



**EVALUATION DE L'IMPACT ENVIRONNEMENTAL
DE L'ORGANISATION COMMUNE DE MARCHÉ
DES CULTURES PERMANENTES**

**ANNEXE 13 : OCM VIN
ETUDE NATIONALE ALLEMAGNE et
ETUDE DE CAS BADEN-WÜRTTEMBERG**

Novembre 2005



<p>OCM VIN ETUDE NATIONALE ALLEMAGNE</p>
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Novembre 2005

Overall statement on the wine production in Germany and on the report:

Germany has only some with 2,7% of the total European vineyards and thus only little importance in the EU-wine production. Furthermore, in Germany, wine production has only little significance compared to total agriculture production. Only in few, specific regions in Germany wine production has some importance. Therefore, there aren't specific RDR-programmes especially for wine production in the areas.

Because of the low importance, there are only few experts in Germany who are specialised into wine and / or who have special knowledge about CR 1493/1999 for wine. Quite often, the person in charge for wine production is, at the same time, responsible for other "marginal" production branches. This made the finding of experts and the conduction of interviews difficult. Many of the interviewed experts could not give clear statements, because they didn't fully understand the questions. Only the experts from the BMVEL (federal ministry of agriculture) and some scientists could give full and comprehensive interviews.

Many of the environmental problems that arise with wine production and that were mentioned in the questionnaire are of little relevance in Germany, because there are German environmental protection laws older than the CR. These laws are named in the report.

The measures for environmental protection arising from CR 1493/1999 (which is still a market regulation, and not a regulation on environment) are, in Germany much less influent than the other, elder regulations provided in German environmental laws. Therefore, and because of the small German wine production, environmental problems didn't occur in the last decade, like in the important wine countries France, Spain, Italy or Portugal. This is a clear result of our expert interviews.

In general, German wine producers work on much smaller surfaces and produce less intensively than their colleagues elsewhere in Europe. In order to persist economically, they produce quality wine for direct selling and apply higher production standards as required in the EU-Regulations.

The CR 1227/2000, 1623/2000, 1622/2000 are implemented in Germany, but they have only very limited significance (all experts agreed on this point). Again, the explanation for this is that the regulations provided on the CRs are lower than in national German laws, like the German wine law (Source for the German wine law:
http://bundesrecht.juris.de/bundesrecht/weing_1994)

Additional remark to chapter: 2.4.1

The RDR in the CR 1257/1999 have to be handled separately from the CR 1493/1999. The CR 1257/1999 gives, to member states, the opportunity to subsidise environmental protection, but has nothing to do with the market regulations. As mentioned above, Germany's wine production has little significance in comparison to European production and to total German agriculture production. It is of some significance only in specific regions in Germany. Therefore, there aren't specific programmes for wine production to be found in the environmental measures. The environmental aspects of wine production are dealt with in general agri-environmental programmes (like payments for the integrated or biological production). According to experts, there exist also programmes (e. g. in Baden-Württemberg and Rheinland-Pfalz), financed by the CR 1257/99, to preserve the wine landscape. For example subsidies are granted for the production on steep slopes or for the maintenance of terraces and dry stone walls. These programs can be viewed on the following homepages:

- FUL in Rheinland-Pfalz:
<http://www.pflanzenbau.rlp.de/internet/global/themen.nsf/0/64af9ce5d9cfb0bfc1256fa30039f9c9?OpenDocument>
- Meka in Baden-Württemberg:
<http://www.landwirtschaftmlr.badenwuerttemberg.de/servlet/PB/s/zenld816tpx4318n9nt39zgfj1bcf37e/menu/1040914/index.html>;
http://www.mlz.baden-wuerttemberg.de/cgi/styleguide/content.pl?ARTIKEL_ID=11450
- Kulap in Bavaria:
http://www.stmlf.bayern.de/agrarpolitik/programme/foerderwegweiser/11028/linkurl_1_0_0_17.pdf, <http://www.stmlf.bayern.de/landwirtschaft/weinbau/>,
<http://www.stmlf.bayern.de/agrarpolitik/programme/foerderwegweiser/11028/>

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GLOSSARY

AEM	Agro Environmental Measures
BMVEL	Bundesministerium für Verbraucherschutz und Ernährung Federal Ministry of Consumer Protection, Food and Agriculture
CR	Council Regulation
EAGGF	European Agricultural Guidance and Guarantee Fund
EO	Erzeugerorganisationen / Producer organisations
EU	European Union
FUL	Förderung Umweltschonender Landbewirtschaftung / promotion of environmental friendly cultivation
GAP	good agricultural practices
GFP	gute fachliche Praxis / good agricultural practices
ha	hectare (10.000 m ²)
hl	hectolitre
IP	integrierte Produktion / integrated Produktion
Kulap	Kulturlandschaftsprogramm / cultural landscape programme
MEKA	Marktentlastungs- und Kulturlandschaftsausgleich
MYH	maximum yield per hectare
OP	Operational Programmes
PO	Producer organisation
PO's	Producer organisations
Qw-psr	Quality wine in specified regions
Qw-psr-c	Quality wine in specified regions classic
Qw-psr-s	Quality wine in specified regions select
RDP	Rural Development Programme
RLP	Rheinland-Pfalz

1. CONTEXT OF WINE PRODUCTION IN GERMANY

1.1 Main characteristics of wine production in Germany

The first viticulture in Germany was established by the Romans in the year 100 AD in the southern regions of Mosel and Ahr. Since the middle age, the vineyards have been conquered new areas, even in sites climatically less favourable for its cultivation. Finally, in the 19th. Century, the viticulture aimed at improving its production, in order to produce variety-pure wines of higher quality, occurring in southwestern Germany, where soil and climatic conditions are more favourable. Therefore, wine production became an important agricultural activity in this part of the country, being some small vineyards also found in the centre-east part (Saale-Unstrut, Sachsen) (Figure 1).

Nowadays, grapes are cultivated in 13 areas in Germany: Ahr, Mittelrhein, Rheingau, Mosel-Saar-Ruwer, Nahe, Rheinhessen, Hessische-Bergstraße, Franken, Pfalz, Baden, Württemberg, Saale-Unstrut and Sachsen (Figure 1).

These areas present optimal conditions for wine production, such as good insolation and temperature conditions. Local factors as soil types and duration of sun exposure are of a crucial importance for the cultivation of different wine varieties. Additionally, low fertility of soils and steep slopes are usually typical for wine regions.

In 1997, the implementation of a German wine quality regulation guaranteed the improvement of the wine quality, being the labelling of wine for the first time regularised. According to the German regulation, the viticulture can only carried out in planned producing areas.

Figure 1: Distribution of the vineyard areas in Germany



Source: <http://www.deutscheweine.de>, Date of use: March 2005

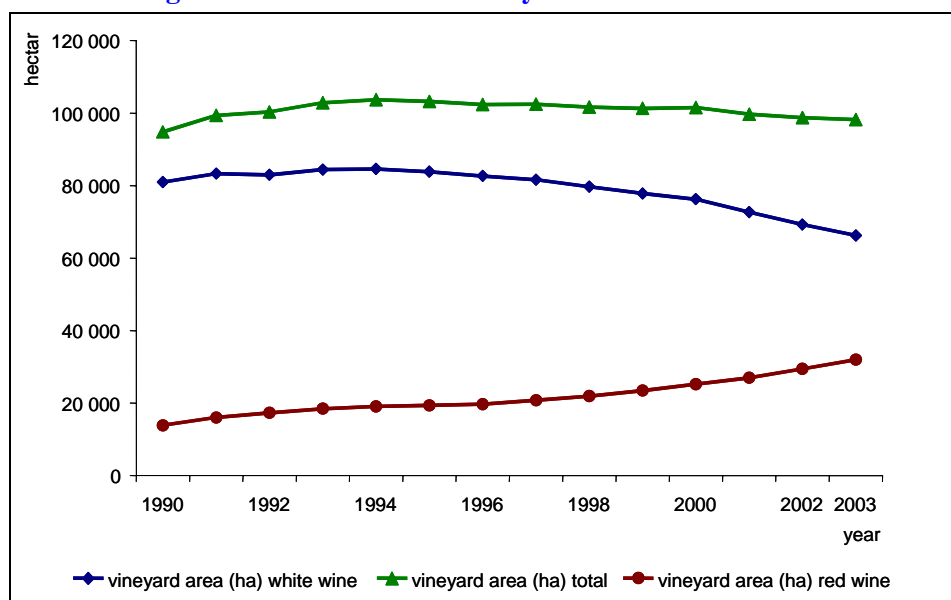
1.1.1 Evolution of the vineyards area - 1990 to 2003

Since the implementation of the vineyard register CR (EC) No. 2392/86 in 1988, the area of cultivation has not changed (102 000 ha) based on the wine-growing potential in 1988 (data for 1990, only for western Germany).

Germany is a small wine producer in comparison to the European Union vineyards (3 590 000 ha), possessing only 2.7 % of the total vineyard area. The major European wine producers are Spain and France (1 235 000 ha and 914 000 ha respectively), followed by Italy (564 000 ha) and Portugal (248 000 ha).

In the Figure 2, one can observe the decrease of white vineyards area, as well as the increase of red ones. From 1990 to 2000, the area of red vineyard has doubled, due to the growing consumption of red wine in Germany (German Wine Institute, 2004/05). The wine producers react to satisfy the increasing red wine demand in Germany by using the European restructuring and conversion programme (CR (EC) No 1493/1999, Article 11), which was first established in 1999. A reason for the decrease of vineyards from 2000 (Figure 2) is the payment of a premium for the permanent abandonment of the vineyards from particular areas: most of the abandoned vineyards have had poor soils and/or are located on steep slopes. The yearly fluctuating wine yield and high requirement of labour time make the production mostly inefficient. Most of the abandoned vineyards in Germany are located in the state of Rheinland-Pfalz, especially in the region Mosel.

Figure 2: Evolution of the vineyards area - 1990 to 2003



¹⁾ Data from 1990 for western Germany

Source: BMVEL 2004: Statistisches Jahrbuch über Ernährung, Landwirtschaft und Forsten 1993 - 2004

Germany got assigned the new cultivation rights of 1 534 ha (CR (EU) No 1493/1999, Article 6), which were distributed through the federal states. Until 2004, approximately 289 ha from the new cultivation rights were granted, mostly for the region of Baden-Württemberg.

As one can observe in the Table 1, most of the German vineyards are located in the southern part of the country (99%). The proportion of white to red wine varies from region to region, being dependent on local conditions (e.g. soil and climate) and depends on the local conditions like soil and climate. Only in Württemberg and in Ahr, the proportion of red wine is larger than of white wine.

Table 1: Wine growing regions and the corresponding vineyard areas, as well as the proportion of wine type in Germany.

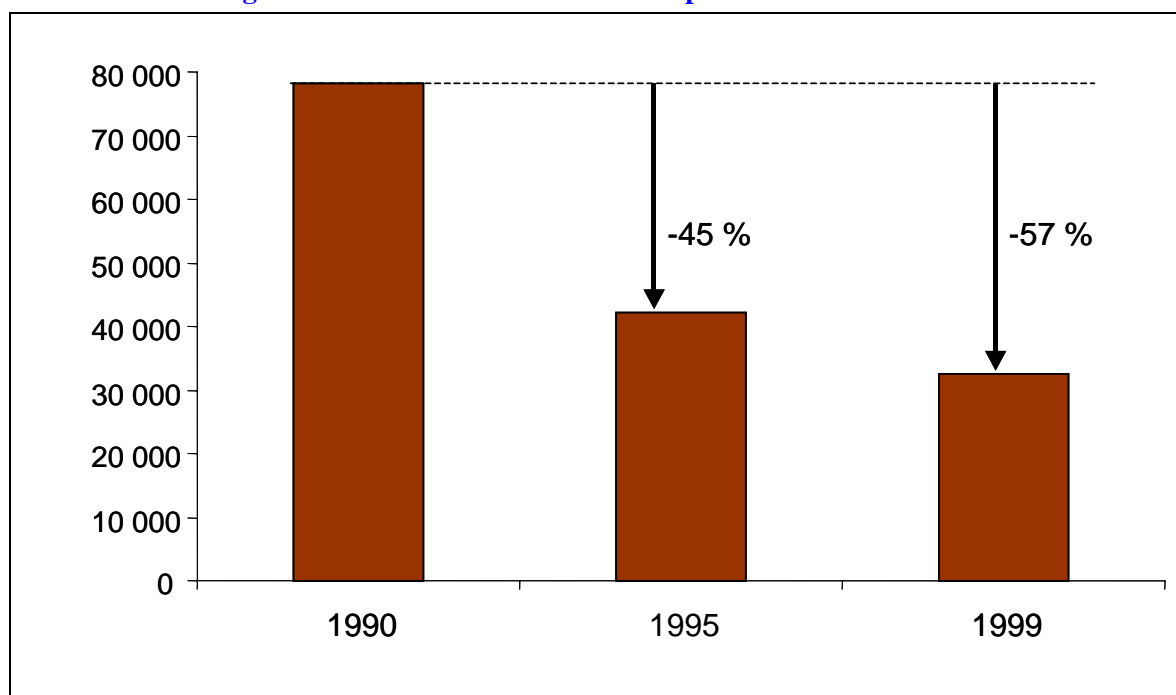
Wine growing region		Vineyard areas (ha)	Proportion of wine type	
			white (%)	red (%)
1. Rheinhessen	(south-west)	26 171	71	29
2. Pfalz	(south-west)	23 394	62	38
3. Baden	(south-west)	15 944	59	41
4. Württemberg	(south-west)	11 459	31	69
5. Mosel-Saar-Ruwer	(south-west)	9 533	92	8
6. Franken	(south-west)	6 005	85	15
7. Nahe	(south-west)	4 221	77	23
8. Rheingau	(south-west)	3 167	84	16
9. Saale-Ustrut	(south-west)	652	76	24
10. Ahr	(south-west)	529	12	88
11. Mittelrhein	(south-west)	495	87	13
12. Sachsen	(centre-east)	446	85	15
13. Hessische Bergstraße	(centre-east)	444	84	16

Source: German wine Institute 2004/05

1.1.1 Evolution of producer - 1990 to 2003

Figure 3 shows the evolution of the number of German wine producers in 1990, 1995 and 1999. The number of wine producers has decreased from 77 500 to 32 570 growers, which means a decrease of 57% in 10 years.

Figure 3: Evolution of the number of producers - 1990 to 1999

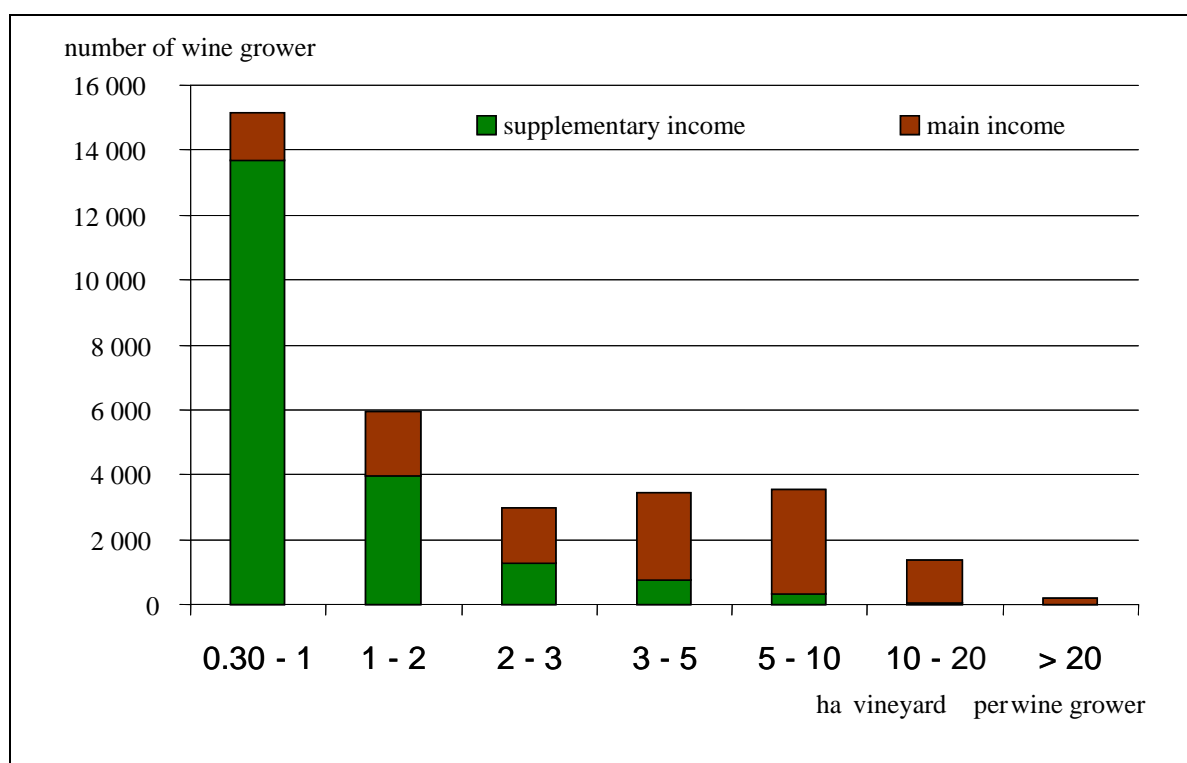


Source: BMVEL 2004, Statistisches Jahrbuch über Ernährung, Landwirtschaft und Forsten 2004, S.105

The main reason for the strong structural change is the availability of equipment for many growers. The majority owns vineyards with less than one ha (Figure 4), making the use of modern harvest techniques not very profitable. Moreover, the high labour costs in the viticulture for the wine growers and their successors might have been another reason, for the abandonment of the wine areas. For two thirds of the wine growers is wine production only a supplementary income (Figure 4). Only 12 500 producers have there main income exclusively from the viticulture. Because of the fact that most wine growers possess only one ha of vineyard, many producers have a second agricultural activity, in order to get an adequate income, as shown by the Figure 5. The majority of

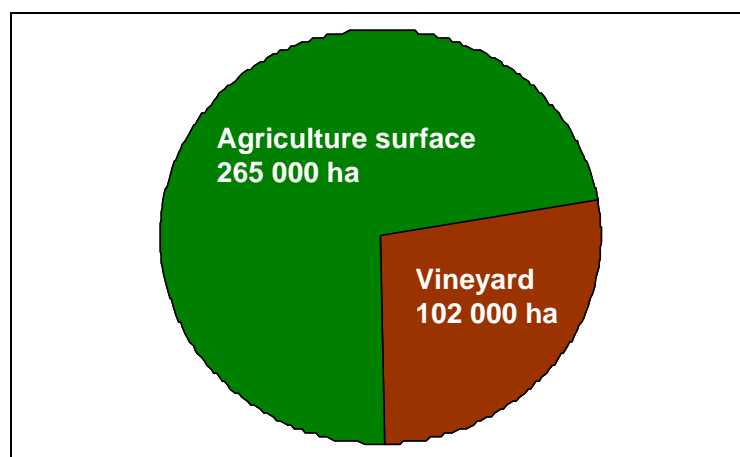
the wine growers have larger areas of agricultural than of vineyard surface. In 1999, the average per wine grower was 11.2 ha, being only 3.07 ha used as vineyards.

Figure 4: Individual German wine growers in 1999, selected after the type of income



Source: BMVEL Statistisches Jahrbuch über Ernährung, Landwirtschaft und Forsten 2004, S. 105

Figure 5: Distribution of the agricultural areas from the wine growers in relation to the land use in 1999.



Source: BMVEL Statistisches Jahrbuch über Ernährung, Landwirtschaft und Forsten 2004, S. 105

1.1.2 Evolution of production by categories - 1990 to 2003

In the last seven years, the wine consumption has increased continuously. Nowadays, the consumption is 23.8 l per capita and year, in comparison to approximately 22 l in 1990 (BMVEL 2004, S.249). However, the Germans are still below the European average (33 l per capita). The German degree of self-sufficiency in wine was 50% in 2003 (BMVEL 2004, S.249). Therefore, with an import of over 12 million hectolitres in 2003, Germany remains (?) the world's largest import market for wine, creating a considerable pressure on national products. The degree of self-sufficiency in wine of the European Union was 112% in the average of the years 2000 to 2002.

The amount of white and red wine produced has clearly changed from 1991 and 2003 (Table 2). The consumers are asking for white and red wine with a higher quality, going the production of table wine backwards. Thus, higher amounts of quality wine (QbA) are produced. In Germany, the quality wine is differentiated in the categories classic (Qw-psr-c) and select (Qw-psr-s) (German wine quality regulation). The select category has a higher quality than the classic one. All three categories (table wine, Qw-psr-c, and Qw-psr-s) are listed below (Table 2). An indication for the continued preference of the German consumers for red wine is the strongly increase in the production of red wine observed in Table 2, whereas the white wine production has slightly decreased over the time.

