
Annexe 8 du rapport d'évaluation

Evaluation of the Impacts of the Community Measures on Land Set aside

Case Study Brandenburg

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July 2001

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1 Regional Context

1.1 General Information about Brandenburg

Brandenburg is one of the five New German Laenders situated in the north-east of Germany. Its size of 29.500 km² comprises 8.2 % of the German surface and 3.2 % of the entire population.

Table 1: Surface and Population in Brandenburg and Germany ¹

Indicator		Brandenburg		Germany	
		absolute	%	absolute	%
Surface	(1000 km ²)	29.4	8.2	357	100
Population 1999	(Mill. Inh.)	2.6	3.2	82,2	100
Population density 1999	(Inh./km ²)	88	38.2	230	100
Increase of population 1992-1998 ²	(1000 Inh.)	12.1	0.7	1.762.5	100

The population in Brandenburg amounted to 2.6 mill people in 1990. After the opening of the western boarder population decreased to 2.5 mill (1994) because of the weak regional economy. Population again reached 2.6 mill in 1999 what goes along with a population density of 88 inhabitants per km².

In 1998 approx. 66 % of the entire population lived in rural areas where population density merely achieved 61 inhabitants per km².

The share of employed people in agriculture, which was fare above 10 % in the former DDR, meanwhile sank to about 4 % in 1998. The reduction of employees in agriculture also raised the unemployment rate in Brandenburg. During the last decade this figure amounted to 16 –20 % on average (see Annex 2).

1.2 Natural Conditions for Agriculture ³

Brandenburg provides very different conditions for agriculture. That concerns for example temperature, rainfall, topography and geological origin. The soils consist of ice-aged sediments and sandy soils; waters and bogs also own a large share. As a result, about 40 % of the total surface has been declared as nature reserves (approx. 1.2 mill. ha).

Due to the natural conditions, Brandenburg has been split into 14 separate nature regions. Arable areas with favourable conditions are to be found primarily in the north-east of the region and in the west of Berlin. Permanent grassland comes up to 22 % of the total UAA but that figure differs regionally (highest share in the west and south of the region). Typical problems for crop farming can be seen in the large extent of sandy soils, the low amount of rainfall and the frequent dryness in spring.

Using the agricultural equivalent ⁴ for the description of the natural potentials of the farmland, the majority of the area shows between 26 to 40 points only. About 10 % of the surface achieves just 10 points, another 10 % more than 40 points respectively. However, there are no agricultural utilized areas that obtain above 68 points what indicates relatively unfavourable natural conditions for cultivation.

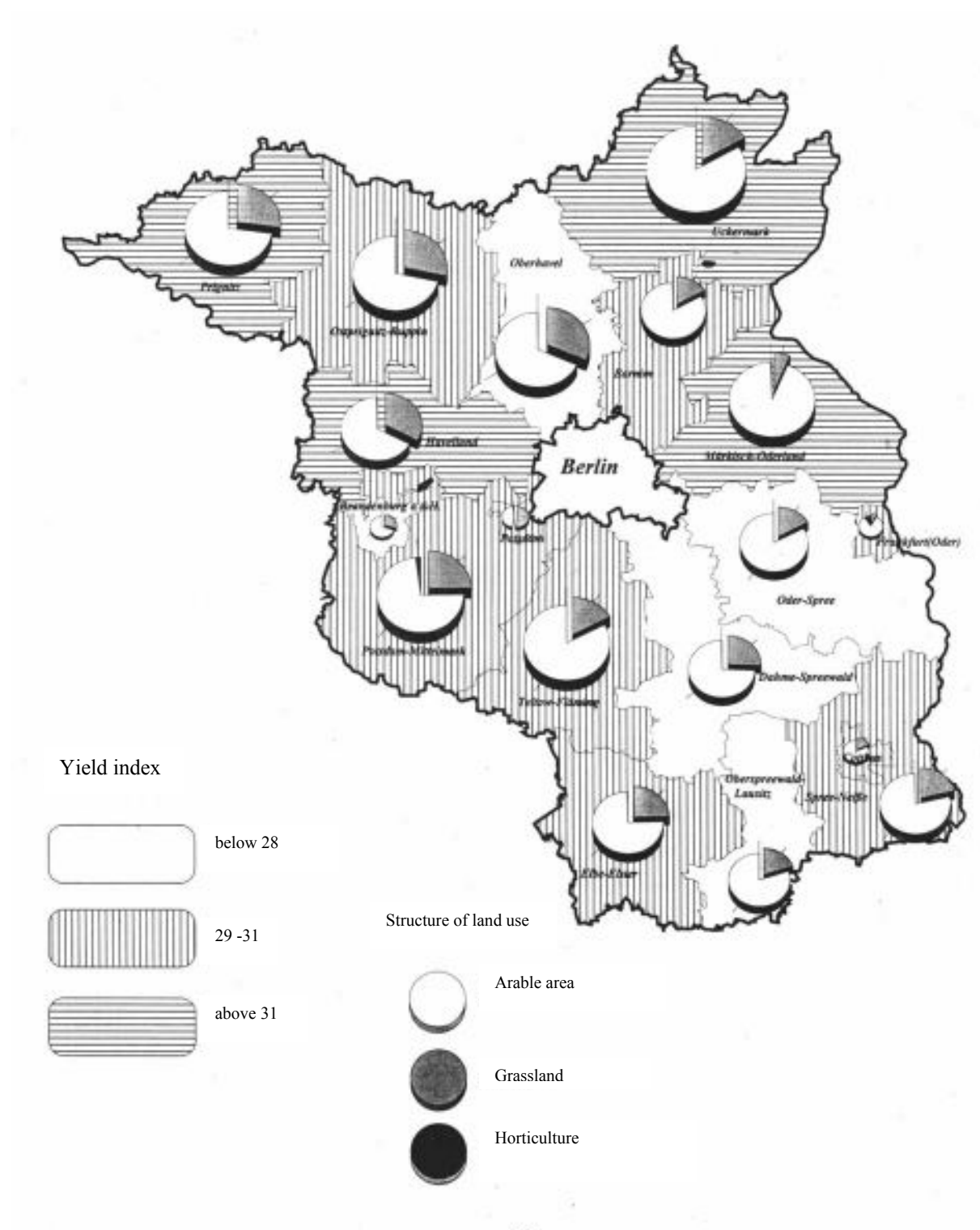
¹ See Statistisches Bundesamt: Bevölkerungsstruktur und Wirtschaftskraft der Bundesländer, volume 2000.

² See Statistisches Bundesamt: Bevölkerungsstruktur und Wirtschaftskraft der Bundesländer, volume 2000, p. 21.

³ See Bericht zur Lage der Land-, Ernährungs- und Forstwirtschaft des Landes Brandenburg 1993, p. 7 ff.

⁴ The agricultural equivalent indicates the relative value of production conditions; the figure amounts between 0 (extremely unfavourable) and 100 (extremely favourable).

Figure 1: Share of Arable Area and Permanent Grassland and Agricultural Yield Index in Brandenburg by Administrative Districts ⁵



⁵ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Bericht zur Lage der Land-, Ernährungs- und Forstwirtschaft des Landes Brandenburg 1996, p. 30.

1.3 Climatic Conditions

Brandenburg is influenced by a sub-continental transition climate. The most important facts are ⁶:

- Ø 450 mm rainfall per year,
- Ø 8.6°C average temperature,
- Maximum altitude of 201 m above sea level.

Due to the early summer dryness resulting from little precipitation, negative impacts on cultivation can occur.

1.4 Population and Employment ⁷

Currently about 2.6 mill people live in Brandenburg. Right after the German reunification considerable migration shifts into the western part of Germany decreased the number of inhabitants, whereas over the last years people from the city of Berlin moved into the surrounding rural areas of Brandenburg.

The population density of Brandenburg with only 88 inhabitants/km² counts among the lowest of all German Laenders. That expresses a strong rural character. About 95 % of the entire surface can be defined as rural areas, in which 66 % of the population live.

On account of migration shifts and low birth-rates, the share of elderly as well as younger population lays below the national average:

- persons under 15 years of age: 14.7 % (Germany: 15.8 %)
- persons from 15 to 65 years of age: 71 % (Germany: 68.3 %)
- over 65 years of age: 14.3 % (Germany: 15.9 %).

The current unemployment rate of 19% (year 2000) is particularly affecting the rural population in the north. However, rather fair employment opportunities are available in the surroundings of the capital Berlin.⁸

2 Structure and Potential of the Agricultural Sector in Brandenburg

2.1 Farm Structure

In 1999 approx. 7.000 farm enterprises were operated in Brandenburg. Together they cultivated about 1.35 mill ha UAA. The average farm size in 1999 was 192 ha which is essentially higher than the average in western (24 ha) and eastern (175 ha) Germany.⁹ Reasons to explain that difference are the unfavourable natural conditions and the high share of commercial farming (see figure 5).

Until 1997, the number of enterprises increased in all size classes particularly resulting from the separation of the former large co-operative and state farms. The number of small farms recently decreased slightly (see figure 2). This general trend has primarily economic reasons.¹⁰

The farming sector of Brandenburg is characterised by the great extend of land cultivated by legal entities (61%).¹¹ Between 1996 and 1998, the average farm size of legal entities decreased due to the split of large farms and the re-established (smaller) private farms. Currently about 890 ha per enterprise are cultivated by legal entities on average.

⁶ See www.brandenburg.de, June 2001.

⁷ See Statistisches Bundesamt: Bevölkerungsstruktur und Wirtschaftskraft der Bundesländer, volume 2000.

⁸ The capital of Berlin is located in the centre of Brandenburg, but not part of Brandenburg; Berlin counts as an individual German Land.

⁹ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, Bericht zur Lage der Land- und Ernährungswirtschaft des Landes Brandenburg, p. 24.

¹⁰ Another explanation is the fact that since 1998 small scale farms with less than 2 ha UAA are no longer counted as a farm.

¹¹ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, p. 24.

In 1999 single private farms comprised about 78 % of all farms, but cultivated only 21 % of the entire UAA. The average farm size of this group raised at 53 ha in 1999. Co-operative farms with private entrepreneurs counted about 9 % of all farms with 18 % of the UAA. The average farm size was about 367 ha/farm.¹²

