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Data 1992-2003

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Table of abbreviations

AS	Active substance
PPP	Plant Protection Products
F	Fungicide
H	Herbicide
I	Insecticide
PGR	Plant Growth Regulator
ZR	Other plant protection products
Kg AS/ha	Kilogram of active substance per hectare
g/l	Gram/litre
w/w	Weight for weight
w/v	Weight for volume
t	Tonne
UAA	Usable Agricultural Area

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Symbols

0	Value "0" or less than half of the unit used
:	Value not available
c	Confidential
-	Not applicable

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Preface

Although the risk evaluation undertaken before pesticides are placed on the market has been regulated for some time in the EU, it is still very important that they are used in a responsible way and that the residual risks linked to their use are assessed and managed properly.

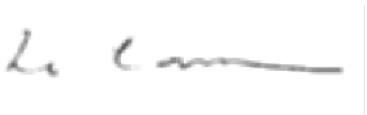
Conscious of this responsibility, the Commission has adopted, in the framework of the Sixth Environmental Action Programme 'Environment 2010, Our Future, Our Choice', a Communication on 'A Thematic Strategy on the Sustainable Use of Pesticides' [1] together with a proposal for a Directive establishing a framework for Community action to achieve this objective[2].

In this context, meaningful and accurate information on the consumption and use patterns of plant protection products is needed more than ever. Reliable data on the use of plant protection products are essential for estimating the risk to human health and the environment, and for measuring the progress made towards the objectives of the Thematic Strategy.

To accompany the development and implementation of this European policy with statistical data, the Commission has also adopted a proposal for a Regulation concerning statistics on plant protection products[3]. When it enters into force, this Regulation should provide the Commission with the necessary data to calculate harmonised risk indicators at Community level and to follow the progress of the Strategy.

The collaboration between Eurostat and the European Crop Protection Association (ECPA) has been the most efficient way so far to collect comprehensive sets of data on the estimated use of plant protection products in Europe since 1992. For the third time, this collaboration results in a report with detailed tables on the use of the major product groups used on the main crops in the European Union. For the first time it also covers the 10 new Member States during the four years preceding their accession to the European Union in 2004.

Eurostat aims to contribute to the improvement of statistics on the use and consumption of plant protection products within the European Union, harmonised with the OECD and the FAO, and looks forward to receiving your comments and criticism on this publication.



Hervé Carré
Director General of Eurostat

1 COM (2006) 372 final
2 COM (2006) 373 final
3 COM (2006) 278 final

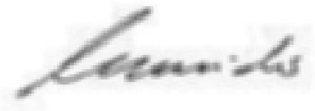
ECPA Introduction

The European Crop Protection Association is pleased to continue our co-operation with EUROSTAT to provide detailed information on the use of plant protection products within the European Union.

As an industry, we are very aware of the need to provide ever better information on the use of our products, and working with EUROSTAT gives us the opportunity to collect meaningful data that is of interest, not only for people directly involved in the sector, but also for other stakeholders with an interest in understanding the importance of plant protection products.

With the full implementation of EU legislation governing plant protection products, we know that there will be major changes in the products being used in the Member States as many products are taken off the market, improved data collection will help us to understand the likely impact of these changes.

Given the current discussions on the European Commission's proposal for a 'Framework Directive for Community action to achieve a Sustainable Use of Pesticides', comprehensive data is vital when analysing the importance of plant protection products and when considering the need for new legislative initiatives. I hope that this data will help ensure that decisions for a EU Sustainable Use Strategy are made on an informed basis.



Friedhelm Schmider
ECPA Director General

Introduction

This report presents the second update of the report from Eurostat on 'The use of plant protection products in the European Union'. The first report published in 2000 covered the period from 1992 to 1996. The second report published in 2002 gathered data from 1992 until 1999 for the 15 Member states of the EU. This third report completes these two reports with the data from 2000 to 2003. It also includes for the first time data on the use of plant protection products in the 10 new Member States for the four years preceding their accession to the EU in 2004.

Since the last report was published, we received some constructive criticism on the methodology used by ECPA to calculate the national consumption of plant protection products. Deviations with the data collected by the national authorities in a few Member States were observed. All these comments were discussed with ECPA and the methodology was adapted accordingly.

The figures provided by ECPA for the 10 new Member States were also compared with the data collected via the pilot surveys on the use of plant protection products carried out in 2005 in the framework of the PHARE cooperation programme. Although both sets of data are highly comparable they present however clear differences when the main active substances used are compared.

Member States were also consulted on the data published in this report. The comments received have been integrated as far as possible in the form of a methodological note accompanying the country profiles.

As in the previous publications we provide statistical information on the estimated consumption of plant protection products, broken down by Member States, treated crops, chemical classes and, when confidentiality rules allow, on the level of active substances. On request of ECPA, the data on some active substances is treated as confidential where it is considered to be sensitive business information. The confidential treatment of this data ensures compliance with anti-trust guidelines.

In the Decision adopting the Sixth Environment Action Programme (6EAP)[4], the European Parliament and the Council recognised that the impact of pesticides on human health and the environment, in particular from plant protection products used in agriculture, must be reduced further. They underlined the need to achieve more sustainable use of pesticides and called for a significant overall reduction of risks and the use of pesticides consistent with the necessary crop protection.

The Thematic Strategy on the Sustainable Use of Pesticides[5], adopted by the Commission, aims at reducing the impact of pesticides on human health and the environment, and more generally at achieving more sustainable use of pesticides and a significant overall reduction of risks, while ensuring necessary crop protection. Given that the existing legislative framework mainly concentrates on the start and end-of-life phases of pesticides, i.e. the authorisation for placing plant protection products on the market and the control of their residues in food and feedstuff, the Thematic Strategy is designed to complement the existing legislative framework by targeting the use phase of plant protection products.

One clearly stated objective of the Thematic Strategy is to establish a transparent system for reporting and monitoring progress, including the development of appropriate indicators. To this end, the Commission proposed a Regulation concerning statistics on plant protection products to be adopted by the European Parliament and the Council[6].

In parallel, the Commission has revised existing legislation concerning the placing of plant protection products on the market and residues of pesticides[7], examined and proposed a set of measures to underpin the Thematic Strategy[8], and supported a research programme for the development of a harmonised set of indicators on the risks of pesticides for the environment (HAIR).

Meaningful and reliable data on the use of plant protection products are necessary to monitor the risks related to their use; in particular the risks for the environment. Such

4 Decision No 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme, OJ L 242, 10.9.2002, p. 1.

5 Communication from the Commission to the Council, the European Parliament, the European Economic and Social committee and the Committee of the Regions - A thematic strategy on the sustainable use of pesticides. COM(2006) 373 final.

6 COM(2006)778 final.

7 COM(2006)388 final.

8 COM(2006) 372 final.

data are essential inputs for risk indicators such as those currently developed in the framework of the HAIR research project.

Before official statistics on the use of plant protection products are delivered according to the proposed Regulation, the estimations of use provided by ECPA are very useful since they are the only detailed data available at crop and active substance level; with the exception of the very few official surveys carried out in some Member States.

The current report follows very closely the 'harmonised classification of active substances' proposed by Eurostat as a standard framework to report on the use of plant protection products. It covers the main product categories 'Herbicides', 'Fungicides' and 'Insecticides', as well as smaller categories like 'Plant Growth Regulators', 'Molluscicides' and 'other PPP'. However, for the clarity of the presentation, the three last categories have usually been regrouped under 'Other PPP' in most of the tables. The classification used is essentially based on the intrinsic properties of the active substances rather than on the presentation of the preparations. For instance, the fungicides and insecticides used as seed treatment have been included in their respective categories. Concerning the 'Insecticides' category, no distinction has been made between nematicides, acaricides and other insecticides.

The data sets are limited to plant protection products and do not include the range of biocides (used for the disinfection of stables for instance) or veterinary medicines (like sheep dips) used in agriculture. In the new set of data since 2000, some plant protection products used on 'non crop' areas (like herbicides used on pavements) have been included. They have been accounted in the overall figures presented in chapter 1 but do not appear in the data presented by crop category.

Finally, it should be noted that, in terms of risk management, statistics concerning the total volume of pesticides used in the EU or at Member State level are to be interpreted with caution as they say little about the nature of the active substances concerned and, consequently, about the risks associated with their use. Indeed, an increase (or a reduction) in the total volumes of plant protection products used is not necessarily equivalent to an increase (or a reduction) in the risks associated with their use. Thus, for instance, an increase in the volume of plant protection products used might be due to an increased use of less toxic and less persistent, but more narrowly targeted substances, which could eventually result in reduced risks for human health and of environmental damage. The opposite can equally happen.

Since this study cannot and is not meant to replace national surveys and publications, we refer to chapter 6 and the list of sources for further reading at the end of this report.

Chapter 1

Main results for EU-15 and EU-25

1.1 Use of plant protection products (PPP) and trends over time

In its last survey on the use of PPP for the period 2000 to 2003, ECPA covered all Member States of the European Union (EU-25). However, as the previous surveys from 1992 to 1999 only covered the then 15 Member States of the European Union (EU-15), trends are presented separately for EU-15 from 1992 to 2003, and for the 25 Member States of the EU (EU-25) from 2000 to 2003, in graphs 1.1.1 to 1.1.7.

According to the data supplied by ECPA, the total amount of PPP used in the EU (reported as tonnes of active substances for the main PPP categories) increased steadily in the 1990s, stabilising in the late '90s and then declining continuously from 1999 onwards. This decline is attributed to the Member States of the EU-15. The consumption of PPP in the 10 new Member States slightly increased during this period. It should be noted that the introduction of the category 'other PPP' in 1997 was due to a change in the methodology of data collection.

Since the reform of the Common Agricultural Policy (CAP) was not adopted until September 2003, the decrease of 15% observed in 2003 cannot be directly attributed to this reorganisation of production patterns in the EU. Longer time series would be needed in order to be able to interpret the impact of the CAP reform on the intensity of PPP use.

The review at EU level of the authorisations for placing PPP on the market, with the resulting withdrawal of some products used in large amounts, and their replacement by products used at lower dosage rates, could go some way towards explaining the decrease observed since 1999.

An analysis of the situation in more depth shows that the decrease since the end of the '90s is mainly due to the reduction in the use of fungicides, which represent the bulk of all PPP used. The replacement of products used at high dosage rates by substances active at very low dosages is probably the main factor. The growing importance of prognosis systems in the decision to treat in the case of important crops such as potatoes, cereals or vines should also be considered as a possible reason for the decrease in fungicide use. However, the succession of dry springs and summers in central and northern Europe since 2000 should also be taken into consideration.

Figure 1.1.1: Use and composition of PPP EU-15,1992-2003 (in tonnes of AS)

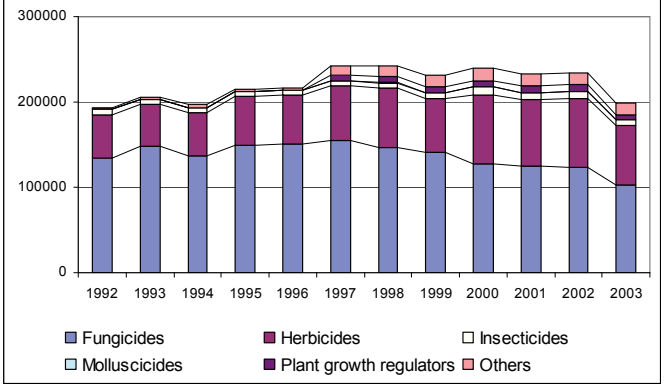


Figure 1.1.2(a): Use and composition of PPP, EU-25, 2000-2003 (in tonnes of AS)

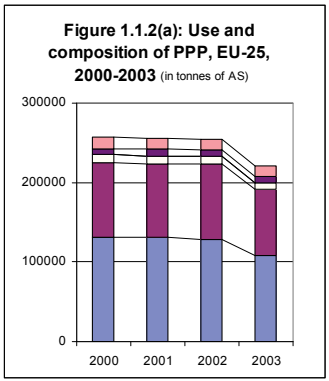


Figure 1.1.2(b): Contribution of the 10 new MS, 2000-2003 (in tonnes of AS)

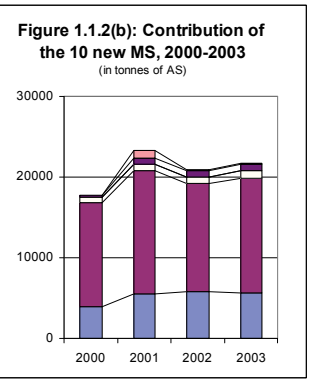


Figure 1.1.3: Use of PPP-total EU-15 - EU-25, 1992-2003 (in tones of AS)

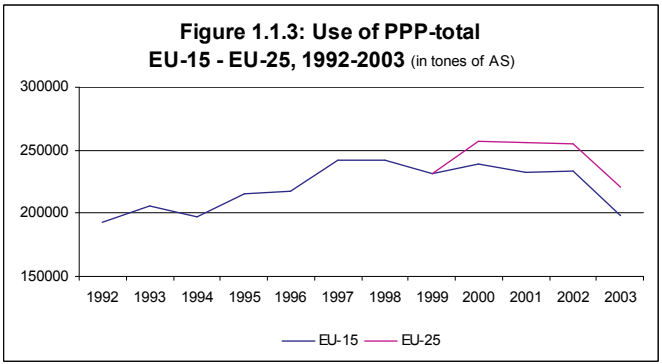
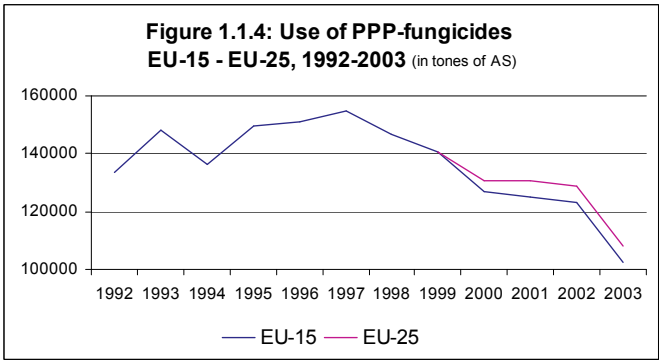


Figure 1.1.4: Use of PPP-fungicides EU-15 - EU-25, 1992-2003 (in tones of AS)



Until 2002, the constant increase in the use of herbicides to some extent compensated for the decrease in the use of fungicides. However, in 2003, a significant reduction in the use of herbicides was observed, which also contributed to the overall reduction in PPP use.

It should also be noted that the methodology applied for the data 2000-2003 includes more herbicides used to prepare the soil before sowing and after the harvest. It could have influenced the total amount of herbicides reported for this period. The proportion of insecticides and plant growth regulators in the overall volume of PPP is very small, and therefore their incidence on the overall trend in PPP use is very limited. The use of insecticides more than doubled between 1996 and 2000. From 2000 to 2003 a slight decrease was observed.

Reporting of plant growth regulators was only introduced in 1997. No clear trend was observed during the period 1997-2003, although a significant decrease has to be noted for 2003.

Comparison of the breakdown of PPP use in EU-15 in 1999 and in 2003 confirms the decreasing importance of fungicides, which accounted for 61% of all PPP in 1999 and only 51% in 2003, and also the growing importance of herbicides, up from 28% to 35 % during this period. Proportions of insecticides and plant growth regulators are constant at about 10% and 3% respectively. Comparable proportions are observed for the different categories of PPP in EU-25 in 2003.