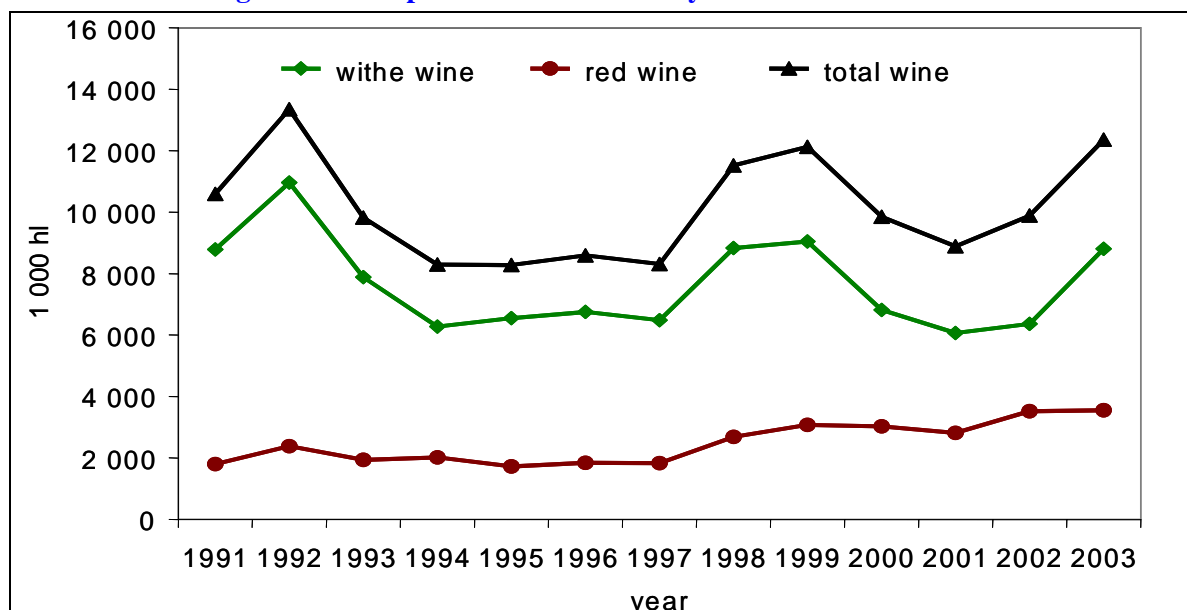
Table 2: White and red wine production in Germany between 1991 and 2003

year	white wine (1.000 hl)			red wine (1.000 hl)		
	t.w.	Qw-psr-c	Qw-psr-s	t.w.	Qw-psr-c	Qw-psr-s
1991	368	6.886	1.537	37	1.684	81
1992	765	6.400	3.802	27	2.055	300
1993	226	3.777	3.881	14	1.618	306
1994	478	5.568	233	16	1.864	144
1995	219	5.051	1.283	18	1.647	61
1996	171	4.671	1.908	9	1.693	140
1997	244	2.954	3.283	10	1.423	397
1998	503	5.111	3.223	26	2.436	222
1999	1.354	4.648	3.040	33	2.706	342
2000	708	3.984	2.127	69	2.736	227
2001	359	3.545	2.166	25	2.539	256
2002	592	3.314	2.458	31	3.216	274
2003	230	5.167	3.410	18	2.695	841

t.w. = table wine, Qw-psr-c = Quality wine per specific region classic,
Qw-psr-s = Quality wine per specific region select

Source: BMVEL 2004, S. 248

As shown in the Figure 6, Germany produces about 6.0 until 8.8 million hl white wine per year. However, from 1991 until 2003, there were some yield fluctuations, depending on the climatic conditions.

Figure 6: Wine production in Germany between 1991 and 2003

1.1.3 Evolution of the number of distilleries - 1990 to 2003

There are 20 741 distilleries in Germany. During the period from 1992 to 1999, the number of distilleries did not change, mainly due to the German Monopoly on Liquors. In the last four years, there was a slight decrease of distilleries could be observed (Table 3). The alcohol production from the wine distilleries reached 700 hl in 2001/02 and 2 759 hl in 2002/03 (BMVEL 2003, S. 81). The German government subsidises the production and storage of the alcohol. The fluctuations of alcohol production is dependent on the market conditions for wine and on the grape yields. As showed in the Table 3, the grape yield varied from 1 000 t to 37 400 t from 1992 to 2003.

In 2000 and 2001, Germany proposed an urgent distillation for a market relief, due to the high grape yields, causing great amounts of distillation of grape of 20 000 – 34 000 t.

In Germany, the number of plants producing wine from fresh grapes is 31 (BMVEL 2003). The number of wine producers decrease, because a part of the wine producers join in companies, in order to improve their position in the market.

Table 3: Evolution of the number of distilleries and processing plant, which produce wine from table grapes

year	Distilleries	Processing plant	grape quantity used for alcohol production (tons)
1990	-	-	-
1991	-	-	-
1992	20 870	-	9 695
1993	24 570	-	37 400
1994	22 958	33	8 186
1995	23 055	33	7 161
1996	22 235	34	3 774
1997	22 545	32	3 942
1998	22 223	30	4 321
1999	23 243	32	6 152
2000	22 357	32	34 398
2001	22 796	34	20 520
2002	21 502	31	1 231
2003	20 741	31	5 187

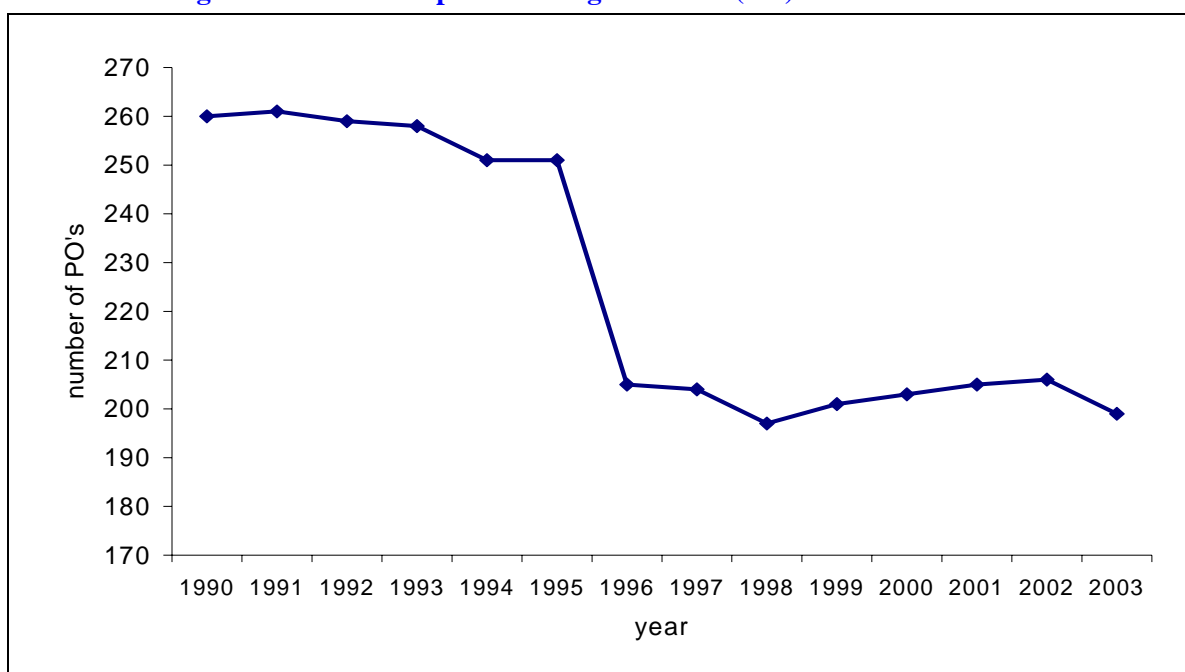
Source: BMVEL 2003

1.1.4 Evolution of the number of producers and producer organisations (PO) - 1990 to 2003

The number of wine producers has decreased between 1990 and 2003 over 67% to about 32 000, as shown in Figure 7. Thus, the number and size of producer organisations (PO's) has also changed. According to the statistics for agriculture in 1990, there were 260 PO's. Due to the structural change in agriculture, the PO's reduced to 199 organisations in 2003 (BMVEL 2004, S 105). The number of PO's has stabilised in approximately 200 in the last five years.

In 1996 and 1997 there was a great decrease in number of PO's, due to the council regulation (EU) No. 2200/96, which substituted the CR (EU) No. 1035/72. In the new council regulation, it was demanded an operational programme from the existing PO's, as well as a certain minimum limit (e.g. a trade volume of 10 000 t or 5.1 million Euro, commercialisation of 100% of the products from the members), in order to obtain further financial support from the EU. Many of the PO's were not able to fulfil these conditions and/or operational programme, being, therefore, not recognised as PO's anymore (Bayerisches Staatsministerium für Landwirtschaft und Forsten, 2002, S. 65).

Figure 7: Number of producer organisations (PO) from 1990 to 2003.



Source: BMVEL 1993 – 2004

1.2 Level of implementation of the various measures of the CMO in Germany

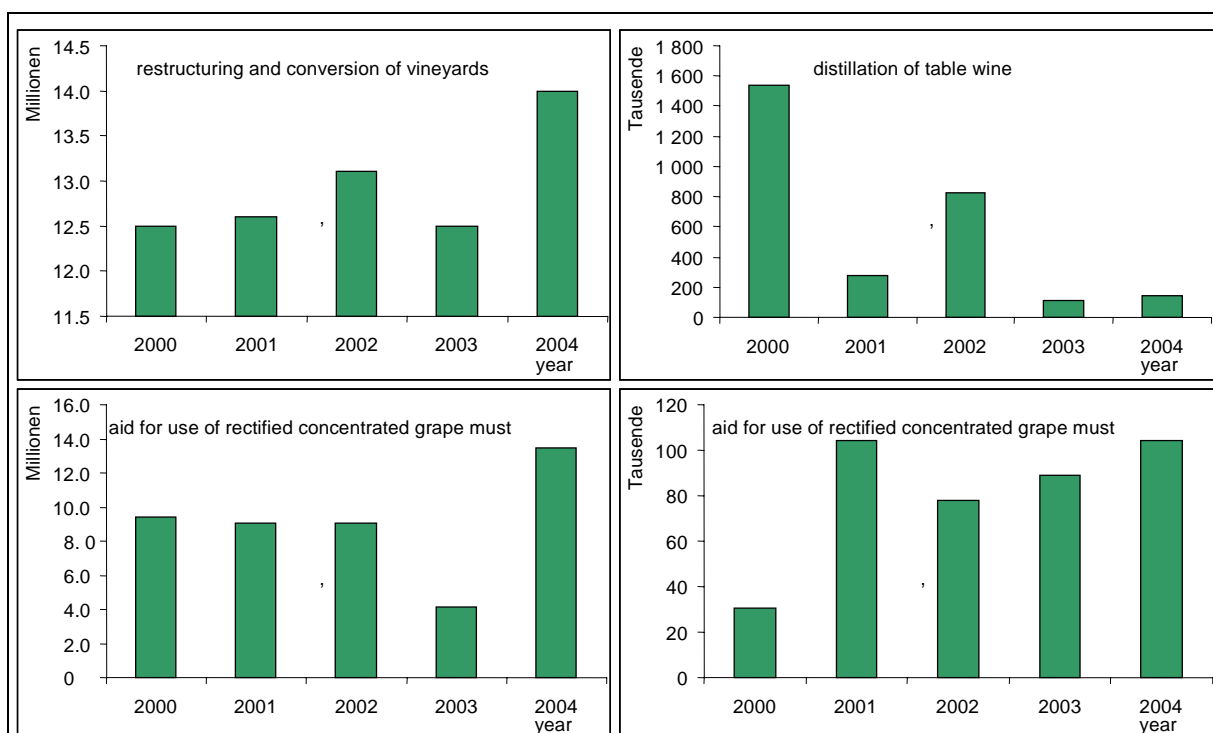
In Germany, the council regulation for wine was completely converted in national law. The EU-Legislation was integrated in the German wine quality regulation. The federal states have the authorisation to change the EU promotion programmes according to its needs. Therefore, the management, premiums, and support programmes differ slightly at the regional level, depending on the federal state or the viticulture area. The federal states of Rheinland-Pfals, Baden-Württemberg, Hessen, and Bayern offer the following support programmes for the wine growers:

- a premium for the permanent abandonment of vine-growing in the particular wine areas.
- a premium for restructuring and conversion of vineyards
- trade of new and re-planting rights
- distillation of table wine
- storage aid
- aid for use of rectified concentrated grape must

- aid for production of grape juice

Figure 8 shows the expenses from the EU for the German wine market measures, since the implementation of the council regulation (EC) 1493/1999. The greatest expenses are granted for restructuring and conversion of vineyards. Since its implementation, between 12.5 and 14 million Euro per year in subsidies granted, corresponding to round about 2 000 to 3 000 ha every year. The second biggest subsidies are granted for the rectified concentrated grape must, which corresponds to almost 10 million Euro in 2000 and over 13 million Euro in 2004. From 2000 until 2002, approximately 80 000 hl rectified concentrated grape must were used for the increase in alcohol concentration in wine. In 2003, only 35 500 hl were used and in the next year, the maximum amount of 116 334 hl was reached (Figure 8).

Figure 8: Expenses of the CMO measures in Germany since implementation of the CR (EC) 1493/1999 - 2000 to 2004



Source: BMVEL - Agrarbericht 2000 – 2004; Blau 2004 (Deutscher Weinbauverband)

From 2001 until 2004, the amount of 14 000 hl to 16 000 hl of grape juice was produced, corresponding to 77 000 to 104 000 Euro granted from the financial subsidies (Figure 8). Only in 2000, a financial subsidy request of 5 700 hl was made in Germany.

Subsidies of 140 000 to 220 000 Euro were requested and granted for the distillation of table wine in the years 2002, 2003, and 2004 for the quantity of 11 700 hl, 7 300 hl, and 9 440 hl respectively (Figure 8). Due to the high grape yield in 2000, an urgent distillation was performed, in order to relief the wine market. A total of 331 096 hl table wine was distillate, being 1.5 million Euro in subsidies granted. The great grape yield in 2000 also influenced the quantities distillate in the next year. About 275 000 Euro were granted for 30 5000 hl table wine.

The wine storage has no significant importance in Germany, being only 4 000 and 8 000 Euro in 2000 and 2004 granted. From 2001 to 2003, no request was made.

In order to guarantee the quality requirement in the German wine growers and wine-processing manufacture, the EU guidelines were adopted in the German wine quality regulation. For example, the maximum limit for grape yield is specified for the actual wine quality category. Furthermore, the quality standard of the wine products is assured by their description, designation, and presentation. In addition, each federal state in Germany can determine the amount of the harvest maximum per hectare, certification of wine sorts, license of clearing procedures, new cultivation, and even wine cellar techniques.

The use of environmentally sound cultivation practices, production techniques, and waste management practices are encouraged by the wine PO's, in order to protect the quality of water, soil, landscape, as well as to preserve and enhance the biodiversity. Especially the abolition of the use of pesticides is strongly supported.

In addition, governmental financial subsidies are granted for the distillation and storage of wine and alcohol from wine.

The Federal States offer some development programmes (CR (EC) No 1257/1999), in order to support the competition ability and to encourage environmentally compatible production techniques. These programmes are co-financed by the EAGGF, according to the council regulation (EC) No. 1257/1999 of 17th. May 1999.

The most important federal states and their environmental programmes are listed below:

Baden-Württemberg:	MEKA (Marktentlastungs- und Kulturlandschaftsprogramm / Market discharge and cultural landscape programme)
Rheinland-Pfalz:	FUL (Förderung Umweltschonende Landbewirtschaftung / Promotion of environmentally careful land management)
Bayern:	KULAP (Kulturlandschaftsprogramm / Cultural landscape programme)

One of the aims of three listed programmes is to convert the agri-environmental measures into practice. For example, the FUL and MEKA-programmes offer a payment of premiums to farmers, who use pheromones instead of herbicides in vineyards to fight parasites. More than 50% of the vineyard area of Rheinland-Pfalz and more than 60% of the vineyard area of Baden-Württemberg are supported by this programme.

1.3 Institutional framework of the wine production in Germany

The BMVEL is responsible in Germany for the conversion of the EU-market measures to the national legislation. The sector BLE (Bundesanstalt für Landwirtschaft und Ernährung) from the BMVEL is in charge for the implementation and control of the compliance of the law. Further conversions from the national legislation are the responsibility of the State Ministries, in which the agricultural department belongs.

Independent commissions are in charge of certifying the wine quality, such as the Deutsche Weinsiegel-Gesellschaft. The best wines of the country receive once a year an honour from the German Agricultural Society (Deutsche Landwirtschafts Gesellschaft).

The ministries from the states have subdivision, that locally control the compliance of the law from the market measures. In Baden-Württemberg, for example, the physical control and the payments of supports are accomplished by the agriculture chamber (Landwirtschaftskammern, -ämter, Kreisverwaltung) of the State Ministry.

Private auditors, employed by the ministries, controls the quality standards in trade and in processing plants.

1.3.1 Institutions in charge of the management, payment of the premiums and control

All the controls in Germany are accomplished by the regional federal institutes like agriculture chambers and ministries. The different regions are very independent:

- Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft (BMVEL)
- Bundesanstalt für Landwirtschaft und Ernährung (BLE): BLE is the German market regulation institute related to the intervention of goods, activities during the private storekeeping, and aid measures. It controls the import and export of agriculture products and the payments between Germany and the EU.
- Landwirtschaftsministerien of the federal states: for example Baden-Württemberg: Ministerium für Ernährung und Ländlichen Raum; Rheinland-Pfalz: Ministerium für Wirtschaft, Verkehr, Landwirtschaft und Weinbau; Bayern: Bayerisches Staatsministerium für Landwirtschaft und Forsten

1.3.2 Interbranch organisations

- Deutsche Landwirtschaft-Gesellschaft e. V.
- Deutsche Weinsiegel-GmbH

- Verband Deutscher Prädikatsweingüter e. V. (VDP)
- Verband Deutscher Sektkellereien e. V.
- Verband Deutscher Weinexporteure e. V.
- Deutsches Weininstitut GmbH
- Deutsche Weinakademie GmbH
- Deutscher Weinfonds AdöR
- Bund Deutscher Oenologen
- Deutsche Weinanalytiker e. V.
- VINISSIMA – Frauen und Wein e. V.
- Bund der Deutschen Landjugend
- Forum Wein und Gesundheit
- Gesellschaft für Geschichte des Weines e. V.
- ATW – Ausschuss für Technik im Weinbau
- Bundesverband Deutscher Pflanzenzüchter e. V., Abteilung Reben
- Verband Deutscher Rebenpflanzguterzeuger e. V.
- Weinwerbe GmbH

Associations of ecological viticulture:

- Bioland e. V.
- Demeter Bund
- ECOVIN Bundesverband Ökologischer Weinbau e.V. u. ECOVIN
- Naturland Fachverband Wein

Producers association at national level:

There are three main organisations that represent German wine production at national level:

- DWV - Deutscher Weinbauverband
- BVDWW- Bundesverband der Deutschen Weinkellereien und des Weinfachhandels e.V.
- DRV - Deutscher Raiffeisenverband

The DWV represents the wine growers and all the co-operatives in Germany. The Bundesverband der Deutschen Weinkellereien und des Weinfachhandels is in charge of wine trade, export and import. Its members are mostly winery owners and may possibly own vineyards as well. The DRV is the union of all agricultural Raiffeisen-co-operatives, including winegrowers' co-operatives, being responsible for the collection, processing and marketing of their members products.

1.3.3 Research and technical institutes

In Germany, the research, experimental development, and the graduation of professionals in the viticulture sector is part of the work of schools and universities, such as Fachhochschule Geisenheim, Lehr- und Versuchsanstalt Mainzberg, Fachhochschule Wiesbaden, Universität Hohenheim (Fachbereich Weinbau), and others. Additionally, some institutes (e.g. Staatliches Weinbauinstitut Freiburg, Bayerische Landesanstalt für Weinbau, and Gartenbau – Veitshöchheim, Forschungsanstalt Geisenheim) work on practice-oriented research.

On the other hand, the “Deutsche Weinakademie” investigates the health aspects of the wine consumption, or the “Gesellschaft für Geschichte des Weines”, which researches on wine history.

1.3.4 Institutes for Statistics

There are two institutes for statistics in Germany, which work together:

- Statistisches Bundesamt Deutschland,
- BMVEL - Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft.

1.4 CMO implementation context in Germany

Nowadays, the German wine market is shaped by a strong competition between the national and international producers. Therefore, the fortification for the competitive capacity from the wine growers by the production and commercialisation, as well as the quality assurance from wine the main point of the national conversion of the wine council regulation. The success can be observed in the actual market situation. In Germany, the German red wine is market leader, with 30.6%, followed by France (24.8%), and Italy (15%). The white wine consumption continues to decrease in Germany. However, the national producer has the leading position, with a market share of 65% (German Wine Institute 2005).

2. ANSWER TO EVALUATION QUESTIONS

For the evaluation of the environmental effects through the market measures for viticulture (CR (EC) No 1493/99), 17 experts from public authorities, research centres and inter-branch / inter-professional organisations were chosen and consulted (see the list in appendix).

The professionals were informed in advance per telephone, asked for their disposition in to participate and in which period of time the interview could be done. The questionnaire was sent per email and the interview was done per telephone.

During the evaluation, eight of the initially chosen experts could not or did not have the time to give a competent statement about the subject. Because of this, these statements, as well as the people were taken out of the inquiry. The major reasons given from these people were the lack of knowledge about the market measures and their effects on the environment, and the insufficient time to search for expertly replies for the answers. Further experts were not named. In the following work all data's are statements from the experts.

2.1 Vertical Questions

2.1.1 Theme 1: supply control

1(VI): What is the environmental impact of the ban on planting new vines except in regions of growing demand?

In the seventies, there was a prohibition on planting new vines in Germany, being new planting approved only under request. The vineyard area has increased since that time only according to the new planting rights. In the middle of the eighties, due to the European prohibition of cultivation, new vine areas could not be cultivated, in order to reach the stabilisation of the wine market.

The cultivated vine areas increased since 1984 until 2000 only through the new planting rights. The distribution in Germany corresponds to the existing vineyards in the Federal States and is done per percent of the vineyard in each state relating to the whole German wine area. The new planting rights were cited in the Article 6 from the council regulation (EC) NR: 1493/99.

The distribution of the new planting rights within the winegrowers is variable. In Bavaria the rights were raffled, since more rights are requested, than the Federal State can approve. In 2001 in Baden-Württemberg and Rheinland-Pfalz, the young winegrowers were firstly considered, but afterwards the rights were also raffled as in Bavaria. The new planting rights in Rheinland-Pfalz are distributed primarily to the requests for steep areas (for their preservation) and then to the grape cultivation areas.

At the moment, 25% of the national new planting rights (1543 ha) are exploited, varying between the Federal States. Bayern (115 ha), Baden-Württemberg (ca. 598 ha), and Sachsen (59 ha) have already distributed all their rights whilst Rheinland-Pfalz and Hessen still have new planting rights to give.

It is possible in Germany to request the new planting rights to another Federal State, if the requested Federal State still have rights and approve it (e.g. Sachsen received 10 ha new planting rights from RLP).