Figure 2: Number of Farms by Size Classes in Brandenburg 1992 - 1999 ¹³

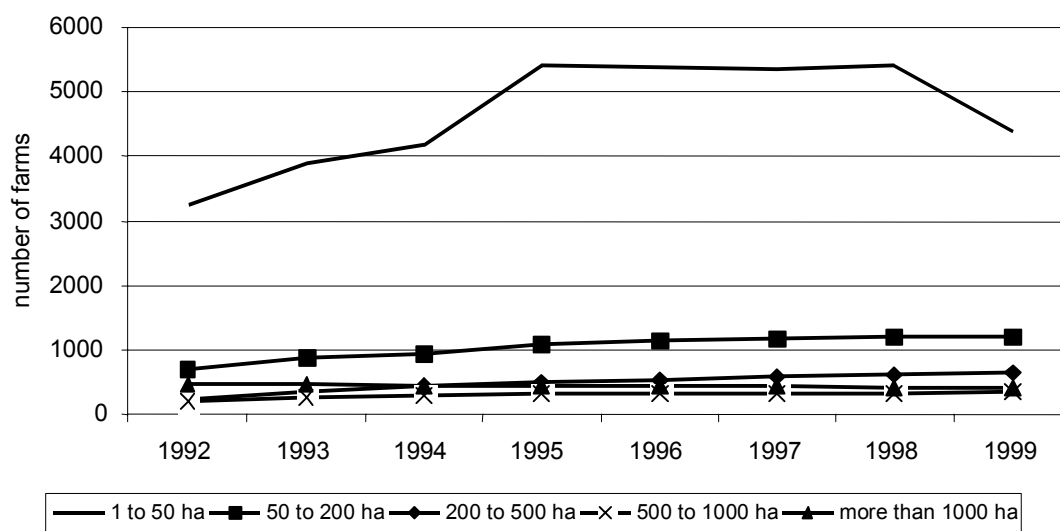
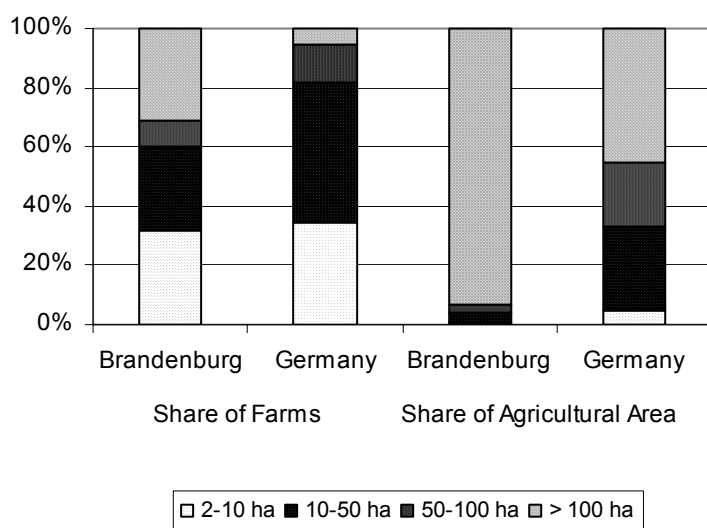


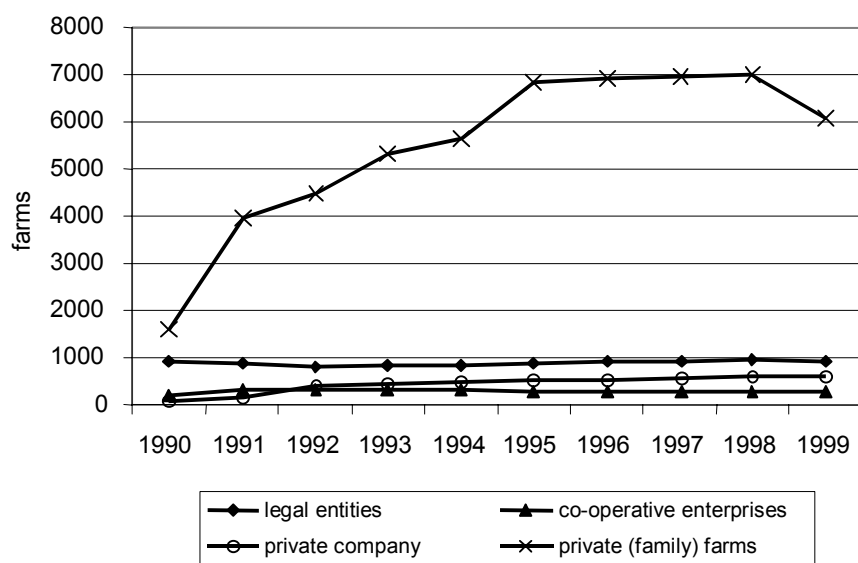
Figure 3: Farms and Utilized Agricultural Area by Size Classes in Brandenburg 1999 ¹³



¹² See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, p. 23-24.

¹³ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000.

Figure 4: Legal Status of Farms in Brandenburg ¹³



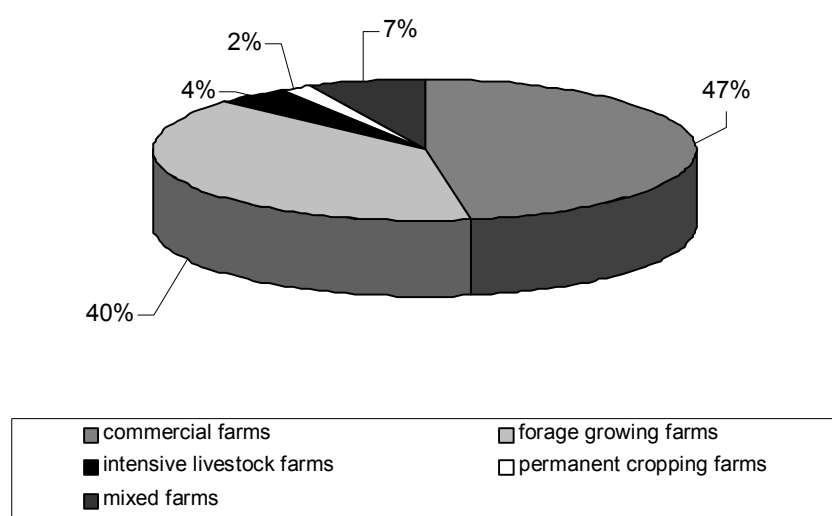
Within the farm size classes, considerable changes took place during the last decade:

- Particularly the number of smaller farms with less than 50 ha decreased in the last years;
- The group of farms with 200 to 500 ha grew distinctively. These farms all together cultivated approx. 15 % of the entire UAA.

On the other hand, the number of large farms with at least 1.000 ha now remains relatively stable at 5 to 6 % of all farms. They cultivate more than half of the agriculturally utilized area (53 %).

In 1999, 47 % of all farms counted among the commercial farms. Forage growing farms made about 40 % (see figure 5). This corresponds to the unlike natural conditions with sandy soils and dryness during summertime.

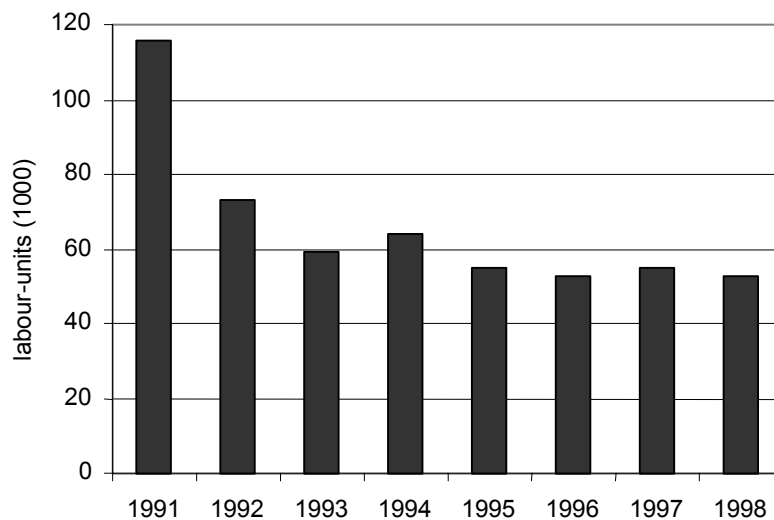
Figure 5: Farms by Farming Systems 1999 in % ¹³



2.2 Man Power in Agriculture¹⁴

In 1998 the amount of people employed in agriculture was 4.3 % (Germany 3 %). Only 1.2 % out of the total 53.000 employees in agriculture were family labourers. That figure decreased continuously because of the higher labour intensity on smaller farms. The vast majority of all employees was working on a hired basis on larger farms. On account of the expansion of larger farms (see figure 2), the number of farm workers increased, too.

Figure 6: Development of Employees in Agriculture in Brandenburg 1991 - 1998¹⁵



2.3 Land Utilization

The share of arable land amounts to 77 % of the entire UAA. At increasing scale COP-crops were cultivated since 1990. In 1999 the area cultivated with grain achieved 50%, the area cultivated with oilseeds 17 % and the cultivation of protein plants took 3,5 % of the entire arable area.

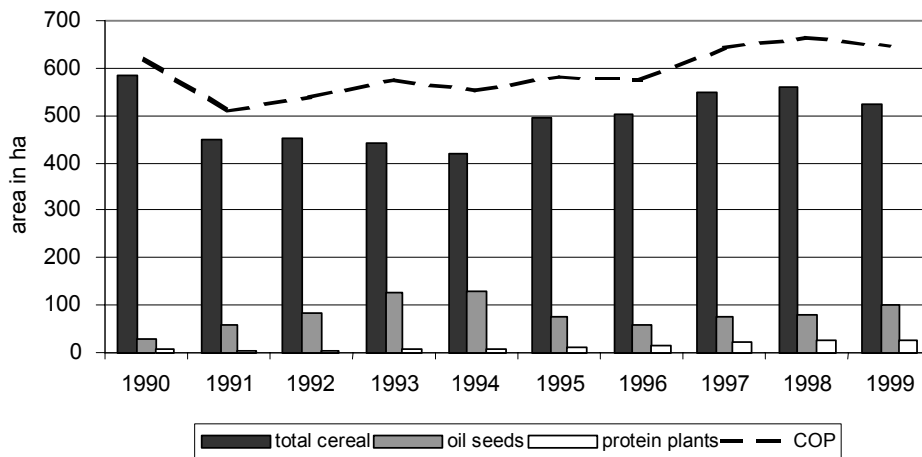
The high share of rented land occurs as a particularity of the New German Laenders. This proportion amounts to 79 % in Brandenburg. In 1999 the farmers owned only 7 % of their cultivated area. Another 14 % of the land consisted of so called “exchange-areas”¹⁶ or land with almost unclear property rights.

¹⁴ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, Bericht zur Lage der Land- und Ernährungswirtschaft des Landes Brandenburg, p. 25.

¹⁵ See Statistisches Bundesamt: Bevölkerungsstruktur und Wirtschaftskraft der Bundesländer, p. 52.

¹⁶ The (larger) farms often exchange areas between the farms to achieve advantages in cultivation (larger plots, smaller distances) and save production costs.

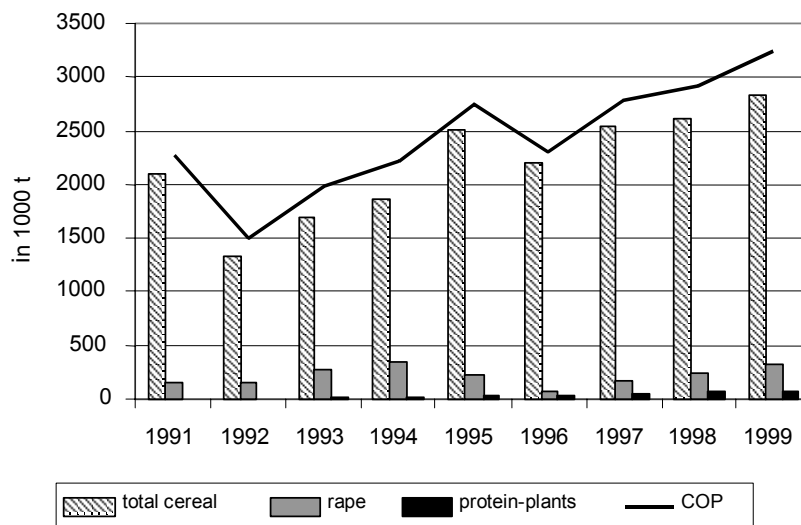
Figure 7: Cultivated Area of Selected Crops in Brandenburg 1991 – 1999 ¹⁷



2.4 Yields and Outputs in Crop Production

The production of COP-crops increased clearly and correspondingly to the development of the cultivated area. The growth of output was furthermore amplified by technical progresses. The set aside measure did not have a significant effect on the yields (see figure 8). The reduction in 1992 and 1996 resulted from extremely unfavourable natural conditions primarily (dryness).

