
Annexe 7 du rapport d'évaluation

**Evaluation of the Impacts
of the Community Measures
on Land Set Aside**

Case Study Bavaria

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1 Regional Context

1.1 General Information about Bavaria

Bavaria, located in the southern part of Germany, comprises with about 70.500 km² 20 % of the national surface and approx. 15 % of the entire population. As a consequence of the high proportion of rural areas (88%),¹ the population density is below the national average (172 vs. 230 inhabitants/km²). High migration gains result predominantly from quite attractive working and living conditions.

Bavaria is structured into seven administrative districts ("Regierungsbezirke") that comprise 25 larger cities and 71 rural districts.

Table 1: Surface and Population in Bavaria and Germany ²

Indicator		Bavaria		Germany	
		absolute	%	absolute	%
Surface	(1000 km ²)	70.5	20	357	100
Population 1999	(Mio.)	12.2	15	82,2	100
Population density 1999	(Inh./km ²)	172	75	230	100
Increase of population 1992-1998	(1000 Inh.)	490.6	28	1.762.5	100

1.2 Natural Conditions in Bavarian Agricultural Regions

Due to the size of Bavaria, the natural conditions in the sub-areas are rather heterogeneous. To differentiate relatively homogeneous areas, the Land was divided into 12 agricultural regions. The farm interviews were conducted within the regions no. 5,6,9,10 and 11. Basic information concerning the natural conditions of these regions shows table 2:

Table 2: Natural Conditions Within the Agricultural Regions in Bavaria ³

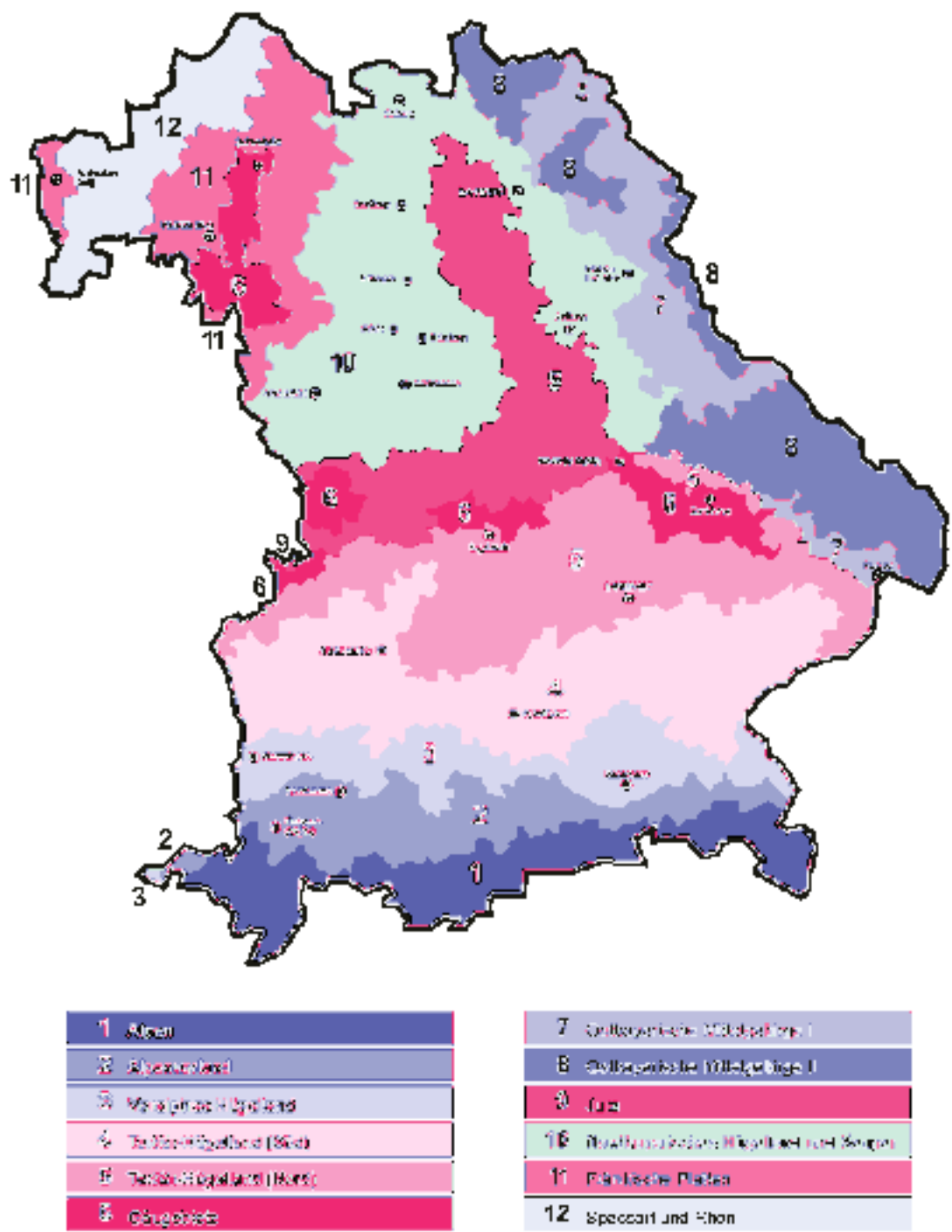
Indicator (average)	Agricultural Regions (Agrargebiete)											
	1	2	3	4	5	6	7	8	9	10	11	12
No. of region	1	2	3	4	5	6	7	8	9	10	11	12
Altitude (m above see)	870	735	580	495	390	385	525	710	480	400	290	385
Rainfall (mm/year)	1895	1270	110	870	760	690	810	970	790	700	690	860
Temperature (°C)	5.5	6.7	7.2	7.3	7.6	7.7	6.5	5.9	7.2	7.6	8.1	7.4
Dryness-Index (1-10)	9.9	9.1	7.8	6.1	4.7	3.6	5.8	7.6	4.7	4.1	2.9	6
Vegetation period (days)	192	197	215	216	217	218	198	191	205	212	226	210

¹ See Bayerische Staatsregierung: Landesentwicklungsprogramm Bayern, München 1994.

² See Statistisches Jahrbuch für die Bundesrepublik Deutschland, different volumes.

³ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht 2000.

Figure 1: Agricultural Regions in Bavaria (Agrargebiete)⁴



⁴ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht 2000.

Bavaria is located in a warm-moderate climatic zone. On account of the differences in altitude, considerable climatic differences exist within the Land. The extremes in temperature reach from averages of 9 to 10 °C in the mild areas of the north-west down to 5 to 6 °C on average in the higher located regions of the south-east. Rainfall increases with altitude and varies from about 600 mm/year in warmer areas up to 1500 mm/year in the Bavarian Forest and over 2.000 mm/year in the Alps.

1.3 Population ⁵

In 1980 Bavaria has had 10.9 mill. inhabitants. Since then, population continually increased up to approx. 12.2 mill. (1999) - mainly because of immigration.

38 % of the total population lives in rural areas.⁶ Here, population density amounts 117 inhabitants/km², with a range from 70 to 135. Due to the sectorial structural change and a regional policy aiming at economic modernization, agriculture did not play an important economic role in any of the rural districts since years.

The populations' age-structure goes basically along with the national average. However, the group of the elderly owns a larger part because of high migration gains.

Share of population by age classes:

- Below 15 years: 16,4 % (Germany: 15.8 %);
- Until 65 years: 67.6% (Germany: 68.3 %);
- Over 65 years: 16.0 % (Germany: 15.9 %).

⁵ See Statistisches Bundesamt: Bevölkerungsstruktur und Wirtschaftskraft der Bundesländer, Ausgabe 2000.

⁶ See Bundesamt für Bauwesen und Raumordnung: Aktuelle Daten zur Entwicklung der Städte, Kreise und Gemeinden, Ausgabe 1998, Bonn; own calculations.

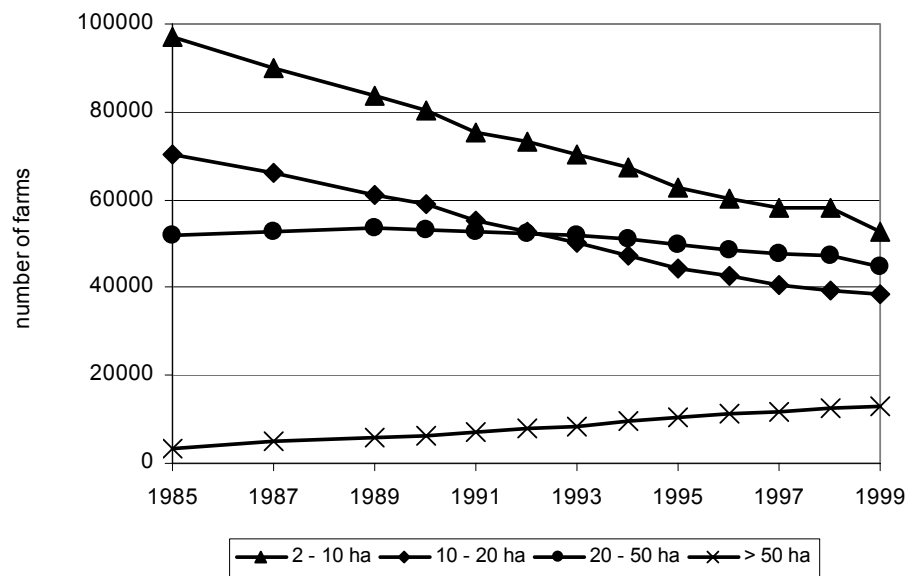
2 Structure and Potential of the Agricultural Sector in Bavaria

2.1 Farm Structure

In 1999 about 154.000 farms with approx. 3.3 mill ha UAA were operated in Bavaria. The total number of farms decreased by 2,9 % per year over the last decade and therewith slower as the national average. Particularly smaller farms with less than 30 ha were affected by this decrease. Only in the size class above 50 ha UAA the number of enterprises was further increasing (cf. figure 2). In total, the average farm size rose during the 1990s from 15.1 ha up to 22.1 ha UAA/farm.

The decrease of the number of farms strongly changed the socio-economic structure of the farming sector. On account of the limited income capacity in agriculture, only 44.2 % (1999) of the farms actually count among full-time farms (c.f. figure 4). In relation the proportion of part-time farming has increased rapidly over the time. Presently, about 56 % of the farms with approx. 30 % of the UAA operate their enterprise beside another main occupation.

Figure 2: Number of Farms by Size Classes in Bavaria 1985 - 1999 ⁷



Shifts between the farm size classes indeed raised the importance of larger farms (over 50 ha); nonetheless, in 1999 only 30 % of the UAA was used by larger enterprises, whereas 68 % of the total UAA was in the hand of 91.2 % of the farms with less than 50 ha UAA (c.f. figure 3).