Figue 1.1.5: Use of PPP-herbicides EU-15 - EU-25, 1992-2003 (in tones of AS)

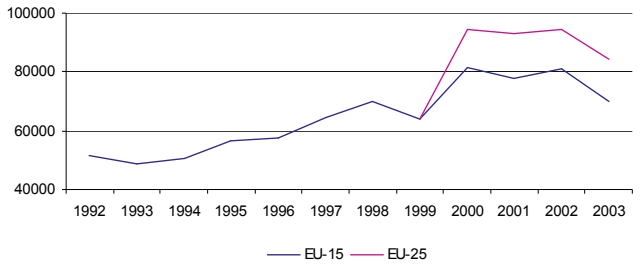


Figure 1.1.6: Use of PPP-insecticides EU-15 - EU-25, 1992-2003 (in tones of AS)

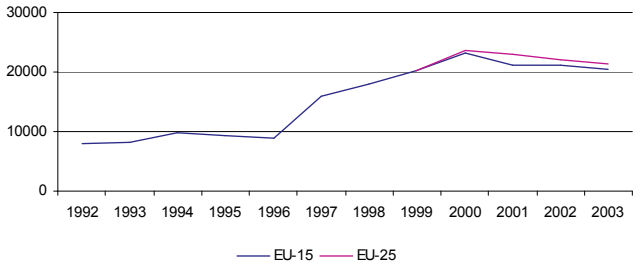


Figure 1.1.7: Use of PPP-plant growth regulators in the EU-15 - EU-25, 1992-2003 (in tones of AS)

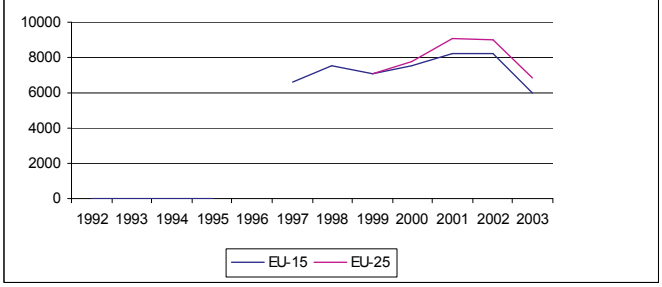


Figure 1.1.8: Composition of PPP in % total quantity of AS EU-15, 1999

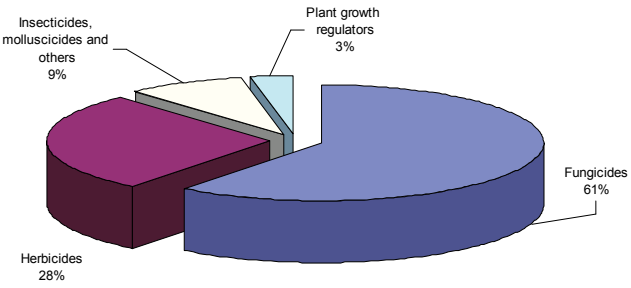


Figure 1.1.9: Composition of PPP in % total quantity of AS EU-15, 2003

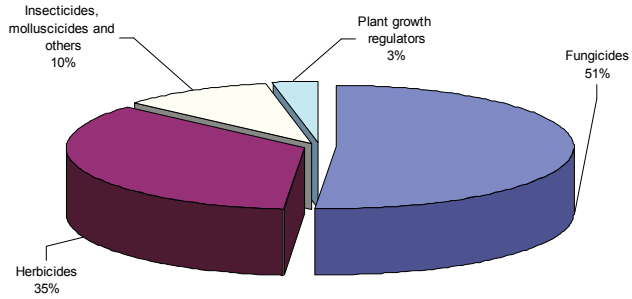


Figure 1.1.10: Composition of PPP in % total quantity of AS EU-25, 2003

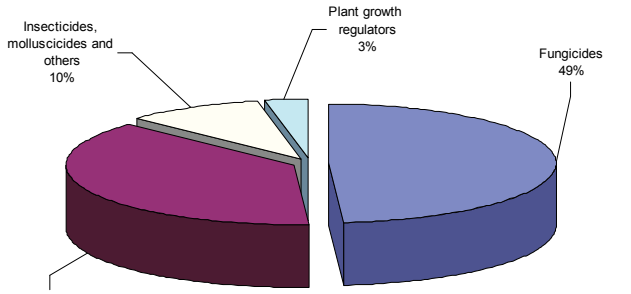


Table 1.1.1: PPP used in the EU-25 Member States in 2003

	Fungicides	Herbicides	Insecticides	Growth regulators	Total	%
BE+LU	1542	1534	462	102	3640	1.7%
CZ	677	1906	118	252	2953	1.3%
DK	635	1809	65	40	2549	1.2%
DE	8106	12529	493	2112	23240	10.6%
EE	21	149	4	30	203	0.1%
EL	3692	1292	883	131	5997	2.7%
ES	16664	8877	6180	94	31815	14.5%
FR	33983	21681	3872	2217	61753	28.1%
IE	537	653	6	43	1239	0.6%
IT	18435	5298	7072	24	30828	14.0%
CY	26	8	42	:	76	0.0%
LV	34	184	4	30	251	0.1%
LT	75	417	9	60	562	0.3%
HU	1450	3254	298	36	5038	2.3%
MT	:	4	0	:	4	0.0%
NL	2396	2398	180	56	5030	2.3%
AT	737	704	56	3	1499	0.7%
PL	2587	6797	321	429	10134	4.6%
PT	11242	1720	359	0	13321	6.1%
SI	229	145	24	0	398	0.2%
SK	326	1020	64	0	1409	0.6%
FI	182	786	19	30	1017	0.5%
SE	219	1610	48	17	1894	0.9%
UK	3781	9161	827	1151	14920	6.8%
EU-25	**107574**	**83934**	**21404**	**6859**	**219771**	**100.0%**

Five Member States use 75% of the volume

Five countries together account for nearly 75% of the total of 220 000 tonnes of PPP used in EU-25. France alone accounts for 28%, Spain and Italy 14% each, Germany 11% and the United Kingdom 7% (Table 1.1.1 and Figure 1.1.11).

France (32%), Italy (17%) and Spain (15%) accounted for 64% of the total use of fungicides. This situation can be explained by the predominance of these three countries in grape production (83% of the total EU-25 cultivated area). In 2003, sulphur still accounted for 76% of all fungicides used on this crop (Figure1.1.12).

France (26%), Germany (15%), Spain (11%) and the United Kingdom (11%) together accounted for 63% of the total consumption of herbicides. Cereals and maize dominate herbicide consumption, with 50% and 16% respectively (Figure 1.1.12).

The insecticide market is headed by Italy (33%) and Spain (29%). Together with France (18%) they make up 80% of the total EU-25 insecticide consumption (Figure1.1.12).

The use of plant growth regulators is almost exclusively associated with cereal crops. The available figures show that 33% of the total volume is used in France, 31% in Germany and 17% in the United Kingdom (Figure1.1.12).

Figure 1.1.11: Quantity of PPP used in the Top 5 Member States in the EU-25, 2003 (in tonnes of AS)

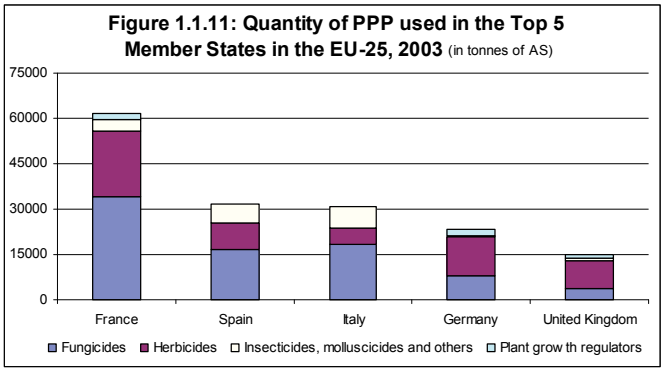
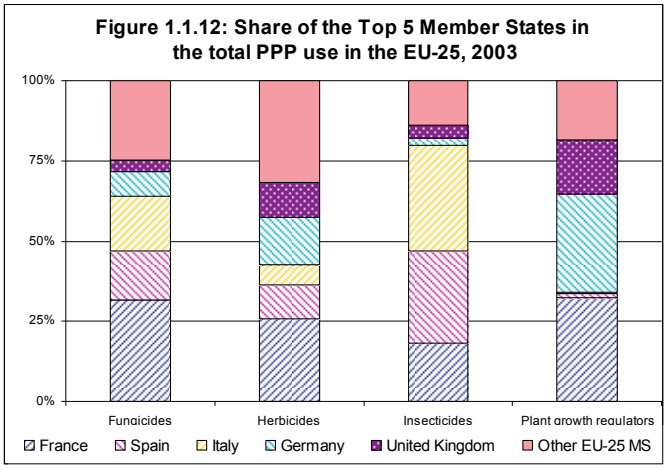


Figure 1.1.12: Share of the Top 5 Member States in the total PPP use in the EU-25, 2003



1.2 Use of plant protection products by crop

A large proportion of all PPP is applied on speciality crops like fruit and vegetables. This is due to the importance of vineyards, where fungicides (mainly sulphur) play a major role (Figure 1.2.2). Although the quantity of PPP used on speciality crops increased during the '90s, the share of these crops in the use of PPP fell slightly owing to the increasing importance of arable crops in terms of PPP consumption. Some 68% of all PPP were used to treat fruit and vegetables in 1994; the corresponding figure in 1997 was 64%. Between 1997 and 2000 the volume of PPP used on speciality crops decreased, while the volume used on arable crops continued to increase. From 2000 onwards, the volume of PPP active substances used on both arable and speciality crops decreased in the same proportions. The relative shares of arable and speciality crops in the total amount of PPP used have remained constant since 2000 at 45% and 55% respectively.

Since the total area of speciality crops in the EU stayed relatively constant over the whole period, the decrease observed in the use of PPP on these crops must be due to an overall reduction in the quantity of active substances applied per hectare.

For arable crops, the cultivated area remained constant until 1999. Since 2000, the 10 new Member States have been included, increasing the total cultivated area for arable crops in the EU by more than 10%. Part of the increase in PPP use can thus be attributed to the extension of the cultivated area.

Most of the PPP used on arable crops are herbicides. Of the arable crops, cereals and maize have a strong impact on the overall quantity of herbicides used. During the '90s, the use of herbicides on cereals increased considerably. In 2000, the area under cereals rose by nearly 50% because the 10 new Member States were taken into account. At the same time, the quantity of herbicides used on cereals more than doubled. This indicates a net increase in the quantity of herbicides applied per hectare.

Potato production relies on the use of fungicides, but due to the relatively small area cultivated it has a limited impact on the overall consumption of PPP on arable crops, even though the quantity applied by hectare is high.

Figure 1.2.1: Evolution of PPP use on arable and speciality crops in the EU-15 from 1994 to 2003 (in tonnes of AS)

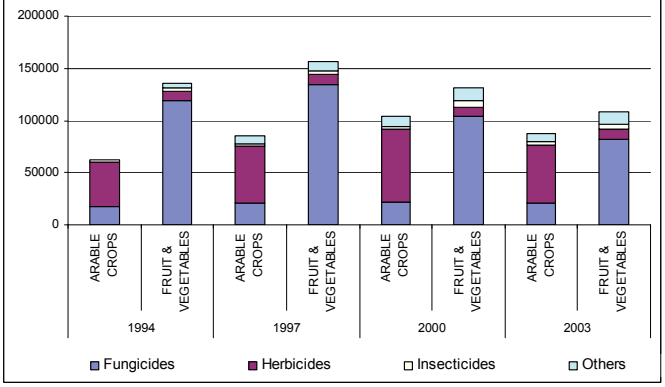


Figure 1.2.2: Evolution of PPP use on speciality crops in the EU-15 from 1994 to 2003 (in tonnes of AS)

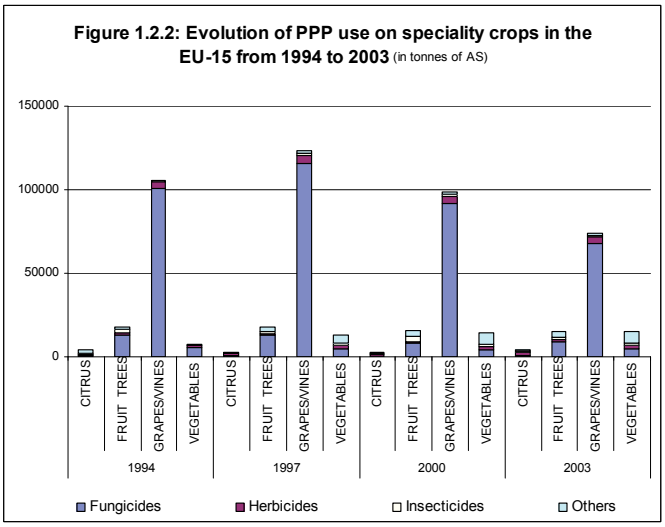
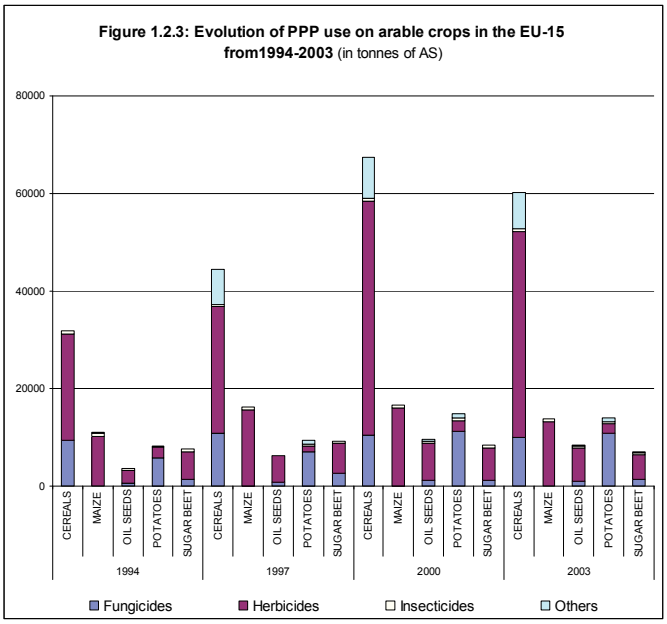


Figure 1.2.3: Evolution of PPP use on arable crops in the EU-15 from1994-2003 (in tonnes of AS)



1.3 Plant protection products use by category of chemicals

Although the use of inorganic sulphur has fallen significantly over the past decades, it is still the most important substance in terms of quantities applied. Sulphur is used mainly on vines to protect against powdery mildew. Traditionally, rates of 5 kg AS/ha year are common for sulphur. However, with the increasing importance of disease forecasting systems, this product is gradually being replaced by other fungicides that work at lower dosages.

On the subject of fungicides, it is also worth noting the appearance of new categories of products like strobilurine fungicides in the top-20 list (Table 1.3.2). These products, used almost exclusively on cereals, immediately met with enormous success when they were first marketed in the '90s.

Organophosphorus herbicides increased in importance to become the second most used class of products. This reflects a major change in agricultural practices and the increasing use of non-selective weed killers.

More generally, as explained in the previous section, herbicides have gained in importance as fungicide use has gradually decreased.

It is interesting to note that, between 1992 and 2003, triazine herbicides fell from 5th to 12th place. This is most probably due to legal provisions limiting the use of these products.