Figure 8: Production of COP-Crops in Brandenburg 1991 – 1999 ¹⁷



The outputs of grain, oil seeds and protein plants rose continuously since 1992 due to yield gains and the enlarged cultivated area.¹⁸

¹⁷ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, Bericht zur Lage der Land- und Ernährungswirtschaft des Landes Brandenburg.

¹⁸ Information given about the level of yields and outputs also include the production of non-food-crops.

3 Realization of Land Set aside in Brandenburg

3.1 Guidelines and Regulations

The main regulations of the set aside programme were nation wide applied homogeneously, e.g.:

Cultivation period: January 15th to August 31st (all years)
 Set aside-rates: At least 5 to 15 % (EU-regulations); maximum 33% of COP area
 Minimum size of plots: 0,3 ha; with Ø 20 meters (all years).

Due to the in-homogeneous natural conditions for farming (see Annex 4), Brandenburg was differentiated into two sub-regions. The premia were calculated on account of the specific yields within these two sub-regions. The average yields and the premia contains table 3.

The regulation for land planting, intercultivation and the possibilities of its economical use was homogeneously formulated in Germany (see national report, paragraph 3.2).

Table 2: Realization of the Land Set aside-Programme in Brandenburg ¹⁹

		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	123816	156829	162760	168617	121477	113941	146308
Number of applications for premia (COP)	No	2180	2474	2414	2513	2713	2749	2809
Premium-carrying COP-area in total	ha	878175	883835	878618	929195	939086	937901	966853
- thereof premium-carrying COP-area – professional scheme	%	863333	873374	865504	915141	927616	926776	956204
- thereof Premium-carrying COP-area – simplified scheme	%	14842	10461	13114	14054	11470	11125	10649
Set aside-rate (real) (set aside/ total COP-area)	%	14.1%	17.7%	18.5 %	18.1%	12.9%	12.1%	15.1%
Set aside-rate (professional scheme) (set aside/ profess. scheme COP-area)	%	14.3%	18.0%	18.8%	18.4%	13.1%	12.3%	15.3%
Set aside land in total	ha	123816	156829	162760				
- thereof rotational set aside area	ha	123816	55144	25587				
Set aside area in total (other than extraordinary)	ha	123816	156829	162760	168617	4.54	121477	4.53
- thereof obligatory set aside area	ha	123816	156829	162760	81151	4.54	41910	4.54
- thereof voluntary set aside area	ha				87466	4.55	79567	4.53
- thereof set aside area without premia	ha							
- thereof non-food production	ha		5495	23348	15895	4.55	10776	4.55
Five-year set aside area (R.2328/91)	ha	18259	10787	6316	4194	4.52		
Extraordinary set aside	ha							

¹⁹ See Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft: Tabelle der statistischen Angaben (not published), different volumes; own calculations; See EU DG Agriculture and Agreste/ONIC/ONIOL (information given by Oréade-Brèche).

3.2 Compensatory Payments in Brandenburg

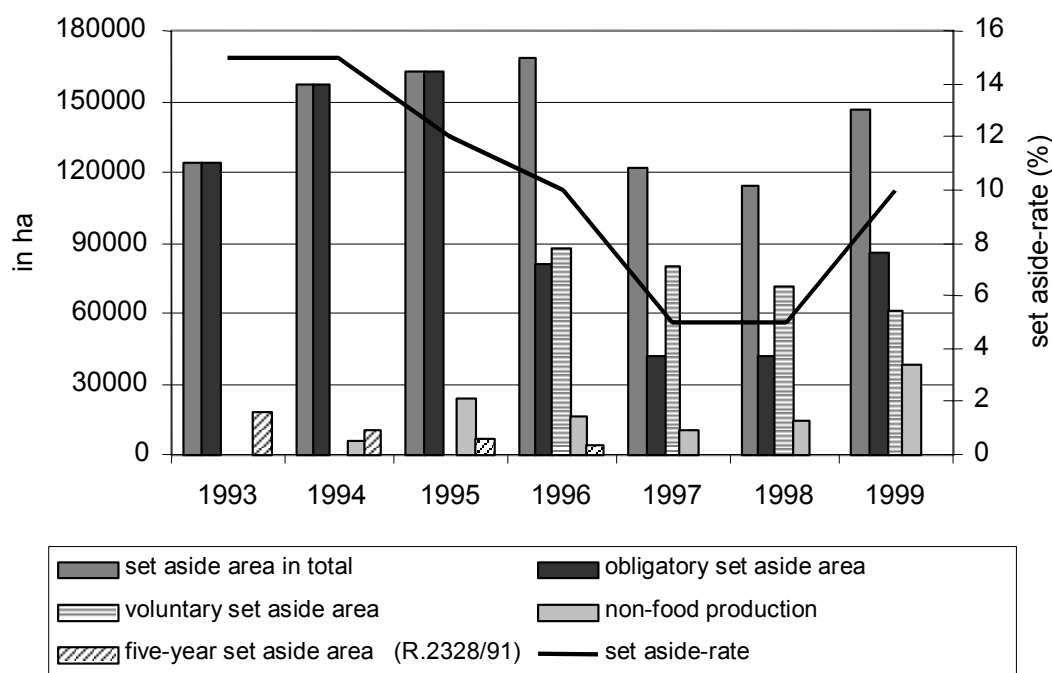
Table 3: Compensatory payments for COP-Crops²⁰

	Cereals				Set aside		Protein plants		Oilseeds			
	Average yield		Compensation premia (€/ha)		Compens. Premia		Compens. Premia		Average yield		Compensation premia	
	dt/ha		In €/ha		in €/ha		in €/ha		dt/ha		€/ha	
Year	Region 1	Region 2	Region 1	Region 2	Region 1	Region 2	Region 1	Region 2	Region 1	Region 2	Region 1	Region 2
1993	45.2		136		245		354		14		491	
1994	54.5	45.2	230	190	374	310	426	354	18	14	630	491
1995	54.5	45.2	295	245	374	310	426	354	18	14	630	491
1996	54.5	45.2	295	245	374	310	426	354	18	14	630	491
1997	54.5	45.2	295	245	374	310	426	354	18	14	630	491
1998	54.5	45.2	295	245	374	310	426	354	18	14	630	491
1999	54.5	45.2	295	245	374	310	426	354	18	14	630	491

3.3 Type and Amount of Land Set aside in Brandenburg

About 38.000 ha (26 %) of the entire set aside area (146.000 ha) were used for the cultivation of non-food-crops in 1999. The farmers applying compulsory set aside (professional scheme) set 15.3 % of the entire COP-area aside. As figure 9 shows, the share of voluntary set aside between 1996 and 1998 was even higher than the share of obligatory set aside. The extend of voluntary set aside grew when the compulsory rate for set aside decreased. That verifies the interest of the farmers to set aside each year a pre-determined minimum part of their land.

Figure 9: Development of Set aside Areas in Brandenburg 1993 - 1999 (see table 2)



²⁰ **Region 1:** Villages Besandten, Eldenburg, Lanz, Lenzen, Mellen, Wootz; Villages Bagemühl, Grünberg, Nechlin, Woddow, Wollschow-Menkin und die Stadt Brüssow (rural district of Pasewalk); Villages Fahrenholz, Güterberg, Jagow, Lemmersdorf, Lübbenow, Milow, Trebenow, Wilsickow, Wismar, Wolfshagen (rural district of Strasburg).

Region 2: Land Brandenburg without Region 1.

4 Central Questions of the Evaluation

Elements of Answer for Question 411 to 413

Questions concerning Effectiveness

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

Synthetic Answer:

On account of land set aside no decrease but an even stronger increase by 68 % in grain production was achieved between 1993 and 1999.²¹ However, this development was caused by the fundamental political and structural changes within the farming sector after the German reunification primarily (increased productivity). This process overlapped the impacts of single agricultural programmes as for instance the set aside regime.

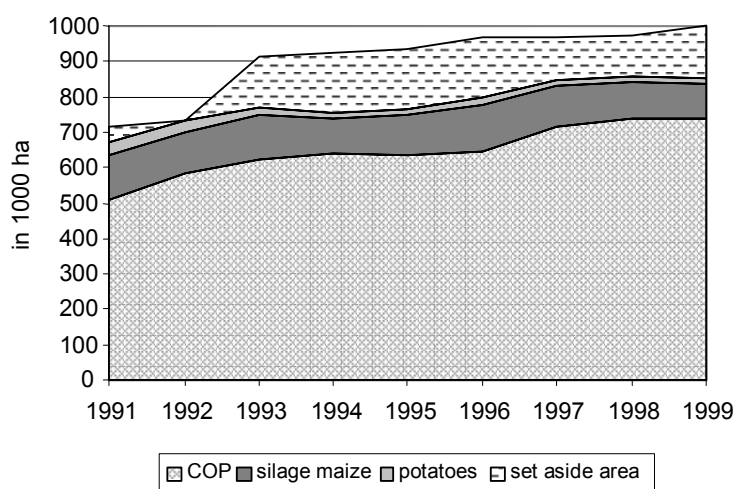
Nevertheless, without land set aside a higher grain output (at about 322.000 t/year) would have been expected (about 13,5 % of the average total grain production). About 43 % of the not produced grain was prevented by voluntary set aside (approx. 135.000 – 140.000 t/year). The production structure was modified in favour of the „grandes cultures“. Due to the reduced forage and root plant growing the cultivation of rape became more competitive in crop rotation. The cultivation of non-food crops went in parallel to the level of the set aside-rate.

In all years, the share of voluntary set aside was important (on average: 55%) and increased when the obligatory set aside-rate sank. This demonstrates that farmers aimed at taking a relatively large part of their land out of production permanently. For that reason, the areas with (particular) unfavourable conditions for cropping showed the highest share of fixed set aside.

Details of the Answer:

As figure 10 shows, the area cultivated with COP-crops increased steadily since the beginning of the set aside programme:

Figure 10: Utilization of Agricultural Area in Brandenburg 1991 – 1999 ²²



²¹ The year 1992 was not used as base for the comparison because of extraordinary low yields (climatic reasons).

²² See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, Bericht zur Lage der Land- und Ernährungswirtschaft des Landes Brandenburg.

The development of COP-production may particularly be explained with the structural change in the agricultural sector after the German reunification (regulation of property issues, re-structuring of large state farms etc.), less with the obligation to participate in the set aside programme.

Table 4: Changes in Cultivation of Selected Crops in Brandenburg 1992-1999²³

	Change 1992-1999			Change 1993-1999		
	Total		% per year	Total		% per year
	1000 ha	%		1000 ha	%	
Wheat	-0.6	-1	0	9.4	9	1
Rye	79.6	52	7	69.8	43	6
Winter barley	-26.1	-27	-4	-23.5	-25	-4
Spring barley	-27.3	-58	-8	-5.8	-23	-3
Oat	0	0	0	0.3	2	0
Grain maize (CCM)	3.5	78	11	-1.5	-16	-2
Grain total	70.8	16	2	81.0	18	3
Potatoes	-16.9	-54	-8	-5.0	-26	-4
Sugar-beets	-4.1	-26	-4	-4.6	-28	-4
Rape	17.2	21	3	-24.3	-20	-3
Leguminous crops	20.9	597	85	17.4	249	36
Forage growing	-13.4	-20	-3	-11.2	-17	-2
COP-area in total	108.9	20	3	74.1	13	2

Corresponding to the increase of the COP-area (20 % between 1992 and 1999),

- the forage growing areas were reduced by 20 %, following the cut in animal husbandry;
- the cultivation of root crops decreased (sugar beets – 26 %) because root yields per ha increased while the sugar beet quotas remained fix. The production of potatoes was even halved (see table 4).

The area set aside achieved its maximum in 1996 (see figures 9, 10). Afterwards it decreased with the lowering of the set aside-rate. However, in all years more land than required was taken out of production. The part of the voluntary set aside varies between 65 % (1997) and 41% (1999) of the total set aside area.