⁷ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten; Bayerischer Agrarbericht, different volumes; own calculations.

Figure 3: Farms and Utilized Agricultural Area by Size Classes in Bavaria and Germany 1999 ⁷

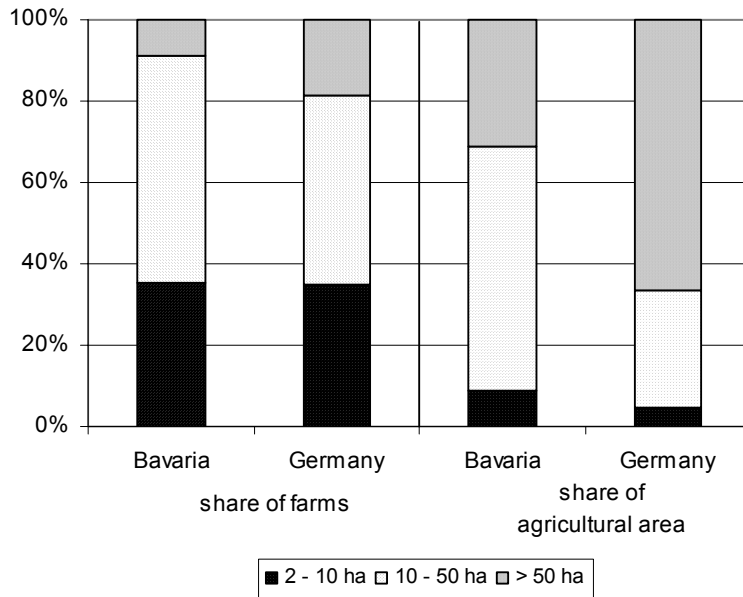
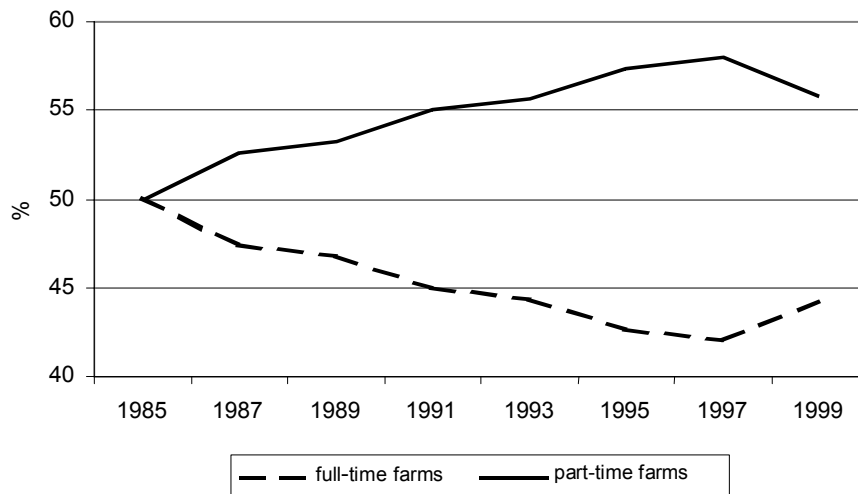


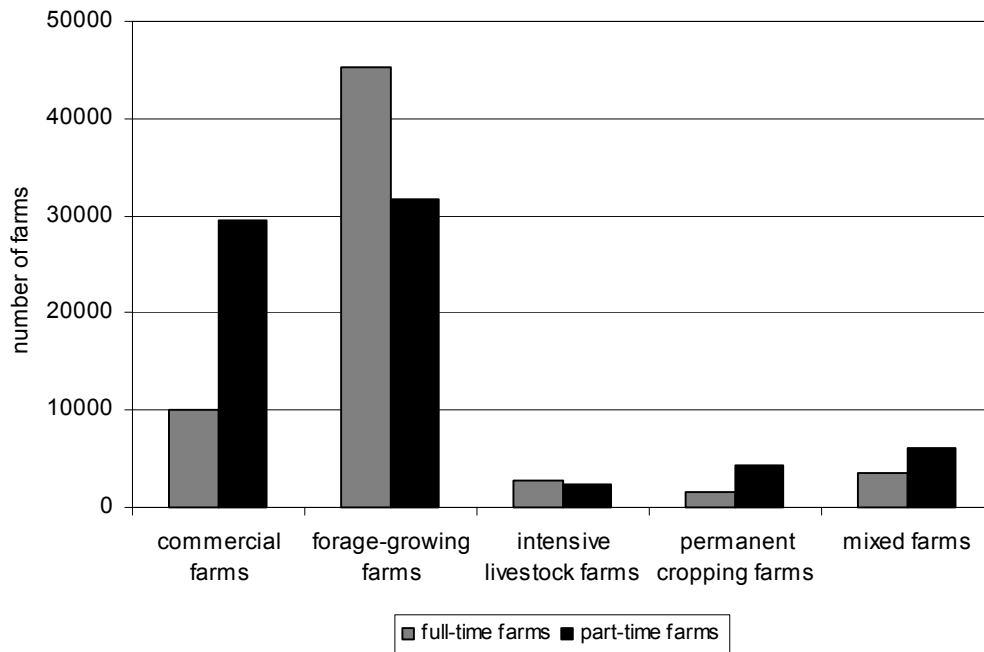
Figure 4: Proportion of Full-Time and Part-Time Farms in Bavaria 1985 – 1999 ⁸



The labour-intensive dairy production with forge growing can mainly be found in full-time farms with higher labour capacity. On the other hand, the labour extensive crop production and stockless farming is particularly present in (smaller) farms with pluriactive operators (cf. figure 5).

⁸ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht, different volumes; own calculations.

Figure 5: Full-Time and Part-Time Farms by Farming Systems 1999 ⁹



2.2 Manpower in Agriculture

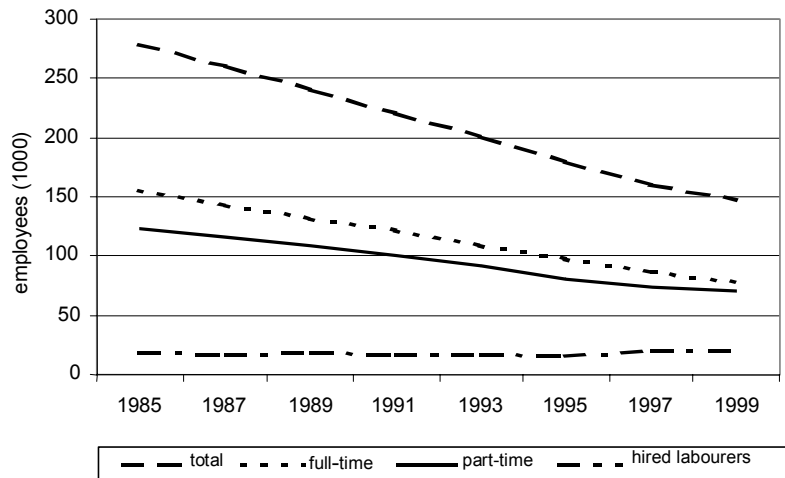
The number of employees in the farming sector decreased over-proportional compared to the number of farms. A decline of 3 % per year occurred due to the following reasons:

- Particularly smaller farms with labour-intensive farming gave up;
- Parts of the agricultural work were transferred to external service providers.

In the year 1999 approx. 426.000 persons were occupied in agriculture. Thereof only 93.400 (22 %) worked full time, 88 % at least had one additional occupation outside of agriculture. Due to the average (small) farm sizes, 84 % of all employees in agriculture were family-labourers.

⁹ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten; Bayerischer Agrarbericht 2000, p. 71; own calculations.

Figure 6: Development of Employees in Agriculture in Bavaria 1985 - 1999¹⁰

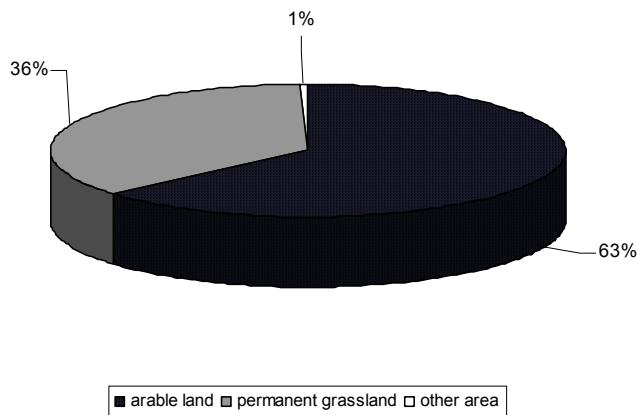


The marginalization of farm employment is on the other side facing a high and constant number of employees in the entire agribusiness sector. On account of the high extent of animal production and agricultural exports, in Bavaria about 12 % of all employees count among the agribusiness.

2.3 Land Utilisation

More than half of the Bavarian surface is utilised agriculturally. Agriculture and forestry together comprise about 85 % of the entire surface. 36 % of the UAA is grassland, another 63 % used as arable land. The amount of non utilized arable areas (fallow land, etc.) comprises 3.9% of the total UAA.

Figure 7: Proportion of Arable Area and Grassland in Bavaria 1999¹¹

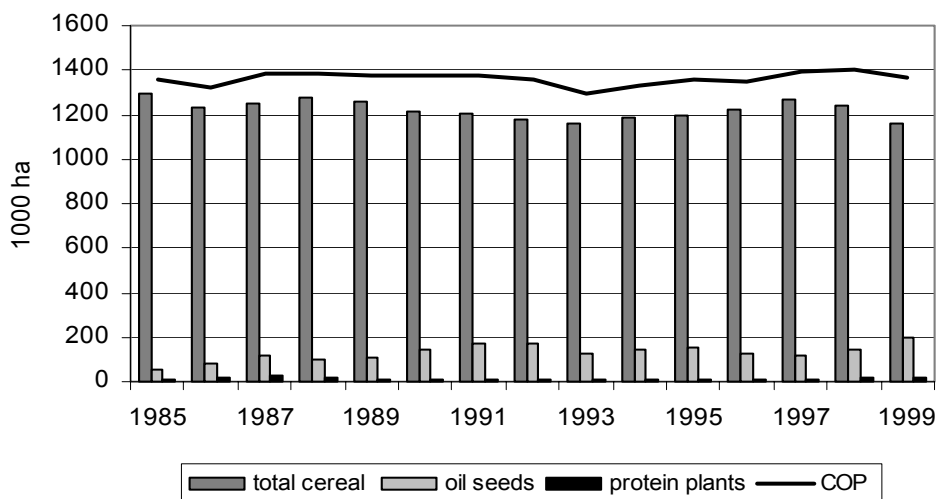


Over the last 15 years, the COP-area comprised about 65 % of the arable area. Thereof about 90% was used for grain cultivation. The cultivation of oilseeds clearly increased since the beginning of the 1990s.