Only one category of insecticides, the organophosphates, has constantly appeared in a central position in the top-20. These products are still very widely used because of their broad spectrum of activity and their low price. However, it should be noted that they are increasingly being challenged by more specific products that are active at lower dosages, like synthetic pyrethroid fungicides. Because of their very low dosage and the limited importance of insecticides in overall PPP consumption, these products do not appear in the top-20 list.

A classification based on the volumes of active substances alone is not sufficient to illustrate the important changes that have occurred in the use of PPP over the last decades, especially for products used in small quantities. The variation in the index of the quantity used for the different chemical classes provides a better indication of the changes observed in the use of PPP (Figure 1.3.3).

Figure 1.3.1: Main chemical classes: 80% total PPP volume EU-25, 2003

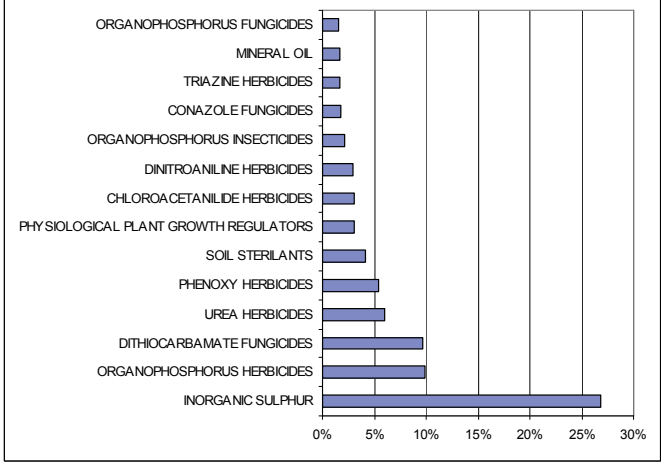


Figure 1.3.2: Trend in top-5 fungicide chemical classes 1992-2003
(in tonnes of AS)

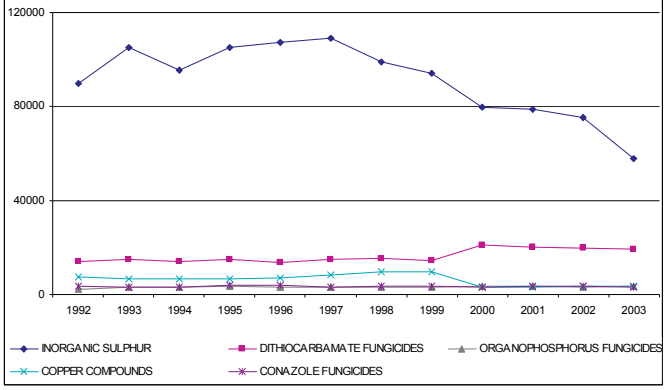
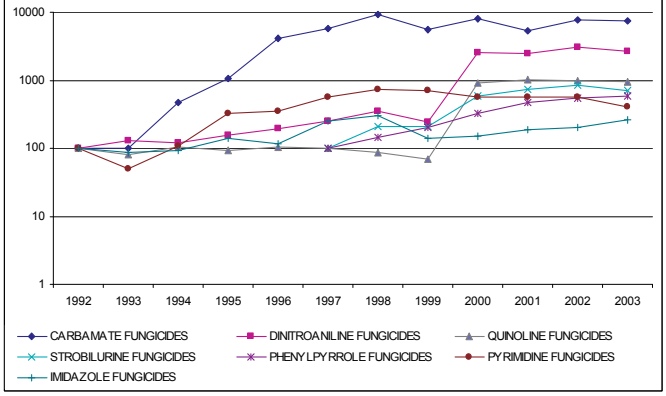


Figure 1.3.3: Index variation 1992-2003 for 6 fungicide chemical classes (logarithmic scale)



This is especially true for fungicides, where products used in high doses have been replaced by products used in very low doses.

Between 1992 and 2003, the following categories of fungicides gained important market share: carbamates, dinitoanilines, quinolines, strobilurines and phenylpyrroles. At the same time, the importance of categories of fungicides like morpholines, oxazoles, copper compounds and benzimidazoles showed a sharp decline (Table 1.3.3). Although sulphur use fell significantly in absolute terms during this period, in relative terms it decreased by only 45%.

As far as herbicides are concerned, organophosphorus and ureas grew significantly between 1992 and 2003 (figure 1.3.4). However, in relative terms, the main increases are seen for quinolines, pyridinecarboximides, triazolinones, cyclohexanediones and sulfonylureas.

At the same time, triazines, diazines, triazinones and morphactines lost a big share of the herbicide market.

Although the insecticide market looks fairly stable in absolute terms, some categories of products made an appearance in the '90s and rapidly gained an important place. These are mainly the pyridines, antibiotics, pyrazoles and phenyl-pyrazoles, diazylhydrazines and pyridyl-methylamines. At the same time, other insecticide classes, e.g. ureas, sulfite esters and tetrazines, almost disappeared, while others, like amide insecticides and insect growth regulators, showed a sharp decline (Table 1.3.5).

Figure 1.3.4: Trend in top-5 herbicide chemical classes 1992-2003 (in tonnes of AS)

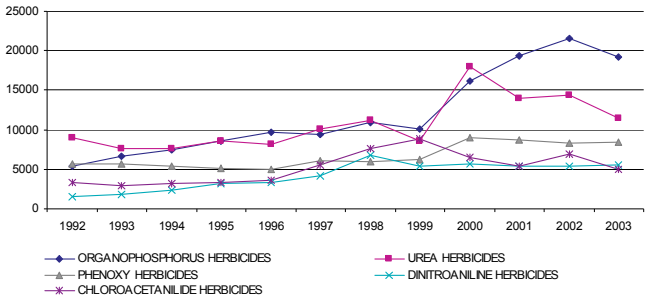


Table 1.3.1: Ranking top-20 chemical classes (Reference year 1992)

Chemical classes	1992	1999	2003
INORGANIC SULPHUR	**1**	1	1
DITHIOCARBAMATE FUNGICIDES	**2**	2	3
UREA HERBICIDES	**3**	7	4
COPPER COMPOUNDS	**4**	5	15
TRIAZINE HERBICIDES	**5**	11	12
PHENOXY HERBICIDES	**6**	9	5
ORGANOPHOSPHORUS HERBICIDES	**7**	4	2
THIOCARBAMATE HERBICIDES	**8**	31	19
PHTHALIC ACID FUNGICIDES	**9**	14	17
TRIAZINONE HERBICIDES	**10**	18	39
ORGANOPHOSPHORUS INSECTICIDES	**11**	12	10
CONAZOLE FUNGICIDES	**12**	13	11
MORPHOLINE FUNGICIDES	**13**	16	20
CHLOROACETANILIDE HERBICIDES	**14**	6	8
AMIDE FUNGICIDES	**15**	21	22
ORGANOPHOSPHORUS FUNGICIDES	**16**	21	22
MINERAL OIL	**17**	19	13
UNCLASSIFIED FUNGICIDES	**18**	24	27
BIPYRIDYLIUM HERBICIDES	**19**	37	29
DINITROANILINE HERBICIDES	**20**	10	9

Table 1.3.2: Ranking top-20 chemical classes (Reference year 2003)

Chemical classes	1992	1999	2003
INORGANIC SULPHUR	1	1	**1**
ORGANOPHOSPHORUS HERBICIDES	7	4	**2**
DITHIOCARBAMATE FUNGICIDES	2	2	**3**
UREA HERBICIDES	3	7	**4**
PHENOXY HERBICIDES	6	9	**5**
SOIL STERILANTS	97	3	**6**
PHYSIOLOGICAL PLANT GROWTH REGULATORS	70	8	**7**
CHLOROACETANILIDE HERBICIDES	14	6	**8**
DINITROANILINE HERBICIDES	20	10	**9**
ORGANOPHOSPHORUS INSECTICIDES	11	12	**10**
CONAZOLE FUNGICIDES	12	13	**11**
TRIAZINE HERBICIDES	5	11	**12**
MINERAL OIL	17	19	**13**
ORGANOPHOSPHORUS FUNGICIDES	16	15	**14**
COPPER COMPOUNDS	4	5	**15**
ANILIDE HERBICIDES	27	20	**16**
PHTHALIC ACID FUNGICIDES	9	14	**17**
STROBILURINE FUNGICIDES	76	36	**18**
THIOCARBAMATE HERBICIDES	8	31	**19**
MORPHOLINE FUNGICIDES	13	16	**20**

Table 1.3.3: Fungicide chemical classes with highest index variation rate between 1992 and 2003.

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CARBAMATES	100	98	469	1070	4100	5748	9453	5554	8065	5439	7683	7457
DINITROANILINES	100	130	122	155	195	255	353	239	2592	2492	3075	2650
QUINOLINES	100	81	105	93	105	99	85	69	907	1029	974	958
STROBILURINES	-	-	-	-	-	100	210	212	589	723	835	712
PHENYLPYRROLES	-	-	-	-	-	100	142	205	320	475	550	584
UNCLASSIFIED	100	87	80	76	79	75	73	72	78	56	83	52
MORPHOLINES	100	73	69	86	89	83	77	74	59	61	59	48
OXAZOLES	100	95	77	83	65	70	66	72	73	73	97	48
COPPERS	100	86	83	86	94	110	123	125	43	41	46	43
BENZIMIDAZOLES	100	88	80	72	75	71	72	63	53	49	59	38

Table 1.3.4: Herbicide chemical classes with highest index variation rate between 1992 and 2003.

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
QUINOLINES	100	444	2716	4767	5435	7555	8450	8760	9682	10616	11570	11465
PYRIDINECARBOXAMIDES	-	-	-	-	-	-	-	-	-	100	116	819
TRIAZOLINONES	-	-	-	-	-	100	731	834	615	737	555	542
CYCLOHEXANEDIONES	100	163	234	353	400	299	477	383	355	439	405	446
SULFONYLUREAS	100	127	283	434	259	510	337	468	327	350	373	416
TRIAZINES	100	90	94	106	102	93	84	72	60	53	35	37
DIAZINES	100	78	88	125	176	167	157	136	95	87	57	34
TRIAZINONES	100	93	84	88	90	90	84	68	62	57	59	13
MORPHACTINS	100	27	14	0	-	-	-	-	-	-	-	-

Table 1.3.5: Insecticide chemical classes with highest index variation rate between 1992 and 2003.

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PYRIDINES	-	-	-	-	-	-	-	100	9367	8595	10789	10755
ANTIBIOTICS	100	110	152	268	267	446	749	988	662	719	5334	4109
(PHENYL-)PYRAZOLES	100	102	409	690	852	1155	1445	4283	7766	3099	6658	3384
DIAZYLHYDRAZINES	-	-	100	321	466	704	1366	1660	2652	2275	2537	2393
PYRIDYLMETHYLAMINES	100	274	418	894	1350	469	481	2248	1954	1018	1952	2297
AMIDINES	100	103	110	103	120	89	91	48	85	118	120	66
INSECT GROWTH REGULATORS	100	70	64	45	35	31	31	29	19	26	27	28
TETRAZINES	100	93	81	67	38	31	20	14	9	8	4	5
SULFITE ESTERS	100	93	89	63	61	58	64	62	39	42	35	4
UREAS	-	-	100	28	24	12	0	0	0	0	0	0

Chapter 2

Detailed tables at EU level

2.1 Quantity of PPP used

Table 2.1.1: Quantity of PPP used – total (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BE+LU	2903	2611	2729	3004	2742	3239	3325	3007	4187	3878	3590	3640
CZ	:	:	:	:	:	:	:	:	2905	3704	2680	2953
DK	2848	2722	2686	2790	2677	2015	2409	1939	2092	2311	2348	2549
DE	20056	18219	17445	20076	20353	22404	24042	21925	25652	26016	26596	23240
EE	:	:	:	:	:	:	:	:	55	147	163	203
EL	11550	11731	11775	12001	12215	12285	13300	12691	8891	8581	8770	5997
ES	29519	27887	27372	25849	26452	30691	31127	31595	24524	28297	31605	31815
FR	62386	65044	56442	71791	70628	85631	87196	82423	89084	78756	73762	61753
IE	445	328	364	431	435	910	618	555	1340	1340	1420	1239
IT	42478	54444	53926	54139	55461	58084	53658	50902	49172	46406	45198	30828
CY	:	:	:	:	:	:	:	:	66	722	80	76
LV	:	:	:	:	:	:	:	:	67	159	221	251
LT	:	:	:	:	:	:	:	:	140	264	399	453
HU	:	:	:	:	:	:	:	:	4433	5404	4979	5038
MT	:	:	:	:	:	:	:	:	1	1	1	4
NL	3466	3398	3627	3804	3894	4776	4604	4075	5593	4402	4718	5030
AT	2417	2329	2178	2261	1807	2276	2247	2028	1453	1600	1387	1499
PL	:	:	:	:	:	:	:	:	8093	10283	9853	10134
PT	6008	7389	8623	9002	9807	7110	6360	7872	9533	12837	14619	13321
SI	:	:	:	:	:	:	:	:	434	436	507	398
SK	:	:	:	:	:	:	:	:	1314	1599	1511	1409
FI	358	325	298	484	493	717	815	630	855	977	1234	1017
SE	551	554	681	769	816	827	942	934	1553	1528	1580	1894
UK	8457	8683	9340	9903	9868	11012	11592	11340	15248	15465	16864	14920
EU	193443	205664	197487	216304	217647	241976	242234	231917	256684	255114	254084	219662

Table 2.1.2: Quantity of PPP used – fungicides (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BE+LU	1216	1038	1159	1268	959	1006	1097	931	1566	1402	1419	1542
CZ	:	:	:	:	:	:	:	:	416	727	595	677
DK	1028	800	778	792	762	774	793	724	418	472	602	635
DE	7321	6306	5416	7365	6977	8192	7547	7671	6849	7409	8599	8106
EE	:	:	:	:	:	:	:	:	5	18	16	21
EL	10509	10796	10780	10961	11092	11195	11659	11591	6477	6153	6614	3692
ES	24860	23397	21195	19806	20299	20040	19496	19298	10357	13826	16322	16664
FR	42169	47002	38206	49553	48224	52339	49920	44841	47859	42878	39781	33983
IE	198	168	141	166	177	318	259	196	472	440	480	537
IT	35500	46938	45801	46075	48068	48047	43696	42002	37983	35220	30370	18435
CY	:	:	:	:	:	:	:	:	28	32	32	26
LV	:	:	:	:	:	:	:	:	17	27	30	34
LT	:	:	:	:	:	:	:	:	32	50	47	62
HU	:	:	:	:	:	:	:	:	1176	1698	1692	1450
NL	1675	1549	1945	2076	1980	2346	2375	2062	2977	2210	1961	2396
AT	1323	1340	1165	1228	1114	1310	1210	962	491	543	584	737
PL	:	:	:	:	:	:	:	:	1699	2298	2645	2587
PT	4878	5890	6790	7017	7728	5730	4609	6051	7548	10627	12233	11242
SI	:	:	:	:	:	:	:	:	204	209	245	229
SK	:	:	:	:	:	:	:	:	174	272	299	326
FI	19	20	16	21	32	52	97	29	155	153	196	182
SE	107	49	80	104	128	160	176	216	220	236	210	219
UK	2823	3078	3067	3375	3460	3521	3864	3934	3493	3687	3762	3781
EU	133627	148371	136539	149808	151001	155029	146797	140509	130615	130586	128733	107561

