditional cultivation systems. The implementation of set aside encourages arable crops and so co-operates with the preservation of this type of traditional cultivation.

CARLOS SUNYER



Adobe dovecote in cereal plains Zamora (Castilla y León)

5.4.1.1 Environmental programs

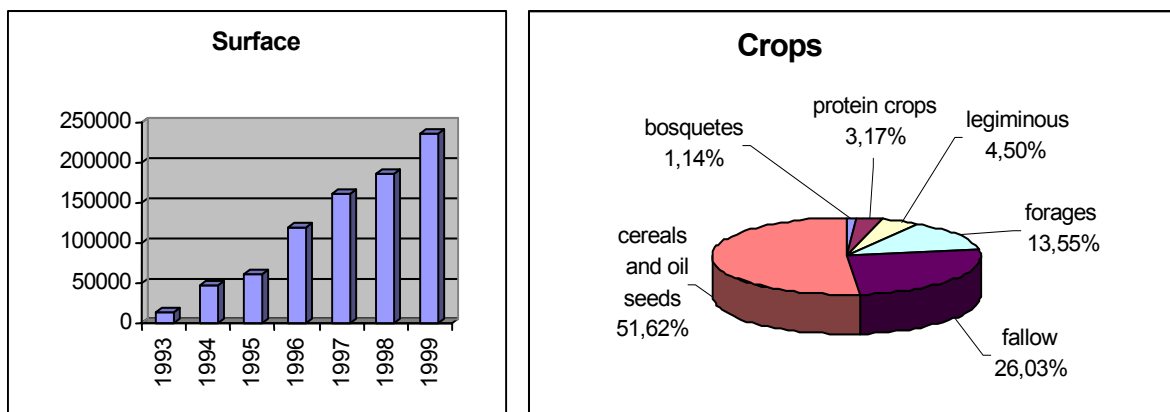
Cereal steppe programs. The main objective of this program is maintenance and/or reintroduction of agrarian production methods compatible with the preservation of the fauna in cereal steppes of Castilla y León (Monsalve, 1993). To do so, it is considered as essential the enhancement of favourable habitat for the biology of species through adaptation of crops and agricultural techniques used.

The reference specie for this area is great bustard (*Otis tarda*) of which remains in the implementation area 7.600 animals, a 45 % of Spanish population and 22 % of world population (Alonso y Alonso 1996).

Farmers under the cereal steppe program can choose between three types of contracts, being number one compatible with CAP and the one which have more farmers ascribed. It obliges to allocate in a 44% of the surface area of the holding fallow + forage crops, a 10% of which must be leguminous plants. It also obliges to perform a series of agricultural labours compatible with environmental preservation. These labours did not mean a great effort for them because they have been performing it traditionally. (Molina Garcia 2000)

Figure 9 shows the evolution of surface area under this cereal steppe program and crop distribution in these areas.

Figure 9 Evolution under the Estepas Cerealistas program and crop distribution at period 99-2000.
Contract nº 1.



Source: Junta de Castilla y León

The **set aside** of land policy is compatible and complementary to the program of **environmental** preservation in cereal steppes.

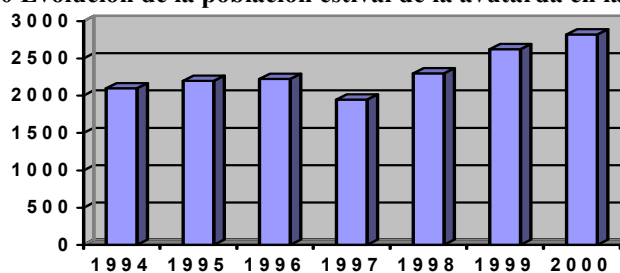
5.4.1.2 Existing studies

A study performed by Juan J. Oñate Rubalcaba and Pablo Alvarez Guillén *regarding the program of cereal steppes in Castilla y León (1997) analyses the conditions that determine the degree of response to the program.* One of the conclusions is that the harvest forecast according to climatology performed at the beginning of season is significant when enrol or not the program. If the harvest is foreseen well, the degree of response decreases and vice versa.

This is closely linked to the set aside of land due to the fact that voluntary set aside increases the years where a bad harvest is forecast. Having more set side surface area, producers are closer to fulfil the surface area distribution requirements required by the contract. We can conclude that set aside of land complements and reinforces the program.