Land set aside did not lead to a decrease in the production of COP-crops in Brandenburg. From 1993 to 1999 grain production grew by 68 %, the production of rape by 15 % and the output of protein crops even by 371% (from a low level, see figure 11). The political and structural changes within the entire economy following the reunification process obviously overlapped the effect of set aside and other single agricultural programmes.

²³ See Statistisches Jahrbuch für die BRD, different volumes; own calculations.

Figure 11: Production of Selected Crops in Brandenburg 1991 – 1999 ²⁴

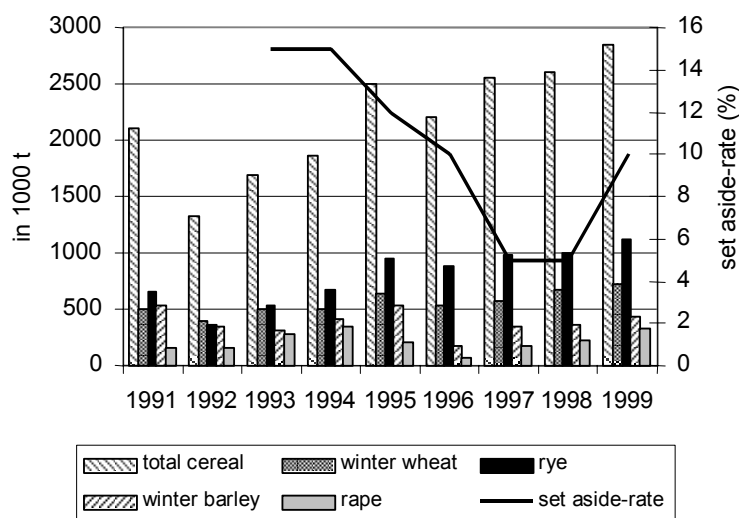


Table 5: Changes in Production Output of Selected Crops in Brandenburg 1992-1999 ²⁵

	Change 1992-1999			Change 1993-1999 ²⁶		
	Total		% per year	total		% per year
	1000 t	%		1000 t	%	
Wheat	322.1	81	12	221.2	44	6
Rye	752.6	207	30	588.2	111	16
Winter barley	82.4	24	3	121.1	39	6
Spring barley	-19.5	-18	-3	5.1	6	1
Oat	45.4	198	28	3.6	6	1
Grain maize (CCM)	30.2	149	21	-13.1	-21	-3
Grain total	1507.6	113	16	1153.1	68	10
Potatoes	-116.4	-24	-3	-211.5	-36	-5
Sugar-beet	-57.5	-11	-2	-337.4	-41	-6
Rape	162.4	100	14	42.7	15	2
Leguminosae	72.5	2132	305	59.8	371	53
Forage growing	-57.2	-17	-2	-234.4	-46	-7
COP-production	1742.5	116	17	1255.6	63	9

The production growth can be explained by the following factors:

- Yield increases due to an improved farm management, corrected marketing conditions and higher intensities of farming (see Q. 4.3.3);
- Changes in land use: extension of COP-areas, reduction of forage growing and sugar beet cultivation;
- Clarification/regulation of land property questions since the middle of the 90s; dissolution of the large co-operative and state farms, establishment of new private enterprises.

Although large parts of the UAA show a low productivity it is quite sure that without the set aside measure grain production would have been even higher. However, the effects on production have been smaller than in other German Laenders due to the relatively low yield level in the region. In this context, the large extent of voluntarily set aside land can be explained by the extremely unfavourable con-

²⁴ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, Bericht zur Lage der Land- und Ernährungswirtschaft des Landes Brandenburg.

²⁵ See Statistisches Jahrbuch für die BRD, different volumes; own calculations.

²⁶ Resulting from a particular dryness in the year 1992, yields decreased strongly. Therefore, the year 1993 was chosen as basis for this comparison.

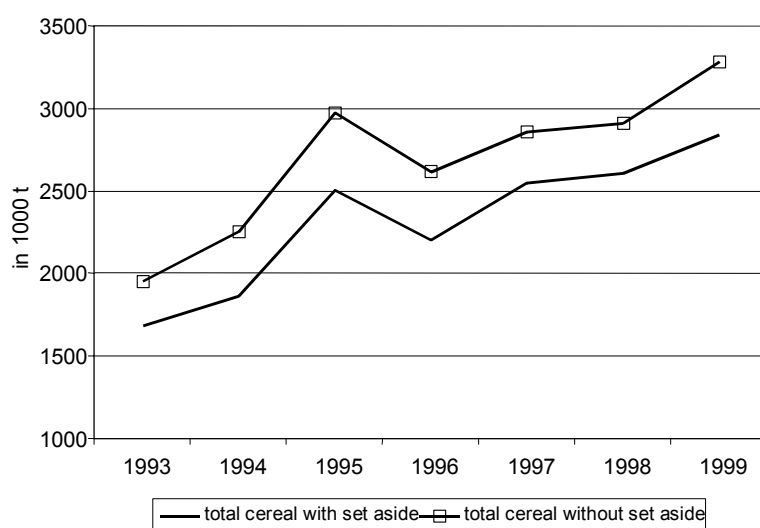
ditions in some parts of the region. According to information of the farmers, primarily marginal areas were taken out of production voluntarily. Those plots were often set aside for several years (fixed set aside).

Considering these facts, the estimation of the potential output is based on the following assumptions:²⁷

- Grain yields on compulsory set aside areas: 75 % of the regional average yield;
- Grain yields on voluntary set aside areas: 55 % of the regional average yield;
- Because of crop rotation restrictions (high share of grain already) a further extension of grain would be limited to 75 % of the total arable area.

Respecting these assumptions, the grain output which was not produced due to land set aside can be estimated at about 322.000 t/year (variation between 267.000 t and 374.000 t). This output is equivalent to approx. 13.5 % of the total grain production realized during the set aside programme.

Figure 12: Development Trend of Grain Production With and Without Land Set aside²⁸



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:

Initiated by the premia for voluntary set aside, about 5.3 % of the entire COP-area was set aside additionally. That slowed the increase in grain production down, and on the other hand rose the production of oilseeds. On appraisal of the farmers, more or less half of the voluntarily set aside areas would have become fallow land without premia. Therefore, the premia for the voluntarily set aside areas corresponds to approx. 70.000 – 80.000 t of grain annually, which did not stress the market.

The voluntary set aside facilitated the internal planning of crop-rotation and generally increased the profitability of production because primarily less productive areas were set aside and cost savings could be realised with land set aside (particularly labour costs).

²⁷ Agreed with representatives of the Ministry for Agriculture, Potsdam;

²⁸ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, Bericht zur Lage der Land- und Ernährungswirtschaft des Landes Brandenburg.

Additionally, in a considerable number of (co-operative) larger farms the set aside measure provided the opportunity for a re-organization of farm structure, for the adaptation of farm size on “manageable” units by scaling down the extent of cultivated land, and for a reduction of employees who became redundant because of increasing productivity.

Details of the Answer:

A voluntary set aside was assumed, if more than 10.5 % of the entire COP-area were set aside in 1999. Out of the 30 interviewed farms, 77 % exceeded this margin. 70 % thereof even set more than 12 % of their total arable area aside. In total, about 5.3 % (1999) of the entire COP-area in Brandenburg was set aside voluntarily.²⁹

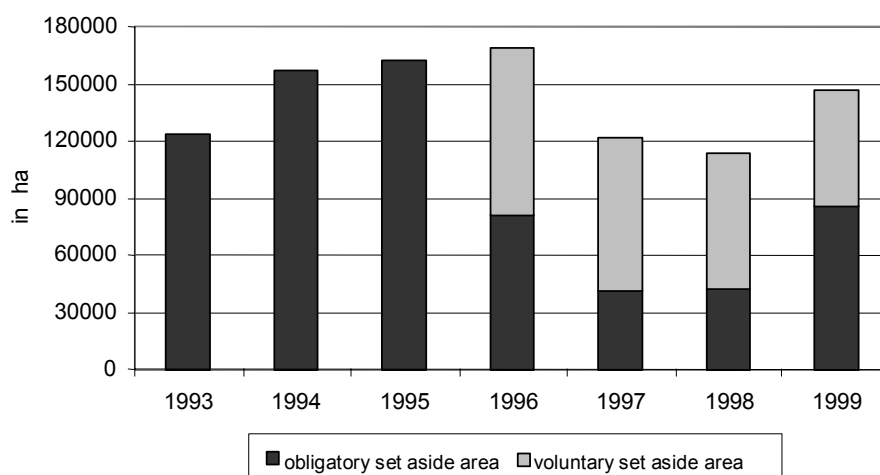
The farmers interviewed stated the following reasons for voluntary set aside:

- Primarily economic arguments (low yields of the plots, bad soils) as well as agronomical aspects (size and location of plots);
- Possibility to reduce their activities and their labour force.

The voluntary set aside developed to a relatively stable element within the farmers decision making. 96 % of the farmers who set land voluntarily aside in 1999, did that in previous years, too.

39 % of the farmers with voluntary set aside chose the option for fixed set aside. Nonetheless, only one farmer mentioned the upper limit of 33% set aside area as an obstacle.

Figure 13: Development of Set aside Areas in Brandenburg 1991 – 1999 ³⁰



It can be assumed that without the payment of premia more than half of the voluntarily set aside areas would have remained in production. Only the plots with lowest productivity/the highest average costs for cultivation would have become fallow land. This estimation is based on the assumption that particularly on less favoured areas and by applying large-scale production techniques the compensation premia (for COP-crops) might over-compensate the effects of reduced producer prices. Consequently, approx. 70.000 to 80.000 tons of grain per year would have been produced additionally in the absence of the set aside measure.³¹

In this respect the premia for voluntary set aside amplified the effects of obligatory set aside (grain production) and supported simultaneously an agronomical and economic suitable adaptation of crop-

²⁹ Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft, Bonn 2001.

³⁰ See ZMP Bilanz Getreide Ölsaaten Futtermittel, different volumes.

³¹ Assumptions: Without set aside approx. 50 – 60% of the entire 71.000 ha of voluntary set aside areas would have been cultivated; average yields of those (less productive) areas: 25.5 dt/ha (55% of average yield); crop rotation restriction: maximally 75% of these areas would have been cultivated with cereals. Data based on regional interviews and information from regional administration.

rotation (rape, leguminosae). In addition, the reduction of cultivation through set aside enabled particularly the larger farms to reduce the number of hired farm workers.

The farms benefiting from the simplified regulation (small producers) in Brandenburg are out of relevance for the entire production as they cultivate less than 1.1 % of the entire arable area only.

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

Synthetic Answer:

The production of non-food crops was operated mainly on areas not set aside in Brandenburg (approx. 70%). Nevertheless, the set aside measure stimulated non-food production, particularly within areas with favourable natural conditions. In 1999 about 41% of the non-food-production took place on set aside areas.