The replanting rights are managed with the effective system in all German Federal States (Article 5, Paragraph 5 of the council regulation EC No. 1493/99). The winegrowers have the cultivation rights if an area is abandoned. They have a period of 13 years to reactivate the viticulture (replanting of vines) or to sell the replanting rights. The rights expiration is seldom. The regulations of the replanting rights are controlled by each state, which are responsible to the federal institution "Bundesanstalt für Ernährung (BLE)". The BLE is in charge to control the adequate implementation in each federal state.

Only Rheinland-Pfalz has a national plan for abandonment premium. The other Federal States offer the grubbing-up according to the council regulation (EC) NR. 1493/99, although it is not necessary. About 1000 ha were grubbed up in the cultivation areas of Mittelrheintal and Mosel in RLP. These areas are characterised by poor soils and difficulties to cultivate (steep areas)

The most important tool to reduce the environmental impacts is the restructuring and conversion programme. Every year, 1200 ha in RLP, ca. 600 ha in Bayern, ca. 550 ha in Baden-Württemberg

and ca. 10 ha in Sachsen are restructured (12-14 million Euros), corresponding to 2000-2500 ha per year

The increasing competition strongly influences the structural changes in the viticulture. The winegrowers can only increase their turnover through the production of wine of high quality and/or through the rent of vineyards with plant rights, due to the maximum yield per hectare. The winegrowers seldom reach the maximum allowed yield per hectare in order to gain a high quality wine. For example, the maximum yield per hectare (MYH) of the quality wine in specific regions (Qw-psr) and their real production in the last 7 years in the vine growing zone in Baden and Württemberg are listed below:

Baden 90 hl/ha MYH, being 78 hl/ha produced,

Württemberg 115 hl/ha MYH and 150 hl/ha MYH in steep areas, being 107 hl/ha produced.

Through that, the intensification of the viticulture is low. For example, the reduced use of fertiliser and chemical treatments leads to a positive environment impact.

In the hole it is to mention, that a intensification of the viticulture in Germany due to the CMO could not be established. To produce quality is more important as quantity. Otherwise the winegrower can not resist the market competition.

The abolishment of the prohibition of cultivation would lead to an increase in production in approximately 10-20% according to the experts. All experts said that the areas for the new vineyards would be located in the existing wine regions. If the prohibition is abolished, the mayor risks are, that the steep slopes will not be farmed any longer and that an intensification of production can occur. The high amount of labour time and means of production in the steep slopes leads to abandonment. The fallow vineyards have a negative appearance in the landscape, but there aren't other negative impacts on the environment. Due to the relatively strict German regulations on "good agriculture practice" negative consequences of agriculture are, in general, limited. But a higher intensification leads to a more means of production, like chemicals, fertilizer, irrigation water and others.

2(VI): What is the environmental impact of the by-products distillation mechanism, and other market measures like aid for the use of concentrated grape must?

In Germany, the organic waste from the winery (marc, yeast, etc) is spread on the vineyards according to the rules of the good agricultural practices, being a result from the agricultural laws (Federal Law of Soil Protection, Regulation of Fertilisers, Economic Law of Effluents, etc) and the stand of the techniques. Therefore a negative impact on the environment doesn't exist. Far from it, all experts noted, that the amount of compost in the wine areas lead to an enhancement of organic substance, promoting the soil fauna and decreasing the mineral fertiliser (For scientific literacy: This statement is a well-established doctrine; FA Geisenheim refers to popular standard works (oral information Prof. Hoffmann)). The negative environmental impacts caused by the wineries are not well known in Germany.

The experts mentioned that the recycling management is useful due to the reduction of the environmental impact. On the other hand, the distillation presents high energy costs, influencing negatively the environment.

There is no wine distillation in Germany, only in exceptional cases. In Germany there are only two distilleries which have the capacity to distil a higher quantity of grapes. In 2000 there was a very high grape yield. Therefore an urgency distillation was offered by the Federal Republic of Germany to relive the wine market. But nearly no winegrower engaged the opportunity.

The distilleries in Germany are small and produce for the market demand. On account of this, the distillation has no meaning and no impact on the environment in Germany. By side, Germany is no distillery zone, because of the low relevance in the European wine production. Germany has only 2.7% of the EU-vineyards. Therefore no data are available about marc or transports. A transport from the vine grower to distilleries doesn't take place.

2.1.2 Theme 2: structural measures

1(V2): What are the environmental effects of abandonment premia?

Before 1999, there were isolated grubbing-up of vineyards in Germany, though in a small amplitude, causing no significant environmental effects.

Since establishing the EU abandonment premia in 1999, there has been grubbing-up in the Federal States. In Rheinland-Pfalz about 1000 ha were grubbed-up in 2004. The cultivation areas of Mittelrheintal and Mosel are characterised by poor soils and difficult areas of cultivation (e.g. steep areas). Therefore, the grubbing up of vines that are carried out, destroy the cultural value of the landscape in these areas (no data on the concerned area available). Due to the erosion risk, the abandoned steep areas have to be replanted according to the good agricultural practices. Normally grass is used for replanting. Other areas, which aren't steep slopes, are mostly used as a orchard or for planting grain. However, the increasing competition in the wine market leads to the additional abandonment of the steep areas.

On the other hand, the grubbing up premium also presents positive environmental effects. The areas with old vines that were not removed are called "Trieschen". The experts noted, that the old vines serve as hosts for insects and fungi, increasing therefore, the pressure of fungi, pests and weeds in neighbouring cultivated areas. Because of this, additional measures for plant protection are needed, according to seven experts.

In addition, the clearing premium supports the structural change in the vineyards.

The most grubbed up white wine sorts are Müller- Thurgau, Silvaner and Kerner. These sorts are high in yield and because of the low grape ingredients not good to gain a high quality wine according to the reclamation of the German wine law. Red wine is close to not grubbed up, because of the increasing demand.

2(V2): What are the environmental effects of restructuring and conversion of vineyards (variety conversion, relocation, adoption of new production techniques)?

The restructuring and conversion of viticulture is in all cultivation areas in Germany an important tool, being for the winegrowers primarily an adaptation to the market. Like shown in Figure 8, the highest subsidies are granted for the restructuring and conversion programme in Germany. The Federal States are responsible for the support for the conversion. Indeed, some guidelines have to be considered by the support that can contribute not only to a market relief as well as to an environmental relief. The most important guidelines are listed below:

- Support of marketable varieties and varieties of low yield,
- Promotion of marketable and resistant varieties,
- Minimum distance between the vine rows,
- Maximum number of vines per hectare.

All four articles are solely aiming at reducing intensive production. The use of varieties of low yield and resistant leads to a decrease in the use of means of production (pesticides, fertilisers), favouring the environment. Moreover, the minimum distance between the plant rows allows the use of modern techniques, facilitating the application and the control of quantity of these resources. In Sachsen, for example, the distance between the vine rows have to be at least 1.8 m in steep areas and 2.0 in the normal cultivation areas. By occupying the programme, it is not allowed to enlarge the vineyard. These conditions are perfectly controlled by the Federal States. On the whole, the restructuring programme leads to a reduced intensive production through a reduced amount of hollowed fertiliser and chemical treatments, because of the fewer and resistant wine plants as before.

The winegrowers use the support from the restructuring and conversion programme for a better and faster adaptation to the market. Due to the higher requests for red wine, more areas were planted with grapes for red wine. The varieties with a high yield (e.g. "Dornfelder) were excluded, preventing in this way, a market pressure. The viticulture areas show a clear development to traditional vine varieties (Autochthone). In addition, other varieties (e.g. Spätburgunder and Portugieser) are well represented. The cultivation of grapes for white wine are replanted (2/3) with old varieties, such as Riesling, Grau- and Weißburgunder in the line of the restructuring and conversion programmes.

Since the implementation of the measure, about 2 000 to 3 000 ha every year are restructured. Like mentioned, is the programme offered and practical in all federal states.

3(V2): What are the environmental impacts of grubbing-up grants and payments of compensation for cost of uprooting and income loss?

The grubbing up premium has almost no importance in Germany. It is offered by the Federal States (except for Bayern). According to the experts, Rheinland-Pfalz (RLP) is the only Federal State that has a national plan for the clearing of vineyards, being the replanting of grasses in the cleared areas an obligation in order to protect the environment. Actually, a clearing premium is not necessary in Germany, since wine of quality is produced in most of the vineyards, which leads to a market relief, being thus, an intervention not necessary.

Since the introduction of the clearing premium (since 1999), about 1000 ha were cleared in the producing area of Mosel, in Rheinland-Pfalz, mostly areas where the yield was low (e.g. slope areas). The clearings are 100% controlled by the service center (agency in RLP).

Only Rheinland-Pfalz has a national plan for abandonment premium. The other Federal States offer the grubbing-up according to the council regulation (EC) NR. 1493/99, although it is not necessary. About 1000 ha were grubbed up in the cultivation areas of Mittelrheintal and Mosel in RLP. These areas are characterised by poor soils and difficulties to cultivate (steep areas).

The experts evaluated the clearing premium as useful, since without such premium abandoned areas would not be cleared. According to all experts, the remaining vines are hosts for fungi and pests, presenting a high infection risk for the neighbouring vineyards. As a consequence, extra measures for plant protection have to be managed in the vineyards, causing damages to the environment. Moreover, the increase of shrubs affect negatively the characteristic landscape. In addition, the clearing premium support the structural change in the vineyards.

2.1.3 Theme 3: other regulatory measures and especially those for quality wines produced in specified regions

1(V3): What are the environmental impacts of the CMO requirements for quality wines produced in specified regions? [in particular those concerning: traditional conditions of production, cultivation methods, yield per hectare and demarcation of production]

In Germany, there are no requirements for the quality of wines concerning the protection of the environment. The wine production follows the national legal regulation of the good agricultural practices. Furthermore, since the seventies, a more environmentally friendly wine production has been supported in Germany (e.g. consultation service, regional early warning system, the use of better machinery for drift angle, minimisation of the drainage amount as well as the replanting of grasses in the vineyards, in order to minimise the effects of erosion and soil compaction). The funds derive from the environmental programmes from the Federal States according to the council regulation (EC) No. 1257/99, being the maximum possible assistance for the reduction of environmental impacts.

Positive environmental effects from the regulation of Qw-psr. wines are only indirectly recognisable, such as the limitation of yield of Qw-psr wine per hectare, the regulation about the substances of the Qw-psr wine to a tendentious extensification of the production, as well as the minimisation of the use of fertilisers, mainly nitrogen. Details can not be named, because the experts didn't mention any positive environment effects, which are proofed by scientific research.

In Germany, the maximum limits of yield are not exploited because the winegrowers produce quality wine in high standards, being the wine denominated "Qualitätsweine mit Prädikat"(Qw-psr-s). In Sachsen, for instance, the winegrowers harvest in average 70 hl/ha, although the limitation of yield is 90 hl/ha. The characteristics for the Qw-psr-s are listed in the German wine law.

In Germany there are two areas for the production of table wine, in Bayern (Regensburg) and in Mecklenburg. The areas are smaller than 200 ha and have no meaning for the wine production because of the low size.

In Germany, the produced table wine is originated from the downgrading of Qw-psr wines in the evaluation of wine quality, mainly due to oenological defects. Therefore, the amount of produced table wine is not significant in Germany, e.g. in Franken (Bayern) about 5% of the yearly produced amount of wine is downgraded. One expert pointed out the clear differences to the French procedure of the reduction in proof of wine. The regimentation, standards and control of the Qw-psr wines attend the consumers. The regimentation assures the high standards, preserving the image

of the winegrowers that no wine with low quality will be in the market. The reasons for a change of classification is always the quality. For example, any wine, from Germany or imported, can be downgraded to every time. It doesn't matter, if the wine is already in the supermarket or not. One interviewed indicated as useful, that each Federal State possesses its own rules for the Qw-psr. wines, since there are different regional condition that have to be considered.

2(V3): What is the environmental impact of the regulated oenological practices?

According to the interviewed experts, there is no direct connection between the regulated oenological practices and environmental impact. Germany started in the 1970s to establish a number of laws, concerning the environment. Because of these regulations problems haven't occurred in wasting water or soil. For example the "law of recycling management and waste" and the "law of water supply" forced the vineries to clear their waste water from yeast and to use chemicals which are less harmful for the environment. The following list shows the most important environmental laws in Germany:

- Bundes-Naturschutzgesetz (Federal Law of Environmental Protection); (12. March 1987)
- Bundes-Bodenschutzgesetz (Federal Law of Soil Protection) (BBodSchG 17. March 1998)
- Wasserhaushaltsgesetz (Law of water supply) (12. Nov. 1996)
- Pflanzenschutzgesetz (Law of Plant Protection) (14. May 1998)
- Düngemittelgesetz (Law of fertilisers) (15. Nov. 1977)
- Kreislaufwirtschafts- und Abfallgesetz (Law of Recycling Management and Waste) (27. Sept. 1994)

Negative environmental influences have been avoided, essentially caused by the EU programmes for the support of rural development (RDR: Rural Development Regulation), the technical development and national laws. On subsidising the integrated and organic farming with the mentioned programmes (FUL, MEKA, and other), the landscape could be preserved, even if the structural change occurred.

The certification of large winery according to ISO 9000 and 9001 and/or to the International Food Standard (IFS) represents a quality assurance in the wine processing required by the trade. Conclusions about the influences on the environment are possible. The increased know how, the use of improved techniques, the competition pressures and processing development resulted in a reduction of environmental impacts in the oenological practices. I want to stress, that these changes emanate from the requirements of the retail market or national regulations, not from the CMO.

For instance, the amount of effluents from the winery clearly decreased due to the use of new technology and filtration. This prescription can be found in the laws of the Federal States, e.g. in the law of effluents. The CMO (council regulation EC NR. 1493/99) has no significant importance in this case.

In Germany, the biological waste from the winery (marc, yeast, etc) is spread on the vineyards according to the rules of the good agricultural practices, being a result from the agricultural laws (Federal Law of Soil Protection, Regulation of Fertilisers, Economic Law of Effluents, etc) and the stand of the techniques. According to all experts, leads the amount of compost in the wine areas to an enhancement of organic substance, promoting the soil fauna and decreasing the mineral fertiliser. Negative environmental impacts caused by the wineries are not known in Germany.

2.1.4 Theme 4: accompanying measures

1(V4): Are the accompanying measures to preserve vineyards in certain regions effective in terms of a positive environmental impact?

In Germany, environmental programmes and programmes for the rural development are offered in almost all Federal States, being co-financed through the council regulation (EC) NR. 1257/1999. The supporting measures maintain the ecological agriculture as integrated and organic viticulture. The requirements include an extensive land use, reduction of tillage, abandonment or substitution of pesticides and fertilisers, replanting of grasses, etc. Every Federal State has its own programme and lists of measure, what can be supported. The lists are available at the federal ministries or found on the homepage of each ministry. It is not possible to take out one measure for wine,

because the measures are not specific for wine production. The measure can be applied for all agriculture production in the regions. The three main measures in all environmental programmes for wine are:

- Subsidies for environmental protection in cultivation: these are: chemical treatment application and list of allowed pesticides.
- Subsidies for steep vineyards and vineyards with dry walls
- Subsidies for integrated and biological production.

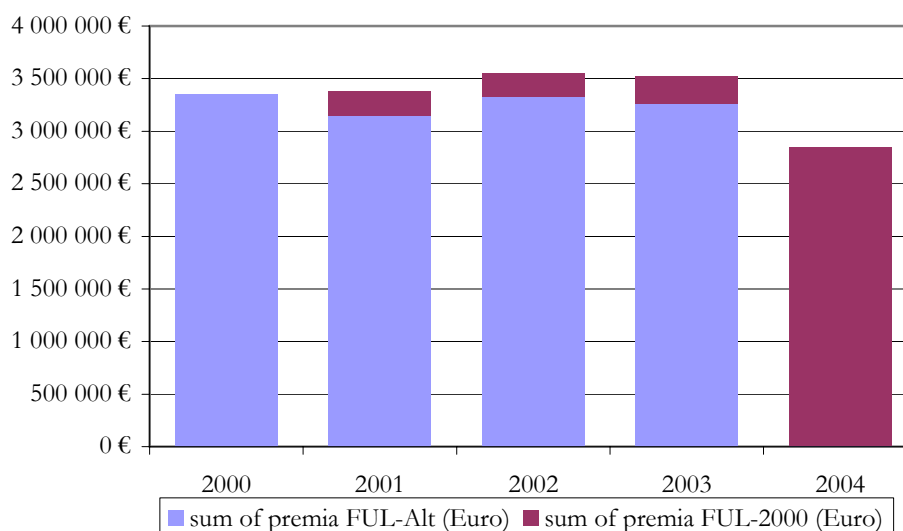
The Federal States offer special subsidies for the conservation of steep areas and dry stone walls, in order to preserve the traditional cultivated landscape and the available biodiversity. Table 4 and Figure 9 show the premia that was paid for cultivation of steep areas in Rheinland-Pfalz between 2000 and 2004.

Table 4: RDP-Subsidies for vineyards in steep areas in Rheinland-Pfalz (“FUL Alt” and “FUL 2000”)

	2000	2001	2002	2003	2004
number of cases FUL-Alt	1814	1699	1761	1742	5
number of cases FUL-2000	0	174	165	182	1324
acreage FUL-Alt (ha)	3.556,64	3.343,53	3.462,46	3.400,64	12,79
acreage FUL-2000 (ha)	0	265,26	236,49	273,5	2.906,33
sum of premia FUL-Alt	3.356.652 €	3.148.755 €	3.329.496 €	3.265.288 €	10.630 €
sum of premia FUL-2000	0 €	230.707 €	225.271 €	261.823 €	2.834.072 €

Source: Aufsichts- und Dienstleistungsdirektion Rheinland-Pfalz (ADD)

Figure 9: Sum of RDP-premia for vineyards in steep areas in Rheinland-Pfalz (“FUL Alt” and “FUL 2000”)



Source: Aufsichts- und Dienstleistungsdirektion Rheinland-Pfalz (ADD)

However, some experts stated that the market influences are greater than the offer of subsidies, which means that areas where the cultivation of vineyards is difficult (e.g. steep areas) will be abandoned. The effective laws for the good agricultural practices and the environmental programmes contribute to an improvement of the water quality, for example.

Moreover, it is important to emphasise that these environmental effects were urged through the German endeavour in the seventies and induced by the CMO for Wine (council regulation EC NR: 1493/99).

The development of ecological cultivated areas has stabilised between 1.5 and 5 % in the last years, varying this level in the Federal States. The integrated viticulture established through the support of the environmental programmes that balanced the arising competitive disadvantages. Therefore, in each Federal State about 40-60 % of the areas correspond to integrated cultivation. The experts at the ministries mentioned, that there is no specific advertisement for biological or integrated wine

production. The most biological wine is sold directly by the winegrowers. Because of the high quality of the most German wine, the consumers don't ask for a higher quantity of biological wine. In Germany there are the biological association like Bioland or Naturland and one specific wine biological association Ecovin, which promote the biological wine production.

2.1.5 Theme 5: environmental promotion

1(V5): Has the promotion by Member States and regions of environmentally sound production techniques via producer organisations and inter-branch organisations been effective?

According to all interviewed experts, there are no measures for the promotion of organic cultivation in Germany in the context of the EU Regulation 1493/1999. The producer organisations are not active in the viticulture. The Federal States support the integrated and ecological viticulture, as already mentioned above in Point 0.

2.2 Horizontal Questions

2.2.1 Theme 1: land use over time

1(H1): Does the CMO lead to substantial changes in land use over time (abandonment, expansion and set-aside) and if so: what are the positive and negative environmental impacts? [This question should preferably consider typical patterns of alternative status/use after or before use of the land for the permanent crop to which the CMO relates.]

There are no available data about the land use over time in German viticulture. According to the experts, the cultivation areas, which are not used, are abandoned (mainly steep areas) or the type of cultivation is changed after the clearing (e.g. grazing, fruit cultivation).

The characteristic landscape is changed through the abandonment of vineyards, being the determination of the effects on the biodiversity not possible.

2.2.2 Theme 2: adequate spending level and method

1(H2): Are there indications that a change in total spending on the CMO in its present form would have a substantial positive or negative environmental impact?

All experts claimed the abolishment of the grants for distillation and production of rectified concentrated grape must due to the high consumption of resources concerning the different factors of production in the viticulture and the use of energy, which has negative effects on the environment. Therefore, a restructuring of the subsidies for intervention into measures that support ecological production and processing would be of a crucial importance. For instance, the support for the conversion and restructuring of viticulture presents positive environmental effects and strengthen the producer for the competition through a fast market adaptation of their products.

In addition, there are more advantageous measures, e.g. the cutting of immature grapes, in order to reduce the yield. However, such measures have no effects in Germany, since there is neither distillation nor production of rectified concentrated grape must.

Moreover, there are measures from the CMO that would contribute to the improvement of the environment protection.

A common European standard for production in viticulture would be desirable, having in this case, the definition of the good agricultural practices as well as the integrated and organic viticulture an important role, in order to reduce the distortion of competition in Europe and to reduce the environmental impacts.

Furthermore, it is important to support the cultivation of steep areas, due to the cultural value of the landscape.

2.2.3 Theme 3: subsidiarity of agri-environmental schemes and horizontal measures

1(H3): Have the agri-environmental schemes and any environmental requirement [“cross-compliance” ex CE 1259/1999] related to these CMOs been sufficiently targeted by Member States and regions at hotspots of environmental degradation or possibilities for environmentally friendly production?

The cross-compliance is not applied to the German viticulture. The experts pointed out the support from the Rural Development Regulation (RDR), which also considers the environmental objectives of the country. About 2 – 7 % of the wineries present organic cultivation, showing no significant increases.

By the conversion of their environmental programmes (e.g. FUL, Meka, Kulap, NAU, and others), the Federal States completely considered the environmental objectives from the European Union and partially exceeded them. Only the measures with environmental objectives that exceed the national standards are supported by the environmental programmes, as for example the promotion of integrated, organic and extensive cultivation.