¹⁰ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht 2000, p. 63; own calculations.

¹¹ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht 2000, p. 98; own calculations.

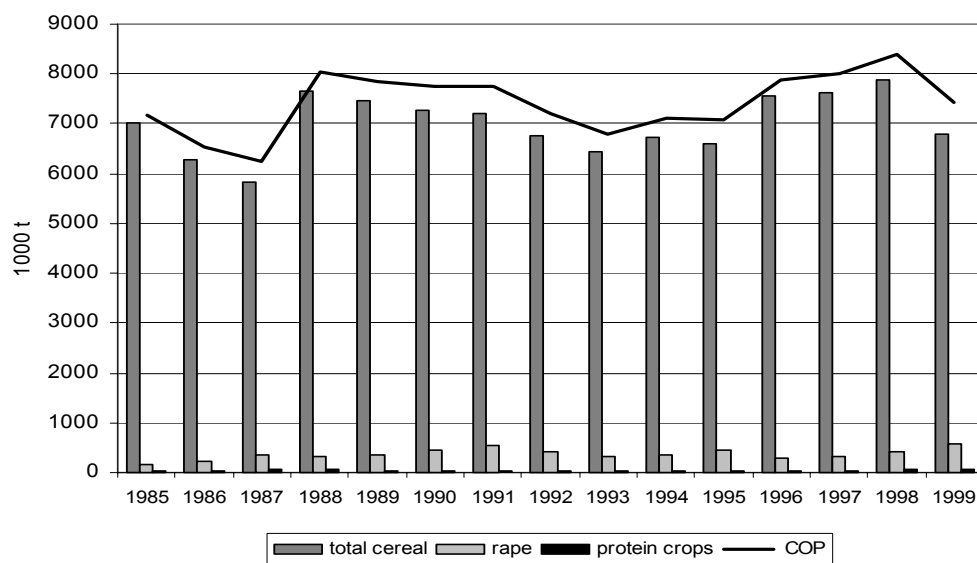
Figure 8: Cultivated Area of Selected Crops in Bavaria 1987 – 1999 ¹²



2.4 Yields and Outputs in Crop Production ¹³

After a decline between 1991 and 1993 – resulting from natural influences and the CAP-reform - the production of COP-crops¹⁴ increased clearly and correspondingly to the development of the cultivated area. The growth of output was furthermore amplified by technical progresses. The decline in 1998/99 was caused by extraordinary natural conditions primarily.

Figure 9: Production of COP-Crops in Bavaria 1985 - 1999¹⁵



¹² See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht, different volumes; own calculations.

¹³ Information concerning the level of yields and outputs also include the production of non-food crops.

¹⁴ COP-Crops: total cereal + oil seeds + protein plants, without silage maize and set aside.

¹⁵ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht, different volumes; own calculations.

3 Realization of Land Set aside in Bavaria

3.1 Guidelines and Regulations

The main regulations of the set aside programme were nation-wide applied homogeneously. On regional level, differences result primarily in the height of the set aside premia. A regionalization of the premia was not applied in Bavaria.

Cultivation period: January 15th to August 31st (all years);
Set aside-rates: At least 5 to 15 % (EU-regulation); maximum 33 % of COP area;
Minimum size of plots: 0.3 ha; with Ø 20 meters (all years).

The regulation for land planting, inter-cultivation and the possibilities of its economic utilization was formulated in Germany homogeneously (see national report).

Table 3: Realization of the Land Set aside Programme in Bavaria ¹⁶

		1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Set aside rate (obligatory)	%	15%	15%	12%	10%	5%	5%	10%
Real set aside area in total	ha	113612	153009	157480	140762	100857	101625	153671
Number of applications for premia (COP)	No	25926	31570	35791	38778	41239	43304	45600
Premium-carrying COP-area in total	ha	1733033	1753133	1756875	1774015	1757194	1751813	1751421
- thereof premium-carrying COP-area – professional scheme	ha	807757	944173	1029011	1087684	1167306	1209497	1250916
- thereof Premium-carrying COP-area – simplified scheme	ha	925276	808960	727864	656331	589888	542316	500515
Set aside rate (real) (set aside/ total COP-area)	%	6.5%	8.7%	9.0%	7.9%	5.7%	5.8%	8.8%
Set aside rate (professional scheme) (set aside/ profess. Scheme COP-area)	%	14.1%	16.2%	15.3%	12.9%	8.6%	8.4%	12.3%
Set aside land in total	ha	113612	153009	157480				
- thereof rotational set aside area	ha	113612	99860	73862				
Set aside area in total (other than extraordinary)	ha	113612	153009	157480	140762	5.61	100857	5.61
- thereof obligatory set aside area	ha	113612	153009	157480	102811	5.61	54715	5.61
- thereof voluntary set aside area	ha				37951	5.61	46142	5.61
-- thereof set aside area without premia	ha				23	5.61	31	5.61
- thereof non-food production	ha	13600	29836	47443	27325	5.61	10824	5.61
Five-year set aside area (R.2328/91)	ha	36385	22525	14857				
Extraordinary set aside	ha							

¹⁶ See Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft: Tabelle der statistischen Angaben, different volumes (not published); own calculations. See EU DG Agriculture and Agreste/ONIC/ONIOL (information given by Oréade-Brèche).

3.2 Compensatory Payments in Bavaria

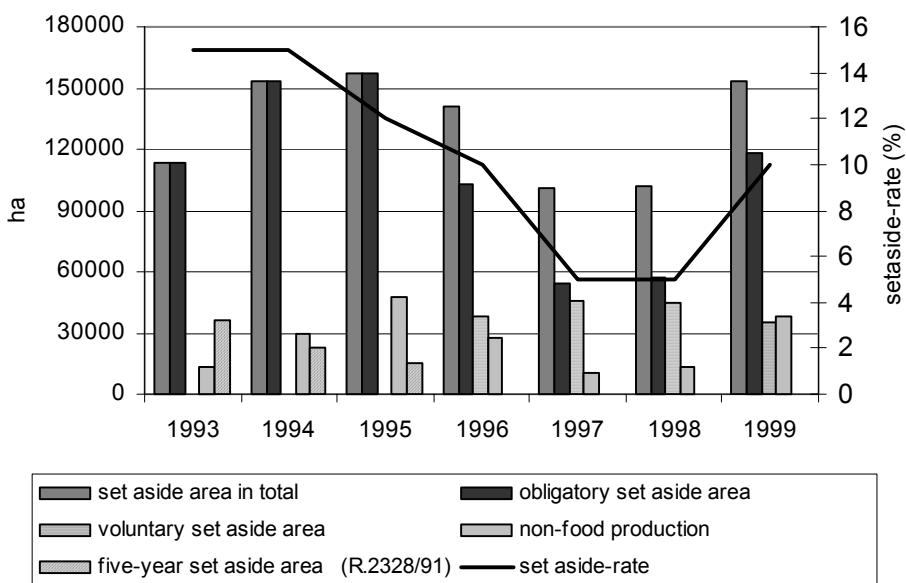
Table 4: Compensatory Payments for COP-Crops ¹⁷

Year	Cereals				Set aside	Protein plants	Oilseeds	
	Average yield (dt/ha)		Compensation premia (€/ha)		Compensation Premia	Compensation premia	Average yield	Compensation premia
	Maize	Other grain	Maize	Other Grain	(€/ha)	(€/ha)	(dt/ha)	(€/ha)
	(in total 56,1)							
1993	72.8	51.4	166	227	286	433	31.8	582
1994	72.8	51.4	233	317	385	433	31.8	582
1995	72.8	51.4	407	300	385	433	31.8	582
1996	72.8	51.4	407	300	385	433	31.8	582
1997	72.8	51.4	407	300	385	433	31.8	582
1998	72.8	51.4	407	300	385	433	31.8	582
1999	72.8	51.4	407	300	385	433	31.8	582

3.3 Type and Amount of Land Set aside in Bavaria

In Bavaria the rotational and the fixed set aside were applied simultaneously. A voluntary set aside only played a role since 1996/97. In 1999, 8.8 % of the total COP-area was set aside in Bavaria. The (larger) farms with compulsory set aside took 12.3 % of their COP-area out of production (cf. table 3).

Figure 10: Development of Set Aside Areas in Bavaria since 1993 (cf. table 3)



¹⁷ See Bundesministerium für Ernährung, Landwirtschaft und Forsten: Die europäische Agrarreform -Pflanzlicher Bereich- Flankierende Maßnahmen; different volumes; own calculations.

4 Central Questions of the Evaluation

Elements of Answers for Question 411 to 413

Questions concerning Effectiveness

Q. 4.1.1: Did compulsory and voluntary set aside contribute significantly to the arable crop supply control? What was their contribution to the reduction of cereal surpluses?

Synthetic Answer:

Between 1992 and 1999 about 7.5 % of the COP-area were set aside annually on average. That corresponded with approx. 131.600 ha arable area. Thereof 35 % were set aside voluntarily.

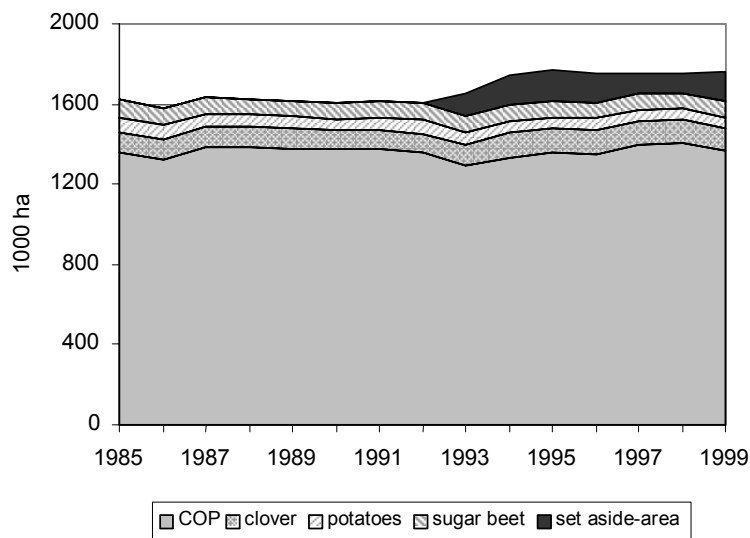
During the period of the programme the total grain production remained rather constant. The effects of the reduction of cultivated area through land set aside and the temporary decrease of COP-area could be compensated by increasing yields. Therefore the extent of production which declined after 1991 clearly, touched its previous amount again since 1996. The production structure was changed slightly in favour of grain maize, rape and protein crops.

Due to the set aside programme an increase of the annual grain output at about 332.000 t/year could be prevented. The compulsory set aside contributed to this not produced grain amount approx. 5 %.