Table 2.1.3: Quantity of PPP used – herbicides (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BE+LU	1543	1463	1460	1619	1659	1966	1947	1841	2330	2160	1667	1534
CZ	:	:	:	:	:	:	:	:	2196	2518	1798	1906
DK	1739	1836	1833	1913	1869	1060	1437	1019	1496	1679	1608	1809
DE	12191	11551	11624	12299	13041	11987	13769	11961	15920	15086	14822	12529
EE	:	:	:	:	:	:	:	:	49	110	123	149
EL	707	640	678	721	805	680	1002	661	1173	1250	1133	1292
ES	3297	3291	3691	3617	4163	5073	5318	5435	5482	7210	8086	8877
FR	18432	16003	16181	20145	20172	26092	29180	27563	32780	28265	27752	21681
IE	230	159	220	262	253	476	267	280	769	783	752	653
IT	4089	4170	4649	4850	4342	5917	5862	4588	5308	5068	7783	5298
CY	:	:	:	:	:	:	:	:	6	9	9	8
LV	:	:	:	:	:	:	:	:	50	113	167	184
LT	:	:	:	:	:	:	:	:	99	221	362	417
HU	:	:	:	:	:	:	:	:	3071	3316	2918	3254
MT	:	:	:	:	:	:	:	:	1	1	1	4
NL	1574	1667	1520	1576	1724	1928	1799	1591	2060	1826	2214	2398
AT	1058	960	980	1017	674	958	1028	1057	935	1024	774	704
PL	:	:	:	:	:	:	:	:	6118	7154	6465	6797
PT	850	1234	1555	1777	1883	1199	1252	1273	1544	1833	1848	1720
SI	:	:	:	:	:	:	:	:	220	210	213	145
SK	:	:	:	:	:	:	:	:	1094	1270	1142	1020
FI	326	294	277	459	457	576	616	539	635	760	969	786
SE	404	412	498	541	561	612	663	611	1251	1188	1296	1610
UK	5377	5341	5842	6130	6157	5879	5787	5724	9982	9658	10596	9161
EU	51818	49023	51011	56925	57759	64403	69926	64143	94570	92713	94498	83934

Table 2.1.4: Quantity of PPP used – insecticides (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BE+LU	140	108	108	116	123	99	90	90	112	108	71	117
CZ	:	:	:	:	:	:	:	:	127	129	133	118
DK	81	86	75	85	46	28	33	28	0	2	2	4
DE	545	361	405	412	335	444	698	366	382	370	416	493
EE	:	:	:	:	:	:	:	:	0	2	2	4
EL	333	295	317	317	318	338	469	382	891	836	713	680
ES	1083	980	1202	1328	1167	1129	1173	1813	2739	2536	2457	2121
FR	1736	1638	1624	1646	1653	1464	1364	1655	1882	1299	1511	1274
IE	18	2	3	3	5	16	13	9	9	17	3	6
IT	1395	1635	1853	1551	1440	1732	1540	1564	2221	2154	2119	1526
CY	:	:	:	:	:	:	:	:	27	30	29	35
LV	:	:	:	:	:	:	:	:	0	2	1	4
LT	:	:	:	:	:	:	:	:	8	5	7	9
HU	:	:	:	:	:	:	:	:	186	300	290	273
NL	173	156	128	153	158	159	131	118	275	83	104	166
AT	33	25	29	15	17	7	9	9	27	30	29	45
PL	:	:	:	:	:	:	:	:	190	238	270	319
PT	161	151	171	198	174	118	234	250	257	220	241	133
SI	:	:	:	:	:	:	:	:	11	17	28	23
SK	:	:	:	:	:	:	:	:	45	51	66	64
FI	14	10	5	4	4	7	7	3	8	9	19	17
SE	40	26	33	14	22	14	16	15	27	45	21	22
UK	257	264	431	398	251	224	233	201	266	306	246	356
EU	6008	5737	6384	6242	5714	5780	6011	6505	9690	8789	8779	7809

Table 2.1.6: Quantity of PPP used – Other PPP (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BE+LU	3	1	1	1	1	168	191	145	179	206	433	446
CZ	:	:	:	:	:	:	:	:	166	331	154	252
DK	:	:	:	:	:	153	146	168	148	132	110	72
DE	0	0	0	0	0	1781	2028	1925	2502	3152	2759	2112
EE	:	:	:	:	:	:	:	:	0	16	22	30
EL	:	:	:	:	:	71	170	56	350	341	310	333
ES	279	218	1284	1098	822	4449	5140	5049	5945	4725	4739	4154
FR	50	401	431	446	579	5736	6732	8363	6563	6314	4717	4815
IE	:	:	:	:	:	101	79	70	90	101	185	43
IT	1494	1701	1623	1663	1611	2388	2561	2748	3660	3965	4925	5570
CY	:	:	:	:	:	:	:	:	5	651	10	7
LV	:	:	:	:	:	:	:	:	0	16	23	30
LT	:	:	:	:	:	:	:	:	0	33	44	60
HU	:	:	:	:	:	:	:	:	0	91	79	62
NL	43	26	34	0	32	343	299	304	280	282	439	70
AT	3	3	3	1	1	0	0	0	0	2	0	14
PL	:	:	:	:	:	:	:	:	86	594	473	431
PT	118	114	107	10	21	63	264	299	185	157	298	227
SI	:	:	:	:	:	:	:	:	0	0	21	0
SK	:	:	:	:	:	:	:	:	0	7	5	0
FI	:	:	:	:	:	82	95	59	58	55	49	32
SE	:	:	:	:	:	41	51	48	54	60	53	43
UK	:	:	:	:	:	1388	1708	1481	1507	1815	2260	1622
EU	1990	2465	3484	3219	3067	16765	19464	20716	21779	23045	22109	20425

Note: the figures presented in the tables of section 2.1 and 2.2 for the different countries since 2000 include a quantity of active substances used on 'non-crop' areas. This explains the slight differences in the national totals with the figures presented in the detailed tables by country in chapter 4 where they are excluded.

2.2 Index of PPP quantity used

Table 2.2.1: Index of quantity of PPP used – total (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BE+LU	69	62	65	72	65	77	79	72	**100**	93	86	87
CZ	-	-	-	-	-	-	-	-	**100**	128	92	102
DK	136	130	128	133	128	96	115	93	**100**	110	112	122
DE	78	71	68	78	79	87	94	85	**100**	101	104	91
EE	-	-	-	-	-	-	-	-	**100**	269	299	373
EL	130	132	132	135	137	138	150	143	**100**	97	99	67
ES	120	114	112	105	108	125	127	129	**100**	115	129	130
FR	70	73	63	81	79	96	98	93	**100**	88	83	69
IE	33	25	27	32	32	68	46	41	**100**	100	106	92
IT	86	111	110	110	113	118	109	104	**100**	94	92	63
CY	-	-	-	-	-	-	-	-	**100**	1092	122	115
LV	-	-	-	-	-	-	-	-	**100**	237	330	376
LT	-	-	-	-	-	-	-	-	**100**	229	336	402
HU	-	-	-	-	-	-	-	-	**100**	122	112	114
MT	-	-	-	-	-	-	-	-	**100**	100	100	400
NL	62	61	65	68	70	85	82	73	**100**	79	84	90
AT	166	160	150	156	124	157	155	140	**100**	110	95	103
PL	-	-	-	-	-	-	-	-	**100**	127	122	125
PT	63	78	90	94	103	75	67	83	**100**	135	153	140
SI	-	-	-	-	-	-	-	-	**100**	101	117	92
SK	-	-	-	-	-	-	-	-	**100**	122	115	107
FI	42	38	35	57	58	84	95	74	**100**	114	144	119
SE	36	36	44	50	53	53	61	60	**100**	98	102	122
UK	55	57	61	65	65	72	76	74	**100**	101	111	98
EU	75	80	77	84	85	94	94	90	**100**	99	99	86

Table 2.2.2: Index of quantity of PPP used – fungicides (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BE+LU	269	273	237	250	227	267	246	196	**100**	111	119	150
CZ	-	-	-	-	-	-	-	-	**100**	115	115	94
DK	107	92	79	108	102	120	110	112	**100**	108	126	118
DE	-	-	-	-	-	-	-	-	**100**	175	143	163
EE	246	191	186	190	182	185	190	173	**100**	113	144	152
EL	-	-	-	-	-	-	-	-	**100**	118	118	141
ES	162	167	166	169	171	173	180	179	**100**	95	102	57
FR	12	13	10	13	20	33	63	19	**100**	99	127	117
IE	-	-	-	-	-	-	-	-	**100**	144	144	123
IT	42	36	30	35	37	67	55	42	**100**	93	102	114
CY	78	66	74	81	61	64	70	59	**100**	90	91	98
LV	-	-	-	-	-	-	-	-	**100**	191	174	232
LT	93	124	121	121	127	126	115	111	**100**	93	80	49
HU	88	98	80	104	101	109	104	94	**100**	90	83	71
NL	56	52	65	70	67	79	80	69	**100**	74	66	80
AT	100	100	100	100	100	100	100	100	**100**	100	100	100
PL	-	-	-	-	-	-	-	-	**100**	135	156	152
PT	65	78	90	93	102	76	61	80	**100**	141	162	149
SI	-	-	-	-	-	-	-	-	**100**	103	120	113
SK	-	-	-	-	-	-	-	-	**100**	156	172	187
FI	240	226	205	191	196	193	188	186	**100**	133	158	161
SE	49	22	36	47	58	73	80	98	**100**	107	95	99
UK	81	88	88	97	99	101	111	113	**100**	106	108	108
EU	102	114	105	115	116	119	112	108	**100**	100	99	82

Table 2.2.3: Index of quantity of PPP used – herbicides (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BE+LU	66	63	63	69	71	84	84	79	**100**	93	72	66
CZ	-	-	-	-	-	-	-	-	**100**	115	82	87
DK	116	123	123	128	125	71	96	68	**100**	112	108	121
DE	77	73	73	77	82	75	86	75	**100**	95	93	79
EE	-	-	-	-	-	-	-	-	**100**	225	250	303
EL	60	55	58	61	69	58	85	56	**100**	107	97	110
ES	60	60	67	66	76	93	97	99	**100**	132	147	162
FR	56	49	49	61	62	80	89	84	**100**	86	85	66
IE	30	21	29	34	33	62	35	36	**100**	102	98	85
IT	77	79	88	91	82	111	110	86	**100**	95	147	100
CY	-	-	-	-	-	-	-	-	**100**	150	151	136
LV	-	-	-	-	-	-	-	-	**100**	226	334	368
LT	-	-	-	-	-	-	-	-	**100**	222	365	420
HU	-	-	-	-	-	-	-	-	**100**	108	95	106
MT	-	-	-	-	-	-	-	-	**100**	100	100	400
NL	76	81	74	76	84	94	87	77	**100**	89	107	116
AT	113	103	105	109	72	102	110	113	**100**	110	83	75
PL	-	-	-	-	-	-	-	-	**100**	117	106	111
PT	55	80	101	115	122	78	81	82	**100**	119	120	111
SI	-	-	-	-	-	-	-	-	**100**	96	97	66
SK	-	-	-	-	-	-	-	-	**100**	116	104	93
FI	51	46	44	72	72	91	97	85	**100**	120	153	124
SE	32	38	45	52	53	49	56	52	**100**	95	104	129
UK	54	54	59	61	62	59	58	57	**100**	97	106	92
EU	55	52	54	60	61	68	74	68	**100**	98	100	89

Table 2.2.4: Index of quantity of PPP used – insecticides (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BE+LU	122	93	107	56	63	26	32	32	**100**	113	107	169
CZ	-	-	-	-	-	-	-	-	**100**	110	107	130
DK	143	94	106	108	88	116	183	96	**100**	97	109	129
DE	-	-	-	-	-	-	-	-	**100**	102	105	93
EE	269	286	250	282	154	95	111	95	**100**	94	91	110
EL	-	-	-	-	-	-	-	-	**100**	2180	1637	3440
ES	37	33	36	36	36	38	53	43	**100**	94	80	76
FR	180	137	65	57	55	94	86	38	**100**	124	249	224
IE	-	-	-	-	-	-	-	-	**100**	161	156	147
IT	192	18	32	37	50	170	135	101	**100**	178	29	60
CY	125	96	96	103	109	88	80	80	**100**	96	64	104
LV	-	-	-	-	-	-	-	-	**100**	66	91	116
LT	63	74	83	70	65	78	69	70	**100**	97	95	69
HU	92	87	86	87	88	78	72	88	**100**	69	80	68
NL	63	57	47	56	57	58	48	43	**100**	30	38	60
AT	100	100	100	100	100	100	100	100	**100**	100	100	100
PL	-	-	-	-	-	-	-	-	**100**	125	142	168
PT	63	59	67	77	68	46	91	97	**100**	86	94	52
SI	-	-	-	-	-	-	-	-	**100**	163	267	221
SK	-	-	-	-	-	-	-	-	**100**	112	145	140
FI	40	36	44	48	43	41	43	66	**100**	93	90	77
SE	146	93	122	51	81	50	59	55	**100**	163	78	81
UK	97	99	162	150	94	84	88	76	**100**	115	93	134
EU	62	59	66	64	59	59	62	67	**100**	91	91	81

Table 2.2.5: Index of quantity of PPP used – Other PPP (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BE+LU	2	1	1	1	0	94	107	81	**100**	115	242	250
CZ	-	-	-	-	-	-	-	-	**100**	201	93	153
DK	-	-	-	-	-	103	99	113	**100**	89	74	48
DE	-	-	-	-	-	71	81	77	**100**	126	110	84
EE	-	-	-	-	-	-	-	-	**-**	-	-	-
EL	-0	-	-	-	-	22	52	16	**100**	98	93	96
ES	5	4	22	18	14	75	86	85	**100**	79	80	70
FR	1	6	7	7	9	87	103	127	**100**	96	72	73
IE	-	-	-	-	-	112	88	78	**100**	113	205	48
IT	41	47	45	46	45	63	68	74	**100**	109	136	154
CY	-	-	-	-	-	-	-	-	**100**	13017	198	132
LV	-	-	-	-	-	-	-	-	**-**	-	-	-
LT	-	-	-	-	-	-	-	-	**-**	-	-	-
HU	-	-	-	-	-	-	-	-	**-**	-	-	-
NL	21	12	16	0	15	124	101	119	**100**	101	184	7
PL	-	-	-	-	-	-	-	-	**100**	237702	68	1528
AT	-	-	-	-	-	-	-	-	**-**	-	-	-
PT	64	62	58	5	11	31	139	160	**100**	85	161	123
SI	-	-	-	-	-	-	-	-	**-**	-	-	-
FI	-	-	-	-	-	142	165	102	**100**	94	85	55
SE	-	-	-	-	-	75	91	84	**100**	106	95	119
UK	-	-	-	-	-	5	114	117	**100**	116	91	107
EU	10	12	17	16	15	74	88	96	**100**	104	96	92