In other study performed by José Ignacio Molina Garcia, the *implementation of the cereal steppes program to the ZEPA "Las lagunas de Villafafila" (Zamora) management* is analysed. This area was declared ZEPA in 1987. It includes 11 villages and presents the world biggest concentration of great bustard (more than the 12% of world population) and the biggest water fauna in Castilla y León. The number of hectares in this program within the 11 villages is for the contract type number 1 (compatible with CAP and with set aside of land) is 10987 ha. As seen in the study the evolution of great bustard in the reserve is as shown in Table 14.

Figure 10 Evolución de la población estival de la avutarda en la Reserva.



Fuente: Junta de Castilla y León



5.4.1.3 Survey data

A 44 % of surveyed is taking part in an agroenvironmental program, of which a 78% is directed to the preservation of biodiversity.

Land cover types are bare set aside: 97 %; indigenous vegetation: 12 % .

Farmers under the biodiversity preservation program are allowed to keep bare fallow under the condition of ploughing after the first February of next year.

To conclude, we can say that set aside of land complements and reinforces the cereal steppe program whose aim is to protect the fauna so it contributes to the preservation of biodiversity.

6 ANSWER TO QUESTIONS 451 AND 452. COMPLEXITY OF REGULATION AND ITS SETTING IN PLACE

To answer these questions we have based in the analysis of implementation guidelines and surveys with managers of national and regional administrations, professional organisations and the surveyed farmers.

6.1 Question 4.5.2:

What effect did numerous regulatory adaptations and the existence of numerous individual cases and did possibilities of transfer have cause on the effectiveness of the set-aside instrument?

- Synthetic answer**

National and Regional guidelines adapt Community guidelines to the regional specifications without causing complications of the previous ones. Consequently we can say that the effect is neutral.

The main claims of farmers regarding administrative problems refer to: complication of administrative procedures (59 %).

The instrument of set aside of land positively influences the efficiency of cereal steppe program directed to environmental protection existing in the region.

- Detail of answer**

We are going to focus in the regional implementation guidelines, due to the fact that the effect of national laws will be dealt in the national report.

6.1.1.1 Dispositions regarding compensatory payments policy and set aside of land

The Consejería de Agricultura y Ganadería publishes for the Comunidad autónoma de Castilla y León in the Boletín oficial de la Comunidad two types of dispositions:

- Orders to control set aside of land crops that are beneficiary of compensatory payments (...) and the use of set aside lands for production of raw material for non-food use.
- Orders to establish minimum fallow surface area that must be observed by producers in Castilla y León that requested payments by surface area

6.1.1.2 Other dispositions

The Consejería de Presidencia y Administración Territorial publishes for the Comunidad autónoma de Castilla y León in the Boletín oficial de la Comunidad

- Order to control subventions to holdings that develop agricultural practices to protect the environment in cereal steppes of Castilla y León.

The farmers under this program can choose between three types of contracts. Contract number 1 is compatible with CAP subventions. The beneficiaries of this contract must meet the following conditions:

- The surface area devoted to pastures (protein seeds, leguminous forest, lucerne, sainfoin or pliofitas) together with the fallow surface area, must reach a minimum of a 44 % of dry land surface area of holding in the program. As an exception for the simplified scheme producers, the

minimum fallow and pasture percentage is lowered to the 34 %. In both cases, pasture must represent at least a 10 %.

The possibility to enlarge the compulsory set aside ratio accepting the voluntary set aside option facilitate the producers the fulfilment of all requirements to take this contract.

So that, set aside positively influences the efficiency of the cereal lands program.

6.1.1.3 Survey data referring regulation effectiveness

Administrative problems lied to set aside practice and control detected at farmers survey are:

- Surface mistakes at forms: 28 %
- Minimal size of plots not reached (surface or wide): 0 %
- Minimal yield of no food set aside not reached or hard to reach: 0 %
- Starting and ending date of set aside period problematic for common labour practices: 0 %
- Set aside rates information arrives too late: 9 %
- Complexity of administrative procedures: 59 %
- Lack of integration of different CAP aids, specially agroenvironmental ones: 50 %
- Aids reception too late: 25 %

A 47 % of surveyed people declare that they know properly environment keeping and preservation regulation at set aside lands, and 32 % declare that they know something. The 92 % of them applies that regulation known by:

- Information added to CAP documents: 32 %
- Information sent by a professional of an organization where he takes part: 92 %
- Information read at press: 28 %
- Information known by an official sent of town council: 4 %
- Information known by other ways: 4 %