Details of the Answer:

As figure 11 shows, the area cultivated with COP-crops stayed rather constant after a short decrease during the introduction period of the set aside measure:

Figure 11: Utilization of Agricultural Area in Bavaria 1985 to 1999¹⁸



¹⁸ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht, different volumes; own calculations.

However, the extent of cultivation (cf. table 5) as well as the output of the single cereals (cf. table 6) changed clearly:

- the production of wheat and rye decreased by 13 % and 11 % respectively,
- the production of oat as an extensive crop even sank by 24 % (profitability reasons),
- on the other hand, the production of grain maize increased by almost 50 % (feeding) and the production of barley remained rather constant.

Table 5: Changes in the Cultivation of Selected Crops in Bavaria, 1985-1999¹⁹

	Changes 1985-1992			Changes 1992-1999		
	Total		% per year	Total		% per year
	In 1.000 ha	%		In 1.000 ha	%	
Wheat	-10	-2	0	-64	-13	-2
Rye	-10	-17	-2	-6	-12	-2
Winter barley	-15	-5	-1	15	6	1
Spring barley	-51	-20	-3	-23	-11	-2
Oat	-41	-32	-5	-28	-31	-4
Grain maize	26	59	8	25	36	5
Grain total	-113	-9	-1	-23	-2	0
Potatoes	-12	-15	-2	-14	-20	-3
Sugar-beets	-3	-4	-1	-3	-4	-1
Rape	96	168	24	24	16	2
Leguminosae	-1	-16	-2	17	1057	173
COP area in total	-18	-1	0	12	1	0

Table 6: Changes in Production of Selected Crops in Bavaria from 1985-1992

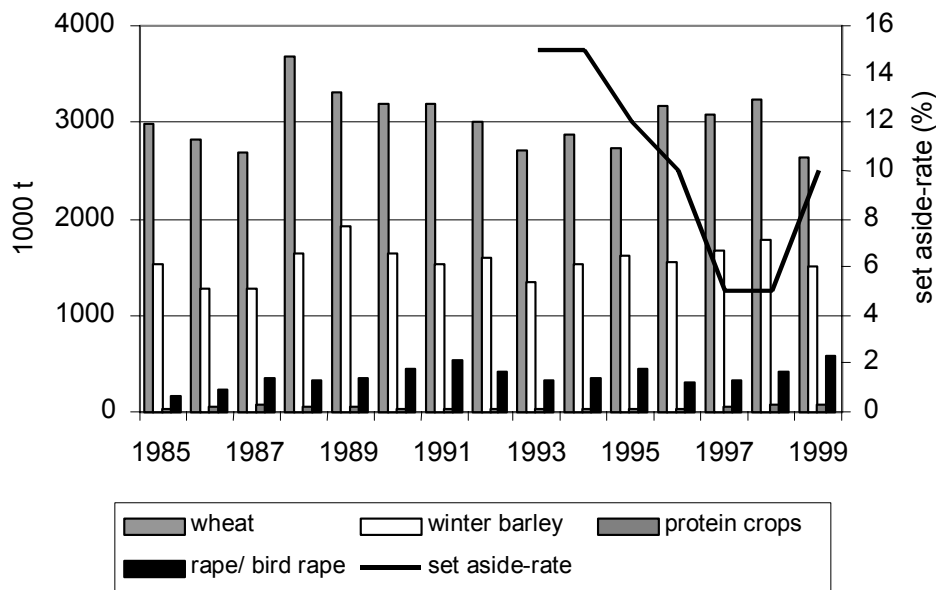
	Changes 1985-1992			Changes 1992-1999		
	Total		% per year	Total		% per year
	1.000 t	%		1.000 t	%	
Wheat	31	1	0	-381	-13	-2
Rye	-5	-2	0	-29	-11	-2
Winter barley	77	5	1	-85	-5	-1
Spring barley	-278	-25	-4	-31	-4	-1
Oat	-266	-42	-6	-88	-24	-3
Grain maize	253	85	12	272	49	7
Grain total	-241	-3	0	32	0	0
Potatoes	-353	-13	-2	-564	-24	-3
Sugar-beets	-29	-1	0	95	2	0
Total Rape	249	149	21	171	41	6
Leguminosae	-3	-15	-2	41	236	34
COP production	5	0	0	244	3	0

The strongest increases in output achieved rape (+ 41 %) and leguminous crops (+ 236 %). In total, crops which do not count among the "grande cultures" have won a little in importance.

¹⁹ See Bayrischer Agrarbericht, different volumes; own calculations.

In Bavaria, the grain production declined less than the cultivated area since 1992. As a result of technical progresses, the total output of grain production remained constant during the set aside period (cf. table 6). In the contrary to other German Laenders, no further increase in grain production occurred.

Figure 12: Production of Selected Crops in Bavaria 1985 – 1999 ²⁰



Due to the extense cultivation of rape for non-food purposes it can be assumed that without the obligation for land set aside grain production would have been even higher. For the estimation of the output development the following facts were taken into account:²¹

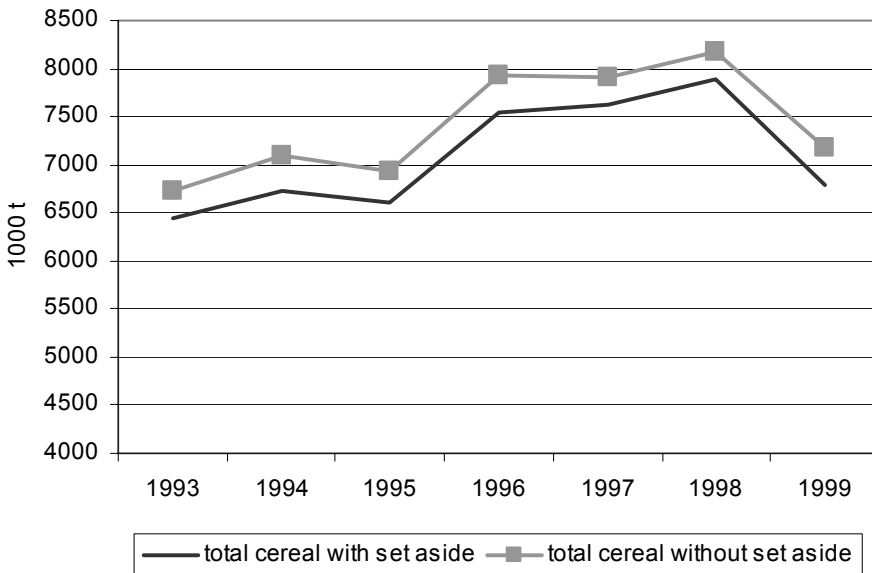
- On appraisal of the farmers and representatives of the agricultural administration, predominantly smaller and marginal areas were set aside; assumption:
 - grain yields of 70 % of the regional average yield on compulsory set aside areas (1996-99);
 - grain yields of 60 % of the regional average yield on voluntary set aside areas (1996-99);
- Because of crop rotation restrictions (high share of grain already) a further extension of grain is limited to 75 % of the total arable area.
- In case of absence of the set aside measure 50 % of the non-food area would be cultivated with grain maximally.

With these assumptions the grain output which was not produced because of land set aside, can be estimated at approx. 332.000 t/year (5 % of total average grain production); the extent of the prevented output varies between 277.000 t (4 %, 1997) and about 382.000 t (6 %, 1999).

²⁰ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht, different volumes; own calculations.

²¹ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten, personal information (Dept. B), June 2001.

Figure 13: Development Trend of Grain Production with and without Land Set aside ²¹



The Bavarian Ministry for Agriculture estimated the market effects of set aside as rather little. The fact that the total production did not increase was interpreted less as an result of the set aside policy than as an outcome of the CAP-price reform and the influences of region-wide offered extensification programmes. In several years also unfavourable natural conditions (e.g. 1999) prevented higher outputs. The decline in grain quality at the beginning of the set aside Programme was significant. It was obviously caused by the extensification of cultivation.

The most important commerce and marketing company for agricultural products in Bavaria (BayWa AG) also mentioned the quality decline in grain and rape at the beginning of the programme as a larger problem than the reduction of quantities sold. Due to the fact that less fertile areas have been set aside predominantly, a reduction in the amount of sold agricultural inputs was hardly noticed throughout Bavaria. Significant changes in turnover occurred on a regional level only.

Q. 4.1.2: In what proportion did the remuneration of voluntary set aside strengthen the effectiveness of the set aside instrument? Estimate the share of the voluntary set aside areas which would have remained uncultivated in the event of absence of the measure.

Synthetic Answer:

In Bavaria about one third of the entire set aside area was taken out of production voluntarily. This effected a reduction of grain output at about 101.000 t tons annually. The farmers did not clearly differentiate between compulsory and voluntary set aside, although preferably less productive plots were set aside on a voluntary base.

The highest real set aside-rate was achieved in part-time farms. They therewith aimed at the simplification of farm management. The set aside scheme allowed them an extensive cultivation combined with financial support. A voluntary set aside was mainly chosen for non favoured areas. Since those areas produced low profits per ha, a marginally higher profitability on farm level could be achieved through set aside.

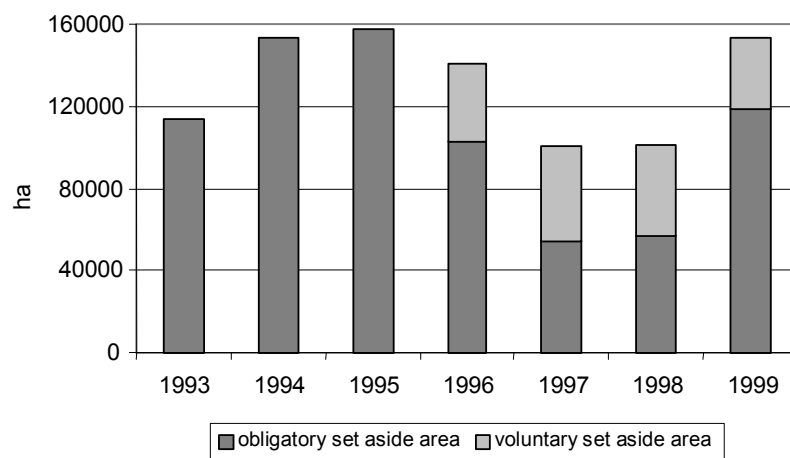
At the appraisal of the interviewed farmers, areas would have been set aside without premia only sporadically. Obviously the operators calculated relatively precise the specific costs and benefits of set aside against a further cultivation.

Details of the Answer:

Between 1996 and 1999 about 40.000 ha were set aside voluntary in Bavaria annually. This corresponds to 35% of the total set aside area (variation between 23 % with a set aside-rate of 10 % and 46 % with a set aside-rate of 5 %). The potential output of those areas amounts to approx. 145.000 t grain/year, which was not produced on account of voluntary set aside. At the answers of the interviewed farmers, this effect was achieved only by premia.