As a conclusion, measures to reduce the environmental impact were introduced by the environmental programmes in the country. The great participation of producers (65 %) in RLP and BW emphasises that these programmes are useful and target-oriented. In addition, these programmes do not represent the use of subsidies, but a positive environmental benefit, which are associated to higher costs, higher labour input and/or profit cuts.

3. LITERATURE RESEARCH FOR THE THEME: EVALUATION OF THE EFFECTS OF THE MARKET MEASURES RELATED TO PERMANENT CULTURE CROPS ON THE ENVIRONMENT

There is a lack of information about the environmental effects of the political market measures in Germany, especially related to permanent crops such as viticulture and fruit cultivation. On the other hand, the environmental effects of the measures from the structural politics obtain attention, through their explicit position on the quality assurance of the preservation of the environment, nature, and animals. The national promotion measures through the community project: "Improvement of the agricultural structure and the coast protection", as well as the conversion of the council regulation "Support for rural development programme" (CR (EU) No 1257/99 and 1783/2003) offer numerous possibilities to include the permanent culture crops, as for example in the "Investments in agricultural plan", "Agro-environmental measures" or "Improvement of agricultural products processing and commercialisation (CR (EU) No 1257/99 Chapters I, VI and VII). The results of the environmental effects evaluation from these political instruments were mostly published in the internet homepage from the Agricultural Ministries from the Federal States. The influence from different producing processes of fruit cultivation and viticulture on the environmental resources was discussed in several studies. The publications from research institutes, as well as their scientific journals are listed below:

- <http://www.fal.de/index.htm?page=/de/publikationen/default.htm>
- http://www.zalf.de/home_zalf/service/service/bibliotheken/
- Fruit processing; ISSN 0939-4435;
- Obst und Weinbau (Schweiz); ISSN 1023-2958;

APPENDICES

Annex 1: List of people met or contacted

Annex 2: Main bibliography identified (used or not) in relation with the study

Annex 1: List of people met or contacted

State Ministry and Federal State Ministries (agriculture, environment):

	Ministries for Agriculture	Contacted person	Reply
1	Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft (BMVEL) / Federal Ministry of consumer protection, food and agriculture	Dr. Karl-Heinz Wilms Mr. Gerhard Becker	Answered
2	Rheinland-Pfalz	Dr. Friedhelm Leimbrock	Answered
3	Baden-Württemberg	Mr. Weinmann	Answered
4	Bayern	Mr. Wheeler	Answered
5	Hessen	Mr. Fink	No answer (lack of time)
6	Sachsen	Mr. Hohlfelder	Answered
7	Bayern		

Research Institutes and Universities:

		Contacted person	Reply
8	Baden-Württemberg: staatliche Versuchsanstalt Freiburg	Mr. Dr. Steiner	No answer (lack of knowledge)
9	Bayern: Bayerische Landesanstalt für Wein- und Gartenbau, Ausbildung. Staatl. Fach- und Technikerschule Veitshöchheim	Mr. Wahl Mr. Peter Schwingenschlögel	Answered
10	Hessen: Institut für Ländliche Strukturforchung (IfLS) / Institute for Rural Development Research (IfLS)	Mr. Schramek	Answered
11	Hessen: Forschungsanstalt Geisenheim	Prof. Dr. Schultz	No answer (lack of knowledge)
12	Baden-Württemberg: University Hohenheim	Prof. Dr. J. Wünsche	No answer (lack of knowledge)

Producer organisations, interbranches:

		Contacted person	Reply
13	Deutscher Weinbauverband	Mr. Dr. Rückrich, Mr. Blau	Answered
14	Deutscher Raiffeisenverband Wein- und Obstbau)	Karl Schmitz	No answer (lack of time)
15	Bund deutscher Oenologen	Mr. Bernhard Gaubatz, Mr. Eisenbarth	No answer (lack of time)
16	Dienstleistungszentrum Ländlicher Raum	Mr. Bernd Wechsler	No answer (lack of time)
17	Badischer Weinbauverband e.V.	Gerhard Hurst (Präsident)	Answered

Annex 2: Main bibliography identified (used or not) in relation with the wine study
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<p>OCM VIN ETUDE DE CAS BADEN-WÜRTTEMBERG</p>

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GLOSSARY

BMVEL	=	Bundesministerium für Verbraucherschutz und Ernährung Federal Ministry of Consumer Protection, Food and Agriculture
EU	=	European Union
€	=	Euros
MEKA	=	Marktentlastungs- und Kulturlandschaftsausgleich
Qw-psr	=	Quality wine in specific regions

1. INTRODUCTION

The production of wine as well as the production of fruits, vegetables and flowers plays quite an important role in the agricultural sector of Baden-Württemberg (Ministry of Food and Rural Areas Baden-Württemberg, Internet, 25.4.05). The producers make 1 billion € per year, being 47.2 % of the total production value from plants in Baden-Württemberg (Ministry of Food and Rural Areas Baden-Württemberg a, Internet, 25.4.05). However, concerning the total agricultural sector in Germany, the production value average of these sectors is only 27 %. The production of fruits, wine, vegetables and flowers is more important in Baden-Württemberg than in the rest of Germany. Only in Rheinland-Pfalz is the production of wine more important than in Baden-Württemberg (Statistisches Landesamt Baden-Württemberg c, Internet 27.4.05; Thalmeier 2004, p.39).

The following report presents some data about the wine production in Baden-Württemberg, the environmental measures, and the answers to the evaluation questions. At the end of this report, conclusions will be formulated from the answers given to the evaluation questions.

2. GENERAL CONDITIONS OF THE WINE PRODUCTION IN THE RESEARCH AREA (BADEN-WÜRTTEMBERG)

The research area taken in consideration is the Federal State Baden-Württemberg. Baden-Württemberg is located in the very south-west of Germany with a border to France and Switzerland. Wine is produced in the regions Baden (Chart 1) and Württemberg (Chart 2). The region Baden can be divided into the areas: Tauberfranken, Badische Bergstraße, Kraichgau, Ortenau, Breisgau, Kaiserstuhl, Tuniberg, Markgräflerland, and Bodensee. The region Württemberg can be further divided into the areas Kocher-Jagst-Tauber, Württembergisches Unterland, and Remstal-Stuttgart.

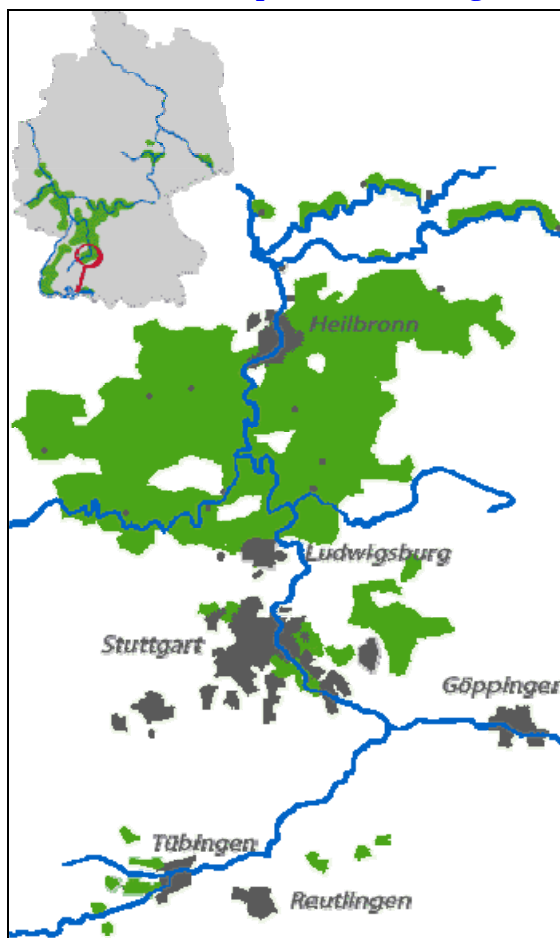
Chart 1 : Map of Baden



Source: WeinABC, Internet, 27.4.05

Baden is the third largest wine production region in Germany, belonging to the wine zone B (defined by the European Community), like the Champagne and the valley of the Loire. In those regions, higher standards for table wine production and Qw-psr are required.

Chart 2 : Map of Württemberg



Source: WeinABC, <http://www.wein-abc.de/anbaugebiete/anbaugebiete.php?abgid=3>

Data from Baden and Württemberg are presented in this report, being further subdivisions not made.

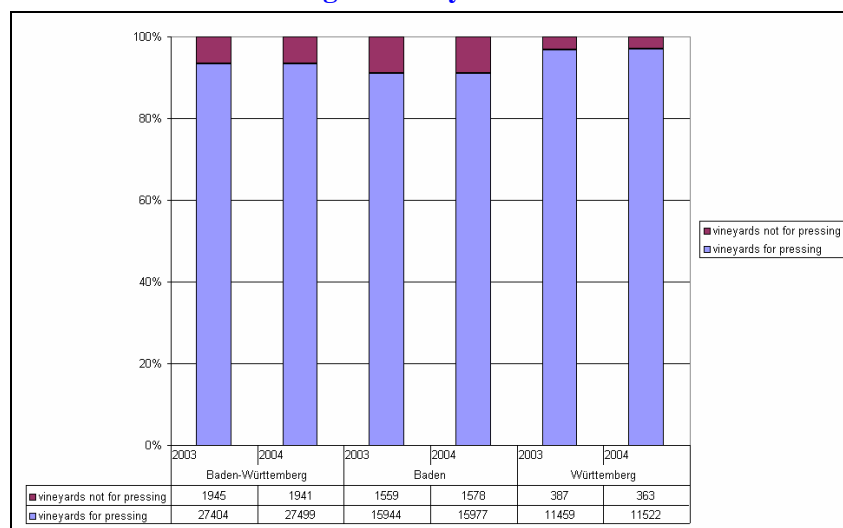
2.1 Important Characteristics of the Wine Production

In the following chapters some statistical data about the wine production in Baden-Württemberg are presented.

The statistical data were surveyed by the “Statistisches Bundesamt Baden-Württemberg” (statistical office of Baden-Württemberg). Some data are available for every year, whilst others only every five years.

2.1.1 Acreage of Wine in the Research Area

In 2004, 29 440 ha of farmland were cultivated with grapes: 17 555 ha in Baden and 11 885ha in Württemberg (Chart 3). From the total area of vineyards, 27 499 ha were used for pressing (15 977 ha in Baden and 11 522 ha in Württemberg). In 2003, there were 29 349 ha of vineyards in Baden-Württemberg (27 404 ha used for pressing), from which 17 503 ha were located in Baden (15 944 used for pressing) and 11 846 ha in Württemberg (11 459 ha used for pressing).

Chart 3 : Acreage of Vineyards in 2003 and 2004

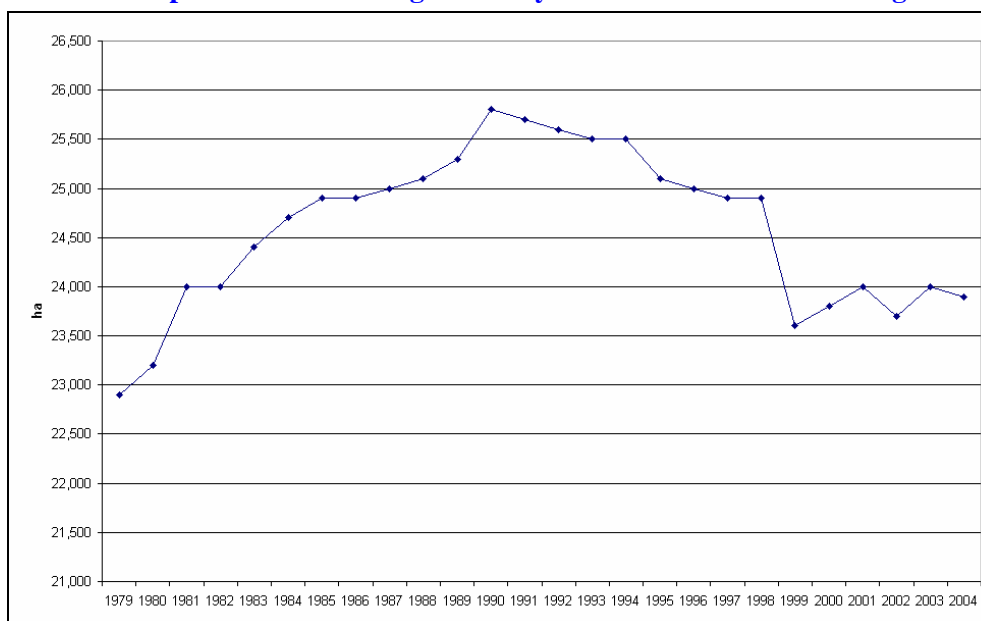
Source: Statistisches Landesamt a, 2004, p.1

In 2004, in Baden-Württemberg red grapes (14 885 ha) were more cultivated than white ones (12 613 ha). There is a difference in the cultivation of red and white wine in the two wine production regions: white grapes are more cultivated in Baden in relation to red grapes (9 172 ha and 6 805 ha, respectively), whereas in Württemberg occurs the opposite (red grapes cultivation covers 9 801 ha and white grapes, 3 441 ha). The distribution of vineyards for red and white wine production in Baden-Württemberg, Baden and Württemberg can be seen in Chart 4.

Chart 4 : Acreage of vineyards for Red and White Wine 2004

Source: Statistisches Landesamt a, 2004, p.3

The acreage of vineyards increased from 1997 until 1990, decreasing then, since 1990 (see Chart 5). The data can be seen in the **Erreur ! Source du renvoi introuvable.**

Chart 5 : Development of the Acreage of Vineyards in Baden-Württemberg since 1997

Source: Statistisches Landesamt Baden-Württemberg a, Internet, 27.4.05

2.1.2 Production of Wine between 1990 and 2002

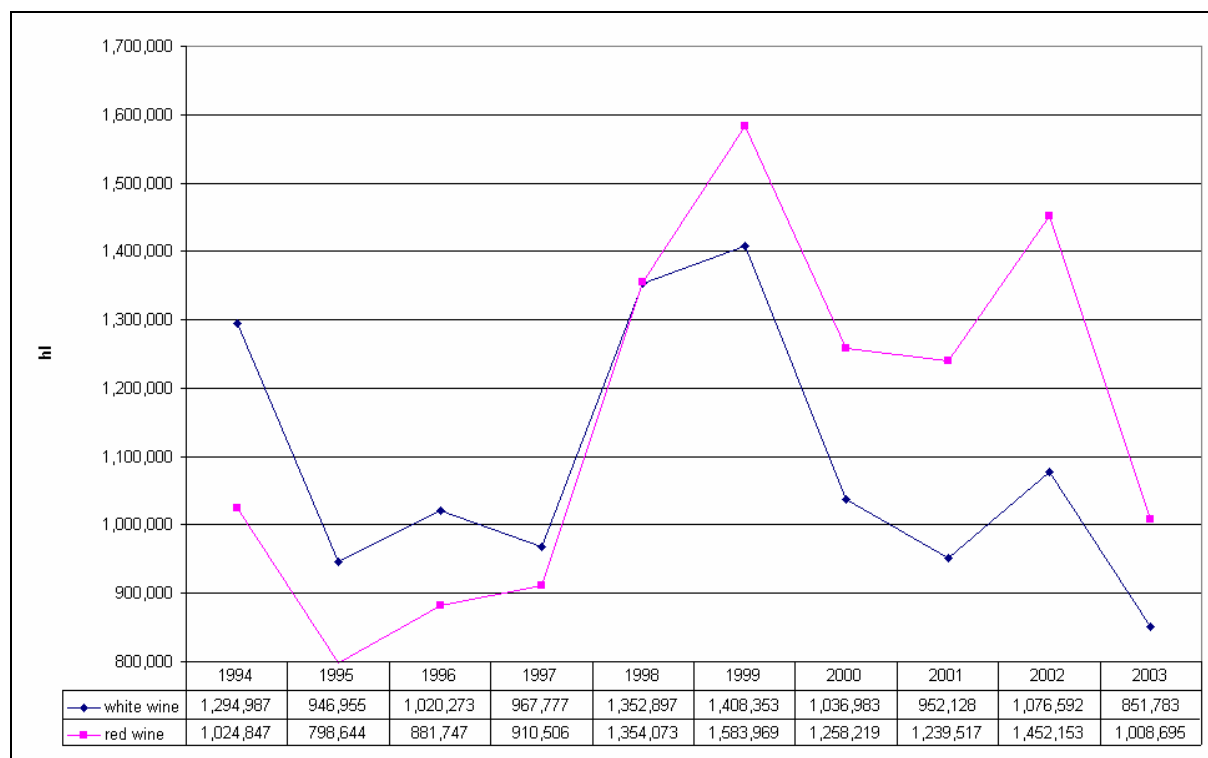
The production of wine in Baden-Württemberg can only be shown since 1994 (Chart 6), being the data before that time not available in internet. It is obvious that in 1999, the highest wine production was reached, showing then, a decrease since this year. Only in 2002 the wine production presented quite an increase.

Chart 6 : Development of Wine Production between 1994 and 2003

Source: Statistisches Landesamt Baden-Württemberg b, Internet, 27.4.05

The production of red and white wine in Baden-Württemberg, Baden and Württemberg can be seen in the following Charts (7, 8, and 9).

Chart 7 : Development of Red and White Wine Production in Baden-Württemberg between 1994 and 2003



Source: Statistisches Landesamt Baden-Württemberg b, Internet, 27.4.05

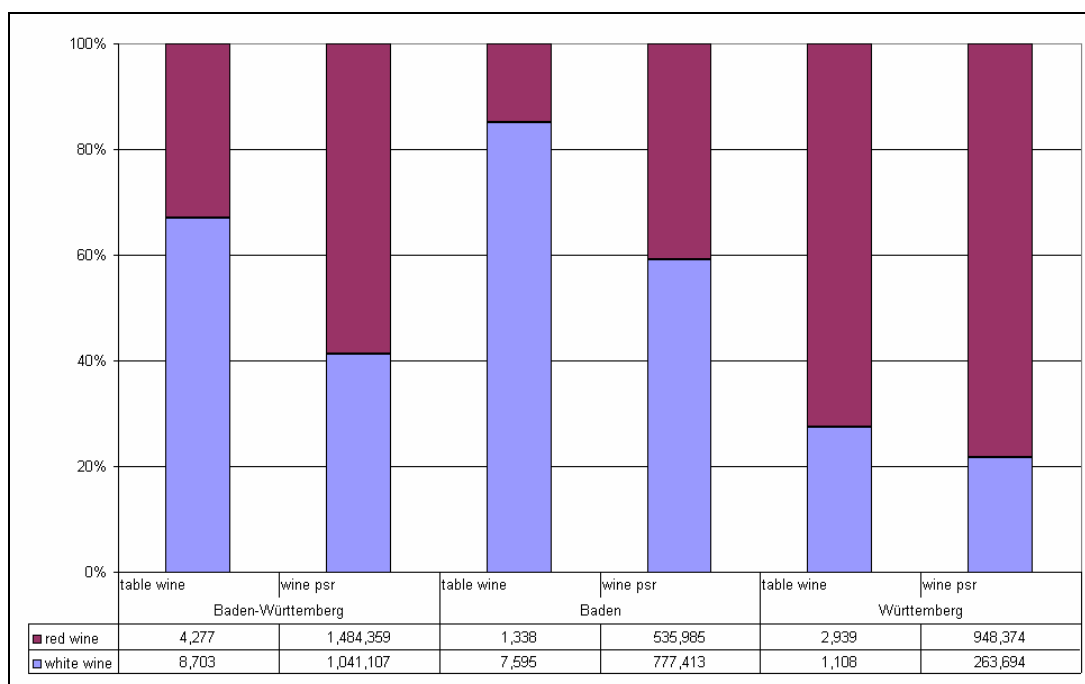
Chart 8 : Development of Red and White Wine Production in Baden between 1994 and 2003



Source: Statistisches Landesamt Baden-Württemberg b, Internet, 27.4.05

Chart 9 : Development of Red and White Wine Production in Württemberg between 1994 and 2003

Source: Statistisches Landesamt Baden-Württemberg b, Internet, 27.4.05

Chart 10 : Production of table wine and Qw-psr in Baden-Württemberg, Baden and Württemberg in 2004

Source: Statistisches Landesamt b, 2004, p.2

As showed in the Chart 10, most of the table wine produced in Baden-Württemberg was white wine, whereas most of the Qw-psr was red wine. The situation is the same in Baden, being different in Württemberg where most of the table wine and Qw-psr is red wine. Qw-psr is produced in all regions (see Table 1). The production of table wine corresponds to less than 1 % of the total wine production.

Table 1 : Percentage of table wine and Qw-psr of the total wine production in Baden-Württemberg, Baden and Württemberg in 2004

	total wine production (hl)	% of table wine	% of Qw-psr
Baden-Württemberg	2 538 446	0.5	99.5
Baden	1 322 331	0.7	99.3
Württemberg	1 216 115	0.3	99.7

Source: Statistisches Landesamt b, 2004, p.2

2.1.3 Age of Vineyards in 2002

The age of the vineyards is demonstrated by the year of grapes planting. The total area and the percentage of grapes, which were planted in different years, can be seen in Table 2.

Table 2 : Year of Grapes Planting in Baden-Württemberg, Baden and Württemberg.

	Baden-Württemberg	Baden	Württemberg
year of planting	ha	ha	Ha
before 1983	10 733	6 028	4 705
1983-1985	2 266	1 449	816
1986-1988	2 592	1 384	1 208
1989-1991	1 762	936	826
1992-1994	1 607	837	770
1995-1997	1 764	1 091	673
1998-2000	2 853	1 740	1 114
2001-2003	3 037	1 934	1 103
2004	885	577	308
total area (ha)	27 499	15 976	11 523
year of planting	%	%	%
before 1983	39.0	37.7	40.8
1983-1985	8.2	9.1	7.1
1986-1988	9.4	8.7	10.5
1989-1991	6.4	5.9	7.2
1992-1994	5.8	5.2	6.7
1995-1997	6.4	6.8	5.8
1998-2000	10.4	10.9	9.7
2001-2003	11.0	12.1	9.6
2004	3.2	3.6	2.7

Source: Statistisches Landesamt a, 2004, p.5

It is obvious that most of the vineyards were planted before 1983, being thus, older than 20 years. It could be observed, that since 1998, there was an increase in grape planting in these areas.