2.3 Dosage of PPP

Table 2.3.1: Dosage of PPP used by crop in the EU – total (kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	1.0	1.0	1.0	1.1	1.1	1.3	1.5	1.4	1.4	1.4	1.5	1.3
MAIZE	1.5	1.3	1.4	1.6	1.5	2.0	2.1	2.1	1.6	1.5	1.5	1.3
OIL SEEDS	0.6	0.4	0.5	0.6	0.7	1.0	1.4	1.2	1.2	1.2	1.2	1.1
POTATOES	5.1	5.3	5.8	5.7	5.7	6.7	9.0	7.5	5.1	5.3	6.3	6.3
SUGAR BEET	3.8	3.7	3.6	3.9	4.0	4.3	4.4	3.7	3.5	3.5	3.7	3.1
ARABLE CROPS Total	0.9	0.8	0.8	0.9	0.9	1.1	1.3	1.2	1.1	1.2	1.2	1.1
CITRUS	5.3	4.9	7.3	6.8	6.3	4.8	4.4	4.6	4.8	6.5	7.1	7.2
GRAPES	25.0	30.8	28.9	32.4	33.7	35.3	32.5	31.9	27.2	27.0	26.5	21.4
FRUIT TREES	6.8	7.4	7.5	9.3	8.3	8.7	8.5	7.8	6.7	7.1	7.9	6.9
BRASSICAS	2.8	3.1	3.3	4.2	4.4	2.0	1.8	2.6	0.9	1.2	1.4	1.6
CUCURBITS	1.8	7.1	6.4	6.8	6.1	10.1	7.0	10.4	4.5	5.2	4.8	6.2
TOMATOES	15.3	15.6	11.5	12.6	12.7	6.0	6.2	7.1	2.7	5.1	3.2	3.7
OTHER VEGETABLES	16.2	13.1	13.2	14.5	16.4	39.2	44.2	48.1	47.0	45.9	50.4	61.7
FRUIT & VEGETABLES Total	16.1	19.0	18.1	20.8	21.1	22.4	21.0	20.7	17.2	17.3	17.7	15.0
Grand Total	2.3	2.4	2.4	2.6	2.6	2.9	2.9	2.8	2.3	2.3	2.4	2.1

Table 2.3.2: Dosage of PPP used by crop in the EU – fungicides (kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.2	0.3	0.3	0.2
MAIZE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL SEEDS	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1
POTATOES	3.5	3.7	4.1	3.9	3.9	5.0	5.7	5.3	3.9	4.0	4.8	4.8
SUGAR BEET	0.7	0.7	0.7	0.9	1.0	1.2	1.4	1.0	0.5	0.6	0.6	0.6
ARABLE CROPS Total	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2
CITRUS	1.1	0.8	0.9	0.8	1.0	1.0	0.7	0.8	0.5	1.0	0.9	0.9
GRAPES	23.8	29.5	27.5	30.9	32.1	33.2	30.4	29.6	25.3	24.8	24.4	19.5
FRUIT TREES	5.2	5.5	5.5	7.0	6.1	6.3	6.0	5.3	3.6	4.2	4.4	4.1
BRASSICAS	0.5	0.5	0.5	1.0	1.1	0.2	0.3	0.8	0.5	0.6	0.7	0.7
CUCURBITS	1.2	6.5	5.7	6.1	5.5	3.2	1.8	2.0	2.6	3.2	2.6	4.3
TOMATOES	14.5	14.7	10.4	11.6	11.7	5.3	5.1	5.8	1.4	1.4	1.7	1.6
OTHER VEGETABLES	10.5	5.7	6.3	6.7	8.1	12.1	15.2	12.9	12.6	13.3	14.6	17.8
FRUIT & VEGETABLES Total	14.4	17.2	15.9	18.5	18.8	19.1	17.7	17.1	13.6	13.6	13.7	11.3
Grand Total	1.6	1.8	1.7	1.8	1.8	1.9	1.8	1.7	1.2	1.2	1.2	1.0

Table 2.3.3: Dosage of PPP used by crop in the EU – herbicides (kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.8	1.0	1.0	1.0	0.9
MAIZE	1.5	1.3	1.3	1.5	1.4	1.9	2.0	2.0	1.6	1.4	1.4	1.2
OIL SEEDS	0.4	0.3	0.4	0.5	0.6	0.8	1.2	1.0	1.0	1.0	0.9	0.9
POTATOES	1.4	1.4	1.5	1.5	1.6	0.8	0.8	0.9	0.8	0.8	0.9	0.9
SUGAR BEET	2.8	2.8	2.7	2.7	2.8	2.9	2.8	2.5	2.7	2.7	2.9	2.2
ARABLE CROPS Total	0.6	0.5	0.6	0.6	0.6	0.7	0.8	0.7	0.8	0.8	0.8	0.7
CITRUS	1.6	1.7	1.9	1.9	2.2	2.9	2.6	2.0	2.1	3.0	3.7	4.0
GRAPES	1.0	1.1	1.1	1.3	1.3	1.4	1.5	1.3	1.3	1.4	1.4	1.3
FRUIT TREES	0.6	0.5	0.6	0.8	0.7	0.5	0.5	0.5	0.5	0.7	1.0	0.7
BRASSICAS	1.9	2.2	2.3	2.8	2.8	1.7	1.4	1.7	0.1	0.2	0.3	0.4
CUCURBITS	0.2	0.2	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.2	0.0
TOMATOES	0.3	0.4	0.5	0.6	0.6	0.1	0.5	0.5	0.1	0.1	0.1	0.1
OTHER VEGETABLES	4.0	5.4	4.6	5.1	5.5	8.2	10.2	10.3	8.0	8.1	11.5	10.8
FRUIT & VEGETABLES Total	1.0	1.1	1.1	1.3	1.3	1.4	1.5	1.3	1.2	1.4	1.7	1.5
Grand Total	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.9	0.8

Table 2.3.4: Dosage of PPP used by crop in the EU – insecticides (kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAIZE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1
OIL SEEDS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1
POTATOES	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.2	0.2	0.2	0.2
SUGAR BEET	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
ARABLE CROPS Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CITRUS	1.3	1.2	1.4	1.3	1.0	0.9	0.9	1.6	1.4	1.5	1.5	1.2
GRAPES	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.4	0.4	0.4	0.3
FRUIT TREES	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.7	1.3	1.0	1.0	0.8
BRASSICAS	0.5	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.3	0.3	0.4	0.4
CUCURBITS	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.7	0.6	0.6	0.6
TOMATOES	0.4	0.5	0.6	0.4	0.4	0.3	0.3	0.5	0.5	0.5	0.6	0.6
OTHER VEGETABLES	1.6	2.0	2.3	2.7	2.8	3.4	4.0	4.1	3.2	3.7	3.8	3.9
FRUIT & VEGETABLES Total	0.5	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.9	0.8	0.8	0.7
Grand Total	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Table 2.3.5: Dosage of PPP used by crop in the EU – Other PPP (kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.3	0.2	0.2	0.2	1.2
MAIZE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL SEEDS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
POTATOES	0.0	0.0	0.0	0.0	0.0	0.5	2.2	0.8	0.3	0.3	0.4	0.3
SUGAR BEET	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0
ARABLE CROPS Total	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6
CITRUS	1.3	1.1	3.1	2.7	2.1	0.0	0.1	0.2	0.9	1.1	1.1	1.2
GRAPES	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.7	0.3	0.4	0.3	0.3
FRUIT TREES	0.5	0.7	0.7	0.8	0.9	1.2	1.2	1.2	1.4	1.2	1.5	1.6
BRASSICAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
CUCURBITS	0.0	0.0	0.0	0.0	0.0	6.7	4.8	8.1	1.2	1.2	1.3	1.3
TOMATOES	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.7	3.1	0.9	1.4
OTHER VEGETABLES	0.0	0.0	0.0	0.0	0.0	15.5	14.7	20.9	23.2	20.7	20.5	29.6
FRUIT & VEGETABLES Total	0.2	0.3	0.5	0.5	0.5	1.3	1.2	1.7	1.5	1.5	1.5	1.7
Grand Total	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.6

Table 2.3.6: Top-5 dosages by chemical classes on arable crops in the EU (kg AS/ha)

	Chemical classes	Dose
CEREALS	UREA HERBICIDES	0.28
	PHENOXY HERBICIDES	0.25
	ORGANOPHOSPHORUS HERBICIDES	0.23
	PHYSIOLOGICAL PLANT GROWTH REGULATORS	0.14
	DINITROANILINE HERBICIDES	0.06
MAIZE	CHLOROACETANILIDE HERBICIDES	0.53
	TRIAZINE HERBICIDES	0.26
	ORGANOPHOSPHORUS HERBICIDES	0.11
	AMIDE HERBICIDES	0.06
	TRIKETONE HERBICIDES	0.05
OIL SEEDS	ANILIDE HERBICIDES	0.27
	DINITROANILINE HERBICIDES	0.25
	AMIDE HERBICIDES	0.09
	DIPHENYL ETHER HERBICIDES	0.06
	CONAZOLE FUNGICIDES	0.05
POTATOES	DITHIOCARBAMATE FUNGICIDES	3.67
	THIOCARBAMATE HERBICIDES	0.40
	SOIL STERILANTS	0.34
	DINITROANILINE FUNGICIDES	0.24
	BIPYRIDYLIUM HERBICIDES	0.18
SUGAR BEET	BIS-CARBAMATE HERBICIDES	0.57
	BENZOFURANE HERBICIDES	0.43
	PYRIDAZINONE HERBICIDES	0.40
	ORGANOPHOSPHORUS HERBICIDES	0.36
	INORGANIC SULPHUR	0.34

Table 2.3.7: Top-5 dosages by chemical classes on speciality crops in the EU (kg AS/ha)

	Chemical classes	Dose
CITRUS	ORGANOPHOSPHORUS HERBICIDES	3.54
	MINERAL OIL	0.92
	ORGANOPHOSPHORUS INSECTICIDES	0.86
	ORGANOPHOSPHORUS FUNGICIDES	0.40
	DITHIOCARBAMATE FUNGICIDES	0.40
GRAPES	INORGANIC SULPHUR	14.85
	DITHIOCARBAMATE FUNGICIDES	2.02
	ORGANOPHOSPHORUS HERBICIDES	0.81
	ORGANOPHOSPHORUS FUNGICIDES	0.77
	PHTHALIC ACID FUNGICIDES	0.64
FRUIT TREES	INORGANIC SULPHUR	1.44
	DITHIOCARBAMATE FUNGICIDES	1.39
	MINERAL OIL	1.22
	ORGANOPHOSPHORUS INSECTICIDES	0.60
	ORGANOPHOSPHORUS HERBICIDES	0.39
BRASSICAS	DITHIOCARBAMATE FUNGICIDES	0.39
	ORGANOPHOSPHORUS INSECTICIDES	0.18
	OXIME-CARBAMATE INSECTICIDES	0.16
	AMIDE HERBICIDES	0.16
	AROMATIC FUNGICIDES	0.14
CUCURBITS	INORGANIC SULPHUR	2.38
	SOIL STERILANTS	1.24
	DITHIOCARBAMATE FUNGICIDES	0.71
	ORGANOPHOSPHORUS FUNGICIDES	0.36
	OXIME-CARBAMATE INSECTICIDES	0.34
TOMATOES	SOIL STERILANTS	1.37
	DITHIOCARBAMATE FUNGICIDES	1.23
	OXIME-CARBAMATE INSECTICIDES	0.49
	COPPER COMPOUNDS	0.22
	ALIPHATIC NITROGEN FUNGICIDES	0.11
OTHER VEGETABLES	SOIL STERILANTS	29.22
	DITHIOCARBAMATE FUNGICIDES	6.35
	INORGANIC SULPHUR	4.49
	DINITROANILINE HERBICIDES	3.74
	ORGANOPHOSPHORUS INSECTICIDES	2.13

2.4 Main PPP used

Table 2.4.1: Top-10 chemical classes in the EU – fungicides 2003

	Chemical classes	AS quantity (in tonnes)	Share in fungicides (%)
1	INORGANIC SULPHUR	59053	54.8
2	DITHIOCARBAMATE FUNGICIDES	21149	19.6
3	CONAZOLE FUNGICIDES	3865	3.6
4	ORGANOPHOSPHORUS FUNGICIDES	3466	3.2
5	COPPER COMPOUNDS	3403	3.2
6	PHTHALIC ACID FUNGICIDES	3004	2.8
7	STROBILURINE FUNGICIDES	2255	2.1
8	MORPHOLINE FUNGICIDES	2016	1.9
9	AMIDE FUNGICIDES	1418	1.3
10	AROMATIC FUNGICIDES	1174	1.1
	Total top-10	100801	93
	Total fungicides	107823	100

Table 2.4.2: Top-10 active ingredients in the EU – fungicides 2003

	Active substances	AS quantity (in tonnes)	Share in fungicides (%)
1	SULPHUR	59053	54.8
2	MANCOZEB	15946	14.8
3	FOSETYL	c	c
4	METIRAM	2798	2.6
5	FOLPET	2572	2.4
6	COPPER OXYCHLORIDE	c	c
7	FENPROPIMORPH	1418	1.3
8	TEBUCONAZOLE	1230	1.1
9	CHLOROTHALONIL	1152	1.1
10	THIRAM	956	0.9
	Total top-10	c	> 80
	Total fungicides	107823	100

Table 2.4.3: Top-10 chemical classes in the EU – herbicides 2003

	Chemical classes	AS quantity (in tonnes)	Share in herbicides (%)
1	ORGANOPHOSPHORUS HERBICIDES	21722	25.8
2	UREA HERBICIDES	13227	15.7
3	PHENOXY HERBICIDES	11851	14.1
4	CHLOROACETANILIDE HERBICIDES	6749	8.0
5	DINITROANILINE HERBICIDES	6337	7.5
6	TRIAZINE HERBICIDES	3624	4.3
7	ANILIDE HERBICIDES	3186	3.8
8	THIOCARBAMATE HERBICIDES	2144	2.5
9	AMIDE HERBICIDES	1605	1.9
10	BIS-CARBAMATE HERBICIDES	1322	1.6
	Total top-10	71767	85
	Total herbicides	84296	100

Table 2.4.4: Top-10 active ingredients in the EU – herbicides 2003

	Active substances	AS quantity (in tonnes)	Share in herbicides (%)
1	GLYPHOSATE	c	c
2	ISOPROTURON	12073	14.3
3	MCPA	5293	6.3
4	PENDIMETHALIN	3141	3.7
5	2,4-D	c	c
6	TRIFLURALIN	2899	3.4
7	ACETOCHLOR	2332	2.8
8	S-METOLACHLOR	c	c
9	ATRAZINE	1885	2.2
10	METAZACHLOR	1740	2.1
	Total top-10	c	>60
	Total herbicides	84296	100

Table 2.4.5: Top-10 chemical classes in the EU – insecticides 2003

	Chemical classes	AS quantity (in tonnes)	Share in insecticides (%)
1	ORGANOPHOSPHORUS INSECTICIDES	4645	59.1
2	CARBAMATE INSECTICIDES	854	10.9
3	OXIME-CARBAMATE INSECTICIDES	672	8.6
4	PYRIDYLMETHYLAMINE INSECTICIDES	550	7.0
5	ORGANOCHLORINE INSECTICIDES	336	4.3
6	PYRETHROID INSECTICIDES	271	3.4
7	ORGANOTIN INSECTICIDES	93	1.2
8	AMIDINE INSECTICIDES	75	1.0
9	UNCLASSIFIED INSECTICIDES	72	0.9
10	BENZOYLUREA INSECTICIDES	63	0.8
	Total top-10	7631	97
	Total insecticides	7861	100