Out of the 30 interviewed farmers, 17 (57 %) took more than 10.5 % of their COP-area out of production (1999). In case of 83 % the set aside area was larger than the required minimum, mostly due of economic and agronomical reasons. Nevertheless, from 61 % of the interviewed farmers this was also explained as a precaution in order to avoid sanctions. In this context it might furthermore be interesting that at least two farmers showed considerable deviations between the data in the cadastral register and the measurement via GPS.

Figure 14: Development of Set Aside Areas in Bavaria 1993 - 1999²²



The extent of voluntary set aside was different:

- Up to 12 %: 8 farms took a slightly larger area than requested (up to 2 % more) out of production. This group consists exclusively of full-time farmers. They refused on a higher extent of land set aside for economic reasons.
- Up to 14 %: Further 6 farms took up to 4 % of the COP-area voluntarily out of utilization; the income of these households was predominantly earned outside of agriculture (part-time farms).
- More than 19 %: 3 farms set at least 9 % of the COP-area aside voluntarily; they were also managed on a part-time basis. The set aside was part of a strategy for simplification of farm organisation.

²² See Bundesministerium für Ernährung, Landwirtschaft und Forsten: Die europäische Agrarreform – Pflanzlicher Bereich - Flankierende Maßnahmen; different volumes.

The voluntary set aside was primarily found in commercial farms (67 %) as well as on less productive sites (small plots, low yields, etc.).

4 out of the 30 farmers (13 %) would generally set aside more than one third of their COP-area if that would be allowed. Those were part-time farmers, which in 1999 excluded between 13 and 20 % of their COP-area out of production. A higher set aside-rate would for two of these operators offer the possibility to refuse on marginal areas. In this case one of the two farmers would cultivate a larger amount of non-food products, the other one would set aside unproductive areas and therefore rent in areas with a higher fertility. On forage growing farms the set aside measure was mostly criticised because of the loss of feed basis.

Q. 4.1.3: To what extent has the set aside instrument determined the non-food production trend?

Synthetic Answer:

In Bavaria, approx. 18.5 % of the entire set aside area were cultivated with non-food crops on average. Within non-food production only rape plays a role in non-food cultivation (95 %). The importance of non-food production went parallel to the set aside-rate. 1999 approximately 28 % of all farms cultivated non-food products in Bavaria, within the surveyed group this proportion was 43 %.

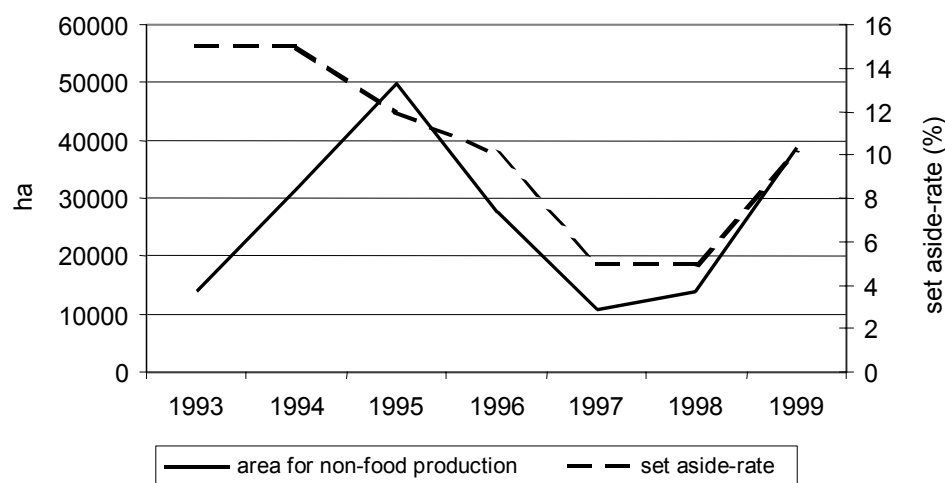
Interviewed farmers who decided against the cultivation of non-food crops predominantly justified this with economic reasons. With an improvement of the previous price situation a further increase of rape production was amplified.

Details of the Answer:

In 1999 about 38.000 ha were cultivated with non-food products for technical use. During the 90s the cultivated area as well as the production corresponded strongly to the price level of rape and the set aside-rate. On average 18.5 % of the entire set aside area was used for non-food production annually.

Among the non-food crops, rape for oil production took with about 95 % a prevailing role. With the implementation of set aside, rape was increasingly integrated into crop rotation and won in importance. The cultivation of rape passed parallel to the set aside-rate since the years 1995/96. Due to the risen price for non-food rape and rather fair climatic conditions, the cultivated area was significantly enlarged over the last years (see figure 15). The improved price situation related strongly to the growing sales potentials for biodiesel which stimulated the expansion of processing facilities.

Figure 15: Non-food Production Area and Set aside-Rate in Bavaria 1993 - 1999²³



Since the set aside scheme was introduced in Bavaria, production of non-food rape increased continuously. The highest output was found in the years of 1995 and 1999. Between 1998 and 1999 the area for rape cultivation has doubled. 28 % of the farms that participated in the set aside measure produced non-food crops on their set aside land in 1999.

Table 7: Land Set aside and Cultivation of Non-food Crops on Set aside Areas in Brandenburg 1993 – 1999²⁴

Year	Set aside-rate	Set aside	Non-food crops	
	%	ha	ha	%
1993	15	113612	13600	12.0
1994	15	153009	29836	19.5
1995	12	157480	47443	30.1
1996	10	140762	27325	19.4
1997	5	100857	10824	10.7
1998	5	101625	13472	13.2
1999	10	153671	38106	24.8

13 (43 %) out of the 30 interviewed farms cultivated non-food crops, on average on 1.8 ha (35 % of their total set aside area). Exclusively rape was cultivated for oil extraction. 10 out of the 13 farmers (77 %) mentioned that rape cultivation shows positive effects on crop rotation. In addition, weed infestation could be controlled easier by non-food cultivation.

17 farms (57 %) decided against rape cultivation, thereof 9 on account of its lower profitability, another 5 farms due to the numerous cultivation and processing restrictions on set aside land. Furthermore, the higher labour intensity (compared to set aside without cultivation) was an argument.

Between 1992 and 1999, 43 % of the interviewed farm managers retained their arguments for or against the cultivation of non-food; 37 % changed their opinion, 20 % did not quote any opinion. The majority of the opinion changes (total 6) happened in favour of non-food cultivation. The following reasons were mentioned: improved harvesting systems (2), the possibility of biogas production (2), increased profitability (2).

²³ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht, different volumes; own calculations.

²⁴ Information: Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft, different volumes.

The arguments against rape cultivation were: too low profitability, former problems with contracts, weather and pests, missing sales (bankruptcy of the oil mill).

According to statements of the National Ministry for Agriculture, the non-food production on set aside areas generally offered the opportunity to integrate typical "niche crops" into crop rotation again, which has not been subject to EU-market organisations and did not have any market protection (e.g. medicinal plants, flax).

Elements of Answer to Question 422 to 444

Questions concerning Efficiency

Q. 4.2.2: **Is the impact of compulsory set aside-rate and the payment level on the large producers' income likely to amend their crop choice so as to answer better the requests of the market?**

Synthetic Answer:

Since 1992, the development of farm incomes was determined less by land set aside measure than by the general development of farm prices, costs and public subsidies. Irrespective the statements of the operators of larger farms that farm income has dropped, a clear increase could be noticed on regional level.

The land set aside together with CAP-price reform initiated various adaptations of production structure and farm organization. All in all, the grain and COP-production were expanded and crop ratios were more strongly oriented on the most productive crops as well as on current price trends. In this respect the production of oil seeds became an important element within crop rotation.

To stabilize the income of the farming households some farmers established/expanded activities outside COP-production. Beside the extension of animal production on- and off-farm diversification won in importance, too. This also caused modifications in crop ratios as far as the extent of animal production was concerned.

Details of the Answer:

Actually, in Bavaria only the number of farms with about 50 ha UAA and more is growing. For this reason farms from 50 ha onwards were interpreted as "larger farms". In Bavaria 13.026 farms counted to this size class (8.7 %). Out of the 30 interviewed farms 17 (57 %) belonged to that group.

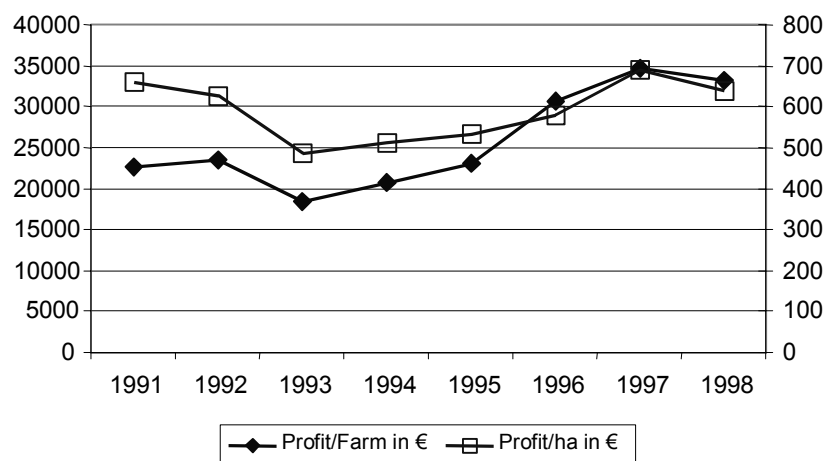
13 among the 17 operators with larger farms (78 %) reported about dropped farm incomes since 1992, primarily because of changed price relations.²⁵ However, the income effect of set aside was estimated as low in general.

According to the results of the Bavarian farm account statistics, the profit of the full-time farms decreased only between 1992 and 1993 (cf. figure 16), because of the CAP-reform, the introduction of land set aside and partially unfavourable natural conditions, too. Since 1993 the profits per farm raised more or less continuously. It can be assumed that the set aside regulation did not influence that development considerably, since animal production exceeds the importance of crop production by far in Bavaria. The negative income trend since 1997 has to be explained with dropped farm prices in pig production mainly (which is often linked

²⁵ The 17 farmers with larger farms supposed that compensation premia had been granted for the following reasons: Sharing the costs for the cultivation of set aside areas (57 %), maintenance of farm income (35 %), facilitation of CAP-policy (23 %), maintenance of the landscape (23 %), reduction of surpluses (6 %).

with grain production). On the other hand, the production of oilseeds and protein plants developed favourably because of raised premia. All in all, the entire public subsidies (including premia) contributed approx. 83 % to the profit of the commercial farms (1999).