2.1.4 Development of the Structure of Vineyards from 1997 to 2002 in Baden-Württemberg

In general, wine, fruits and other permanent cultures are cultivated by small farmers. Due to the traditional differences in the structure of farmers, the average farm in Baden-Württemberg is therefore, smaller than in the rest of the country (Thalmeier 2004, p. 39).

The most actual data for the wine sector are available for 1999. The survey is carried out only every ten years. In 1999, there were 14 089 wine producers in Baden-Württemberg. Since 1979, more than 4 500 farmers quit the production of grapes. Most farmers work in the legal form of individual enterprises (13 536 farms), working most of them as part-time farmers.

Table 3 : Development of the Number of full-time and part-time Farmers and the cultivated Acreage

	1979	1989	1999
full-time farmers	8 312	5 996	4 263
part-time farmers	10 309	11 816	9 273
% of full-time farmers	44.6	33.7	31.5
% of part-time farmers	55.4	66.3	68.5
acreage cultivated by full-time farmers	13 208	13 962	13 737
acreage cultivated by part-time farmers	6 749	8 933	7 463
% acreage cultivated by full-time farmers	66.2	61.0	64.8
% acreage cultivated by part-time farmers	33.8	39.0	35.2

Source: Ministerium ländlicher Raum 2001

As observed in the Table 3, part-time farmers increased from 1979 to 1999, whilst the share of full-time farmers decreased.

Actual data of the wine sector are available only for Baden. In 2003, about 18 500 farmers cultivated wine in Baden. More than 50 % of these farmers cultivated less than 0.5 ha. This is the reason why not all of these small farms are counted in the official statistics. From 2002 to 2003, many of these small farmers stopped their wine production (Table 4). However, the number of farmers, which cultivated more than five ha increased during the same period.

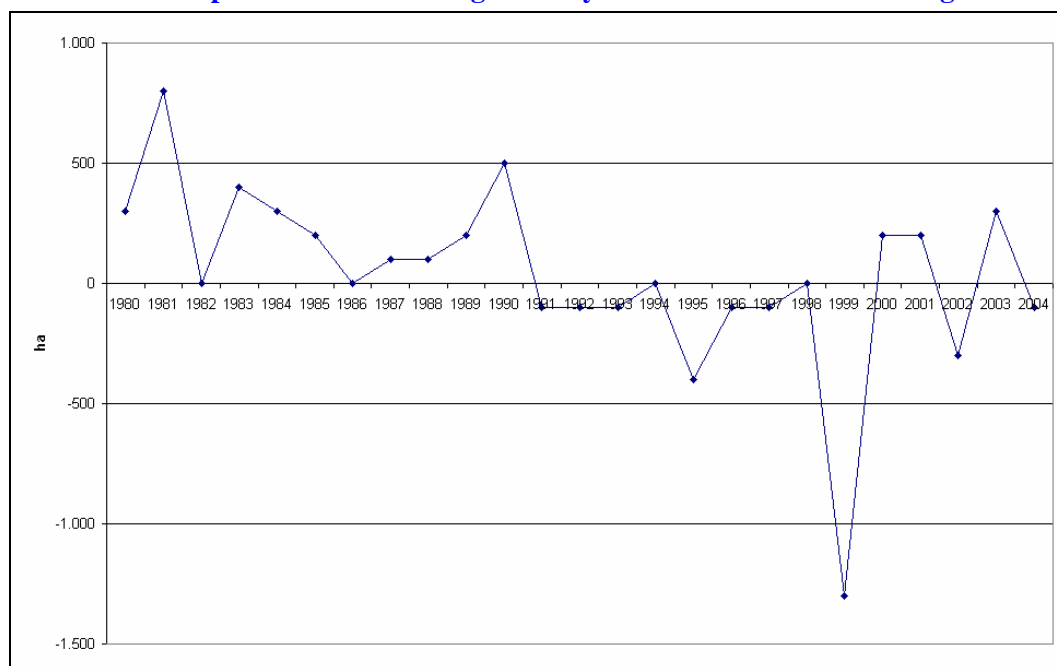
Table 4 : Size of farms in Baden 2003

cultivated ha	% of all farms	nr. of farms	change from 2002 to 2003 (%)
<0.05	5	1 163	-15
0.06-0.09	14.3	3 281	-139
0.10-0.29	41.7	95 900	-432
0.30-0.50	14.3	3 295	-176
0.51-1.00	11.5	2 639	-54
1.01-5.00	10.4	2 389	-82
5.01-10.00	2.1	487	13
10.01-20.00	0.6	139	9
>20.00	0.1	29	27

Source: Weinbaustatistik: Der Weinbau in Baden: Strukturdaten zum Weinjahrgang 2003, p. 31

2.1.5 Development of Clearings

Data about the clearing of vineyards could not be found. Statements about the clearing can only be made if the development of the acreage of wine is taken into consideration. The differences in the acreages of vineyards from year to year are shown in Chart 11. Positive data show an increase of the acreage while negative data show a reduction of the acreage, representing the clearing of vineyards.

Chart 11 : Development of the Clearing of Vineyards in Baden-Württemberg since 1997

Source: Statistisches Landesamt Baden-Württemberg a, Internet, 27.4.05

No clearing of vineyards could be observed in Baden-Württemberg between 1980 and 2004, but an increase of the total area of grape cultivation. However, from 1998 to 1999, 1 300 ha of vineyards were cleared. (see Table 5).

Table 5 : Clearings in Baden-Württemberg from 1980 until 2004

year	clearing (ha)
1980	300
1981	800
1982	0
1983	400
1984	300
1985	200
1986	0
1987	100
1988	100
1989	200
1990	500
1991	-100
1992	-100
1993	-100
1994	0
1995	-400
1996	-100
1997	-100
1998	0
1999	-1.300
2000	200
2001	200
2002	-300
2003	300
2004	-100

Source: Statistisches Landesamt Baden-Württemberg a, Internet, 27.4.05

2.1.6 Structure of the Producer Organisations

There were no available data about the number of producer organisations, the number of members of producer organisations and the by producer organisations marketed wine for Baden-Württemberg and Württemberg. Only data for the situation of Baden could be found.

In 2003, there were 143 producer organisations in Baden. The producers belonging to these producer organisations cultivated 12 215 ha of vineyards, corresponding to 71.8% of the total vineyards in this region.

2.2 Organisation and Tasks of the interviewed experts Organisations

The following chapters present some information about the interviewed organisations. These organisations participated in the survey of experts. There are more organisations involved in the implementation of the CMO in Baden-Württemberg, but they were not considered in the survey. Further details about the survey, the used method and the difficulties in asking experts are presented in chapter 3.

2.2.1 Ministry of Food and Rural Regions

The Ministry of Food and Rural Regions is responsible for all questions related to the rural regions, agriculture, land consolidation, nature conservation, food, control of food, and forest. The tasks of the structural and agricultural policy are:

- the conservation of an area of forestry and agricultural production orientated to the market conditions as well as to the interests of the nature
- the development of the rural regions as independent living space and economic area.

The Ministry of Food and Rural Regions subordinated are e.g. the agencies at the district offices, the departments at the regional commission as well as some research institutions (Ministry of Food and Rural Areas Baden-Württemberg c, Internet, 23.4.05).

2.2.2 Producer Organisation (Winzergenossenschaft Britzingen)

The producer organisation is located in the southern Baden, in the wine producing area of Markgräflerland. The producer organisation was founded 50 years ago, having nowadays 200 producers as member. Most of them are family-farms. The farmers cultivate 190 ha of vineyards.

The producer organisation defined an ecological philosophy for their wine production. Therefore, not only the traditional methods but also new results of research are used to produce wines of high quality. All farmers cultivate their grapes according to the “guidelines for environmentally friendly viniculture”. According to these guidelines, licensed pesticides and fertilizer can be used in the right amount. Other environmental measures that are implemented by the producer organisation are the offer of advices about the use of pesticides, the organisation of the abatement of peronospora by the use of pheromones, the organisation of inspections of the vineyards with experts and the offer of machines (Winzergenossenschaft Britzingen, Internet, 29.4.05).

2.2.3 Research Institute for Viniculture, Gardening and Technology of Drinks Geisenheim

The research institute Geisenheim is one of the oldest research centres for Viniculture and gardening in Germany, founded in 1872. The aim of the research institute is to do innovative research and formulate advices for the praxis in order to improve the competitive situation of the sectors. The institute also offers for students the possibilities to study Viniculture and Oenology, technology of drinks, as well as gardening landscape protection.

2.2.4 Association of Viniculture of Baden

The association of viniculture of Baden is a lobby organisation. The association of viniculture of Baden has altogether 24,132 members (2003), 327 wine-growing estates and 104 producer organisations. The 104 producer organisations have 23,778 members.

The target of the association of viniculture of Baden is the support of the viniculture in Baden as well as the lobbying for the wine producers of Baden. Therefore the association of viniculture of Baden

offers consultation for all national and communal, agricultural and co-operative organisations about topics of the viniculture. The association of viniculture of Baden also does some kind of advertisement by awarding and by supporting the increase of quality of the produced wine. The association of viniculture of Baden observes the development of the wine market and the policy related to the viniculture sector and analyses these developments (Badischer Weinbauverband Internet 9.5.05).

2.3 Relevant Measures for the Implementation of the Common Market Organisation in the Research Area

The aim of the reform of the common market organisation for wine by the regulation 2493/1999 was to improve the balance between the demand and the offer of wine and to improve the situation of competition of this sector (Europäische Kommission a, Internet, 18.4.05). The balance of the demand and the offer should be implemented by the regulation of the offer, being managed by the restriction of rights for planting, grants for the clearing of vineyards and the use of a intervention of table wine, which will be converted into alcohol. The situation of competition of this sector might be improved e.g. by the support of producer organisations.

In Baden-Württemberg grants are offered to:

- the abandonment of vine-growing
- the restructuring and conversion of vineyards
- the trade of new and re-planting rights
- the distillation of table wine
- the storage
- the use of rectified concentrated grape must
- the production of grape juice (Ecozept 2005, p. 12).

The producer organisations are granted to encourage their members to implement environmental measures. These measures focus on:

- the improvement and protection of the water
- the improvement and protection of the soil
- the improvement and protection of the landscape and biodiversity
- the abandonment of the use of pesticides.

2.3.1 Good Agricultural Practice

Good agricultural practice describes the method of cultivating wine that is used by most of the farmers and can therefore, be defined as the standard of production. These standards are shortly described according to the themes planting, cultivation and the use of pesticides.

Before grapes are planted, the following questions have to be answered:

- Which are the natural conditions of the acreage (e.g. climate, location, soil)?
- Which variety is best adapted to the natural conditions of the acreage?
- Which kinds of documents are most used for the chosen variety and the natural conditions of the acreage?

Before the planting, old grapes are grouped and, if necessary, the area of cultivation is improved by melioration or building of terraces. The soil is also prepared for the planting and fertilisers are used in case of lack of nutrients.

The vineyards are cultivated by the yearly cutting of the young wood and the correction of the old wood. During the vegetation period, leaves are cut or put aside, so that it is possible for the grape to improve the photosynthesis and therefore, their quality. These measures are also useful for the reduction of pests and the minimization of losses in plant nutrients.

The soil is treated using machines that loose or dig the soil. Some problems like erosion are combined with this method of soil treatment. Moreover, the planting of grass between and under the grapes is used as a method of soil treatment, reducing the process of erosion.

Fertilisers should be used according to the losses of nutrients through grapes or the soil, the potential of the soil to supply nutrients and the potential of the grape to use the nutrients from the fertiliser. There are organic and mineral fertilizers.

Pest should be avoided by the measures of grape cultivation and by the use of pesticides. Pesticides have to be used in a certain way that a quantitative and qualitative sufficient harvest is possible without damages to the environment (Bauer et al. 1996, p.114ff; Redl et al. 1996, p.223ff.).

2.3.2 Environmental Measures according to the CMO

The measures defined by the CMO, which are related to environmental facts, are predominantly the support of producer organisations, the support of the funds of producer organisations and the support of the operational programs of producer organisations. The producer organisations are responsible in defining the environmental measures as well as the support of integrated production or ecological production in their operational program if the producer organisation is supported by the EU.

The producer organisations are granted to encourage their members to implement environmental measures. These measures focus on:

- the improvement and protection of the water
- the improvement and protection of the soil
- the improvement and protection of the landscape and biodiversity
- the abandonment of the use of pesticides.

Further environmental measures are defined by the rural development program (EU 1257/1999) of Baden-Württemberg (KULAP). The environmental measures of the rural development program, which can be used by wine producers, are presented in chapter 2.3.4.

2.3.3 Relevance of Environmental Measures according to the CMO

The relevance of the environmental measures of the CMO can be shown by the grants given to the producer organisations and producers. In 2002/2003 in Germany 12.5 millions € were spent for measures of the restructuring of the vineyards. For the distillation of vine 411 800€ were granted, as well as 10 000€ for the storage of pure alcohol. The use of rectified must was subsidised by 9.76 millions € and the production of grapes juice by 88 800€ (BMVEL 2004, p.105).

2.3.4 The Rural Development Program of Baden-Württemberg

The rural development program of Baden-Württemberg according to the Council Regulation 1257/1999 is called MEKA (Marktentlastungs- und Kulturlandschaftsausgleichsprogramm). The aims of the measures of the MEKA are to:

- moderation of the burden of the market,
- the use of environmentally friendly methods of producing,
- the preservation and protection of the man-made landscape and
- the improvement of the conditions for the existence of a sufficient number of farms.

The aims of the rural development program MEKA according to the environmental measures are to understand the effects on the biotic and abiotic environment. The soil condition is improved by minimizing erosion, reducing the losses of humus and the soil compaction. Some measures also help to support the fauna of the soil. The water resource (groundwater and surface water) is protected by the reduction of the amount of fertilisers and pesticides which reach the water. The measures of the rural development program MEKA help to reduce the emission of pollutants and pesticides. The measures of MEKA also play an important role on the conservation and enhancement of natural habitats and biodiversity (Ministry of Food and Rural Areas Baden-Württemberg, p. 148).

The rural development program defines subsidies for environmentally friendly management of the farm, preservation or establishment of an extensive use of grassland, preservation of endangered animals, abandonment of chemical products, extensive and the use of environmentally friendly methods of farming. For producers which fulfil the relevant conditions grants are offered.

Environmental measures used by farmers that cultivate grape-vine are:

- The use of control and monitoring methods in order to identify the risks of pests caused by toadstools (5 points/ha)
- The documentation of environmentally friendly methods of cultivation (10 points/farm)
- The conservation of vineyards in slope areas (slope areas defined by regional council) (35 points/ha)

- The abandonment of chemicals on the whole farm (8 points/ha)
- The ecological production (60 points/ha)
- The planting of grass (9 points/ha)
- The abandonment of herbicides (17 points/ha)
- The use of pheromones (10 points/ha)
- The use of bacteria (5 points/ha).

Each point corresponds to 10 €

In 2007, a new period of MEKA will start. It is possible, thus, that some measures change.

3. ANSWER TO THE EVALUATION QUESTIONS

3.1 The Empirical Method

A survey was carried out in order to answer the evaluation question, being a qualitative survey performed by asking experts about their experience and opinion about the influences of the CMO on the environment situation. A quantitative survey was carried out with wine producing farmers. 20 farmers were asked about the way of grape cultivation and the changes since the implementation of the CMO in 1996.

Since the survey was made mostly per telephone, some experts asked for the questionnaire, which was sent by email. Therefore, the questionnaire was both answered per telephone and email. A list of the contacted experts can be seen in the appendix. Many experts were not able to answer the questions, because they did not know enough about the CMO. The reasons why experts did not answer the questionnaire can also be seen in the list in the appendix. 4 experts answered the questions.

The survey carried out with farmers was a face-to-face interview. The farmers were contacted by phone to arrange a date or asked at their home if they for their cooperation in participating in the survey. The interviews took in average 45 minutes (30 to 90 minutes). The sample of the interviewed farmers is presented in Table 6.

Table 6 : Sample of interviewed Farmers

Description of Category	Nr. of interviewed Farmers
Producers that used planting right in regions of growing demand (if rights were used in the country)	3
White wine producers that sent their by-products to distillation (according to national regulation)	1
Red wine producers that not sent their by-products to distillation (according to national regulation)	3
Producers that produced grape must or used concentrated grape must in their wine	0
Producers that uprooted vines before 1999.	20, parts of the vineyards
Producers that restructured or converted their vineyards (variety conversion, relocation, adoption of new production techniques) via premium from the CMO	9
Producers that produced quality wines in specified regions	20
Producers of table wines	0
Producers that processed their wine on their own holding	9
Producers of wine that have organic grapes or producers who subscribed to a specific quality label in the past 5 years	3
Producers of wine, members of PO and implementing environmental measures (integrated production systems, organic production, etc.)	5
Producers that expanded their holding by planting vineyards	10
Producers under Agro-environmental contract	3
Total number of interviewed Farmers	20

The answers given to the questions are presented in the following chapters, using the information given by experts and farmers.

3.2 Vertical Questions

3.2.1 Theme 1: Supply Control

Q 1: What is the environmental impact of the ban on planting new vines except in regions of growing demand?

Experts: A ban of planting new vines exists in Germany since 1977. Therefore, acreage of vineyards did not increase in this period. In fact, the acreage of vineyards decreased, except for the areas in Bayern and Sachsen (Hoffmann oral information). In Baden-Württemberg the planting rights (for 598 49 ha) were administrated by the regional councils, being the planting rights until 2001 assigned for young farmers (Weinmann oral information).

The only changes which did take part were changes caused by the restructuring of vineyards. But the new planted varieties according the restructuring of vineyards do not have any impact besides an impact on the quality of the produced vines (Weinmann oral information). The ban on planting new vines except in regions of growing demand does not have an environmental impact according to the statements of most of the experts. The only impact which can be seen is that in the absence of such a ban the acreage would increase.

Farmers: All interviewed farmers indicated that the ban on planting new vines is not relevant for them. It has to be mentioned that many farmers did not recognize the existence of such a ban, because before the implementation of this ban, farmers could not easily increase the acreage of vineyards. The reason can be seen in the distribution of vineyards. Vineyards could not be planted on acreages outside these mapped areas. Farmers who want to enlarge their area of cultivation have the opportunity to rent vineyards. Only one farmer asked for new planting rights and he got the requested planting rights. None of the interviewed farmers increased the area of vineyards before the regulation of planting rights was implemented.

The interviewed farmers think that if the ban on planting new vines (EU-regulation or traditional mapping of vineyards) did not exist, there would be a reduction in the prices for their vines and wine with lower quality would be produced. In addition, a larger amount of wine could be produced.

None of the interviewed farmers used re-planting rights. Some farmers did not even know about the existence of such rights. One possible reason is, that after the clearing of vineyard, the area can be set aside for 10 years without losing the right for re-planting. Since none of the interviewed farmers used the re-planting rights, no consequences of its implementation of the regulation could be described.

Conclusion of the expert survey: The ban on planting new vines (except in regions of growing demand) does not have an environmental impact according to the statements of most of the experts. The absence of a ban would lead to an increase of the acreage, which could be pointed out as the only impact.

Conclusion of farmer survey: Since the farmers are aware about the ban on planting new vines, it does not have an environmental impact in this region.

Q 2: What is the environmental impact of the by-products distillation mechanism and other market measures like aid for the use of concentrated grape must?

Experts: The by-product distillation needs a lot of energy, being the grape harvest in these regions with overproduction, in an ecological point of view, reasonable when they are still green (Hoffmann oral information; Weinmann oral information; Hurst written information).

The by-products are composted and spread on the vineyards and this treatment might not have negative environmental impacts on water and soil according to the experts. Actually, this kind of use of the by-products is reasonable because less chemical fertilisers have to be used and the cycle of nutrients is thus, closed. Moreover, the by-products have to be spread to the vineyards according to the good agricultural practice (Hoffmann oral information; Weinmann oral information).

Since concentrated grape must is not produced in Germany (Hoffmann oral information), no further information could be given about the regulations for its use.

One expert cited that the by-product distillation mechanism and the aid for the use of concentrated grape must do not have any impact on the environment.

Farmers: The environmental impact of the by-products distillation mechanism and other market measures, such as the aid for the use of concentrated grape must are evaluated by the point of view of farmers by the production of marc and lees, the storage and use of marc and lees, the treatment and spreading of marc and lees, the distance the by-products have to be transported and the opinion of the farmers about the environmental impact of these regulations.

The farmers produce 5 % and 2 % of marc and lees, respectively. The marc is often spread on the vineyards while the lees are often distilled (see Table 7).

Table 7 : Use of Marc and Lees

	marc		lees	
	Nr. of Farmers	% of Farmers	Nr. of Farmers	% of Farmers
spread	12	60	1	5.3
composted	4	20		
organised by the PO	4	20	6	31.6
sold			2	10.5
distillation			10	52.6

Source: Own Inquiry 2005

Most of the farmers indicated that the storage of marc and lees is organised by the producer organisation (see Table 8).