Table 2.4.6: Top-10 active substances in the EU – insecticides 2003

	Active substances	AS quantity (in tonnes)	Share in insecticides (%)
1	CHLORPYRIFOS	1226	15.6
2	PARATHION-METHYL	c	c
3	DIMETHOATE	581	7.4
4	IMIDACLOPRID	c	c
5	METHOMYL	398	5.1
6	FENTHION	c	c
7	METHIOCARB	c	c
8	METHIDATHION	271	3.4
9	CHLORPYRIFOS-METHYL	228	2.9
10	ENDOSULFAN	201	2.6
	Total top-10	4740	60
	Total insecticides	7861	100

Table 2.4.7: Top-8 chemical classes in the EU – other PPP 2003

	Chemical classes	AS quantity (in tonnes)	Share in other PPP (%)
1	SOIL STERILANTS	8991	44.0
2	PHYSIOLOGICAL PLANT GROWTH REGULATORS	6796	33.2
3	MINERAL OIL	3557	17.4
4	RODENTICIDES	c	c
5	OTHER PPP	115	0.6
6	CARBAMATE MOLLUSCICIDE	c	c
7	OTHER PLANT GROWTH REGULATORS	67	0.3
8	OTHER MOLLUSCICIDES	2	0.0
	Total top-10	20442	100
	Total other PPP	20442	100

Table 2.4.8: Top-10 active ingredients in the EU – other PPP 2003

	Active substances	AI quantity (in tonnes)	Share in other PPP (%)
1	1,3-DICHLOROPROPENE	8482	41.5
2	CHLORMEQUAT	c	c
3	PETROLEUM OILS	3557	17.4
4	CHOLINE CHLORIDE	c	c
5	ETHEPHON	585	2.9
6	DAZOMET	c	c
7	MEPIQUAT	c	c
8	TRINEXAPAC-ETHYL	c	c
9	ANTHRAQUINONE	c	c
10	THIODICARB	c	c
	Total top-10	20303	99
	Total other PPP	20442	100

2.5 Utilised Agricultural Area

Table 2.5.1: Utilised agricultural area for the different crops in the EU (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	34487	31560	31334	32149	33167	34162	33618	32655	47810	46806	46989	45609
MAIZE	7800	7784	7631	7722	8212	8271	7950	7808	10128	10707	10566	10907
OIL SEEDS	6466	6566	6616	7013	6113	6234	6636	6920	7647	7514	7289	7595
POTATOES	1667	1496	1418	1488	1502	1394	1312	1368	2911	2689	2322	2219
SUGAR BEET	2151	2118	2086	2126	2082	2125	2064	2032	2423	2392	2416	2258
OTHER ARABLE CROPS	24459	26331	25343	24316	24308	23544	23351	23688	32431	30344	27651	28108
ARABLE CROPS Total	77121	75960	75024	74995	75388	75791	75083	74667	103376	100514	97454	96978
CITRUS	537	539	538	543	547	556	557	563	565	580	580	574
GRAPES	3918	3746	3654	3571	3517	3487	3482	3491	3665	3629	3557	3525
FRUIT TREES	2401	2395	2372	2029	2010	2031	2017	2025	2460	2453	2287	2370
BRASSICAS	243	239	236	239	240	231	233	234	303	296	285	288
CUCURBITS	239	225	220	217	220	222	220	211	246	241	241	201
TOMATOES	233	228	242	236	246	239	250	264	287	271	255	269
OTHER VEGETABLES	246	231	226	226	229	231	230	221	267	258	255	215
FRUIT & VEGETABLES Total	7818	7603	7487	7061	7008	6995	6987	7010	7792	7728	7459	7442
Grand Total	85834	84321	82718	82786	83348	83671	82839	82398	112284	109280	105798	105342

Chapter 3

Country profiles

3.1 Belgium & Luxembourg

Belgium and Luxembourg represent a total average usable agricultural area (UAA) of 1.512.000 ha over the period 1992-2003. On average, the area included in the survey makes up 65% of this UAA. The difference is accounted for by permanent grassland. It should also be noted that more than 20% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.1.1 shows the trend in PPPs used and their breakdown in Belgium and Luxembourg from 1992 to 2003. The overall quantities used during the 1990s were relatively constant, with small fluctuations that can be ascribed to seasonal variations. The 30% increase observed in 2000 could be due, at least in part, to the changes in the methodology of the survey and the fact that more substances have been taken into account. Since 2000, there has been a steady decrease in the use of PPPs. This is entirely due to the reduction in the use of herbicides.

In 2003, fungicides and herbicides each accounted for 42% of the total volume of active substances used. Insecticides made up 3% and other PPPs (including plant growth regulators) 12%.

Cereals usually occupy the first place as far as the total volume of active substances is concerned. In 2003, however, potatoes took over the top position for total PPP use.

In the 1990s the national average dosage, calculated by dividing the total amount of PPP active substances by the total area cultivated, was around 4 kg AS/ha. In 2003 it was 4.6 kg AS/ha.

The highest dosages are observed on speciality crops. For fruit trees (26 kg AS/ha in 2003), the control of apple scab requires constant fungicide protection (mainly with mancozeb). On vegetables, 5kg AS/ha were used in 2003 Mancozeb is also the main fungicide for use on vegetables. Soil sterilants are also quite important on fruit and vegetables, with 1,3-dichloropropene being the first active substance used on top fruit production and 1,3-dichloropropene and dazomet accounting for 22% of all PPP used on vegetables. No regular records have been kept on vineyards (Luxembourg), but as indicated by the dosage calculated for 1999 (12 kg AS/ha) this production is also very dependant on PPP use.

On potatoes (22 kg AS/ha in 2003), potato blight is the main disease to be controlled (chiefly with mancozeb). Prosulfocarb is the most widely used herbicide on potatoes. For cereals, isoproturon remains the most widely used herbicide. Chlormequat also accounts for 0.35 Kg AS/ha as a plant growth regulator. On sugar beet, chloridazon is the most widely used herbicide. In maize, dimethenamid took over first place from atrazine as a herbicide in 2003.

Figure 3.1.1: Use and composition of PPP (in tonnes of AS)

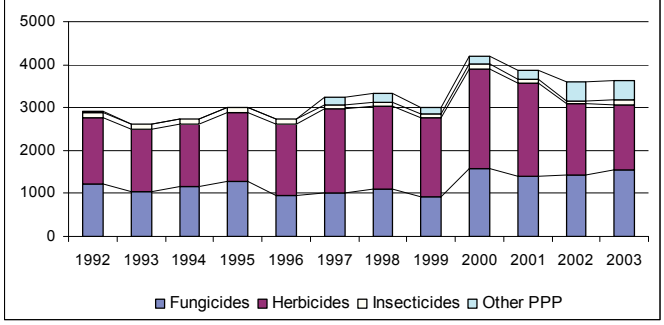


Figure 3.1.2: Quantity of PPP used by crop (in tonnes of AS)

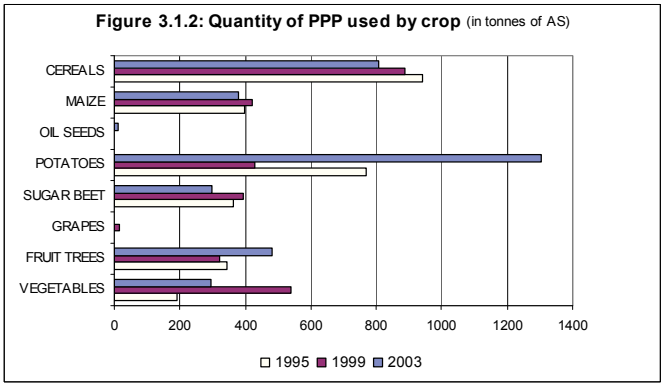


Figure 3.1.3: Dosage of PPP used by crop (kg AS/ha)

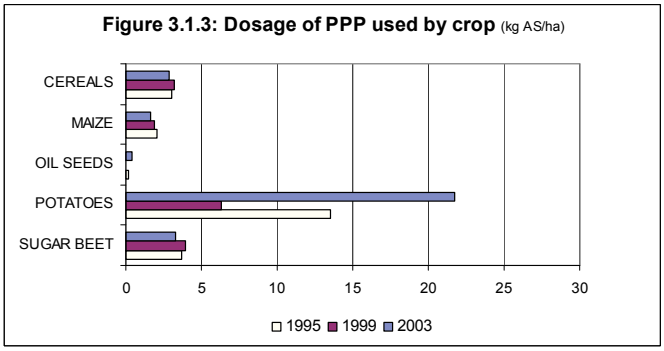
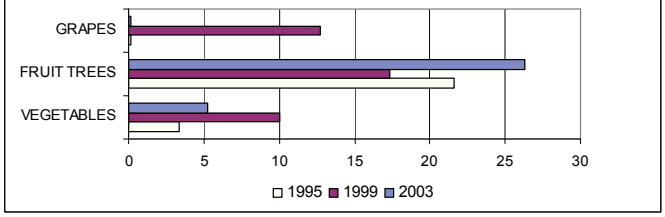


Figure 3.1.4: Dosage of PPP used by crop (kg AS/ha)



3.2 Czech Republic

The total average usable agricultural area (UAA) of the Czech Republic is around 4.000.000 ha. The survey covered approximately 75 % of the UAA. The remaining 25% are mainly covered by permanent grassland. It should also be noted that 20% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.2.1 shows the trend in used volumes and composition of PPP in the Czech Republic. No firm conclusions can be drawn from this 4-year survey. The fluctuations observed could be due to normal seasonal variations.

Herbicides represent the majority of all PPP used (65% in 2003). Fungicides come in second place with 22% of the total volume of active substances, and insecticides account for only 4%.

In the Czech Republic, the largest share of all PPP active substances is used on arable crops. Cereals take first place in PPP use by a long way. This is a reflection of the very large area under cereals. Herbicides are the main products used on cereals, with 2.4-D as a selective herbicide, and glyphosate as a total herbicide taking the first two places.

On maize, acetochlor and atrazine are the most widely used herbicides. For sugar beet, the herbicides chloridazon, phenmedipham, desmedipham and ethofumesate are used in similar quantities.

In oilseed production, metazachlor takes first place among the herbicides, chlorpyrifos is the main insecticide used against the pollen beetle and sulphur is widely used to control powdery mildew on rape.

On potatoes, mancozeb is the main fungicide used against potato blight and metribuzin is the main herbicide used.

On grapes, sulphur is the main fungicide in terms of volume of active substance used and glyphosate is the most widely used herbicide.

For the protection of top fruit against fungal diseases, sulphur comes in first place ahead of mancozeb. Glyphosate is also widely used to control weeds in orchards.

On vegetables, mancozeb and metiram are used as fungicides. The two most important herbicides are MCPB and pendimethalin.

Figure 3.2.1: Use and composition of PPP
(in tonnes of AS)

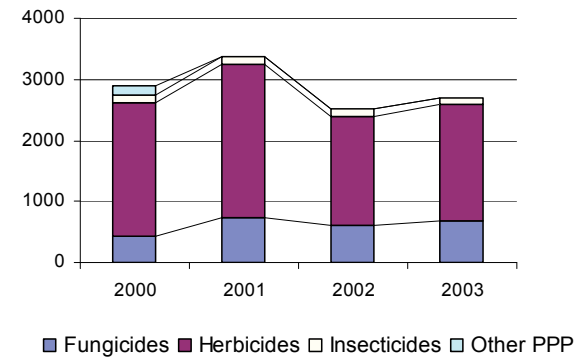


Figure 3.2.2: Quantity of PPP used by crop (in tonnes of AS)

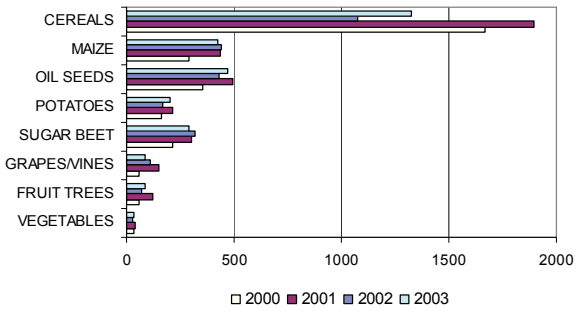
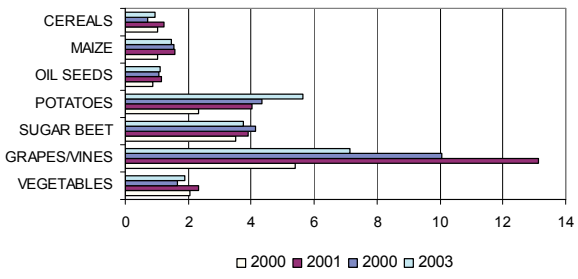


Figure 3.2.3: Dosage of PPP used by crop (kg AS/ha)



3.3 Denmark

Denmark has a total usable agricultural area (UAA) of around 2.800.000 hectares. The area covered by the survey represents 93% of this UAA, the rest being covered by permanent grassland. It should also be noted that more than 25% of the arable crops were classified as 'other arable crops', to which no specific PPP use could be attributed.

Figure 3.3.1 shows the trend in use and composition of PPP active substances. The sudden decrease in the volumes of PPP used, observed in 1997, could be partly due to changes in the methodology of the survey. From 1997 onwards, a steady increase was observed, with a peak in 2008. The increase in the volume of PPP used is mainly due to herbicides.

In 2003, herbicides represented 71% of all PPPs. This proportion was only 48% in 1999, down from 61% in 1992. Fungicides have been quite constant in volume over the whole period. In 2003 they accounted for 15%, insecticides for 1% and other PPPs for 3%.

Among the crops surveyed, cereals account for 60% of the overall cultivated area and for 67% of all PPP used. Potato is the second crop with 15% of the whole PPP consumption. Maize, sugar beet and the other arable crops represent from 3 to 4% each.

Glyphosate is the herbicide most widely used on cereals, followed by prosulfocarb and MCPA. Fenpropimorph is the most important fungicide on this crop.

Propyzamide is the main herbicide used on oilseed crops. Tebuconazole is also used to control light leaf spot disease.

Potato is the crop that requires the highest PPP dosages. The main fungicides used on this crop are mancozeb against late blight, and fluazinam in seed treatment against powdery scab. Prosulfocarb and aclonifen are the most widely used herbicides and diquat is the product mainly used to remove potato tops before mechanical harvest.

Phenmedipham, ethofumesate and glyphoste are the main herbicides used on sugar beet. Hymexazol is the main fungicide used to prevent damping-off.

Speciality crops are of minor importance in Denmark and represent less than 2% each. The importance of vegetables declined significantly between 1999 and 2003.

Fruit trees are mainly treated with mancozeb as a fungicide against apple scab. Weed control is the main concern on vegetable crops, for which pendimethalin and bentazone are mainly used.