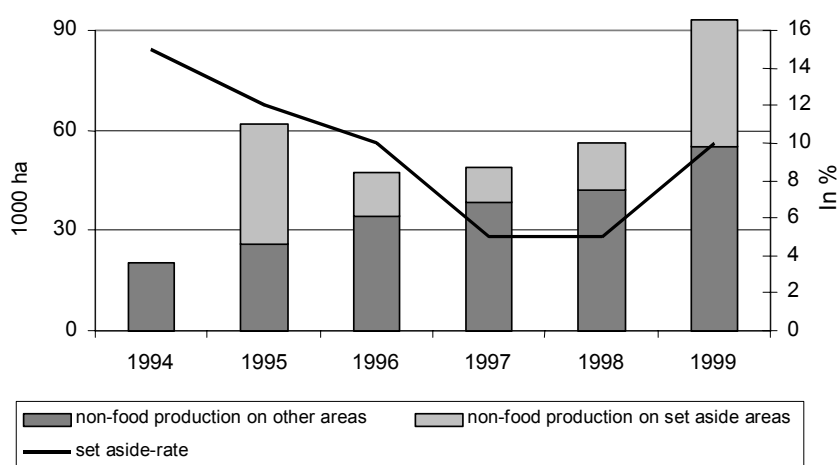
The extent of non-food-cultivation and therewith the output corresponds with the set aside-rate. The considerable increase in non-food-production can be explained with the premia paid for set aside and the improved marketing and price conditions for rape oil. In addition, especially in the areas with a high share of grain within crop rotation the agronomical advantages of rape may play a role.

Details of the Answer:

Irrespective of the set aside measure, extensive areas has been cultivated with non-food-crops in Brandenburg in the last years. In 1999, the areas cultivated with non-food plants achieved approx. 12.6 % of the entire COP-area (93.200 ha). Thereof 59% comprised areas not set aside, 41 % set aside areas (see figure 14).³² The main reason for the "regular" cultivation of non-food crops was their relative high competitiveness compared to grain cultivation on the partially problematic areas.

The introduction of the set aside measure offered the opportunity to further expand the non-food production through the cultivation of rape. The share for of non-food production on set aside areas, compared to the total non-food area, increased from 22% (1997) up to 58% in 1999 (see figure 14). Actually, the share is about 41%. This development went parallel to the set aside premia and the improved marketing conditions for oilseeds.

Figure 14: Non-Food Production in Brandenburg on Set aside Areas and Areas not set aside³³



³² See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, p.42.

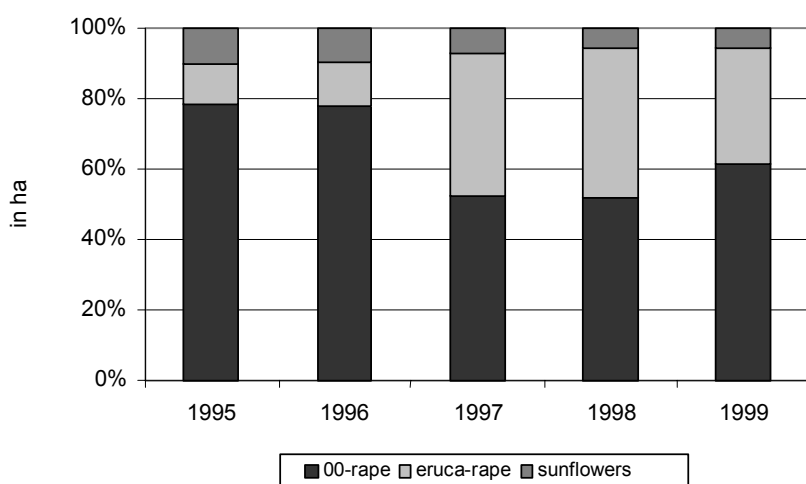
³³ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, Bericht zur Lage der Land- und Ernährungswirtschaft des Landes Brandenburg, p. 42.

In 1999, 26 % of the total set aside area was cultivated with non-food crops (see figure 9; table 6), predominantly with rape (94 % of the non-food area) and sunflowers (6 %, see figure 15). On the other hand, on the areas not set aside in addition to rape (7% of the respective area) also starch potatoes (14%) and flax plants (77%) were produced in 1999. In Brandenburg, the cultivation of eruca-rape for the production of chemical products (cosmetic, washing powder etc.) has tradition. Due to rather fair producer prices the cultivation of eruca-rape amounted to about half of the total rape area (1999).

Table 6: Land Set aside and Cultivation of Non-food Crops on Set aside Areas in Brandenburg 1993 – 1999 ³⁴

Year	Set aside-rate	Set aside	Non-food crops	
	%	ha	ha	%
1993	15	123816		
1994	15	156829	5495	3.5
1995	12	162760	23348	14.3
1996	10	168617	15895	9.4
1997	5	121477	10776	8.9
1998	5	113941	14284	12.5
1999	10	146308	37721	25.8

Figure 15: Cultivation of Non-food crops on Set aside Areas in Brandenburg ³⁵



11 out of the 30 interviewed farmers (37 %) cultivated non-food crops (rape and sunflowers) with approx. 21.5 ha each. For that decision the following arguments were stated: profitability, less costs and positive effects of rape within crop rotation. 19 out of the 30 farmers (63%) refused on the cultivation of non-food crops. They explained their decision with relatively low profitability and the necessary high labour-input. Only one farmer meanwhile changed his opinion in favour of non-food-crops.

In general, the farmers interviewed mentioned the following advantages of non-food-crops (particularly of rape) as decisive for their cultivation:

- Loosening of crop rotation restrictions linked with positive effects on soil fertility;
- Possibility for a decrease of labour peaks (improvement of farm organization).

In the past, the farm prices for rape were stabilized on a rather low level on account of the not sufficiently developed processing capacities for rape oil in Brandenburg. It is to be expected that the ongoing enlargement of the oil processing facilities will enlarged potentials for rape oil significantly and might contribute to a stabilization of the rape price on a higher level. This opinion was expressed by the interviewed farmers as well as by representatives of the agricultural administration and private marketing enterprises.

³⁴ Information: Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft, different volumes.

³⁵ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, p.42.

Elements of Answer for 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:

The majority of the larger farms did not earn profits during the 90s. The level of farm income remained rather constant or increased only slightly at the breakeven point. Generally, the effects of price cuts were balanced by the area based premia, raised yields, and the improvement of farm organization. Neither the development of farm size nor the changes in farm income depended on the set aside measure primarily. The impacts of general legal and structural factors, of specific regulations for enterprises in the eastern part of Germany, and in particular the development of prices and costs showed greater influences.

The production structure of the farms was adapted increasingly onto the market situations and to the premia for specific products. The set aside measure initiated in the first line modifications in crop rotations as well as the extensive cultivation of rape on set aside areas.

The modifications in crop rotation resulted in 67 % of the larger farms in an extension of COP-production. 22 % of those farms even extended the cultivation of grain. Therefore, a reduction of grain surpluses could not be achieved.

Details of the Answer:

Due to the reduction of permanent grassland and the cultivation of non-COP-crops (e.g. fruit-growing, tree nursery etc.), the total amount of arable area grew during the last decade. With the integration of the agricultural sector of the New German Laenders into the CAP, the commercial crop farming was forced to adapt production rapidly to the EU-market conditions. In Brandenburg, this process turned out to be a particular hard task because of the large share of commercial farms, the unfavourable natural conditions and the structural problems within the large state farms.

Farms cultivating at least 1000 ha are counted among the „larger farms“. In 1999, 406 larger farms (5,8%) cultivated about 53 % of the entire UAA in Brandenburg. By this definition, 18 out of the 30 interviewed farms (60 %) were larger farms, of which 16 farms were operated as legal entities. The larger farms interviewed cultivated approx. 1.900 ha UAA/farm on average. Their farm size development was not determined by the set aside policy but mainly based on general political, structural and legal issues.

On appraisal of the interviewed operators, the income contribution of commercial farming since the introduction of land set aside stayed relatively constant in 10 of those farms. 8 farmers mentioned the impression of reduced profits. However, the influence of set aside on the development of farm income was always estimated as little. Primarily dropped farm prices, problems with the acquisition of land, increased costs of farm input and not at least legal conflicts influenced the development of farm income to a larger extent.

The farmers estimation of their farm income evolution corresponds only partly with reality. The analysis of farm accounts demonstrates that during the 90s

- the profits³⁶ of single private farms remained relatively constant,
- the legal entities took benefits from the integration into CAP and received increasing profits respectively lower losses (see figure 16). Nevertheless, they suffered during this period of time

³⁶ Profits: Farm income including transfer payments, before taxation.

from high fixed costs and considerable structural problems which hindered positive farm incomes.

Figure 16: Development of Profits per Farm (€, current prices) in Brandenburg 1992/93 – 1998/99 ³⁷

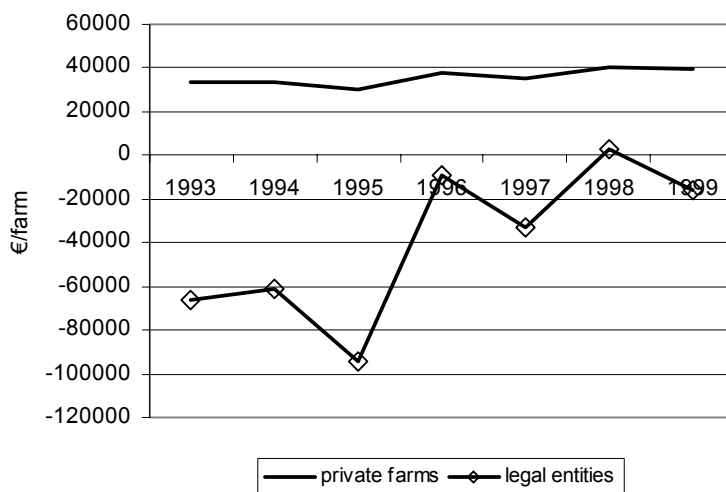
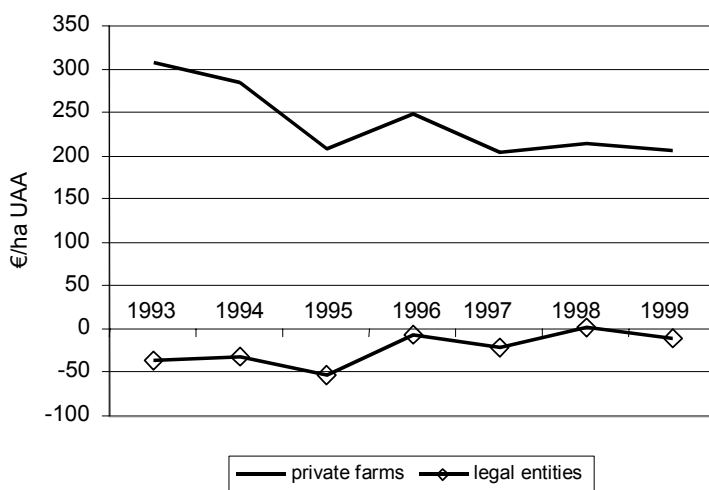


Figure 17: Development of Profits per ha UAA (€, current prices) in Brandenburg 1992/93 – 1998/99 ³⁷



To adapt production better on the market conditions, 14 out of the 18 larger farms (78 %) improved the quality of their products since 1992, most frequently by compliance with quality requirements (e.g. wheat, potatoes etc.). Some large-scale farms participated in production programmes with proofed origin; only few (3 farms) reduced the intensity of farming since 1992. Above all, the large-scale enterprises specialised themselves on the cultivation of high quality grain and potatoes and reacted therewith to the market demands (large amounts of homogeneous and high quality products). The expansion of COP-crops enabled the larger farms to gain profits from the area based premia. On account of the relatively low variable production costs (large-scale farming, low yields) it can be assumed that on less productive sites the compensation premia overcompensated the effects of reduced prices and contributed significantly to the covering of fixed costs. Without these premia the majority of the larger farms would have to give up business.

The calculation in table 7 demonstrates the relation between losses in gross margin resulting from land set aside and the premia paid for the participation in the set aside programme. The calculation is based

³⁷ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000 - Bericht zur Lage der Land- und Ernährungswirtschaft des Landes Brandenburg, p. 28 ff.

on different yields of winter wheat per ha (different natural conditions) in large farms with an average size of 20 ha/plot.