Table 8 : Types of Storage of Marc and Lees

	marc		lees	
	Nr. of Farmers	% of Farmers	Nr. of Farmers	% of Farmers
composted	3	20		
organised by PO	6	40	7	46.7
plastic container (DIN)/tank	5	33.3	4	26.7
spread	1	6.7	1	6.7
distilled			3	20

Source: Own Inquiry 2005

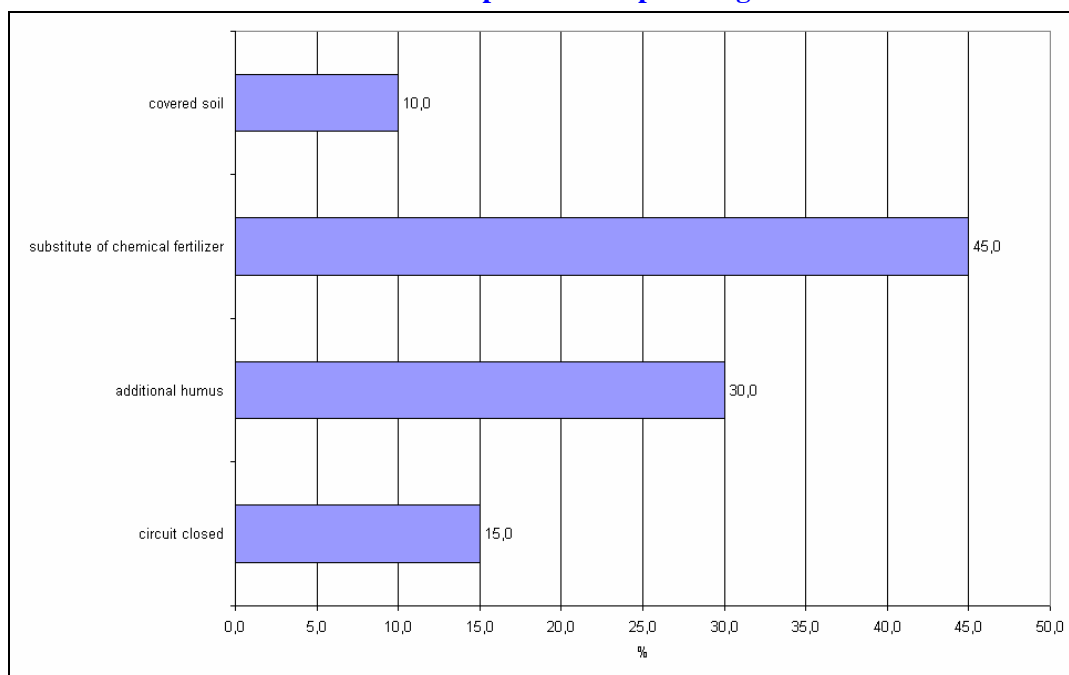
The marc is stored during the winter. The storage of lees is usually a responsibility of the producer organisation. Because of this, the farmers do not know how long the lees are stored (see Table 9).

Table 9 : Time of Storage of Marc and Lees

	marc		lees	
	Nr. of Farmers	% of Farmers	Nr. of Farmers	% of Farmers
used immediately	2	10.5	4	33.3
until spring	14	73.7	2	16.7
organised by PO	3	15.8	6	50.0

Source: Own Inquiry 2005

From the point of view of the farmers, the storage of marc and lees does not have an impact on the environment. The spreading of marc or lees on the vineyards is not defined by any regulation. The farmers indicated that they have enough acreage for the spreading of the material. The farmers pointed out that this procedure is beneficial for the environment, since less chemical fertilisers are needed and humus is added to the soil (see Chart 12 and Appendix 2).

Chart 12 : Environmental Impact of the Spreading of Marc and Lees

Source: Own Inquiry 2005

(More than one possible answers)

The farmers indicated a distance of 0 to 8 km between the farms and the intermediate storage for the produced by-products (see Table 10).

Table 10 : Distance between the Farm and the intermediate Storage for by-products and by-Products and Distillery

distance (km)	farm-intermediate storage		intermediate storage-distillery	
	Nr. of farmers	% of farmers	Nr. of farmers	% of farmers
0	8	38.1	4	57.1
1	1	4.8		
3	2	9.5	1	14.3
4	4	19		
5	5	23.8	1	14.3
7		0	1	14.3
8	1	4.8		

Source: Own Inquiry 2005

More than a half of the farmers said that there is no distance because the by-products are stored in the distillery. Almost all farmers said that the by-products are stored during the winter until the spring (90 to 120 days).

70 % (14) of the interviewed farmers believed that the storage of the by-products does not have an environmental impact. The other farmers did not know if there was an impact, showing thus, that no farmer indicated an environmental impact on the storage of by-products. When they were asked about the environmental impact of distilleries, most of them did not know if there was an impact on the environment caused by the distilleries. However, four farmers believed that the distilleries do have an impact on the environment due to the use of energy.

The market measures, such as the aid for the use of concentrated grape must is not relevant, since it is not produced in the region.

Conclusion of the expert survey: There is a negative impact of the distillation of by-products on the environment due to the use of energy in the opinion of the experts, being reasonable in areas with overproduction, the harvest of green grapes.

The treatment of by-products is very reasonable from the point of view of the interviewed experts because less chemical fertilizers are used in the vineyards and the cycle of nutrient is thus, closed.

Conclusion of the farmer survey: As a conclusion, it seems that the treatment of marc and lees do not have any further negative environmental impact and their spreading might be beneficial to the environment.

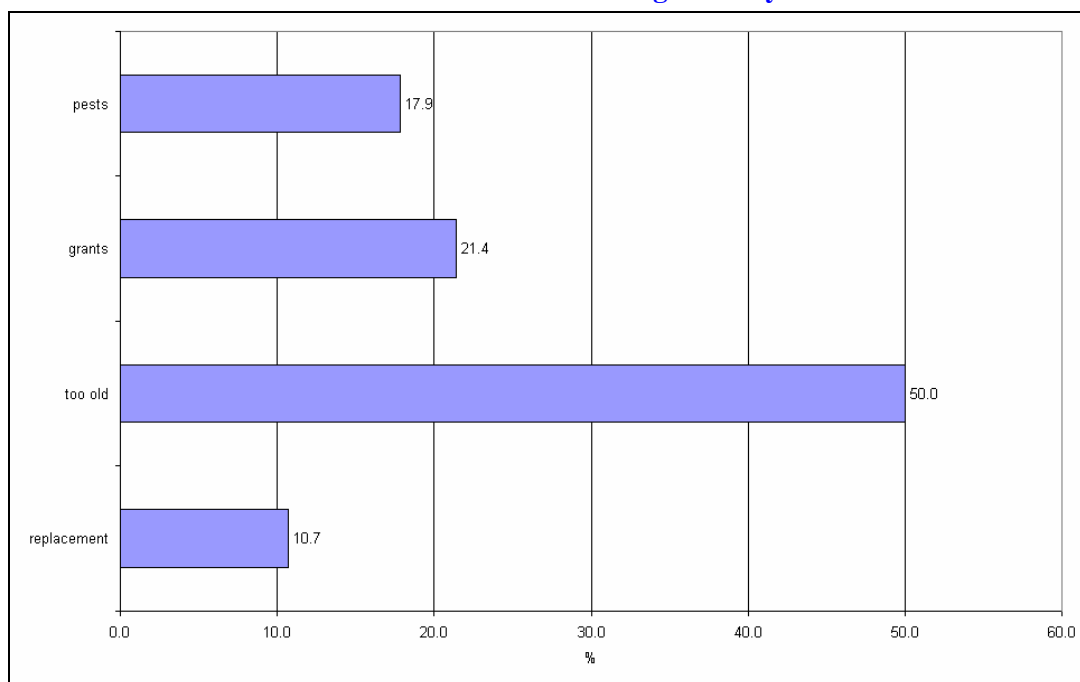
3.2.2 Theme 2: Structural Measures

Q1: What are the environmental effects of the abandonment premia?

Experts: The abandonment premium is not used and do not exist in Germany (Hoffmann oral Information; Weinmann oral Information, Hurst written information). The clearing before 1999 took place in all areas of Baden-Württemberg (Weinmann oral Information) and especially in the middle of the Rhein valley (Hoffmann oral Information). The clearings had no direct effect on the environment. In one hand, if grapes were not uprooted some problems with pests in the neighbouring vineyards. On the other hand, if they were, it leads to a change in the landscape. Because the abandonment premium do not exist or is not used in Germany, the situation would not change in the absence of the premium.

Farmers: Almost all farmers cleared their vineyards before 1999 (19 farmers). However, most of them cleared only a small part of their acreage. The reasons why the vineyards were cleared are presented in Chart 13, but the main reason was the existence of old vineyard (see Chart 13, Appendix 3).

Chart 13 : Reasons for Clearing of Vineyards



Source: Own Inquiry 2005

(More than one possible answers)

Only four farmers indicated that the re-planting of vineyards was granted and, therefore, they cleared them. Five farmers stated that the clearing was accompanied by the rule to plant the grapes in a greater distance than before.

Nevertheless, independent of grants, the farmer would have cleared their vineyards. Three farmers said that in this case they would have cleared a smaller area and one farmer would have re-planted the

vineyards differently than the regulated way, maintaining the vineyard or even quitting this cultivation.

According to the opinion of all farmers, the clearing does not have an environmental impact. The cleared vineyard was used again by 18 farmers and two farmers were not informed about the currently use of area. Therefore, no visible change in the use of the cleared vineyards could be observed by the farms. According to this statement it is logical that the farmers supposed that the new use of the acreage does not have an impact on the environment.

Conclusion of the expert survey: Clearings which took place before 1999 did have an impact on the landscape and environment, being the uprooting of grapes the main causer of this change. Since there is no abandonment premium or this is not practicable, no environmental impact can be detected.

Conclusion of the farmer survey: the clearing which were carried out by them before 1999 did not have an impact on the environment because the acreages are nowadays used as vineyards again. Impacts on the environment can only be measured by the re-planting, since this practice is regulated and granted.

Q2: What are the environmental impact of restructuring and conversion of vineyards?

Experts: The restructuring and conversion of vineyards is defined by a regional plan for Baden and Württemberg (Weinmann oral information). This plan also defines measures for the protection of the environment like the pest resistant varieties for the re-planting (Weinmann oral information). The increase of the production of wine is limited by the definition of a maximum yield per ha and the granting of varieties with a lower yield (Weinmann oral information).

The total area for the production of table wine and Qw-psr did not change between 1980 and 2003 (Weinmann oral information). However, the cultivated varieties in these areas changed a lot in this period. Nowadays, more Burgunder and pest resistant varieties are cultivated. Therefore, less Müller-Thurgau and varieties with a high yield are grown.

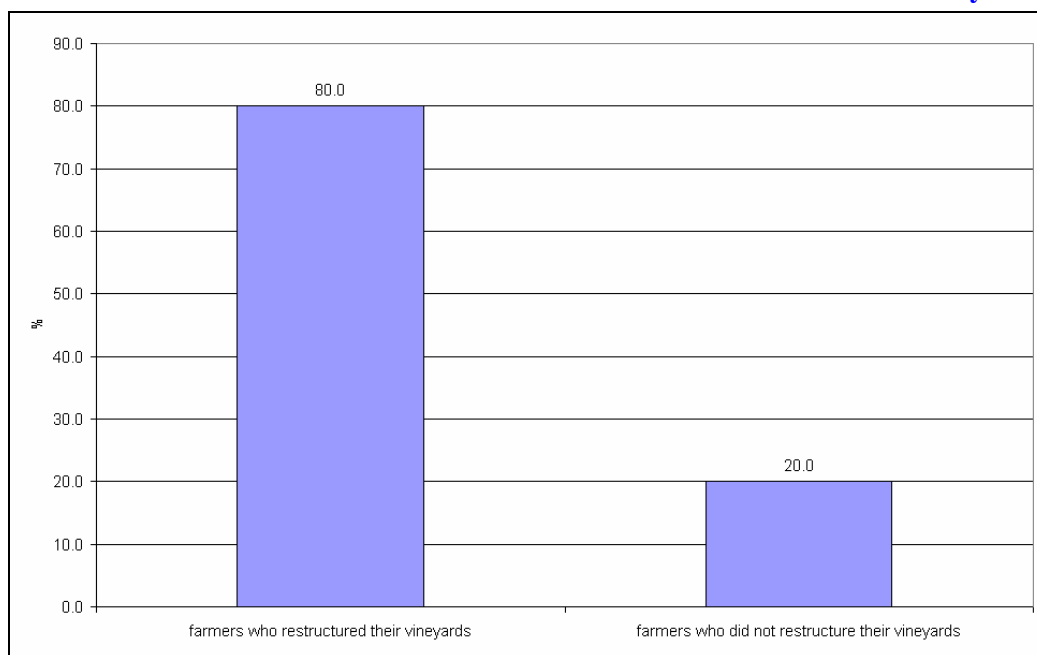
According to the opinion of the experts, the structure of farms and the use of methods for the cultivation of grapes improved since 1999 in the areas where a lot of restructuring took place.

The restructuring and conversion of the vineyards do have an impact on the environment, having a great impact on the landscape and biodiversity. Due to the restructuring and conversion some vineyards are still used, which would otherwise set aside because the payment of this restructuring without grants is not economical viable for the farmers (Frey written information 25.4.05; Hoffmann oral information; Weinmann oral information). Because of restructuring and conversion of vineyards it is possible to cultivate them in nature-orientated way (Hurst written information).

Even in the absence of the grants the restructuring and conversion would also take place on some acreage. The rate of restructuring and conversion would be lower according to the demand of the offer. In this case the farmers could not react so fast on the demand of the market. On other areas the absence of the premium for restructuring and conversion would cause the set-aside of theses acreage.

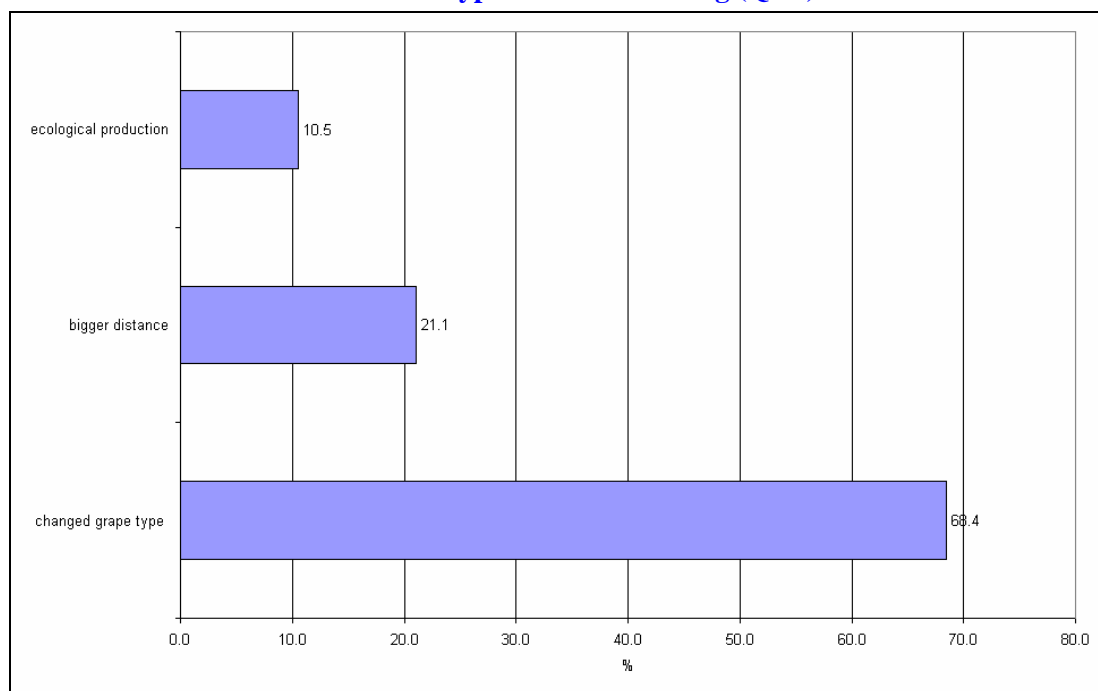
Farmers: The impact on the environment caused by the restructuring and conversion of vineyards is described by their use and the way of use by the farmers. Further, the measure of restructuring and conversion should be considered according to the farmer.

According to the Chart 14, 80% (16) of the farmers restructured their vineyards.

Chart 14 : Nr. of Farmers who restructured and not restructured their Vineyards

Source: Own Inquiry 2005

Most of the farmers who restructured their vineyards changed the variety of the cultivated grape. The grape variety Müller-Thurgau was substituted for other grape varieties, such as Burgunder and Regent. Hence, nowadays more red grapes are cultivated. In addition, another mentioned practice was the planting with a greater distance between the grape rows. _Two farmers started to produce ecological grapes (see Chart 15).

Chart 15 : Types of Restructuring (Q 43)

Source: Own Inquiry 2005

(More than one possible answers)

Subsidies were used by 87.5 % (14) of the farmers who restructured their vineyards. Only two (12.5 %) farmers did not use grants. The grants were offered by the producer organisation, rural development program, and regional council (see Table 11).

Table 11 : Organisations that offered grants for Restructuring and Conversion

	Nr. of Farmers	% of Farmers
producer organisation	4	44.4
rural development program	3	33.3
regional council	2	22.2

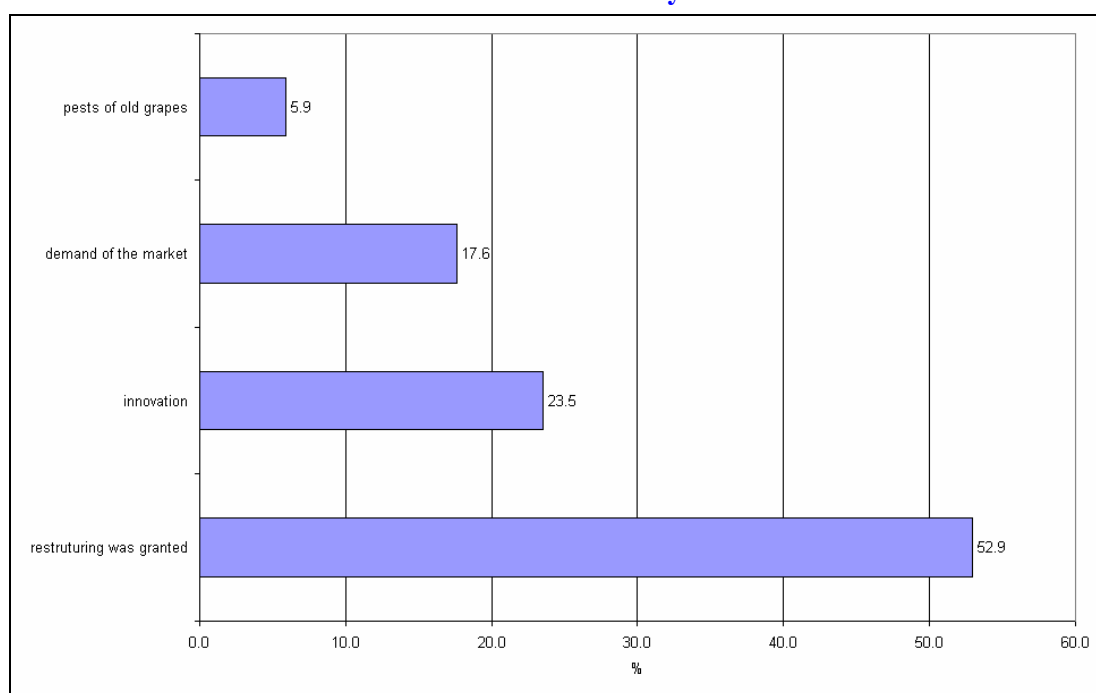
Source: Own Inquiry 2005

42.8 % (six) of the subsidised farmers indicated that the grants did make provision for environmental protection. Thus, the farmers had to use pest resistant types of grapes, to plant the grapes in greater distances and abandon chemical products.

68.75 % (11) of the farmers who restructured their vineyards indicated the existence of arrangements to prevent an increase of the production, whilst 25 % (four) of them do not believe on the existence of such arrangements.

A subsidy offered for the cultivation of new varieties was the main reason why most farmers (nine) changed their cultivation. Some farmers also indicated the necessity of innovations (four answers), the demand of the market (three answers), and due to pests in old grown varieties (one answer) (see Chart 16, **Erreur ! Source du renvoi introuvable.**).

Chart 16 : Basis for the choice of new Variety and Cultivation methods



Source: Own Inquiry 2005

(More than one possible answers)

The implementation of the measure is mostly checked by random authority inspections.

The change in the varieties of cultivated grapes can be described by a reduction of Müller-Thurgau variety and an increase of the red wine varieties e.g. Burgunder and Regent, as affirmed by all farmers (see Table 12).

Table 12 : Nr. of Farmers who changed the cultivated Variety

Variety	new cultivation	increased cultivation	decreased cultivation	quite cultivation
Chadonnay	1			
Souvignon Blanc	1			
Burgunder	8	3		
Regent	5			
Gwurztraminer	2			
Riesling	1			
Grauburgunder	1	1		
Cabernet	1			
Spätburgunder	1			
Dornfelder	1			
Müller-Thurgau			12	
Silvaner				1

Source: Own Inquiry 2005

Eight farmers (40%) stated that the region experienced major reorganisations since 1999, whilst 25% (five farmers) did not recognize any reorganisations and 35% know nothing about them. The changes in the cultivated grape varieties in the region according to the farmers are shown in Table 13.

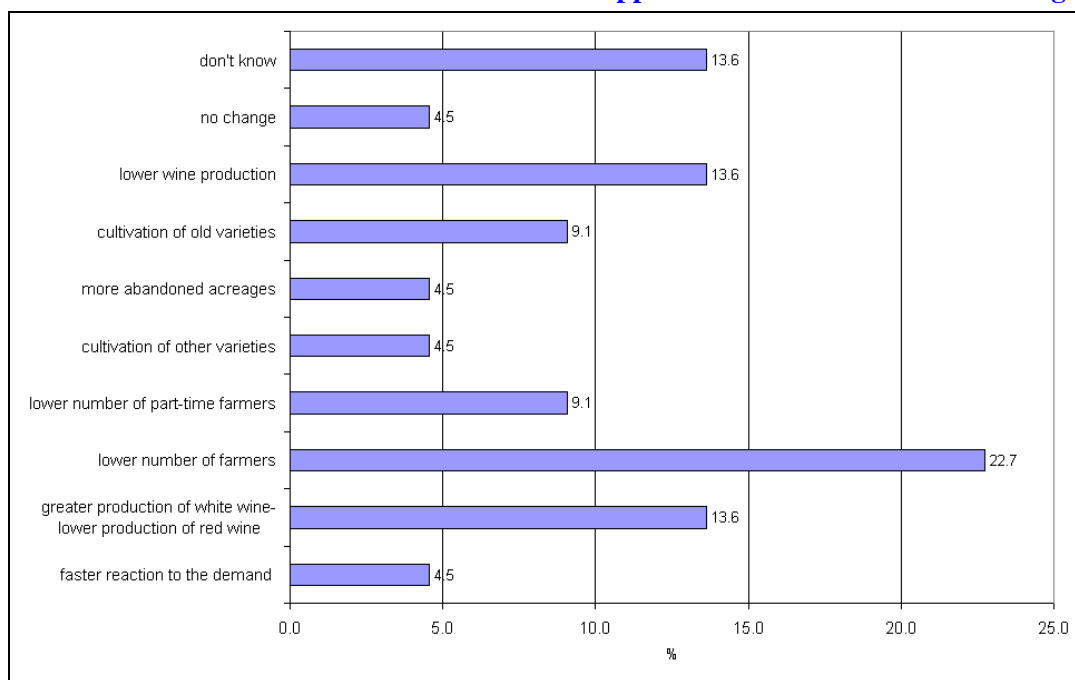
Table 13 : Nr. of Farmers who indicated changes of the cultivated Variety in the Region

Variety	new cultivation	increased cultivation	decreased cultivation	quite cultivation
Burgunder		3		
Müller-Thurgau			5	
red wine		10		

Source: Own Inquiry 2005

According to the farmers, who indicated the existence of reorganisations, the farms become larger. Changes in the way of cultivation were also observed due to the development of new techniques, the use of machines, planting new vines with a greater distance between the rows, and the cultivation of new varieties.