Figure 16: Development of Farm Profit (full-time-commercial farms) in Bavaria 1991 - 1998²⁶



Since 1992, 13 larger farms (72 %) changed their production structure and farm organisation. Among these

- 7 farmers (47 %) expanded grain cultivation,
- 7 farmers (47 %) extended their cropping of non-food products,
- further 10 farmers (33 %) enlarged their farm activities outside COP-production (potatoes, vegetables, animal production, on-farm diversification).²⁷

But no farmer reduced the grain cultivated area (cf. table 8).

For the expansion of grain (particularly wheat) and rape production the following main arguments were stated:

- Rise of farm prices (rape), improved profitability: Different trends of demand for single COP-corps resulted in a varying development of single farm prices on which the farmers reacted;
- Increased demand for feedstuff: The expansion of livestock production in some subregions increased especially the demand for maize, wheat and protein plants.

Table 8: Development of Grain Cultivation Area in the Larger Farms in Bavaria

	Reduction of grain cultivation area	No significant change of grain cultivation area	Expansion of grain cultivation area
Share of larger Farms (Total: 17 Farms)	0 %	59 %	41 %

Due to the above mentioned modifications in the extent and structure of production, half of the interviewed farmers expanded their COP-area and/or intensified their activities outside COP-production simultaneously (cf. table 9).

²⁶ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Buchführungsergebnisse, different volumes.

²⁷ Activities outside COP-production: Cultivation of other than COP-crops (3 farms), expansion of livestock (3), enlarged engagement in the local machinery syndicat (2), establishment of direct marketing of farm produce (1), off-farm investments (1).

Table 9: Development of COP-Production in the Larger Farms in Bavaria (multiple responses possible)

	Expansion of COP-production	No significant change of COP-production	Expanded activities outside COP-production
Share of larger Farms (Total: 17 Farms)	53 %	41 %	59 %

56 % of the larger farms observed prescribed quality criteria, primarily with wheat and root crops. In Bavaria, the crop production with a designation of origin only played a small role (only brewing barley and seed production). Improvement of product quality was less a result of set aside but of technical and organizational progresses and changed market conditions (consumer requests). A significant trend to improve the quality of COP-products could not be recognized in the interviewed farms.

Since 1992 more than half of the larger farms changed their crop rotation. The selection of crop rotation was carried out according to the following criteria:

- agronomical/production related aspects (1st place),
- economic efficiency and farm organization (2nd aspect).

Ecological aspects played no significant role in this context.

Questions concerning Agronomical Practices

Q. 4.3.1: Did the existence of a remunerated set aside encourage good crop rotation and which were the alternative crops in the plots set aside?

Synthetic Answer:

The set aside measure influenced crop rotation neutral in 60% of the interviewed farms, resulting from rather little modifications in crop rotation. In about a third of the farms positive effects could be noticed since the cultivation of rape and soil improving plants on set aside areas was expanded. Generally the high share of rotational set aside (80% of farms) favoured a good crop rotation.

Details of Answer:

80 % of the interviewed farms applied a rotational set aside (63 % exclusively, 17 % a combined system). Therefore the vast majority of set aside areas were integrated into crop rotations.

57 % of the 30 farmers modified their crop rotation with the beginning of land set aside. On this occasion, above all rape was newly taken into rotation or its cultivation was extended (76 %). On the other side, less productive crops (e.g. oat, rye, spring barley) were reduced. These modifications aimed at the improvement of profitability in the first place, at the statements of the farmers.

45 % of the farms quoted an expansion in grain cultivation. All in all, the grain area developed in reverse proportional to the set aside-rate:

- In case of high set aside rates, the cultivation of wheat, barley and rye decreased;
- Simultaneously the cultivation of rape and leguminous fruits increased.

A quarter of the interviewed farms cultivated their set aside areas completely with non-food crops. Another 50 % sowed specific seed mixtures for soil improvement or for ecological reasons (e.g. clover, phacelia). The share of root-crops in crop rotation tendentially decreased.

At the estimation of the interviewers, the effects of land set aside on crop rotation were neutral to positive:

- In 60% neutral, because crop rotation was modified only little or crops with similar crop rotation effects were substituted;
- In 37 % positive through the increased cultivation of rape and other of soil improving plants (cf. table 10).

In only one farm a degradation could be noticed, because a part-time farmer reduced cropping to the production of grain maize only.

Table 10: Modifications in Crop Rotations (estimated by the interviewers)

	Degradation of crop rotation	Neutral effects on crop rotation	Improvement of crop rotation
Share of farms (total: 30 farms)	3 %	60 %	37 %

Q. 4.3.2: Did the location of the plots set aside encourage better cultivation methods?

Synthetic Answer:

At the appraisal of the interviewers, 67 % of the interviewed farmers received economic advantages on account of land set aside. Those benefits resulted from the set aside of less productive and/or distant plots and the positive effects of soil improving plants on the following crops. From an agronomical point of view, the majority of the farms was affected neutrally, (57%), because most farmers integrated their set aside area within crop rotation and modified their cultivation only little.

All in all, the improvement of cultivation methods was facilitated in about half of the farms. Both, the rotational and the fixed set aside of land, provided advantages. Particularly the opportunity to exclude problematic areas from production for longer term encouraged the optimization of cultivation methods.

Details of the Answer:

At the appraisal of the interviewers, the effects of set aside on the economic balance of the 30 farms were estimated predominantly positive, on the agronomic balance in 57 % of the sample neutral (cf. table 11). These balances were mainly influenced by the selection of plots for set aside. The agronomical advantages resulted predominantly from the exclusion of less productive and/or distant plots from production; on the contrary, the disadvantages came up from the exclusion of rather fertile plots from production.

Since a rotational set aside scheme was applied on about 73 % of the set aside area, those areas could remain in use and/or the soil quality could be increased through set aside.

Table 11: Effects of Set aside on the Economic and Agronomical Balance of the Interviewed Farms (estimated by the interviewers)

Farms (in total: 30)	Disadvantage	Neutral	Advantage
Economic balance	20 %	13.3 %	66.7 %
Agronomical balance	10 %	56.7 %	33.3 %

With the introduction of the set aside programme in Bavaria, the farmers took predominantly less productive areas (33 % of farmers), very small plots (27 %), and distant or isolated farmland (17 %) out of production (cf. table 12). Preferably less productive areas have been set aside for a longer term.

Table 12: Selection of Areas for Set aside in Bavaria (30 farmers interviewed, multiple responses)

	Rota- tional set aside	Fixed set aside								
		Along water courses	On small plots with cultivation handicaps	On pe- ripheral or isolated areas	On less productive and mar- ginal areas	On slopes	On exten- sively cultivated fields or margins	Acquisi- tion of plots to be set aside	Transfer set aside obligation to another farm	Another reason (edge of the forest)
Answers (%)	70 %	6.7 %	26.7 %	16.7 %	33.3 %	6.7 %	3.3 %	0 %	0 %	0 %

Answers related to the entire period of the set aside programme (1992-99);

Q. 4.3.3: Did the existence of the remunerated compulsory set aside cause production intensification in the other plots?

Synthetic Answer:

An intensification of cultivation on the areas not set aside could not be verified. The little growth of yields per ha resulted primarily from improved farm management, modified crop rations and technical progresses.

An increase in the application of fertilizers was not at least prevented by the broad acceptance of agro-environmental programmes aiming at a limitation of fertilizing and plant protection and the reduction of output. The broad support of integrated plant production techniques by the agricultural administration also led to a reduction of yield increasing means, since the farmers could calculate their fertilizer and plant protection expenses more strongly on requirements.

Details of the Answer:

The production of cereals has increased slightly and comprised about 7 to 7.5 million tons in the last years. The production of oilseeds and protein plants also showed a positive trend (cf. Q. 4.1.3 and figure 9).

The comparably little raise of grain output (see figure 8) was caused by

- growing yields due to technical progresses in the first place (see figure 17),
- corrected cultivation methods, including the positive effects of rape and other non-food crops within crop rotation.

Among the 30 interviewed farms 27 % raised their yields on the areas not set aside. Another 27 % changed their crop ratio in favour of more productive crops (wheat, triticale, rape, maize grain). The yields per ha increased not at least due to the fact that particularly marginal areas were chosen for set aside.

Figure 17: Yields of Selected Crops in Bavaria (dt/ha)²⁸

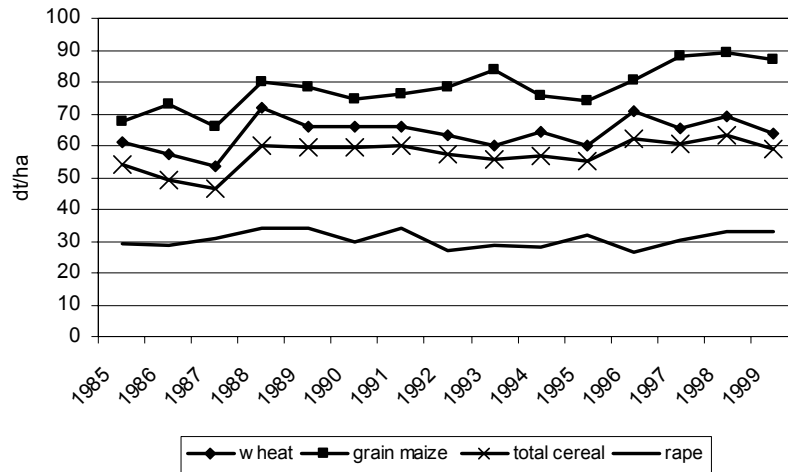
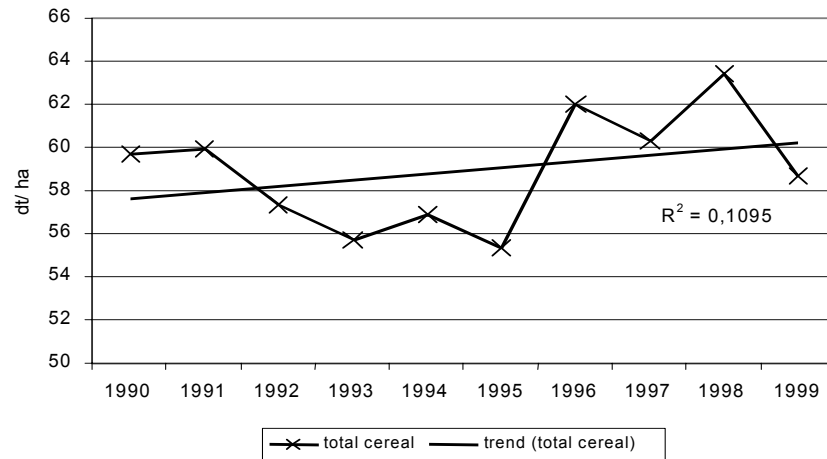


Figure 18: Development of Total Cereal Yield in Bavaria 1990-1999²⁹



On the Bavarian average, an intensification of cultivation through raised application rates of yield increasing means could not be recognized. Figure 19 demonstrates a clear decrease of mineral fertilizers per ha UAA within the entire Bavarian agriculture. Although the fertilizers were disposed on a reduced area (without set aside area not under non-food production), no intensification trend could be identified.²⁹ This development was significantly influenced by agro-environmental programmes such as the “Aid scheme for the upkeep of land” or the “Field margin programme”, which were broadly applied in Bavaria.