Figure 3.3.1: Use and composition of PPP
(in tonnes of AS)

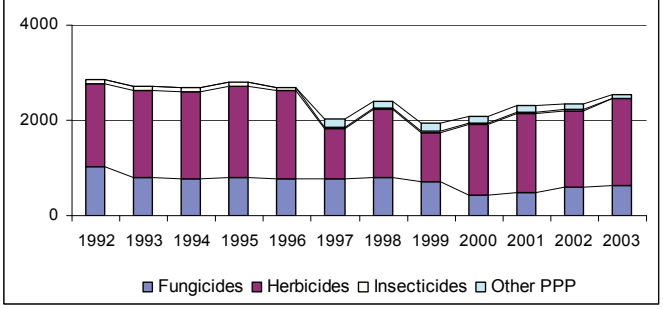


Figure 3.3.2: Quantity of PPP used by crop (in tonnes of AS)

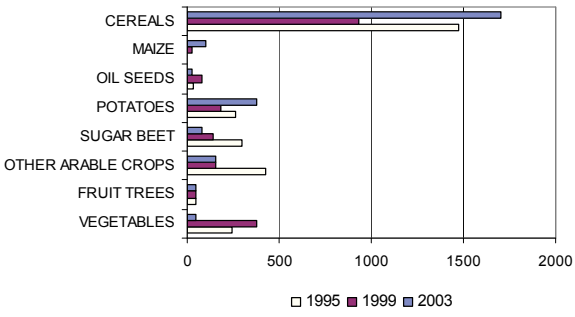


Figure 3.3.3: Dosage of PPP used by crop (kg AS/ha)

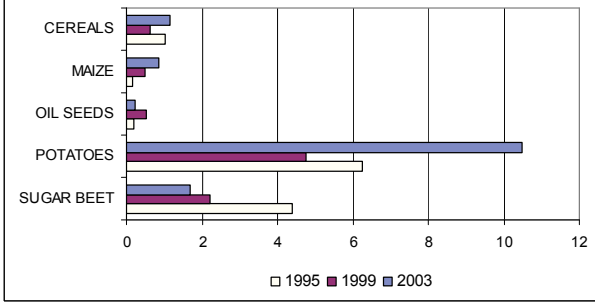
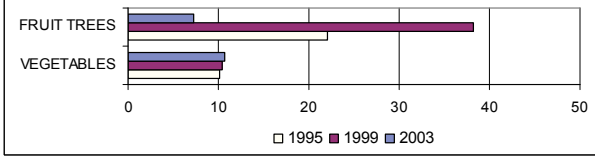


Figure 3.3.4: Dosage of PPP used by crop (kg AS/ha)



3.4 Germany

Germany has a total usable agricultural area (UAA) of around 17.000.000 hectares. The area covered by the survey represents approximately 70% of this UAA; the rest is covered mainly by permanent grassland. It should also be noted that 15% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.4.1 shows the trend and composition of PPP use in Germany from 1992 to 2003. Since the mid '90s there has been an almost constant increase in the volume of active substances used, except in 1999 when a sudden decrease was observed. In 2003, there was a significant fall.

During the whole period, the volumes of fungicides and herbicides used fluctuated in a very similar way. Since 1997, other PPP have been counted in the total volume of PPP used. Insecticides represent a negligible share of the total over the whole period. In 2003, fungicides accounted for 34% of the total PPP volume, herbicides for 54%, insecticides for 2%, and other PPP for 9%.

Cereals are by far the most PPP-consuming crops. In 2003 they accounted for 53% of the total volume of active substances used. Herbicides are the biggest category of products used on cereals. Isoproturon comes in first place as a selective herbicide and glyphosate in second place as a total weed killer. They are followed by MCPA and mecoprop-P. The growth regulator, chlormequat, is the second most important active substance used on cereals. Fungicides from the conazole chemical class are the most widely used to control cereal diseases.

All other arable crops have a similar share in the total volume of PPP used. However, their dosage levels vary widely.

Potato growing is the most intensive activity. It depends mainly on the use of fungicides, of which mancozeb is the most important, followed by metiram and propamocarb (for potato blight control) and by fluazinam (in seed treatment for the control of powdery scab). Prosulfocarb is the most important herbicide used on potatoes. Diquat is mainly used as a haulm destructor before mechanical harvest.

The second most intensive arable crop in terms of active substance dosages is sugar beet. Ethofumesate, phenmedipham, glyphosate and chloridazon are the main herbicides used on this crop. Fenpropidin is the chief fungicide used against foliar diseases.

On maize the main herbicides used are S-metholachlor, terbuthylazine and glyphosate. Thiram (F) and Methiocarb (I) are used as seed treatments to protect against fungal diseases and fruit flies, and as bird repellent.

Figure 3.4.1: Use and composition of PPP (in tonnes of AS)

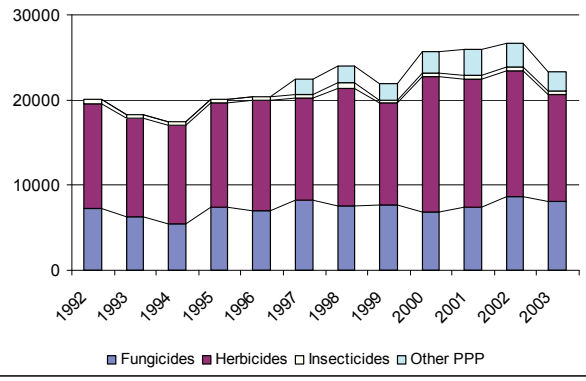


Figure 3.4.2: Quantity of PPP used by crop (in tonnes of AS)

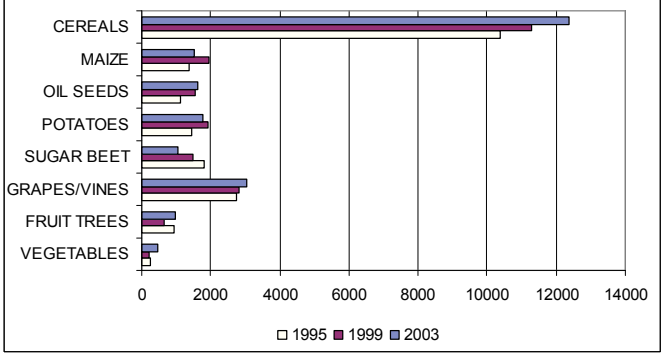


Figure 3.4.3: Dosage of PPP used by crop (kg AS/ha)

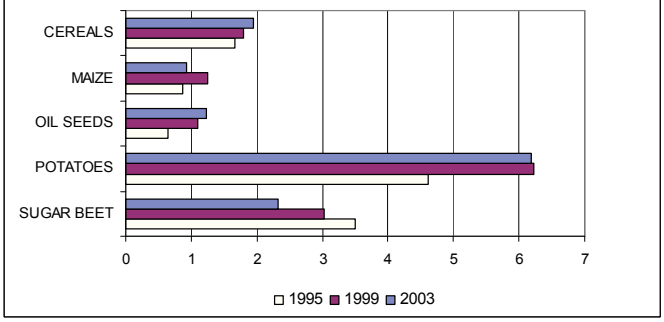
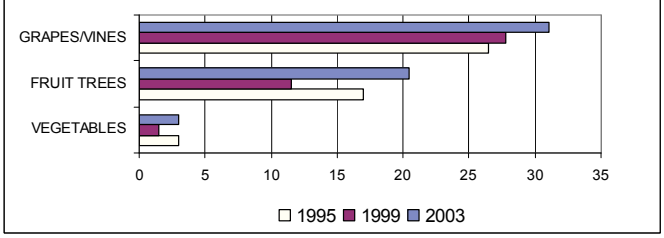


Figure 3.4.4: Dosage of PPP used by crop (kg AS/ha)



Oilseed crops are mainly treated with metazachlor, quinmerac and dimethachlor. The fungicide tebuconazole is used against leaf spot diseases.

Among the speciality crops, vineyards are the most dependent on PPP. Sulphur is the main fungicide used on vines, followed by metiram, folpet and tolylfluanid. Glyphosate is the main herbicide used.

On fruit trees, the main PPP used are sulphur, mancozeb, tolylfluanid and metiram as fungicides and glyphosate as a weed killer.

On vegetables, sulphur is once again the main fungicide used with mancozeb and metiram. Weeds are controlled mainly with pendimethalin and bentazone.

NOTE: The data provided by the European Crop Protection Association (ECPA) presented in this report for the different categories of products were compared by the German Authorities with the sales data available for Germany. The comparison of these two datasets indicated that although the trends are globally similar for the different categories of PPP, the ECPA values diverge in the medium-term picture and are generally below the sales figures. Depending on the year of reference, the ECPA figures represent from 72% to 103% of the sales for herbicides, from 71% to 90% for the fungicides and from 36 to 67% for the insecticides.

The biggest divergence in trends is observed for the herbicides between 2000 and 2003. During these three years the ECPA data exceeded the sold volumes. This situation could be explained by parallel imports of herbicides in Germany.

3.5 Estonia

Estonia has a total usable agricultural area (UAA) of around 850.000 hectares. The area covered by the survey represents nearly 80% of this UAA, the rest being covered by permanent grassland. It should also be noted that nearly 50% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.4.1 shows the trend in the use of PPP and their composition in Estonia from 1992 to 2003.

There is no specific reason for the steep rise in PPP consumption between 2000 and 2001. It could be due to methodological problems. Between 2001 and 2003 the volume of active substances used is fairly constant.

Herbicides are by far the most important category of products used in Estonia.

Cereals cover nearly 50% of the cultivated area and are the crops that require the biggest volume of PPP.

Herbicides are the most important PPP used on cereals, with a clear predominance of glyphosate, dicamba and 2,4-D. Very small quantities of propiconazole and fludioxonil are used as fungicides.

In terms of dosages, oilseed crops, potatoes and speciality crops require greater quantities of active substances per hectare. However, due to the limited importance of the area they cover, these crops come after cereals in terms of total volume of PPP used.

The herbicide, trifluralin, is the main product used on oilseed crops. Mancozeb is the only fungicide used in significant amounts to control potato late blight and top fruit diseases.

It should be noted that, in general, and in comparison to other EU countries, the dosages of PPP applied on the various crops in Estonia is very low.

Figure 3.5.1: Use and composition of PPP
(in tonnes of AS)

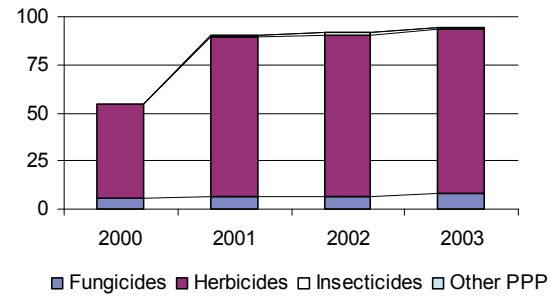


Figure 3.5.2: Quantity of PPP used by crop (in tonnes of AS)

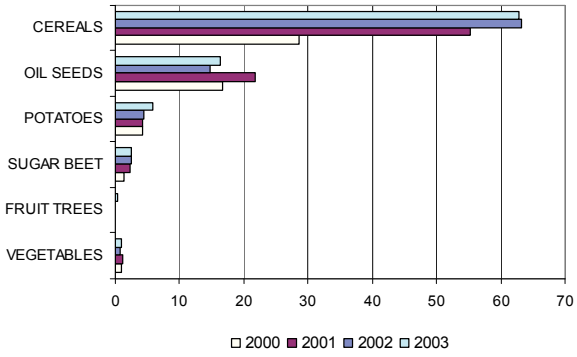
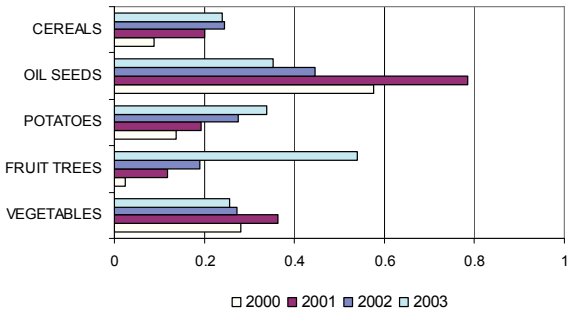


Figure 3.5.3: Dosage of PPP used by crop (kg AS/ha)



3.6 Greece

In 2003, the total usable agricultural area (UAA) of Greece was around 3.800.000 hectares. The area covered by the survey represents about 82% of this UAA, part of the rest being covered by permanent grassland. Olive trees, which covered 773.000 hectares in 2003, were not included in the survey. In addition, it should be noted that nearly 50% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.4.1 shows the trend and composition of PPP use in Greece from 1992 to 2003. During the '90s, a slow but steady increase in PPP consumption is observed which is mainly due to fungicides. Between 1999 and 2000 a 45% reduction in the quantity of fungicides is reported. A second decrease of the same order is observed between 2002 and 2003.

From the data available, this decrease can be almost entirely attributed to the drastic reduction in fungicide use on vineyards between 1999 and 2003 (Figure 3.6.2). This reduction is explained by the sudden change observed in the use of inorganic fungicides on vineyards: between 1999 and 2000, inorganic sulphur consumption fell from nearly 10.000 tonnes of active substance to 5.000 tonnes, and copper compounds from an average of 220 tonnes to less than 10 tonnes (a decrease of 95%). Between 2002 and 2003, sulphur consumption fell again to 2.200 tonnes.

Of all crops, vines are the most dependant on PPP use in Greece both in terms of absolute quantity and dosages. In 2003, sulphur remains in first position among all fungicides used on vines, followed by mancozeb and propineb. The most widely used herbicides are glyphosate, amitrol and various triazine herbicides.

Fruit trees are the second most intensive crop in terms of PPP dosage. Sulphur is also the most important fungicide on this crop, followed by dithiocarbamates and copper compounds. Organophosphorus insecticides such as fenthion, parathion-methyl and chlorpyrifos are also important. Glyphosate is the main herbicide used in orchards.

Vegetable cultivation depends mainly on the fungicides mancozeb, propineb, fosetyl and chlorothalonil and on the soil sterilant 1,3-dichloropropene. Various organophosphorus insecticides are also used on vegetables.

The total herbicides glyphosate and paraquat are important products for citrus production. The organophosphorus insecticides chlorpyriphos, parathion-methyl and methydathion are widely used in citrus broad spectrum insect/mite management. Copper compounds and dithiocarbamate fungicides are also used to control various fungal diseases.

Figure 3.6.1: Use and composition of PPP (in tonnes of AS)

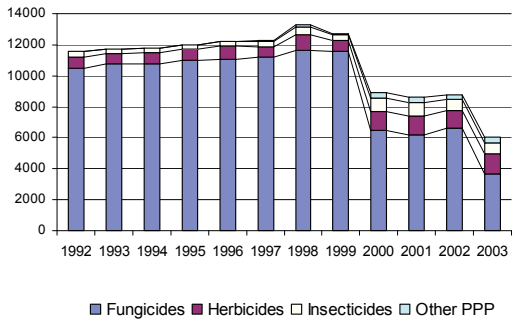


Figure 3.6.2: Quantity of PPP used by crop (in tonnes of AS)

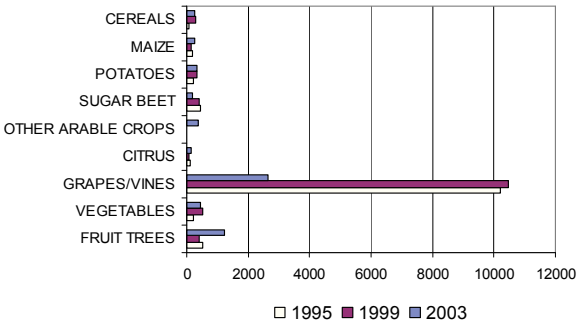


Figure 3.6.3: Dosage of PPP used by crop (kg AS/ha)

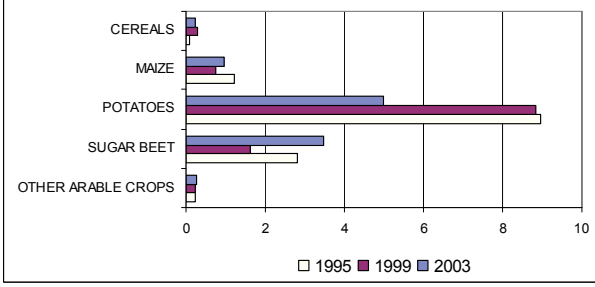
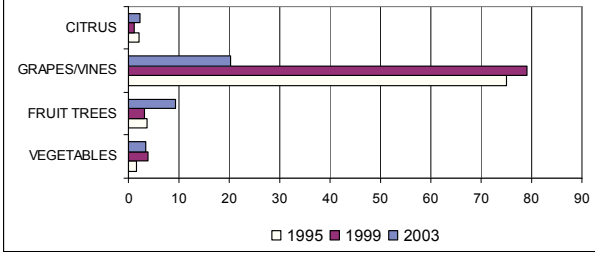


Figure 3.6.4: Dosage of PPP used by crop (kg active substance/ha)



Among arable crops, the most PPP-intensive is potatoes. In Greece, potatoes are grown in two seasons, both under irrigation. This, and the absence of long rotations, creates special disease and pest constraints. Over the last few years data have revealed widespread use of the soil sterilant 1,3-dichloropropene on potato crops. Dithiocarbamate fungicides like mancozeb and propineb are the main products used to control fungal diseases.