Table 7: Gross Margin of Winter Wheat Cultivation Compared to Land Set Aside in Larger Farms in Brandenburg (own calculation)

		Winter wheat		Set aside
Yield	dt/ha	40	65	-
Agricultural yield (output)	€/ha	491	798	-
Premium	€/ha	245	245	310
Variable production costs	€/ha	423	465	16
Labour costs	€/ha	67	70	8
Variable costs in total	€/ha	490	535	24
Gross margin without premium	€/ha	1	263	-24
Gross margin with premium	€/ha	246	508	286
Producer price winter wheat: 12 €/dt; labour cost: 11 €/h.				

Despite of compulsory set aside, 67 % of the larger farms expanded their COP-production clearly since 1992 (see table 8). This expansion resulted primarily from an increased cultivation of oilseeds. Only 22 % of the larger farms extended the cultivation of grain (see table 9). Nevertheless, the prospected reduction of surpluses could not be achieved.

Table 8: Development of COP-Production in the Larger Farms in Brandenburg (multiple responses possible)

	Expansion of COP-Production	No significant change of COP-Production	Expanded activities outside COP-production
Share of Farms (Total: 18 Farms)	67 %	11 %	17 %

Table 9: Development of Grain Cultivation Area in the Larger Farms in Brandenburg

	Reduction of grain cultivation area	No significant change of grain cultivation area	Expansion of grain cultivation area
Larger farms (Total: 18 Farms)	11 %	67 %	22 %

The set aside areas were integrated into crop rotation in multiple ways:

- by taking less productive plots out of production (14 farms),
- by using set aside areas for the cultivation of rape (5 farms).

Since 1992, 78% of the larger farms changed their crop rotation, firstly for economic reasons, secondly on account of agronomical benefits. Environmental aspects did not play a role in this context.

All in all it can be concluded that land set aside and the adaptation of crop rotations contributed significantly to the economic improvement of the single farm organization. This also occurred through an improved orientation of production structures on market demands. In this context it might be assumed that the larger farms generally reacted faster on market demands than the smaller ones. However, it must also be noticed that the on-farm adaptations in the New German Laenders were primarily based on super-ordinate influences (in particular the integration into the CAP, legal conflicts about property rights, and public aids for the improvement of farm structure and sectorial infrastructure).

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:

As the interviewers estimated, the crop rotation was influenced positively by the set aside measure in 33% of the farms (reduction of rye as dominating crop, expansion of rape, integration of soil improving plants). However, in the majority of the cases no significant effects of set aside on crop rotation could be noticed. 37 % of the farmers put identical plots off production.

Changes within crop rotation occurred in 63 % of the interviewed farms. Those changes concerned primarily the reduction of root plants and forage growing to the benefit of oilseeds. The arguments in favour of those changes were: different development of producer prices, the amount of premia for specific products and the on-farm adaptation onto the set aside measure.

The majority of the interviewed farmers decided for a natural regrazing (60 %) of the set aside areas and/or the cultivation of specific crops for soil improvement (63 %). Only 10% cultivated non-food products or plants for game, bees or other animals. The small extent of non-food-production on set aside areas can be explained with the already high proportion of rape cultivation on areas not set aside.

Details of the Answer:

63% of the interviewed farmers changed their crop rotation since 1992 significantly. As main reason the integration of the set aside plots into crop planning was quoted. 27% of the farmers chose a rotational set aside exclusively. Another 37 % decided for a combination of rotational and fixed set aside. The same rate (37%) took identical plots out of production each year.

The set aside areas were managed in the following manner:

- Non-food products: 10 % of the farmers cultivated (increasingly) non-food-crops; this relatively low share can be explained with the high amount of non-food-production on areas not set aside (see Q. 4.1.3);
- Fallow land with natural regrazing: 60% of the farmers applied a natural grass regeneration;
- Soil improvement: 63% cultivated specific crops for the improvement of soil fertility (e.g. phacelia, clover);
- Land use for environmental purposes: 10% of the farmers decided in favour of other crops (e.g. specific seeds for game or bees).

In total, the following modifications within crop rotation resulted:

- Increased cultivation of rape and protein plants;
- Expanded cultivation of wheat;
- Decrease of forage growing and root plants.

In this way, the share of cereals grew and the crop rotation declined slightly.

The interviewers classified the influences of set aside on crop rotation as neutral in most of the cases, as root plants with positive crop rotation effects were replaced by rape and other crops showing comparable crop rotation effects. Nevertheless, in 33% of the interviewed farms the crop rotation was improved from an agronomical point of view (see table 10):

Table 10: Modifications in Crop Rotations

	Degradation of crop rotation	Neutral effect on crop rotation	Improvement of crop rotation
Share of farms (total: 30 farms)	3.3%	63.3%	33.3%

Although weed infestation created problems on set aside areas, the majority of the set aside plots were not cultivated. As mentioned above, 60 % of the farmers chose a green cover only. The fact that only 10 % of the farmers cultivated their set aside areas with rape was explained by the low productivity of rape production on many areas (dryness, low yields and prices) and the large amount of rape already cultivated on areas not set aside (see Q. 413).

Crop rotation was adapted to the set aside-rate: in case of a low rate, the share of grain increased in crop rotation (at the expense of rape); in the case of higher set aside-rates, the share of rape increased accordingly.

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

Synthetic Answer:

In general, the land set aside facilitated the improvement of cultivation methods. The longer-term set aside of "problematic" plots lead to cost savings (reduced inputs) and supported the optimization of production on the remaining areas. In addition, positive effects on soil fertility were achieved through the extensive cultivation of soil improving plants on set aside areas.

According to the appraisal of the interviewers, the land set aside provided economic advantages in 77 % of the interviewed farms. From an agronomical point of view, the effects were mainly estimated as neutral (80 %). In only 13% of the farms the agronomical balance showed a positive development after the introduction of the set aside measure.

Compared to other German Laenders, the extent of fixed set aside was with 72% of the entire set aside area in Brandenburg considerably higher. This corresponds with the high share of less favoured and low productive areas. Not at least resulting from low fertility, the vast majority of the set aside areas were cultivated with soil improving plants or covered with natural grass only.

Details of the Answer:

The interviewers estimated the influences of set aside on the economic balance as predominantly positive to neutral, on the agronomical balance as predominantly neutral.

Economic advantages resulted from the opportunity to put less productive areas off production. The premia for set aside compensated the profit losses to a large extent. Only in favourable sites in which also fertile plots had to be set aside, the programme was declared as an economic disadvantage. This was true particularly in the first years, when a significant difference existed between the prices for food- and non-food rape.

Table 11: Effects of Land Set aside on the Economic and Agronomical Balance of the Interviewed Farms in Brandenburg

Farms (in total: 30)	Disadvantage	Neutral	Advantage
Economic balance	3.0 %	20.0 %	77.0 %
Agronomical balance	6.7 %	80.0 %	13.3 %

From an agronomical point of view, the conditions for cultivation did not change significantly. In 80% of the cases the interviewers estimated the effects of set aside policy as neutral. In some farms (13%) positive effects resulted from two adaptations:

- The possibility to modify/simplify farming techniques, as less productive and/or peripherally located areas could be set aside even on a long-term basis;
- The cultivation of soil improving plants which provided advantages for the following crops.

Table 12: Selection of Areas for Set aside in Brandenburg (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 (%)	60	3.3	33.3	26.7	66.7	0	53.3	3.3	0	0

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

Although 60% of the interviewed farmers chose rotational set aside exclusively or in combination with fixed set aside, approx. 72 % of the overall set aside land was taken out of production for a longer term (fixed). As a result, positive effects resulted on soil fertility, particularly through the cultivation of rape and soil improving plants. So, the effort of minimum tillage was facilitated at the same time.

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

Synthetic Answer:

The areas not set aside were cultivated more intensively since 1992. However, the intensification of farming was primarily a result of the adaptation to a changed economic and political context after the German reunification. Until today the level of yield increasing inputs is considerably below the national average.

The set aside measure supported the intensification of cultivation, as predominantly less productive plots were taken out of production. Consequently, a concentration of variable inputs occurred on the more productive remaining areas.

Details of the Answer:

In Brandenburg, COP-production increased between 1993 and 1999 by 68 % even after the introduction of the set aside policy (see table 5). The reasons for this development were:

- the extension of the cultivated area,
- a clear increases in yields per ha (in the case of grain + 23 %/ha and year).

Figure 18: Yields of Selected Crops in Brandenburg (dt/ha) ³⁸

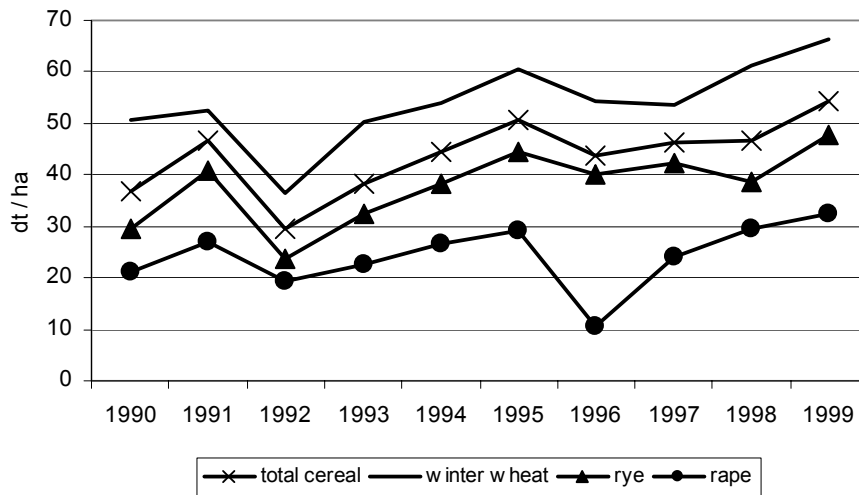
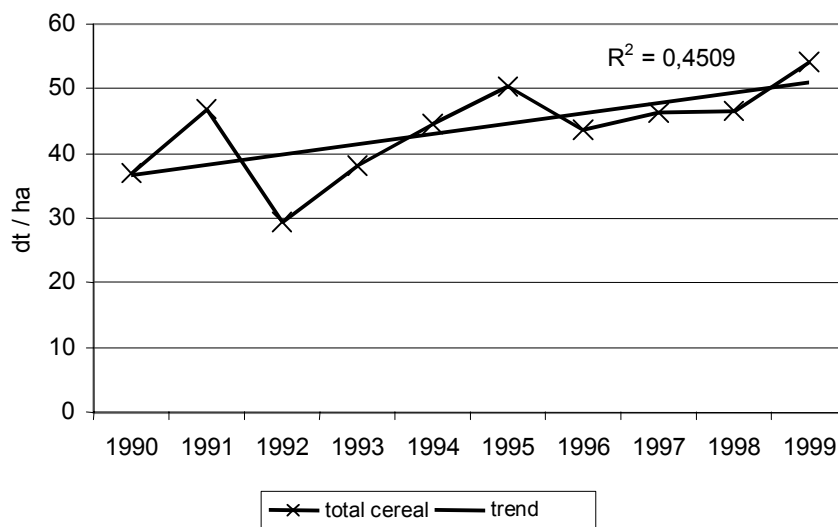


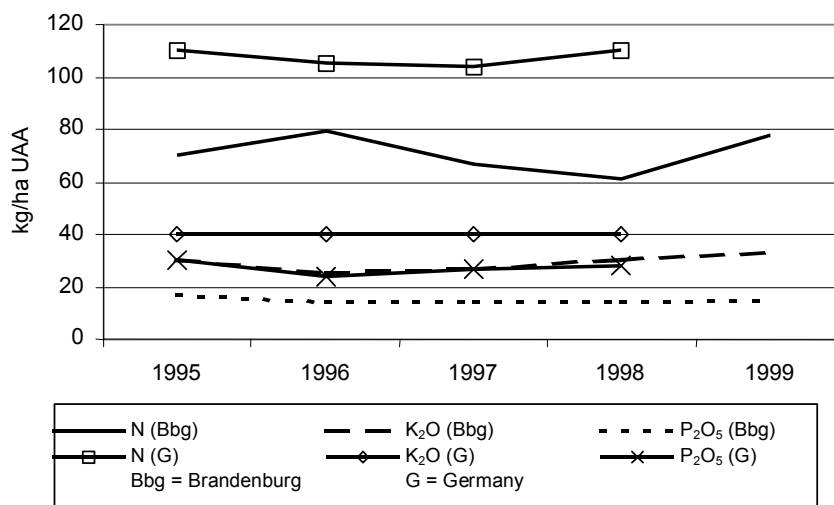
Figure 19: Development of Total Cereal Yield (dt/ha) in Brandenburg 1990 – 1999 ³⁸



The increased yields were achieved by an improved farm management in the first place. Of particular importance were the introduction of certified seeds, the fertilizing on requirement, and better plant protection measures. Between 1992 and 1999, the real input of fertilizers in all farms in Brandenburg remained rather unchanged. As approx. 11 % of the UAA was set aside (with restricted fertilizing), the input of fertilizers on the remaining areas has been raised - from a low level (see figure 20).