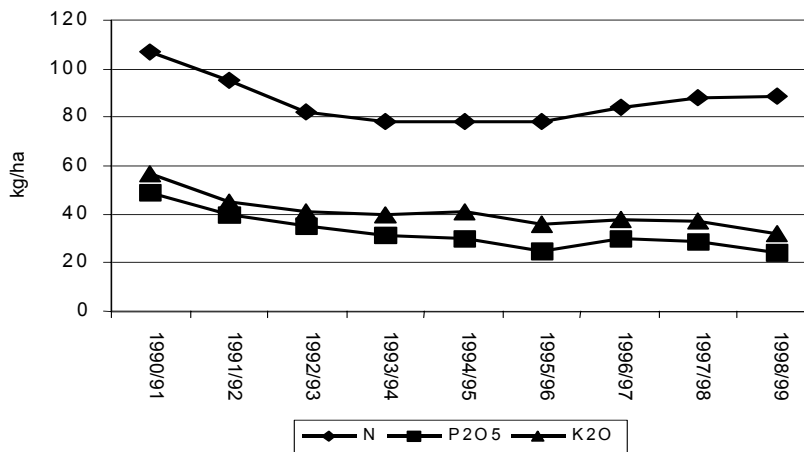
Similar effects on the degree of intensity of cultivation showed the “Integrated plant production” technique. It provides the opportunity to calculate the real inputs of fertilizers as well as the amount and timing of plant protection measures more strongly at the requirements of the crops. With the support of the agricultural administration this technique found also broad acceptance.³⁰

²⁸ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht, different volumes, own calculations.

²⁹ Since the total livestock was reduced a little since 1992, no increase of organic fertilizers occurred.

³⁰ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht 2000, p. 99.

Figure 19: Development of Fertilizer Input per ha in Bavaria ³¹



Q. 4.3.4: To what extent did the existence of the compulsory set aside modify the farm competitiveness by an adaptation of the productive structures?

Synthetic Answer:

The obligatory set aside scheme had no decisive effect on farm expansion. The farm development mainly aimed at the general improvement of farm and household income.

The larger farms showed a faster growth than the smaller ones, although half of this group was faced by problems of renting in additional land, at their own appraisal. The establishment of a specific market for "premium-areas" hindered the economic development and competitiveness of several (full-time) farms. However, an influence of farm expansion on the level of rents could not be noticed on average.

To improve the competitiveness of their farms, half of the farmers expanded the most productive crops (grain and rape) and/or reduced variable inputs, e.g. through the participation in agro-environmental programmes or in integrated plant production. The opportunity to take less productive plots out of production for a longer term also corrected the economic balance. In less than a third of the interviewed farms the remaining areas have been cultivated more intensively.

For the improvement of income situation a considerable number of farm established new entrepreneurial activities. In Bavaria, income combination (pluriactivity) has developed to be the prevailing strategy of farming households to maintain farming simultaneously with the stabilization of household incomes.

Details of the Answer:

Development of farm sizes and farm organization:

Between 1985 and 1992, 40 % of the 30 interviewed farms enlarged their farm land; the growth was about 14 ha per farm. Out of the 17 larger enterprises (> 50 ha UAA) 47 % increased their size by around 19 ha.

This trend continued between 1992 and 1999: On average 60 % of the interviewed farms expanded by about 15 ha per farm. Among the larger farms even 72 % expanded with an average of around 21 ha.³²

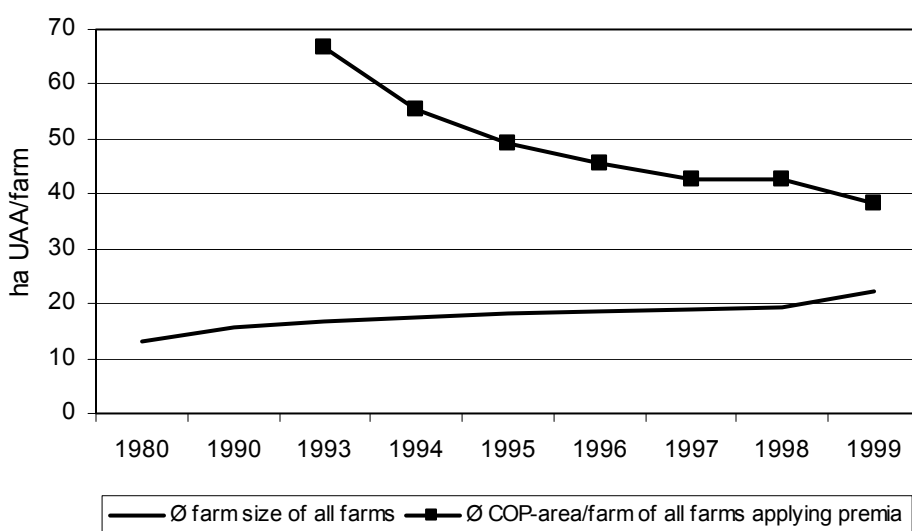
³¹ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht, different volumes, own calculations.

³² Without the extraordinary growth of one single farm, which expanded by 270 ha.

These figures illustrate a slightly faster growth of the larger farms. Obviously an even faster expansion was hindered through the limited offer of land, which to some extent can be explained with the impacts of area based premia. In this context 23 % of the farmers mentioned a direct influence between set aside and farm extension. However, not even one farmer stated that the set aside measure would have been the main reason for farm development. The general aim to stabilize farm incomes through growth of size and production was obviously prevailing.

Figure 20 shows the average expansion of all Bavarian farms since 1980. The fact that the average COP-area of the (larger) enterprises under the obligatory scheme decreased after 1992 associates with the increasing number of smaller farms, which during the programme period became also obliged to set land aside due to their size growth.

Figure 20: Average Farm Size of all Farms & COP-Area of all Farms applying Compensation Premia in Bavaria³³



Irrespective from the enlargement of farm size, 10 farmers developed other gainful activities to make better use of farm resources:

- 2 farmers established direct marketing of farm produce as a supplementary enterprise;
- 4 farmers expanded their (already existing) engagement in the local machinery syndicate;
- 1 farmer started with an additional occupation outside agriculture (after reducing farm size);
- 2 farmers extended animal production;
- 1 farmer started an off-farm commercial enterprise.

In the course of these adaptations, the share of part-time farms grew.

These adaptations underline a general trend which can be observed in Bavaria and other (comparable) European regions since longer time:

- The expansion of farm size and farm production particularly in larger (full-time) farms – often accompanied by an intensification of cultivation and aiming at a high productivity of resources in farming;
- The diversification of farm activities by shifting farm resources partly to non-agricultural activities; this can be found mainly in smaller farms or in sites with less favourable natural conditions. The di-

³³ See Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten: Bayerischer Agrarbericht, different volumes; own calculations.

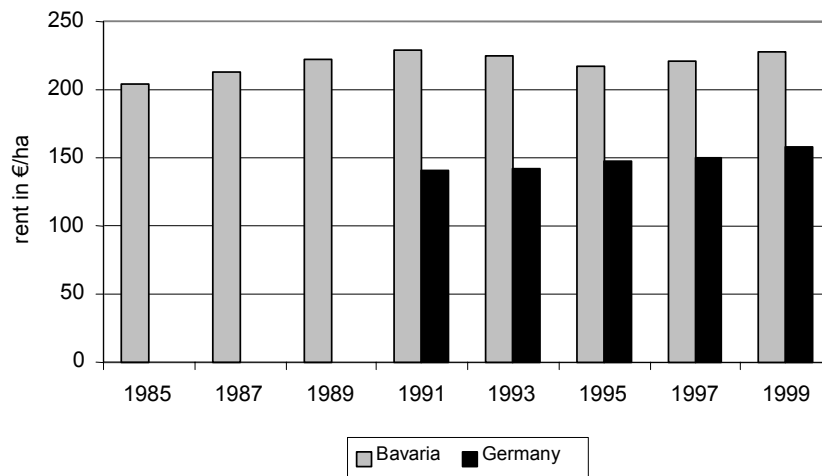
versification is often accompanied with an extensification of cultivation and aims at a generally high productivity of resources, also outside farming.

It can be support that the land set aside measure has amplified both development trends.

Market for Arable Land:

In 40 % of all 30 farms respectively in about half of the larger farms the operator generally reported about problems with the acquisition of land for renting or purchasing. However, in both groups only few farmers (5 resp. 2 farmers) expressed that set aside hampered renting in land. On the other side, half of the farmers stated that in parallel to the different premia-programmes a specific land market for premia-areas grew up, which may complicate single farm development. Nonetheless, no increase in rents per ha could be noticed on average (see figure 21).

Figure 21: Development of Rents for Arable Areas (€/ha) in Bavaria ³⁴



Adaptations to set aside in detail: ³⁵

After the introduction of the set aside programme, 23 of the 30 interviewed farmers changed their activities and their crop ratios. The following adaptations were chosen:

- Extension of high productive crops (27 % of all farms): the farmers expanded the production of oilseeds (9 farms), cereals (10 farms) and protein plants (3 farms); in only few cases the cultivation of COP-crops was reduced.
- Reduction of yield increasing inputs (30 % of all farms), mostly in combination with the participation in agro-environmental programmes; additionally the number of agricultural employees was reduced in 1 farm.
- Intensification of cultivation on the areas not set aside (27 % of all farms);
- Renting additional land (23 % of all farms);

³⁴ See Bundesministerium für Ernährung, Landwirtschaft und Forsten: Statistisches Jahrbuch über Ernährung, Landwirtschaft und Forsten; different volumes.

³⁵ The farmers were asked about their adaptations on the set aside measure only, excluding the effects of the entire CAP-reform. Therefore the answers differ from the presentation of the overall farm adaptations during the set aside period mentioned above.

- Purchasing of land (3 % of all farms);
- On-farm diversification (e.g. direct marketing of farm produce) within 8 farms;
- Off-farm activities (e.g. commercial investments) within 1 farm.

Questions concerning Environmental Impacts

Q. 4.4.1: Did the adoption of set aside have a significant impact on the improvement of soil management (erosion, fertility, structure, etc.)?

Synthetic Answer:

The effects of land set aside were estimated as neutral in 73 % of the cases. In about a quarter of the farms a slight improvement was recognized.

Generally national/regional programmes for extensification and/or soil protection showed larger effects on soil management of the entire farms than the set aside policy. 37 % of the interviewed farmers participated in at least one agro-environmental programme aiming (also) at soil protection.