Most of the farmers pointed out that in the absence of financial support for restructuring and conversion many farmers would not be able to exist. Some farmers also believed, that in this case, more white wine would be produced, although the total amount of produced wine would decrease. Other mentioned trends were the cultivation of old varieties and that less part-time farmers would still produce wine (see Chart 16, **Erreur ! Source du renvoi introuvable.**).

Chart 17 : Trend in the Absence of financial Support for Conversion/Restructuring

Source: Own Inquiry 2005

(More than one possible answers)

Conclusion of the expert survey: As a conclusion, the environmental impact of restructuring and conversion is neutral or positive. The grants for restructuring prevent that vineyards are set aside. The set-aside of vineyards would at least cause an impact on the landscape and, in some cases, on the biodiversity because some plant and animal species would disappear. The restructuring of vineyards would happen anyway, even in the absence of the subsidies. However, vineyards that could not be economically explored would be set aside.

Conclusion of the farmer survey: The restructuring and conversion is common practice between the farmers. In most cases, the restructuring of the vineyards is necessary due to different reasons and some farmers would have restructured their vineyards even without the use of subsidies. On the other hand, in other cases the farmers would not have restructured their vineyards or would set them aside. According to the farmers the grants for restructuring and conversion indeed help to maintain the number of full-time and part-time farmers in the region.

The regulations related to the use of grants seem to have a neutral or positive impact on the environment, such as the use of pest resistant grape varieties and the planting of vines in greater distances. Moreover, the planting of red wine varieties has no visible impact on the environment but on the competition position of the farmers in the region.

Q3: What are the environmental impact of grubbing-up grants and payments of compensation for costs of uprooting and income loss?

In Baden-Württemberg no grants are given for the uprooting of vineyards. Only the re-planting of rooted vineyards can be subsidised. In this case, the farmers have to plant special varieties in order to receive the subsidies.

3.2.3 Theme 3: Other regulatory Measures and especially those for Quality Wines produced in specified Regions

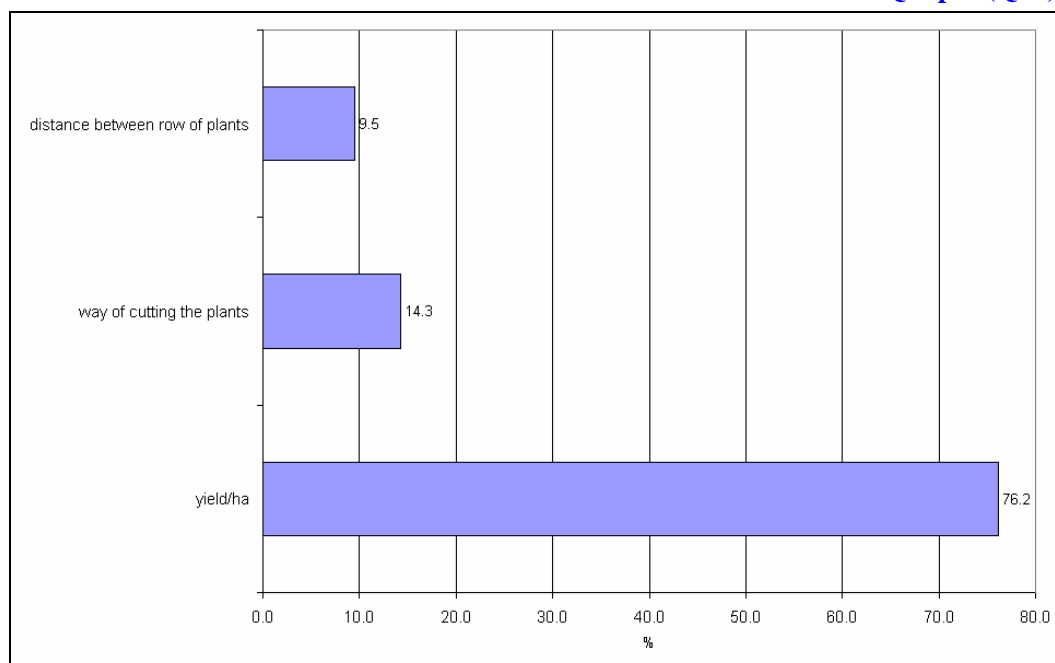
Q1: What are the environmental impacts of the CMO requirements for quality wines produced in specified regions?

Experts: in Germany only Qw-psr is produced since 1970 (Hoffmann oral information), so that no statement about the production and the regulations for the production of table wine can be made. German table wine only exists if the quality of Qw-psr is not good enough to be commercialised as Qw-psr.

The only regulation which was mentioned by the experts for the production of Qw-psr is the limitation of yields per ha. The experts supposed that this regulation causes an extensification of the wine production, since less fertiliser is used. Therefore, the vineyards can be cultivated for a longer period of time and fewer resources are used for the production of wine. On the other hand, the regulation for the production of Qw-psr induces a higher concentration of farms. These larger farms need more machines and energy (Hoffmann oral information). Other experts could not state about the environmental impacts of the CMO or affirmed that there is no negative impact.

Farmers: 90 % of the farmers indicated that the conditions for the production of Qw-psr include limitations of cultivation. Most of the farmers believed that the yield per ha is limited on 90 hl/ha. Some farmers indicated that the way of cutting the plants and the distance between the rows of the grapes is defined (see Chart 18, **Erreur ! Source du renvoi introuvable.**).

Chart 18 : Limitations of Production in relation to the Production of Qw-prs (Q52)



Source: Own Inquiry 2005

(More than one possible answers)

Most of the farmers (61.1 %) think that the limitations of the production of Qw-psr do not have any impact on the environment, whilst 22.2 % of them see a positive impact (see Table 14).

Table 14 : Opinion of the Farmers about the environmental Impact of these Limitations

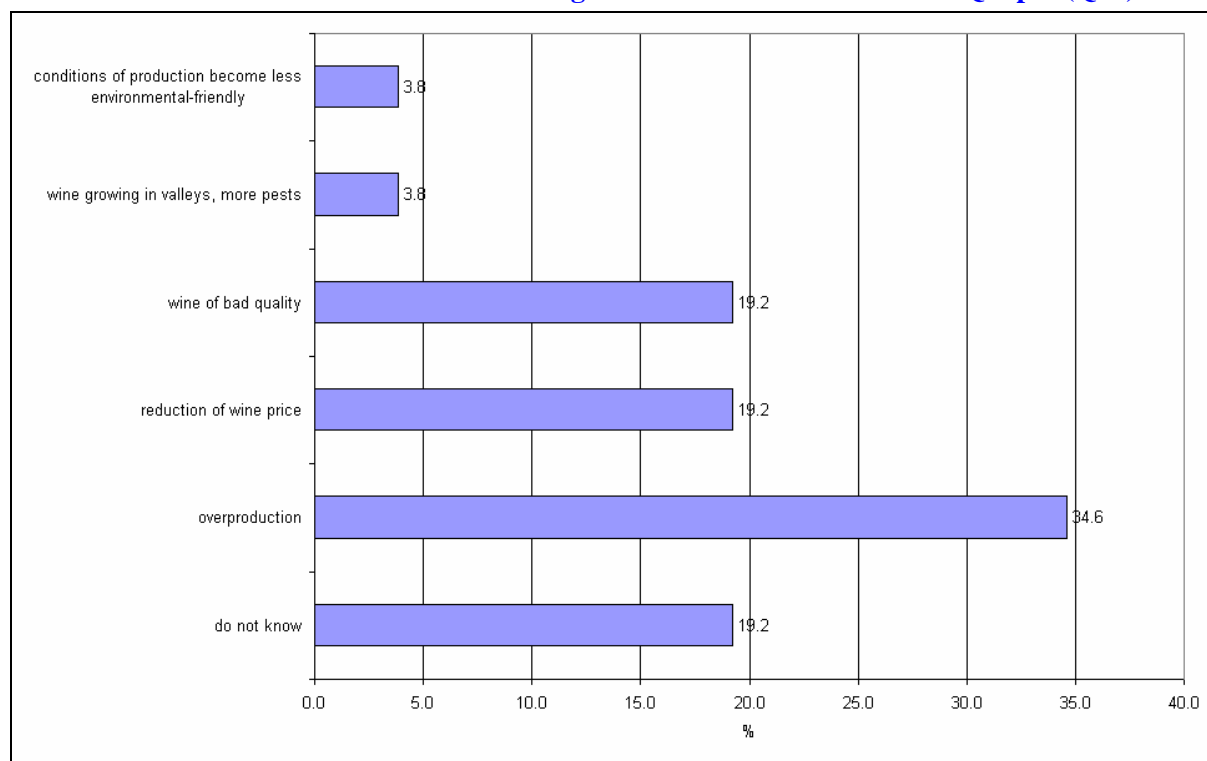
	Nr. of farmers	% of farmers
beneficial	4	22.2
neutral	11	61.1
do not know	3	16.7

Source: Own Inquiry 2005

The environmental impacts of the limitations of the production of Qw-psr were described as reduction of the use of chemicals in the farm and the improvement of the balance between nature and economical needs.

75% of the farmers did not know if the regulations for the production of table wine have the same impacts on the environment, since in Baden-Württemberg no table wine is produced. The regulations for the production of table wine might have different impacts on the environment according to 25 % of the farmers, due to the greater use of fertiliser and the soil.

The farmers have the opinion that if there were no regulations for the production of Qw-psr, there would be an overproduction, a reduction of the prices of wine and a reduction of the quality of wine. Further trends in the absence of regulations for the production of Qw-psr are shown in Chart 19 (see **Erreur ! Source du renvoi introuvable.**).

Chart 19 : Trend in the Absence of Regulations for the Production of Qw-psr (Q55)

Source: Own Inquiry 2005

(More than one possible answers)

Conclusion of the expert survey: The regulations for the production of Qw-psr have both negative and positive impacts on the environment according to the opinion of the experts. The regulations cause intensifications of the vineyards due to the less use of fertiliser. However, the greater concentration of farmers induces the use of more machines and consequently, energy. Other experts could not give a statement about the environmental impact of this regulation or believed that they have no impact.

Conclusion of the farmer survey: According to the farmers, the production of Qw-psr regulations shows a positive or at least, a neutral impact on the environment. The absence of the regulations would

cause an impact on the economical situation of the farmers (decrease of prices), causing damages to the environment.

Q2: What is the environmental impact of the regulated oenological practice?

Expert: The environmental impact of the oenological practice is described by the existence of national or regional regulations for the wine-making equipment, the use of voluntary procedure, such as SME, ISO 14 000, the use of residues of the winery and the changes of the wine-making equipment and use of residues since 1980.

The experts indicated that there are no regulations for the wine-making equipment. Nevertheless, since 1980 the wine-making equipment and the know-how about the winery improved concerning the impact on the environment. Nowadays, less wastewater is produced and improved filtering techniques and ecological treatment are available (Hoffmann oral information; Weinmann oral information). The use of chemicals in the winery has not changed.

According to the answer of experts, the producers and the producer organisations use the International Food Standard Din 9000, which defines the retraceability of wines to the vineyards (Weinmann oral information).

The same answers about the treatment of the winery residues were given by both experts and farmers (see answer of farmers about this topic). The residues of the winery are composted and spread to the vineyards. The use of residues of the winery follows the standards of the good agricultural practice. The experts did not make a statement about the changes in the use and the amount of residues of the winery since 1980.

Farmer: The environmental impact of the oenological practice is evaluated by the existence of national or regional regulations for the wine-making equipment, the use of voluntary procedure, such as SME, ISO 14 000, the treatment and use of residues of the winery.

No farmer indicated special regulations for the wine-making equipment. One reason might be that most of the farmers give their grapes to the producer organisations.

The residues of the winery are usually treated by composting and spreading them to the vineyards. Some farmers burn the residues of the winery (see Table 15).

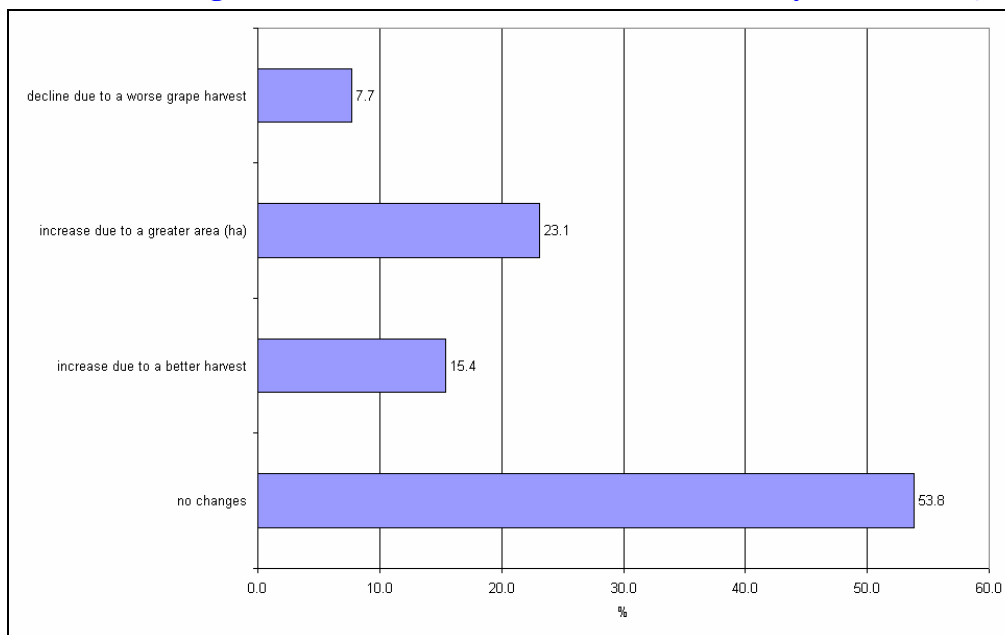
Table 15 : Treatment of the final solid and liquid effluent Residues from the winery

Treatment	Nr. of Answers	% of Answers
Spread	9	34.6
Composted	10	38.5
Treated	4	15.4
organised by PO	3	11.5

Source: Own Inquiry 2005

(More than one possible answers)

According to 35 % (seven farmers) of the farmers, the amount of residues from the winery has not changed since 1980. 15 % (three farmers) of the farmers stated that the amount increased due to the increase of acreage, whilst two farmers (10 %) indicated an increase due to the greater harvest of grapes. Only one farmer (5 %) said that the amount of residues from the winery decreased because of a smaller harvest of grapes (see Chart 20, **Erreur ! Source du renvoi introuvable.**).

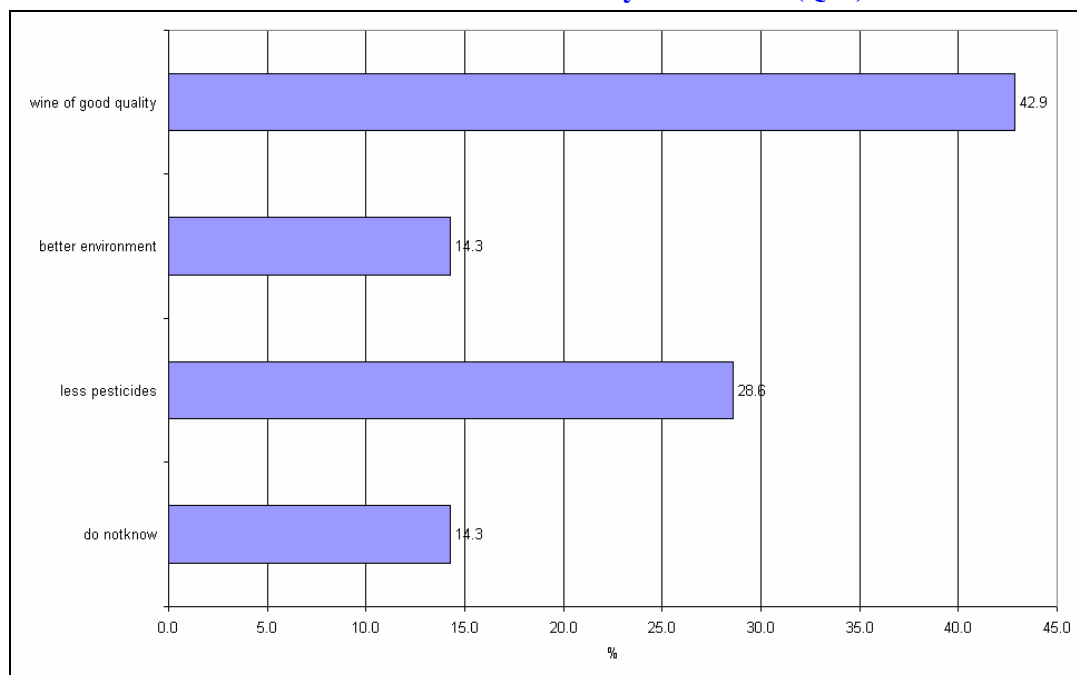
Chart 20 : Changes of the Amounts of Residues from the winery since 1980 (Q58)

Source: Own Inquiry 2005

(More than one possible answers)

No farmer indicated regulations for the spreading of the residues from the winery.

40 % (eight farmers) of the farmers were involved in voluntary procedures, 62.5 % (five farmers) of these farmers participate in the rural development program MEKA and 37.5 % (three farmers) of them produce according to the regulations of the ecological wine production. According to them, these procedures improve the quality of their wine, as well as the use of less pesticides, improving the environmental situation (see Chart 21, **Erreur ! Source du renvoi introuvable.**).

Chart 21 : Effects of Voluntary Procedures (Q62)

Source : Own Inquiry 2005

(More than one possible answers)

55 % of the farmers believed that other farmers in the region also participate in voluntary procedures, whereas 35 % of the interviewed farmers did not think so (see Table 11).

Table 16 : Farmers opinion about the participation of other farmers on voluntary procedures

	Nr. of Farmers	% of Farmers
yes	11	55
no	7	35
do not know	2	10

Source: Own Inquiry 2005

Half of the farmers could not recognize if the producer organisations encourages their members to participate in voluntary procedures, although these farmers do not belong to a producer organisation. Therefore, half of the farmers belonging to a producer organisation believed that the producer organisation encourages their members to join voluntary events, whilst the other half of the members had an opposite opinion (see Table 17).

Table 17 : Farmers opinion about the incentive of the PO to join Voluntary procedures

	Nr. of Farmers	% of Farmers
yes	5	25
no	5	25
do not know	10	50

Source: Own Inquiry 2005

Conclusion of the expert survey: In summary, the experts did not see any negative impact on the environment by the regulations of the oenological practice (Frey written information; Hoffmann oral information; Hurst written information, Weinmann oral information). They affirmed that the situation has improved due to the progress of the standards and the technique of the wine-making equipment and the improvement of the use of residues of the winery.

Conclusion of the farmer survey: According to the farmers, the residues of the winery is used as fertiliser, having no further problems about the amounts of residues since the yield is regulated and fertiliser can be totally assimilated by the plants.

On the other hand, only 40 % of the farmers join voluntary procedures, which could be more encouraged by the producer organisations.

3.2.4 Theme 4: Accompanying Measures

Q1: Are the accompanying measures to preserve vineyards in certain regions effective in terms of a positive environmental impact?

Experts: The environmental impact of accompanying measures (co-financed by EAGFL VO 1257/1999) is measured by the cultivation methods used in vineyards, by the development of the ecological wine production in the last years and by the recognized changes of the environmental conditions in the protected areas.

The cultivation methods used in protected vineyards are the use of pheromones, the planting of grass especially during winter times, and the abandonment of particular chemical pesticides and fertilisers (Weinmann oral information). The use of these measures is subsidised by the rural development program of Baden-Württemberg (MEKA).

In Baden-Württemberg 3-4 % of all vineyards are cultivated according to the regulations for organic production. A slight increase of organic cultivated vineyards in the last years could be observed because of the little demand of consumers (Hoffmann, oral information). Most of the organic producers commercialise their products directly to the consumer. The ecological label is not always used on the wine bottle (Weinmann oral information).