³⁸ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, Bericht zur Lage der Land- und Ernährungswirtschaft des Landes Brandenburg.

Figure 20: Input of Fertilizers per ha UAA in Brandenburg and Germany 1995 – 1999 ³⁹
(total farming sector)



The on-farm adaptations primarily resulted from the complete re-structuring of the agricultural sector after the German reunification. The set aside measure supported this process and favoured intensified farming on the remaining areas. This was also confirmed by the answers of the 30 interviewed farmers. Accordingly,

- 30 % out of this group increased the intensity of cultivation by using higher inputs per ha;
- 40% of the farmers changed their crop ratio to the benefit of more profitable crops.

Q. 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?

Synthetic Answer:

The obligation to reduce the cultivated area as a result of the set aside programme hardly influenced the competitiveness of the farms in Brandenburg. The average farm size was far above the German or European average even after land set aside.

Two thirds of the interviewed farmers reported about problems of renting or purchasing additional farm land. However, this was primarily interpreted as an outcome of the general market trend, less caused by the set aside programme. Only farms operating on fertile sites and/or new established farms aiming at farm enlargement might have been affected negatively by the set aside measure.

Most of the interviewed farmers changed their farm activities in the course of the set aside programme: the cultivation of more productive crops was extended, yield increasing inputs were reduced, diversification opportunities were utilized. All in all, the competitiveness of the farms could be improved by those adaptations significantly.

Details of the Answer:

Development of Farms:

Out of the 30 interviewed farmers 37 % (11) enlarged their farm land by approx. 245 ha between 1992 and 1999: Out of these 11 farmers

- 5 (45 %) cultivating less than 200 ha UAA each enlarged their farms by 60 ha on average;
- 4 (36%) of the size class between 200 and 500 ha extended their farm land by 6 ha on average;
- 2 (11%) operating on more than 1000 ha of UAA enlarged their farm by 1.160 ha on average.

³⁹ See Ministerium für Landwirtschaft, Umweltschutz und Raumordnung des Landes Brandenburg: Agrarbericht 2000, Bericht zur Lage der Land- und Ernährungswirtschaft des Landes Brandenburg, p. 56.

Another 12 (larger) farms did not change farm size. Only 7 farmers noticed a reduction of farm land. This concerned mainly farmers with very large farms (> 1.000 ha), which lost areas to the benefit of new established farms.

The farm expansions above all occurred in the new established private enterprises ("Wiedereinrichtungsbetriebe"). On the other hand, some of the large-scale enterprises lost areas which they had to hand over to the proprietors and/or to new established farms.

The share of the farms in the lower size classes increased clearly since the CAP-reform (see figure 2). For the foundation of numerous farms, the following factors were above all decisive:

- the introduction of area based premia and other farm programmes (e.g. single farm investment aids);
- the low level of land rents in the New German Laenders;
- the high unemployment in Brandenburg.

All in all, the changes in farm size resulted primarily from

- the regulations concerning the re-structuring of the agrarian sector in the New German Laenders;
- the general market trend for arable areas.

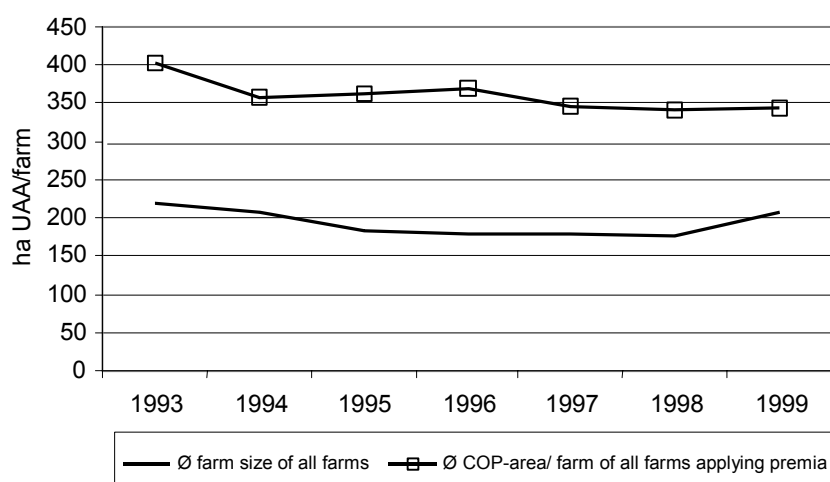
The set aside measure was of minor influence on the competitiveness of the farms, as

- predominantly less productive areas were set aside;
- even after land set aside the farmers in Brandenburg cultivated farms which were far larger than the German or European average.

Particularly the development of the larger farms was not affected significantly, as their size provided a higher degree of flexibility. As figure 21 shows, only the COP-area of the (larger) farms applying the professional scheme was with approx. 350 ha far above the average size of all farms operating in Brandenburg.

However, particularly on fertile sites and/or in subregions with a higher proportion of new established farms the reduction of arable areas through set aside stressed the market additionally.

Figure 21: Development of Average Farm Sizes of all Farms and of COP-Area of the Farms Applying Compensation Premia in Brandenburg⁴⁰



⁴⁰ See Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft: Agrarbericht der Bundesregierung, different volumes; unpublished information; own calculations.

Market for Arable Land:

Mainly smaller family farms (new establishments) and the (larger) co-operative farms demanded additional farm land. The large-scale enterprises (legal entities) primarily tried to keep their farm size stable.

On appraisal of the 30 interviewed farmers, 23 % adapted to the set aside measure by renting in additional land. The purchase of land occurred in 2 farms only (7 %).

Out of 30 interviewed farms, 67% reported about problems of renting or buying additional land. However, this was primarily ascribed to the general market trend for farm land (95%), less to the set aside scheme (5%). On the other hand, 47% of the interviewed farmers had the impression that a specific market for premium carrying areas would have developed. In so far impacts from the set aside measure on land market must be assumed.

However, a restriction of competitiveness resulting from set aside is to be expected in the more favourable sites primarily:

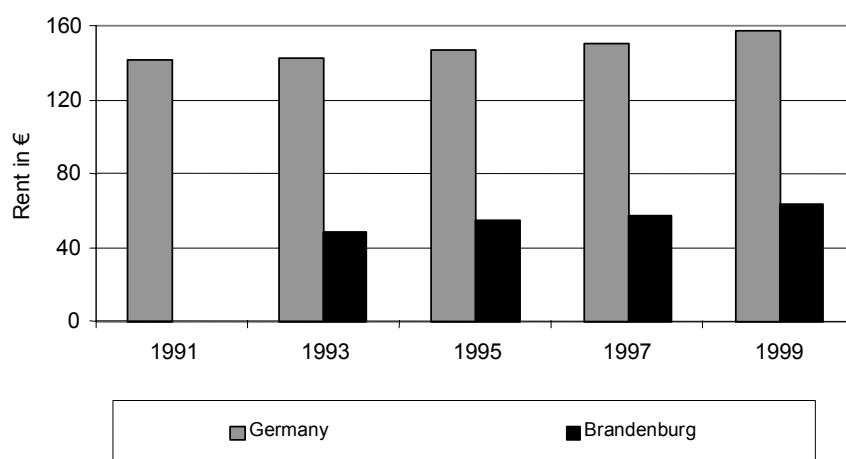
- On the one hand, the level of rents generally increased (see figure 22), not at least because of set aside;
- On the other hand, in the first years of the programme the prices for non-food rape were significantly lower than for food-rape. Since particularly farms with more productive land cultivated rape, economic disadvantages resulted from that price difference.

Those handicaps had to be compared with the agronomical advantages caused by the set aside measure (see Q. 4.3.2):

- Above all, lower productive and/or hardly manageable plots could be put out of production;
- The input level of the other factors could be adapted.

In total, it may therefore be assumed that the competitiveness of the commercial farms was hardly influenced by the development of the market for arable land. That does not exclude that single farms aiming at farm expansion were faced with considerable restrictions resulting from set aside.

Figure 22: Development of Rents (€/ha) for Arable Areas in Brandenburg ⁴¹



Adaptation to set aside:

In the course of the programme, 25 out of the 30 interviewed farmers changed their activities and crop ratios. The following adaptations were chosen:

- Extension of high productive crops (40% of all farms): the farmers expanded the production of oilseeds (14 farms), cereals (10 farms) and protein plants (18 farms); in only few cases the cultivation of COP-crops was reduced.
- Reduction of yield increasing inputs (47 % of all farms);

⁴¹ Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft: Agrarbericht der Bundesregierung, different volumes.

- Intensification of cultivation on the remaining areas (30% of all farms);
- Renting in additional land (23 % of all farms);
- Purchasing of land (7 % of all farms);
- On-farm diversification within 4 farms;
- Off-farm activities within 2 farms.

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:

In Brandenburg, the set aside of land had positive to neutral effects on the management of soils. The majority of the farmers cultivated set aside areas with soil improving plants (63%) or took identical plots out of production for a longer term. 60 % of the farmers chose natural regrazing, particularly on fixed set aside areas. Therewith the risks of erosion and washing out of nutrients, which at the beginning of the set aside measure were a considerable problem, could be reduced in the meantime. In general, the improvement of soil management was facilitated through the wide participation of the farmers in programmes aiming at soil protection (40 %).

Details of the Answer:

At the appraisal of the interviewers, set aside showed no significant impacts on soil management in half of the interviewed farms. In 47 % of the cases positive effects were achieved.

Table 13: Effects of Set aside on Land Management in Brandenburg

	Negative effects	Neutral effects	Positive effects
Share of farms (total: 30 farms)	3%	50 %	47 %

Due to the high share of fixed set aside areas (72 % of the set aside areas of the 30 farms), problems of erosion occurred in the first years of the programme. Consequently, the farmers reacted with the seed of grass or specific plants. Actually, the vast majority of fixed set aside areas is covered with natural grass. Irrigation of set aside areas was not practised and could therefore take no influence on the risk of erosion. Just 1.5 % of the total UAA was irrigated in 1999.

40 % out of the interviewed farmers participated in programmes aiming at soil protection. 63% improved the usability of their soils by sowing specific seeds for loosening of soils or the accumulation of nutrients.

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, floods etc)?