Details of the Answer:

According to appraisal of the interviewers, land set aside had no major effects on land management in 73% of the interviewed farms. In 27 % set aside showed positive impacts (see table 13):

Table 13: Effects of Set Aside on Land Management in Bavaria (estimated by the interviewer)

	Negative effects	Neutral effects	Positive effects
Share of farms (total: 30 farms)	0 %	73.3 %	26.7 %

Erosion has not been a significant problem in the Bavarian farming sector because

- set aside areas were not irrigated,
- set aside plots had to be cultivated/maintained,
- the share of fixed set aside was rather low (27 % of the total set aside area).

In 15 farms (50 %) a positive effect occurred since they cultivated their set aside areas completely or partly with specific seeds for the improvement of soil fertility and soil structure.³⁶ Independent of set aside, 37 % of the farms participated in at least one agro-environmental programme targeting at the extensification of cultivation or the modification of farming techniques (including crop rotations). Those programmes generally showed indirect positive effects also on the quality of the soils.³⁷

³⁶ Some farmers planted soil improving plants on little parts of their set aside area only; therefore (significantly) positive effects on soil management were counted in 27 % of the farms only (cf. table 13).

³⁷ In Bavaria, 76 % of all farms participated in the programme „Remuneration of environmentally sound cultivation methods“. This programme regulates comprehensively e.g. the application of yield increasing means („integrated plant production“), the utilization of specific areas and the maximally allowed livestock density. See Bayerischer Agrarbericht 1998, p. 161.

Q. 4.4.2: Did the adoption of set aside have a significant impact on the improvement of water-management (pollution, water resources maintenance including ground waters, etc.)?

Synthetic Answer:

Water protection was hardly affected by the set aside programme (neutral: 90 %). As far as an improvement of water protection was achieved (positive effects: 10 %) that was a result of national/regional regulations.

17 % of the interviewed farms participated in programmes for water protection. The risen pesticide input on set aside plots may form a potential risk.

Details of the Answer:

Comprehensive rules for water protection exist nationally. They must also be observed on set aside areas. Particularly in Bavaria those programmes have been supplemented through regional regulations. Therefore, the effects of set aside on water quality were rather small. This is in particular true for areas with non-food production. According to the interviewed farms, in 90 % of the cases no significant effects between set aside and water quality respectively water management could be measured.

The most positive effects of the set aside measure on the quality of waters concerned:

- The set aside of environmentally sensitive areas (e.g. in the neighbourhood of water collection areas or in humid sites);
- The renunciation of the application of fertilizers and pesticides on set aside areas without non-food production;
- The obligation for land planting, at least applying a natural regrazing on set aside plots.

Irrigation of set aside areas was not practised in Bavaria. As far as the remaining areas were irrigated, its management was not modified by the set aside scheme.

Table 14: Effects of Set Aside on Water Management in Bavaria (estimated by the interviewers)

	Negative effects	Neutral effects	Positive effects
Share of farms (total: 30 farms)	0 %	90 %	10 %

Nation-wide the German law of fertilizers requires the provision of a fertilizers balance on each farm annually and simultaneously limits e.g. the maximum of dung units per ha, the timing of organic fertilizing and the soil conditions under which fertilizing is allowed generally. About three quarters of all Bavarian farmers participated in the programme „Remuneration of environmentally sound cultivation methods“ in 1997.

In addition, 5 farmers (17 %) participated in agro-environmental programmes for water protection. These programmes did in particular

- control the spread of manure during the winter term (e.g. regional aid scheme for the upkeep of land);
- regulated the cultivation within protected water collection areas (maximum application rates for fertilizers and plant protection means; prohibition of particular means and cultivation techniques.

Irrespective the fact that set aside areas were not included in those regional programmes it has to be assumed that on total farm level particularly the risks of further nitrification of waters could be reduced.³⁸ This as-

³⁸ Only plots under „regular“ cultivation were concerned by those premia based programmes.

sumption is among others proved by the reduction of fertilizers input per ha in the commercial farms (cf. figure 19).

Despite the generally positive effects of the set aside measure on soil quality, the environmental associations³⁹ criticized:

- The risen use of herbicides on set aside areas before starting the new cultivation;
- the possibly increased nitrogen output into the soil (and groundwater), as the growth of the set aside plots remains unused on the areas.

Up to now a quantification of these effects is not available.

Q. 4.4.3: Did the adoption of set aside have a significant impact on the improvement of landscape management?

Synthetic Answer:

On account of the prevailing rotational set aside (73%), no visible effects on landscape could be noticed (neutral: 97 %). More often problems occurred through an increased weed infestation, especially on plots which were set aside for a longer term.

On average, 79 € per ha were spent for the maintenance of set aside areas without non-food production.

Details of the Answer:

According to appraisal of the interviewers, land set aside hardly effected landscape (see table 15). The rotational set aside which was primarily applied, did not led to a perceptible change in landscape. Just in one single enterprise a negative effect was found due to a not professional soil management (long-term set aside without adequate cultivation).

Table 15: Effects of Set Aside on the Landscape (estimated by the interviewer)

	Negative effects	Neutral effects
Share of farms (total: 30 farms)	3.3 %	96.7 %

60 % of the interviewed farmers reported about problems with weed infestation at the beginning of the set aside programme. This share sank to 45 % until 1999. A relatively constant part of approx. 15 % of the farmers mentioned the “naturalised appearance” of the set aside areas as a problem. However, the impression that the spatial order of the set aside areas caused a “neglected subspace” was virtually not existing.

20 % of the enterprises participated in the regional aid scheme for the upkeep of land independently from set aside. Since the set aside areas could not be integrated into the aid scheme, no further effects on landscape resulted.

To maintain the set aside areas, farmers applied different cultivation techniques: cultivation with non-food crops, sowing of specific seeds, natural regrazing; Correspondingly, the maintenance expenses for the areas differed considerably, not at least depending on climate and soil conditions (amount of growth). The non-food production excepted, 22 interviewed farmers estimated the cost for land planting and related inter-cultivation measures at about 79 €/ha on average, with a range from 25 €/ha (natural regrazing) up to 150 €/ha (specific seeds). It was not possible to verify these statements.

³⁹ Information given by Mrs. Ruppaner, Bund Naturschutz in Bayern e.V..

Q. 4.4.4: Did the adoption of set aside have a significant impact on the bio-diversity maintenance?

Synthetic Answer:

From an agronomical point of view, an effect on species diversity was hardly to be recognized, since 73 % of the set aside area were managed in a rotational system.

From an ecological point of view, set aside in its present form is to be criticised. Location-oriented stipulations are missing for the processing of plots during set aside. Additionally, through co-operation between farmers and (indirect) users of set aside areas (hunters, beekeepers, environmental associations) it would be fundamentally possible to reduce target conflicts.

Details of the Answer:

With the ecological effects it has to be distinguished between the appraisal of farmers and the appraisal of environmental associations and experts.

The farm managers almost found no effects. Provided that non-food products were not cultivated, a raise in weed infestation was noticed (see Q. 4.4.3). The increase of plant parasites and crop diseases was classified as insignificant. In the end no modification in bio-diversity could be noticed. That might be realistic since a rotational system was applied on about three quarters of the set aside area and approx. 19 % of the set aside land was used for non-food production (without interruption of cultivation) in Bavaria.

At their own appraisal, the interviewed farmers chose the following type of cultivation of their set aside areas (without non-food production):

- Land Planting :
 - 50 % sowed seeds for agronomical reasons ;
 - 20 % sowed seeds for other purposes in co-operation with hunters, beekeepers etc. to the benefit of bees or game; to emphasise the farmers' ecological orientation the users (hunters etc.) partly contributed to the costs of the seeds.
 - 23 % applied natural regrazing.
- Management of set aside areas (22 farms):
 - 100 % mowed the growth of the set aside plots.
 - 8.6 % used chemical means against weeds;
 - 4.3 % cultivated their plots otherwise.

The operations on set aside areas were mostly realized between June and August (see table 16). Several farmers stated that they operated the first mowing not before June so as to respect particularly the breeding time of broodings on meadow and young mammals (e.g. deer, hares).

Table 16: Time of Operation on Set Aside Areas in Bavaria (multiple responses)

	April	May	June	July	August	September	October
Number of Farms	0	4	12	8	10	2	1
Share of farms (total: 19)		17 %	52 %	35 %	43 %	8.7 %	4 %

From the point of view of the environmental associations⁴⁰, the set aside in its currently practised form was refused. The following reasons were mentioned:

- Enrichment of the plots with nutrients because mulch must not be removed;

⁴⁰ Information given by Mrs. Ruppaner, Bund Naturschutz in Bayern e.V..

- Operations aiming at the maintenance of the set aside areas are from an ecological point of view often conducted too early and therefore cause risks particularly for breeding birds and young game;
- No differentiation of set aside areas with regard to quality criteria; plots with lower yields mostly have a higher ecological value than especially fertile sites; however, especially marginal areas were primarily set aside; so, a fundamental target conflict between set aside and species protection results.

These arguments and further suggestions from the environmental administration were repeatedly brought forward to the administration for agriculture. However, they led not to modifications in the rules for set aside. In total more precise ecological stipulations were required from representatives of the environmental administration.

Elements of Answer for Question 451 to 452

Question Relating to the Complexity of Regulation and of its Setting in Place

These questions have been answered in the German national report more in detail.

Q. 4.5.1: What effects did numerous regulatory adaptations and the existence of numerous individual cases have on the effectiveness of the set aside instrument?

Q. 4.5.2: What effects did national or regional application legislation have on the effectiveness of the set aside instrument?

60 % of the interviewed farmers stated that the actually realized set aside measure forms an essential part of the CAP. However, only 7 % of the farmers agreed generally with the Common Agricultural Policy. This proportion was slightly higher in the smaller farms (8.3 %) than in the larger ones (5.6 %).

As typical administrative problems were mentioned by the farmers:

- Measurement of the set aside plots (17 %);
- Minimum size of set aside areas (23 %);
- Realization of the minimum yield of non-food crops (17 %);
- Starting time and end time of set aside (23 %);
- Too late information about set aside-rate and premia (43 %);
- Laborious and/or complicated administrative procedures (43 %);
- Insufficient co-ordination with other programmes (17 %);
- Too late payments (17 %).

Asked about improvements of the set aside policy, the 30 farmers gave the following recommendations:

- Abolition of set aside;
- Abolition of minimum size for set aside areas, minimum yields for non-food-crops and simplified scheme;
- More flexible administrative procedures;
- More supportive measures for non-food crops, protein plants and voluntary set aside;
- More precisely description of how to maintain set aside areas properly;
- Increased or even constant set aside-rate;
- Set aside of less productive plots and utilization of pastures;
- Better co-ordination with agronomical requirements (e.g. vegetation period, management).