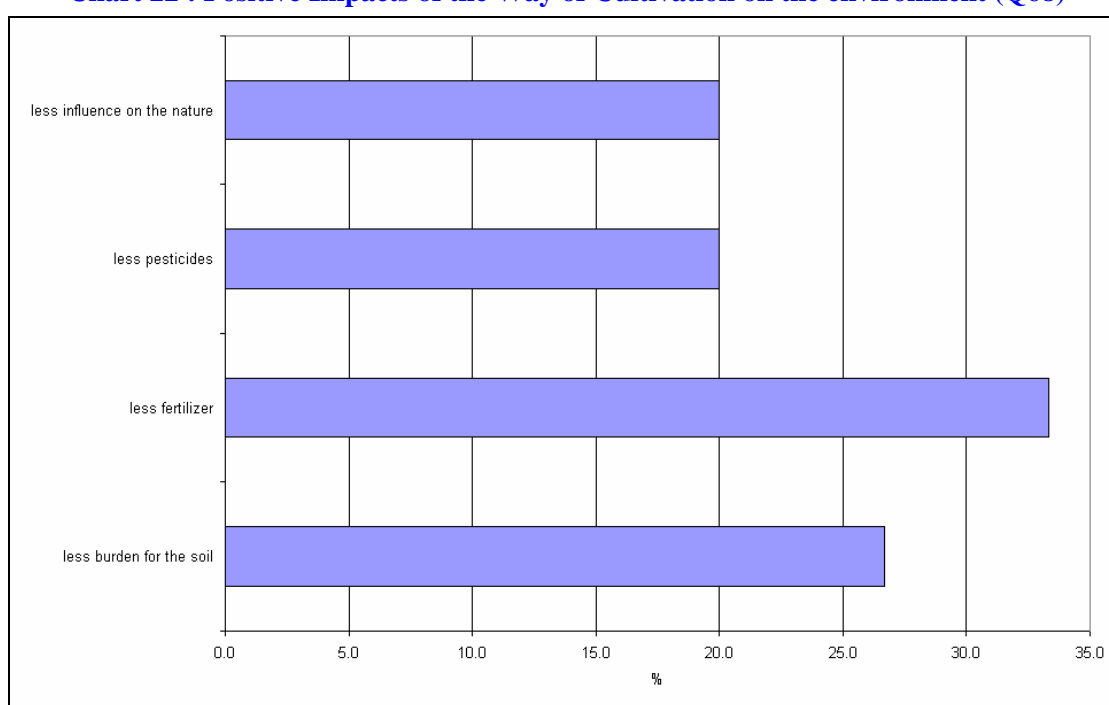
As a consequence of the organic cultivation of vineyards, an improvement of the ground water quality could be established (Weinmann oral information).

Farmers: Three farmers (15%) cultivated their vineyards in an ecological way. Some of the other farmers mentioned that they cultivate their vineyards according to the integrated production. Because of the answers given during the whole interview the interviewer does have the opinion that the rest of the interviewed farmers produce according to the integrated production as well. The farmers stated during the interview that the pesticides are only used at special times (this consultation is offered by the producer organisations). In addition, they use new machines for the deployment of pesticides, as well as special tanks for the storage of marc. They also increased the distance between the rows of grapes.

The organic farmers produce according to the guidelines for the organic agriculture in their whole acreage. These farmers use the label of ECOVIN for advertisement on their wine bottle, attracting the consumers by the good wine quality and way of cultivation. The situation of the environment does not play an important role on the acquisition of the wine by consumers.

The use of less fertiliser and the decline of the burden on the soil are some positive impacts of the way of cultivations recognized by the farmers. Other impacts can be seen in Chart 22 and **Erreur ! Source du renvoi introuvable.**

Chart 22 : Positive Impacts of the Way of Cultivation on the environment (Q68)



Source: Own Inquiry 2005

(More than one possible answers)

The farmers who mentioned an improvement of the environmental situation on their farm also indicated that the soil conditions improved as well.

Conclusion of the expert survey: The accompanying measures cause a positive impact on the environment as a conclusion of the experts (Frey written information, Hurst written information, Weinmann oral information).

Conclusion of the farmer survey: Only few farmers practice the ecological methods in their cultivation. Nevertheless, according to the opinion of the interviewed farmers, all of them work at least according to the integrated production, although they do not recognize its importance. In addition, the formulation of the German questionnaire might have led to an erroneous interpretation of the farmers about the ecological methods. The word used in the German questionnaire was “Maßnahme” (measure in English). This word is normally used in connection to measures for which the farmers have to sign a contract and are therefore, granted (e.g. measures of the rural development program). Since the

integrated production (just some measures belonging to the integrated production) is not granted by the rural development program, the farmers did not evaluate it as an environmental measure of production.

The organic farmers indicated some positive impacts on the environment, especially on the soil conditions.

3.2.5 Theme 5: Environmental Measures

Q1: Has the promotion by Member States and regions of environmentally sound production techniques via producer organisations and inter-branch organisations been effective?

Experts: The effects of the promotion of environmentally sound production techniques via producer organisations and inter-branch organisations are evaluated by the description of ecological techniques, the use of these techniques by the producers, the effects of the production techniques and the oenological practice, and the changes of the environment situation.

The experts broadly answered these questions. All experts indicated that the promotion of environmentally sound production techniques via producer organisations and inter-branch organisations have been effective.

Farmers: 50 % of the farmers belonging to producer organisations pointed out that their producer organisations have an environmental program, whilst 37.5 % of the farmers said that their producer organisation does not have such a program. 12.5 % of the farmers did not know about the existence of such a program. Therefore, since many farmers do not know about this program, only half of the producer organisations were pointed to have environmental programs. These programs define e.g. the offer of advices about the use of pesticides, the organisation of the combat of peronospora using pheromones, the organisation of inspections of the vineyards with experts and the offer of machines (Winzergerossenschaft Britzingen, Internet, 29.4.05). Maybe the farmers do not recognize these measures as part of an environmental program, since they are used to sign contract or to cultivate according to strict guidelines for environmental measures. The offer of information is not recognized as being part of an environmental measure.

Table 18 : Number of Farmers indicating that their Producer Organisation has an environmental Program

	Nr. of Farmers	% of Farmers
yes	4	50.0
no	3	37.5
do not know	1	12.5

Source: Own Inquiry 2005

Because of this, the farmers could not indicate the kind of measures they participate, the area in question and the time they applied for the measure. According to the answer of all farmers belonging to a producer organisation the environmental program is not restricted to a particular type of production or wine-grower. On their opinion, all farmers in the region work according to the environmental program.

The impact of the environmental programs are described as the increase in the plant varieties in the vineyards, the improvement of the soil condition, the decrease of pesticide residues and the improvement of the wine quality.

Conclusion of the expert survey: The experts broadly answered these questions. All experts indicated that the promotion of environmentally sound production techniques via producer organisations and inter-branch organisations have been effective.

Conclusion of the farmer survey: The environmental programs of the producer organisations seem to have positive impacts on the environment on the opinion of the farmers. However, most of the farmers do not recognize the existence of special environmental measures of the producer organisation. The reason might be that the farmers do not know that most of the information about the environmentally

friendly methods of cultivation is offered as a part of an environmental program. Another reason might be the high environmental standard of production. Nevertheless, the promotion of environmental programs of the producer organisations seems to be effective.

3.3 Horizontal Questions

3.3.1 Theme 1: Land use over Time

Q1: Does the CMO lead to substantial changes in land use over time (abandonment, expansion and set-aside)? If yes, what are positive and negative environmental impacts?

Experts: The changes in land use over time are evaluated by interpreting the statistics of crop rotation, the use of cleared vineyards, the locations of the new planted vineyards, and the impacts of these land use changes on the environment.

In Germany no statistics about the crop rotation exist (Hoffmann oral information; Weinmann oral information). The experts supposed that the cleared vineyards are partly set aside, used as grassland, orchards or allotment garden. The agronomic use is limited on flat cleared vineyards. One expert believed that the clearing of vineyards does not have an impact on the environment because most of the cleared vineyards are used for the cultivation of other crops, being the impacts only on the market, not on the environment (Weinmann oral information). On the other hand, other experts stated that the clearing of vineyards has impact on the environment, since parts of the vineyards are set aside, causing impacts on the landscape (Hoffmann oral information, Hurst written information). One expert indicated that there is no change in the land use (Frey written information).

Farmers: Only one farmer reduced the acreage of vineyards. All other farmers cleared their vineyards but they re-planted them with grapes. In general, there was no change in land use according to the farmers. However, due to the fact that the ban on planting new vines is not relevant for them, since there are enough vineyards for rent in the region, a risk of set-aside of vineyards in the region can be assumed. This question could not be fully cleared by the answers of the farmers.

Conclusion of the expert survey: There might be an influence of the CMO on the land use over the time according to the experts. Some vineyards are cleared and used for the cultivation of other crops or even set aside, causing impacts on the landscape as well as on the market situation.

Conclusion of the farmer survey: There seems to be no change of land use by the interviewed farmers. The cleared vineyards were re-planted with grapes. However, the existence of a rent market of vineyards in the region might be a risk of setting vineyards aside in the region, causing thus, changes in the landscape.

3.3.2 Theme 2: Adequate Spending Level and Method

Q1: Are there indications that a change in total spending on the CMO in its present form would have a substantial positive or negative environmental impact?

Experts: The experts assumed that the impact of the CMO on the environment can be improved. Therefore, a new definition of the measures for distillation and concentrated grape must are necessary, since such measures have an important impact on the environment due to the high use of energy (Hoffmann oral information). Another expert said that for the improvement of the CMO decisions on a regional level should be possible (Hurst written information). Since these measures are not implemented in Germany, changes in the CMO might not have an impact on the situation.

Farmers: According to the answers of the farmers, the absence of the financial support of restructuring would in first instance, cause a reduction of the number of farmers. As a consequence, vineyards would be set-aside, resulting in a loss of living space for the fauna and flora, causing, thus, negative impacts on the landscape and biodiversity. On the other hand, regulations according to the variety of grapes which are subsidised leads to a loss of old and traditional grape varieties.

The grants for the environmental programs of the producer organisations seem to be effective even if the farmers do not recognize the existence of such programs. The impact of these programs seems to be positive. The producer organisations should communicate their members about the environmental programs and the special measures offered within these programs.

Conclusion of the expert survey: The waste of energy can be prevented if the measures for distillation and the production of concentrated grape must are redefined according to the experts. In Germany these measures are not relevant. Further on the CMO can be improved by being more flexible for decisions on a regional level.

Conclusion of the farmer survey: The measures of the CMO have a positive impact on the environment. However, the definitions of the cultivation of new varieties in order to to get the subsidies result in losses of old and traditional varieties.

Q2: Are there indications that decoupling of spending at its present level would have a substantial positive or negative environmental impact?

Experts: The indicators used for evaluating the environmental impact through decoupling of spending are the consequences of stopping the grants for the production of concentrated grape must and the grants for distilleries. Since the implementation of both measures is not very relevant in Germany no further comments could be made by the experts.

Conclusion of the expert survey: The measures of the CMO for the production of concentrated grapes must and the support of distilleries is not relevant for the situation in Germany. There are no indications that decoupling of spending at its present level would have a substantial positive or negative environmental impact.

3.3.3 Theme 3: Subsidiarity of agri-environmental Schemes and horizontal Measures

Q1: Have the agri-environmental schemes and any environmental requirement (Cross compliance ex CE 1259/1999) related to these CMOs been sufficiently targeted by Member States and regions at hotspots of environmental degradation or possibilities for environmentally friendly production?

Experts: There are no cross-compliance measures for the wine production in Germany.

Conclusion of the expert survey: A statement is not possible because there are no cross-compliance measures in Germany

APPENDICES

Annex 1: List of people met or contacted

Annex 2: Main bibliography identified (used or not) in relation with the wine study

Annex 3: Development of vineyards between 1979 and 2004

Annex 4: Producers' answers

Annex 1: List of people met or contacted

- National Organisations, responsible for the Implementation and Control of the Measures

	Institution	Contacted Person	Tel.-Nr.	Email-Adresse	1. questionnaire	2. questionnaire	Reason Refusal for	Further Comments
Wine	Ministry of Food and Rural Areas Baden-Württemberg	Hr. Weinmann	0711/126-0	Ernst.Weinmann@MLR.BW L.de	X	X		
	Regional Council Freiburg	Hr. Steinmetz	0761/208 1294	Volker.steinmetz@rpf.bwl.de			Already answered by the Ministry	
	Regional Council Tübingen	Hr. Mangin	07071/75 7-3358	h.mangin@gmx.de	-		No vineyards in the Region	

National Organisations – Reference to Environment

	Institution	Contacted Person	Tel.-Nr.	Email-Adresse	1. questionnaire	2. questionnaire	Reason Refusal for	Further Comments
Wein	Ministry of Food and Rural Areas Baden-Württemberg	Hr. Klotz	0711/1 26-0		X			

	Institute for environmental-friendly Agriculture	Hr. Recknagel	07631/36840		-		Not his area of expertise	Further experts
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- Producer Organisations

	Institution	Contacted Person	Tel.-Nr.	Email-Adresse	1. questionnaire	2. questionnaire	Reason for Refusal	Further Comments
Wein	Weinbauverband Württemberg	Hr. Hirsch	07134/8091	info@wvwue.de	-		Not his area of expertise	Recommended Hr. Gemmrich
	FH-Heilbronn	Hr. Gemmrich	07131/504-327 privat: 07062/3250	gemmrich@fh-heilbronn.de	-		Not his area of expertise	
	Weinbauverband Baden Merzhauserstr. Freiburg	Fr. Sutter	0761/459100	info@badischer-weinbauverband.de	X			
	Winzergenossenschaft Britzingen	Achim Frey	07631/17710	info@britzingen-wein.de	X			
	Winzergenossenschaft Auggen	Martin Schmidt (über Herr Recknagel IFUL)	07631/36800	info@auggener-wein.de			Not his area of expertise	

	Weingut Lämmlin-Schindler	Gerd Schindler		weingut@laemmli-n-schindler.de	-		Not his area of expertise	
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- Technical Organisations (Production and Economy)

	Institution	Contacted Person	Tel.-Nr.	Email-Adresse	1. questionnaire	2. questionnaire	Reason for Refusal	Further Comments
Wine	Regional Office for crop production Rheinstetten	Klaus Mastel	0721/9518210		-		Not his area of expertise	
	Landratsamt Freiburg Weinbauberater Tuniberg Bodensee	Egon Zuberer		Egon.Zuberer@lkbh.de	-		Not his area of expertise	Send questionnaire to Hr. Steinmetz Regierungspräsidium Freiburg

- Office of Agriculture

	Institution	Contacted Person	Tel.-Nr.	Email-Adresse	1. questionnaire	2. questionnaire	Reason for Refusal	Further Comments
Wine	District Office Breisgau-Hochschwarzwald	Uwe Dederichs	0761/70346-275	uwe.dederichs@lkbh.de			Not his area of expertise	

- Other Organisations Institutionen (Industry, Reserach Institutes, Natur Conservation)

Bereich	Institution	Kontaktperson	Tel.-Nr.	Email-Adresse	1. questionnaire	2. questionnaire	Begründung	Anmerkungen
Research								
Wine	Research Institute of Geislingen	Hr. Hoffmann				X		
Industry								
Fruits and Wine	Verband der agrargewerbl. Wirtschaft Stuttgart	Hr. Heitlinger, Klaus	0711/1677912	heitlinger@vdaw.de				
Environment								
Wine	Consultation Office Ecological Wine Freiburg	Hr. Wolff	0170/7947059 Fax: 0761/4016570	boew.m.wolff@web.de		-	Not his area of expertise	
	NABU	Stefan Rösler	0711/96672-0	Stefan.roesler@nabu-bw.de			Not his area of expertise, Answered the Fruit questionnaire	

Annex 2: Main bibliography identified (used or not) in relation with the wine study

Badischer Weinbauverband, Internet <http://www.badischer-weinbauverband.de/> 9.5.05.

Bauer et al. 1996: Weinbau, Klosterneuburg

BMVEL 2004: Ertragslage Garten- und Weinbau 2004: Ergänztter Auszug aus dem Ernährungs- und agrarpolitischen Bericht 2004 der Bundesregierung (<http://www.verbraucherministerium.de/data/0001411242A21091BBA06521C0A8D816.0.pdf>, 29.4.05)

Ecozept 2005, Rapport National Vin Germany, Freising

Europäische Kommission a <http://www.europa.eu.int/scadplus/led/de/lvb/160031.html>, 18.4.05

Frey, Achim 2005: Business Manager of the Producer Organisation Britzing, written Information

Hirsch, Hr. 2005: Business Manager of the “Weinbauverband Württemberg”, Information through phone call

Hoffmann, Hr 2005: Employee at the Research Institute of Geisenheim, Information through phone call

Hurst, Gerhard 2005: President of the Association for Viniculture of Baden, written Information

Ministerium ländlicher Raum 2001: Weinbau 2001 in Baden-Württemberg (Faltblatt), Stuttgart

Ministry of Food and Rural Areas Baden-Württemberg a <http://www.mlr.baden-wuerttemberg.de/cgi/styleguide/content.pl?>, 25.4.05

Ministry of Food and Rural Areas Baden-Württemberg b http://www.mlr.baden-wuerttemberg.de/cgi/styleguide/content.pl?ARTIKEL_ID=31990, 23.4.05

Ministry of Food and Rural Areas Baden-Württemberg c http://www.mlr.baden-wuerttemberg.de/cgi/styleguide/content.pl?ARTIKEL_ID=556, 23.4.05

Ministry of Food and Rural Areas Baden-Württemberg: Maßnahmen und Entwicklungsplan ländlicher Raum des Landes Baden-Württemberg

Redl et al. 1996: Weinbau heute, Graz

Statistisches Landesamt a 2004: Bestockte Rebflächen und Rebsorten in Baden-Württemberg 2004 in: Statistische Berichte Baden-Württemberg 15.12.2004

Statistisches Landesamt b 2004: Weinerzeugung in Baden-Württemberg 2004 in: Statistische Berichte Baden-Württemberg 14.02.2005

Statistisches Landesamt Baden-Württemberg a, Internet, 27.4.05 (<http://www.statistik.baden-wuerttemberg.de/Landwirtschaft/Landesdaten/LRt0702.asp>)

Statistisches Landesamt Baden-Württemberg b, Internet, 27.4.05 (<http://www.statistik.baden-wuerttemberg.de/Landwirtschaft/Landesdaten/weinerzeugung01.asp>)

Statistisches Landesamt Baden-Württemberg c, Internet 27.4.05 (http://www.statistik.baden-wuerttemberg.de/Landwirtschaft/LGR/Laender_PW2003.asp)

Thalmeier, Frank 2004: Baden-Württemberg – Land der Wein-, Obst und Gemüsebauern in: Statistisches Monatsheft Baden-Württemberg 5/2004

WeinABC, Internet, 27.4.05 (<http://www.wein-abc.de/anbaugebiete/anbaugebiete.php?abgid=3>)

Weinbaustatistik 2004: Der Weinbau in Baden: Strukturdaten zum Weinjahrgang 2003, Freiburg

Weinmann, Ernst 2005: Employee of the Ministry of Food and Rural Areas Baden-Württemberg, Information through phone call

Winzergenossenschaft Britzingen, Internet, 29.4.05 (<http://www.britzinger-wein.de/home1.html>)

Annex 3: Development of vineyards between 1979 and 2004
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Table 19: Development of Vineyards between 1979 and 2004

year	vineyard
1979	22 900
1980	23 200
1981	24 000
1982	24 000
1983	24 400
1984	24 700
1985	24 900
1986	24 900
1987	25 000
1988	25 100
1989	25 300
1990	25 800
1991	25 700
1992	25 600
1993	25 500
1994	25 500
1995	25 100
1996	25 000
1997	24 900
1998	24 900
1999	23 600
2000	23 800
2001	24 000
2002	23 700
2003	24 000
2004	23 900

Annex 4: Producers' answers

Table 20: Environmental Impact of the Spreading of Marc and Lees

	Nr. of Answers	% of Answers
closed nutrient cycle	3	15.0
additional humus	6	30.0
substitution of chemical fertiliser	9	45.0
covered soil	2	10.0

Source: Own Inquiry 2005

(More than one possible answers)

Table 21: Reasons for Clearing of Vineyards

	Nr. of Answers	% of Answers
replacement	3	10.7
too old	14	50.0
grants	6	21.4
pests	5	17.9

Source: Own Inquiry 2005

(More than one possible answers)

Table 22: Nr. of Farmers who restructured and not restructured their Vineyards

	Nr. of Farmers	% of Farmers
changed grape type	13	68.4
bigger distance	4	21.1
ecological production	2	10.5
	19	100

Source: Own Inquiry 2005

Table 23: Nr. of Answers given to the Question why Restructuring and Conversion was carried out

	Nr. of Answers	% of Answers
restructuring was granted	9	52.9
innovation	4	23.5
demand of the market	3	17.6
pests of old grapes	1	5.9
	17	

Source: Own Inquiry 2005

Table 24: Nr. of Answers given to the Question about the Trend in the Absence of Grants for Restructuring and Conversion

	Nr. of Answers	% of Answers
faster reaction to the demand	1	4.5
greater production of white wine-	3	13.6
lower number of farmers	5	22.7
lower number of part-time farmers	2	9.1
cultivation of other varieties	1	4.5
more abandoned acreages	1	4.5
cultivation of old varieties	2	9.1
lower wine production	3	13.6
no change	1	4.5
don't know	3	13.6
	22	100

Source: Own Inquiry 2005

(More than one possible answers)

Table 25: Limitations of Productions of Qw-prs

	Nr. of Answers	% of Answers
yield/ha	16	76.2
way of cutting the plants	3	14.3
distance between row of plants	2	9.5

Source: Own Inquiry 2005

(More than one possible answers)

Table 26: Trend in the Absence of Regulations for the Production of Qw-psr

	Nr. of Answers	% of Answers
do not know	5	19.2
overproduction	9	34.6
reduction of wine price	5	19.2
wine of bad quality	5	19.2
wine growing in valleys, more pests	1	3.8
conditions of production become less environmentally friendly	1	3.8

Source: Own Inquiry 2005

(More than one possible answers)

Table 27: Changes of the Amounts of Residues form the your winery since 1980

	Nr. of Farmers	% of Farmers
no changes	7	53.8
increase due to a better harvest	2	15.4
increase due to a greater area (ha)	3	23.1
decline due to a worse grape harvest	1	7.7

Source: Own Inquiry 2005

Table 28: Effects of Voluntary Procedures

	Nr. of Answers	% of Answers
do not know	1	14,3
less pesticides	2	28,6
better environment	1	14,3
wine of good quality	3	42,9

Source: Own Inquiry 2005

(More than one possible answers)

Table 29: Positive Impacts on the environment of the Way of Cultivation (Q68)

	Nr. of Answers	% of Answers
less burden for the soil	4	26.7
less fertiliser	5	33.3
less pesticides	3	20.0
less influence on the nature	3	20.0

Source: Own Inquiry 2005

(More than one possible answers)