Synthetic Answer:

Water management was not affected significantly by land set aside (neutral: 77%). As far as an improvement was achieved (positive effects: 20%) that must be seen as a result of the implementation of national/regional regulations after the German reunification (e.g. decrease of irrigation) and the improvement of cultivation methods on set aside areas.

Details of the Answer:

Based on information from the 30 farmers, the interviewers noticed positive modifications in the realization of water protection in 20 % of the cases. Those reactions were interpreted as adaptations to the nation-wide regulations of water protection after the German reunification primarily. In three quarters of the analysed cases no significant changes of water management took place during the set aside programme.

Table 14: Effect of Land Set aside on Water Management in Brandenburg

	Negative effects	Neutral effects	Positive effects
Share of farms (total: 30 farms)	3.3 %	76.7 %	20 %

In the former DDR, a large part of the arable land was irrigated. Today, the irrigation plants are hardly in operation. Out of the 30 interviewed farms only 2 farms used irrigation on 550 ha in total (13 % of the UAA of these two farms).

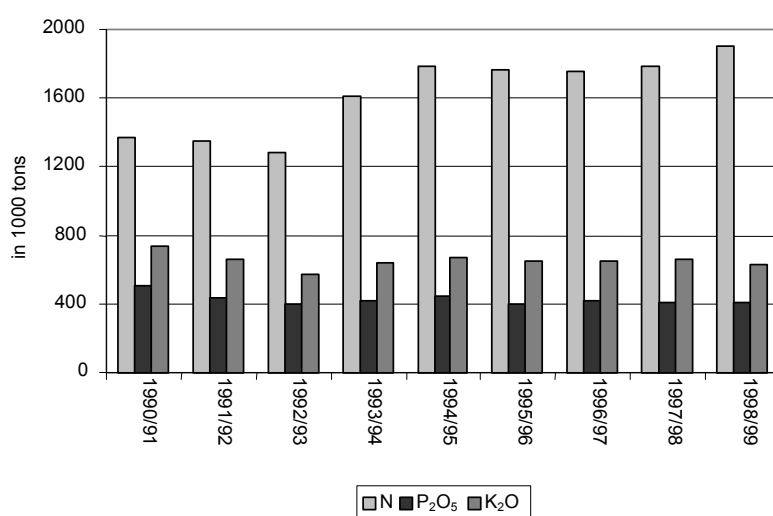
Irrigation of set aside land was not practised in Brandenburg. On the information of the two farmers with irrigation, their farm management was not changed on account of the set aside measure. Moreover, 27% of the enterprises participated in agro-environmental programmes for water protection. No modifications could be found on areas with non-food-production, in particular.

Although the input of fertilizers and plant protection means shows an upward trend nationally (see figures 23, 24), it can be assumed that the total input level in Brandenburg did not increase significantly during the 90s. This can be explained with the following arguments:

- High share of fixed set aside areas without application of yield increasing inputs;
- Poor and dry soils in large parts of the Land on which raised inputs can provide only little growth of yields;
- Improvement of farming techniques after 1990/91 which enabled the farmers to use farm-inputs more productively.

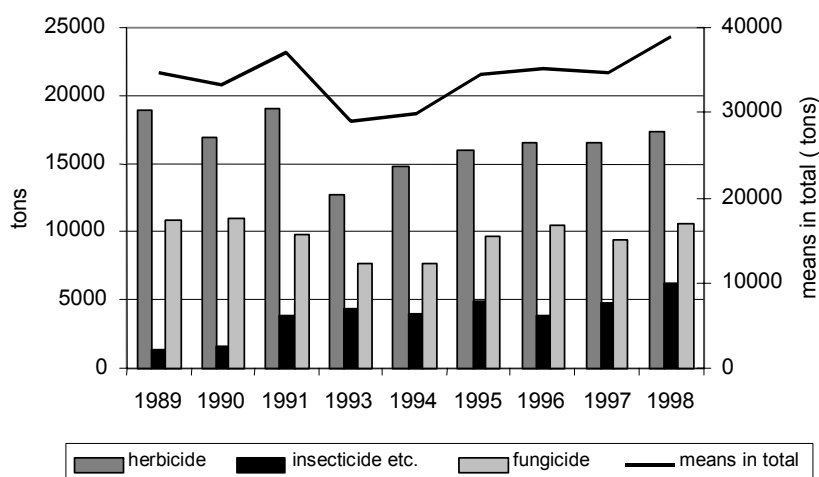
As figure 20 showed (see Q. 433), the input of fertilizer means was significantly below the national average during the last decade. It can be expected that without the set aside measure those inputs would have been considerably higher. On account of the sandy soils this would have caused environmental problems which could be limited through set aside.

Figure 23: Development of Fertilizer Inputs in Germany ⁴²



⁴² See Statistisches Bundesamt: Statistisches Jahrbuch für die Bundesregierung Deutschland, different volumes.

Figure 24: Development of Plant Protection Input in Germany ⁴²



Erosion problems immediately after the introduction of the set aside measure (see Q. 4.4.1), which arose from the high share of fixed set aside areas without professional management, could be solved through improved cultivation techniques in a short time, as the interviewed farmers expressed.

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

Synthetic Answer:

On account of the unfavourable natural conditions for commercial farming, the share of fixed set aside areas is rather high in Brandenburg. Therefore, 23 % of the interviewed farmers mentioned the impression that an abandoned sector has developed in the course of the set aside measure. This opinion was expressed particularly in farms operating on less productive sites. However, not all farmers mentioning the existence of abandoned areas expressed this as a negative development.

The interviewers estimated the effects of set aside on landscape as neutral in 87 % of the cases. Negative effects (13 %) were related to incorrect cultivation methods and the high extent of natural regrowth (without sufficient cultivation). Problems became evident with the occurrence of problematic weeds (e.g. thistles, couch grass) mainly.

On average, 48 € per ha were spent for the maintenance of set aside areas without non-food production.

Details of the Answer:

Out of the interviewed farmers, 87 % mentioned no negative impacts of set aside on landscaping. In particular on long-term set aside areas a natural regrowth was achieved. If those areas were tended properly, no optical differences resulted to managed plots. On the other hand, due to the large extent of fixed set aside areas, a considerable part of those areas were not cultivated correctly (e.g. too late mowing). In these cases negative effects on the landscape resulted. This was reported from 4 farms (13%), operating on lesser productive sites.

37% of the farmers indicated that their set aside areas differed from the surroundings. The areas have been concentrated in specific parts of the farms at 23% of the cases. Other three farmers expressed their feeling that the set aside areas would give a neglected impression.

Table 15: Effects of Set aside on the Landscape (estimated by the interviewers)

	Negative effects	Neutral effects
Share of farms (total: 30 farms)	13%	87%

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 climatic and soil conditions (amount of growth). The non-food production excepted, the interviewed farmers estimated the cost for land planting and related intercultivation measures at about 48 €/ha on average (range from 13 €/ha - natural regrazing - up to 130 €/ha - specific seeds).

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

Synthetic Answer:

Considering the high share of long-term set aside areas, the set aside instrument showed positive effects on bio-diversity. Particularly the cultivation of the set aside areas with soil improving plants or a natural regrazing technique provided higher advantages as e.g. the cultivation with non-food-crops or a (not allowed) complete fallow. In addition, the concentration of set aside areas on specific sites facilitated the development of fauna and flora. Positive effects also resulted from the renunciation of chemical means against weeds before starting re-cultivation as well as from a rather late mowing of set aside plots.

Details of the Answer:

Due to the high share of natural regrazing and the specific land planting in Brandenburg, the effects of set aside on bio-diversity were more important than in other German regions. Even 10% of the interviewed farmers, selected seeds for the cultivation of game feed or for bees.

At the beginning of the set aside measure, 12 of the interviewed farmers (40 %) mentioned problems with set aside related to landscape. This proportion dropped down at about 23% until the year 2001. The problems concerned primarily weed infestation, parasitic attacks and the abandoned appearance of the areas.

At their own appraisal, the interviewed farmers chose the following type of cultivation of their set aside areas :

- Land Planting :
 - 63 % sowed seeds for agronomical reasons ;
 - 10 % sowed seeds for other purposes (e.g. to the benefit of bees or game);
 - 60 % applied natural regrazing.
- Management of set aside areas :
 - 100 % mowed the growth of the set aside plots.

The majority of operations on set aside areas were realized either between June and July or in the early autumn (see table 16). At the statements of the farmers, the first mowing was operated in late June so as to respect the breeding time of the majority of broodings on meadow and young mammals (e.g. deer, hares). Regarding the right time for cultivation, target conflicts became obvious:

- the farmers generally aimed at an early mowing in order to limit weed infestation;
- representatives of the nature protection associations suggested a first mowing not before the end of July in order to minimize the risks for specific birds (e.g. partridge).⁴³

⁴³ See Landesanstalt für Pflanzenbau und Bodenkultur – Agrarfauna und Vogelwelt, personal information (H.Ranftl).

Table 16: Time of Operation on the Set aside Areas in Brandenburg

	April	May	June	July	August	September	October
Number of Farms	0	1	15	8	3	4	9
Share of farms (total: 26)	0%	3.8%	57.7%	30.7%	11.5%	15.4%	34.6%

From the point of view of the environmental administration, a longer term set aside should be supported more intensely since it affects flora and fauna more favourably. On the other hand, on areas with average natural conditions the ecological advantages of set aside obviously are the highest if areas are taken out of production for 2 until 5 years. An extremely long term set aside (> 5 years) of those areas can not provide further benefits for bio-diversity, as specific wild plants (especially grass) drive other (annual) plants out of the plant community.⁴⁴ Therefore, provided that specific wild animals particularly demand for annual weeds, the rotational set aside might offer more favourable conditions for evolution than a long term set aside.

As the ecological effects of set aside depend considerably on the specific conditions of location, cultivation/management of the set aside areas should be defined more precisely in order to achieve higher ecological effects. Consequently, the cultivation/management of set aside areas should be adapted more narrowly to the regional and local context.

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

These questions have been answered in the German national report 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 legislations have on the effectiveness of the set aside instrument?

84% of the interviewed farmers stated that the actually realized set aside measure forms an essential part of the CAP. However, only 10 % of the farmers agreed generally with the Common Agricultural Policy. This proportion was slightly higher in the larger farms (11 %) than in the smaller ones (8 %).

As typical administrative problems were quoted by the farmers:

- Measurement of the set aside plots (20%);
- Minimum size of set aside areas (7%);
- Realization of the minimum yield of non-food crops (27%);
- Starting time and end time of set aside (13%);
- Too late information about set aside-rate and premium (23%);
- Laborious and/or complicated administrative procedures (50%);
- Insufficient co-ordination with other programmes (17%);
- Too late payments (50%).

⁴⁴ See Landesumweltamt Brandenburg, personal information (Dr. Schoknecht).

The maintenance of the ecological advantages of long-term set aside areas requires a cultivation of those areas at least after about 5 years (e.g. mulching); see Landesanstalt für Pflanzenbau und Bodenkultur – Agrarfauna und Vogelwelt, personal information (H.Ranftl).

Asked about improvements of the set aside scheme, the 30 farmers recommended:

- Abolition of set aside;
- Abolition of a minimum size for set aside areas, of minimum yields for non-food-crops and of the simplified scheme;
- More flexible administrative procedures;
- Set aside on a voluntary base only;
- Simplification of controls;
- Abolition of natural regrazing and cultivation of set aside areas;
- Higher support of non-food production and protein crops;
- Lower set aside-rate;
- Enlarged utilization of set aside areas for re-afforestation;
- Adaptation of premia to different natural conditions of arable land;
- Set aside only on less productive areas;
- Using set aside areas for forage growing.