The organophosphorus insecticide, ethoprophos, and other carbamate insecticides are mainly used as nematicides with an effect on the control of aphids. Paraquat is mainly used as a haulm destructor before mechanical harvest.

Sugar beet production depends mainly on metolachlor and metamitron for weed control. The soil fumigant 1,3-dichloropropene is also used to prevent damage caused by nematodes and various soil insects. Sulphur and mancozeb are the most widely used fungicides.

Three herbicides are mainly used on maize: atrazine, azachlor and metolachlor. They are followed by sulcotrione and bromoxynil.

The herbicides that are mainly used on cereals are mecoprop, glyphosate, 2,4-D, imazamethabenz and tralkoxydim.

3.7 Spain

The cultivated area covered by the survey represents approximately 60% of Spain's total usable agricultural area (UAA), which is around 28.000.000 ha. Permanent grassland covers a large part of the remaining area. Olive trees, which covered nearly 2.500.000 hectares in 2003, were excluded from the survey. In addition, it should be noted that approximately 40% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.7.1 shows the trend and composition of PPP from 1992 to 2003. The big increase observed between 1996 and 1997 in the volume of other PPP used is most probably due to the change in methodology between the first and second surveys. The main changes observed over the last 10 years are the sudden decrease in PPP consumption in 2000, which was entirely due to the marked reduction in the volume of fungicides used. This decrease in fungicide use was followed by a steady increase between 2000 and 2003. During the same period, there was also a slight increase in the use of herbicides. As a result of these two trends, the overall volume of PPP used in 2003 is equal to the volume in 1999, but the relative proportions of fungicides and herbicides are markedly different. In 1999, fungicides and herbicides accounted for 60% and 17% respectively of the total volume of PPP used. The proportions in 2003 were 52% and 28% respectively.

The overall PPP consumption in Spain is mainly influenced by the importance of vineyards. Although there was a slight reduction of the volume of PPP used on vines in 2003, it was not as significant as in some other wine-producing countries. In Spain in 2003, sulphur was still the main fungicide used on vines, followed by dithiocarbamates (mainly mancozeb) and copper compounds. Folpet was also identified as an important fungicide active substance on grapes. The soil disinfectant 1,3-dichloropropene is also widely used, and glyphosate appears to be the main active substance for weed control.

Vegetables come in second place for total PPP consumption and in first place for PPP dosage. In 2003 these crops relied mainly on the use of 1,3-dichloropropene to disinfect the soil and on sulphur and mancozeb for protection against fungal diseases. Methomyl and organophosphorus insecticides are also widely used to prevent various forms of insect damage.

Glyphosate is also the main herbicide used in citrus production. Mancozeb and fosetyl are the main fungicides used on this crop. Organophosphorus (mainly chlorpyrifos) and organochlorinated insecticides (dicofol) are sprayed for broad spectrum insect/mite management.

Figure 3.7.1: Use and composition of PPP (in tonnes of AS)

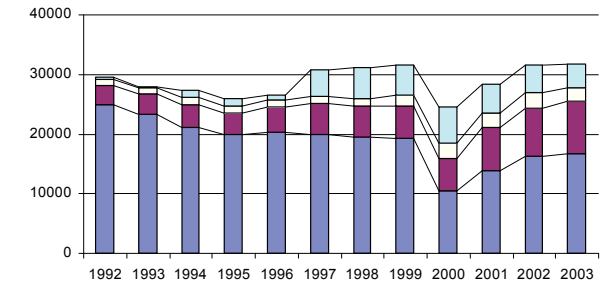


Figure 3.7.2: Quantity of PPP used by crop (in tonnes of AS)

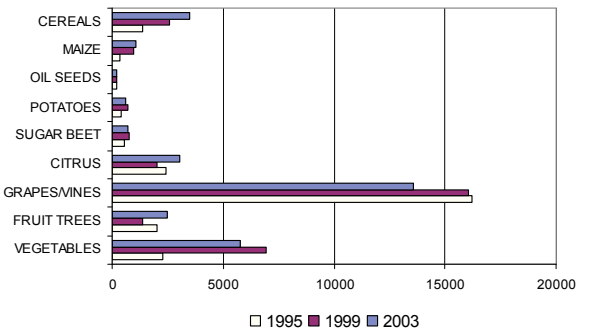


Figure 3.7.3: Dosage of PPP used by crop (kg AS/ha)

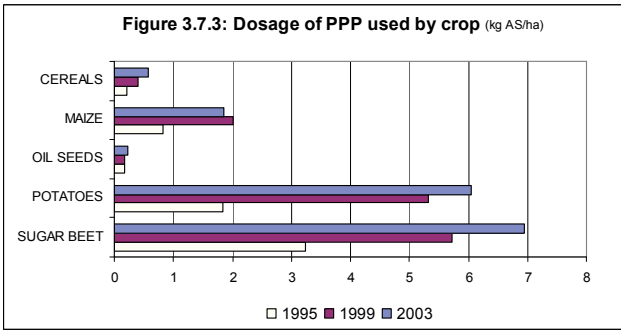
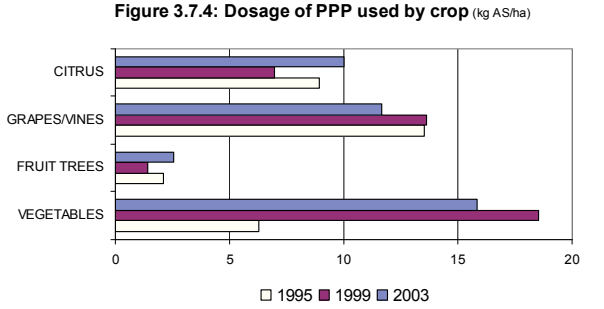


Figure 3.7.4: Dosage of PPP used by crop (kg AS/ha)



On fruit trees, the main fungicides used are copper compounds, sulphur and mancozeb. Glyphosate is the main herbicide used. Organophosphorus insecticides are also used to prevent insect damage.

Among arable crops, sugar beet is the most intensive user of PPP. Inorganic sulphur is the first active substance used on sugar beet to control powdery mildew. The main herbicides used are ethofumesate, phenmedipham, lenacil and desmedipham. Organophosphorus insecticides are used mainly to prevent root damage caused by soil insects.

On potatoes, the main fungicides used to control leaf diseases are mancozeb, fosetyl, cymoxanil and copper compounds. The soil disinfectant 1,3-dichloropropene is also widely used, as well as organophosphorus insecticides, mainly to prevent damage from soil nematodes and to help control aphids.

The main products used on maize are herbicides (chiefly alachlor, atrazine, acetochlor, metolachlor and glyphosate). Organophosphorus insecticides are also used for seed treatment.

On cereals, the main herbicides used are: glyphosate, 2,4D, isoproturon MCPA and mecoprop.

3.8 France

The cultivated area covered by the survey represents approximately 65% of France's total usable agricultural area, which is close to 30.000.000 ha. The remainder is essentially covered by permanent grassland. Olive trees, which covered nearly 17.000 hectares in 2003, were not included in the survey. In addition, it should be noted that approximately 30% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.8.1 shows that the volume of PPP active substances used in France was at its peak in 2000. Since then it has fallen continuously by a total of 30% up to 2003. The scale of the reductions was the same for both fungicides and herbicides, which are the two main categories of PPP used in France. A similar reduction, although less regular, is seen for insecticides and other PPP.

Vines represent the most intensive sector of PPP use in France. Between 1999 and 2003 the volume of PPP used on vineyards decreased by 30%, although the area under vines remained constant. This is clearly illustrated in figure 3.8.4 by the reduction of around 30% in PPP dosages between 1999 and 2003.

By far the most important active substance used on vines is inorganic sulphur. This fungicide is mainly used to protect vines against powdery mildew. Between 1999 and 2003 its use decreased by 30%; this factor alone explains most of the significant decrease in the overall volume of PPP observed during this period. The other most widely used fungicides on vines in 2003 are fosethyl, folpet, mancozeb and metiram. Glyphosate is the main herbicide used in vineyards.

Among speciality crops, fruit trees are the second most intensive crop in terms of PPP use, ahead of vegetables. Fruit trees are also heavily dependent on the use of sulphur as a fungicide. Between 1995 and 2003 the volume of sulphur used on fruit trees decreased by 50%. The other fungicides used on fruit trees in 2003 were mainly mancozeb, captan and iprodione. Petroleum oils are also widely used as a broad-spectrum insecticide in orchards.

On vegetables, the main active substances are the soil disinfectants 1,3-dichloropropene and dazomet. Mancozeb is the main fungicide used. Bentazone and pendimethalin are the two main herbicides.

Figure 3.8.1: Use and composition of PPP (in tonnes of AS)

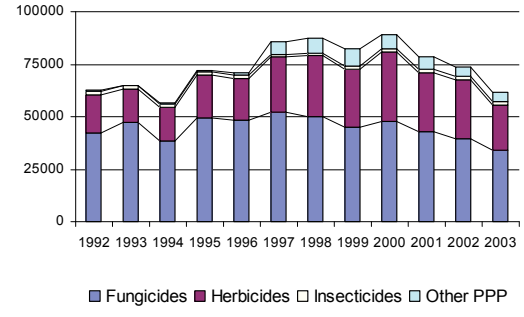


Figure 3.8.2: Quantity of PPP used by crop (in tonnes of AS)

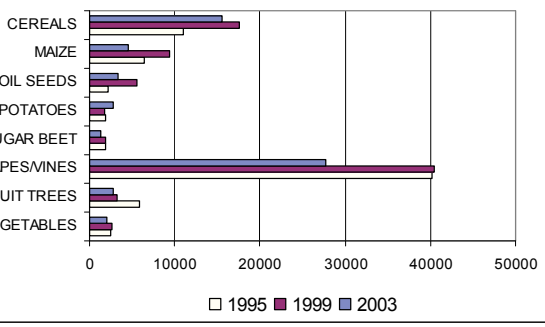


Figure 3.8.3: Dosage of PPP used by crop (kg AS/ha)

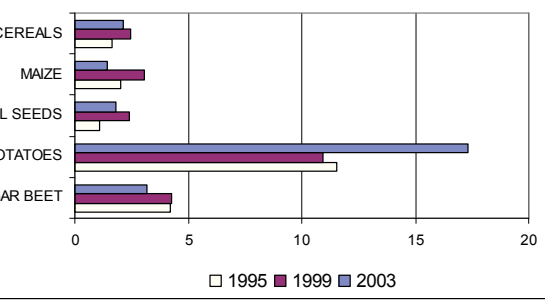
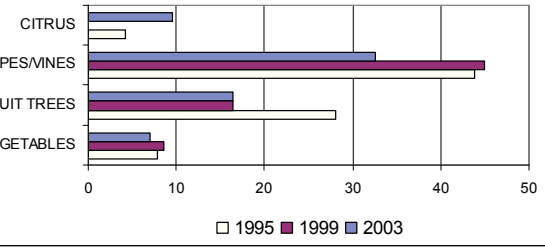


Figure 3.8.4: Dosage of PPP used by crop (kg AS/ha)



Due to the size of their area, cereals are the principal arable crops in terms of total volume of PPP used. They rely mainly on the use of the herbicides, isoproturon, glyphosate and MCPA, and of the growth regulators, chlormequat and choline chloride. Strobilurines are the fungicides most commonly used on cereals.

The second most important arable crop is maize. In 2003 the main herbicides used on maize were acetochlor, glyphosate, alachlor, S-metholachlor and sulcotrione. Carbamate insecticides are used as seed treatments.

The main active substances used on oilseed crops in 2003 were the herbicides trifluralin, metazachlor, aclonifen, napropamide and dimethachlor.

On sugar beets, ethofumesate, glyphosate, chloridazon and phenmedipham are the most widely used herbicides. Sulphur is widely used to control sugar-beet powdery mildew.

Of the arable crops, the potato is the most intensive in terms of PPP dosages. The fungicides mancozeb, folpet, fluazinam and dimethomorph are widely used to protect the crop against late blight and other fungal diseases. Prosulfocarb is the main herbicide used on this crop.

3.9 Ireland

The area covered by the survey represents only 27% of the 44.000.000 ha of Ireland's total usable agricultural area. The remaining 73 % are covered by permanent grassland. It should also be noted that, depending on the years, between 15 and 30% of the arable crops have been classified as 'other arable crops' to which no specific PPP use could be attributed.

The first consideration when looking at figure 3.9.1 is that, although important variations are observed, they concern very small volumes of PPP in comparison to other EU countries of comparable size. After the consumption of PPP peaked in 1997, the volume of active substances decreased until 1999, only to increase again by 140% between 1999 and 2000. This sudden rise is mainly due to the increase in the volumes of fungicides (+ 140%) and herbicides (+ 174%) used. Between 2000 and 2003 the overall volume of PPP used remained at a comparable level.

However, during this period fungicides increased by 14% in volume, while herbicides decreased by 15%, insecticides by 40% and other PPP by 50%.

Although they are the most cultivated crops in Ireland, oil seeds contribute very little to the overall PPP consumption. PPP dosages on these crops are insignificant.

The second most important crops in terms of area cultivated are cereals. They take first place for PPP use in Ireland. Between 1995 and 2003 the overall volume of PPP used on these crops increased by 185%, while the area cultivated rose by only 10%. The most widely used PPP in 2003 are the herbicides glyphosate, mecoprop-p and MCPA and the fungicides chlorothalonil and fenpropimorph.

The potato is the most intensive crop in terms of PPP dosage. It depends mainly on the use of the fungicide mancozed, which increased by 600% between 1992 and 2003. Dimethomorph is also used as a fungicide, and paraquat and diquat are used as a haulm destructor before mechanical harvesting.

Glyphosate, lenacil, clopyralid and chloridazon are the main herbicides used on sugar beet. Flusilazole is the chief fungicide used to control leaf diseases on this crop.

Among speciality crops, only vegetables account for a significant proportion of PPP consumption. Sulphur is the main fungicide used on these crops. Propachlor, trifluralin and metazachlor are the principal active substances used for weed management, and dimethoate is the main wide-spectrum insecticide used on this crop.

Figure 3.9.1: Use and composition of PPP (in tonnes of AS)

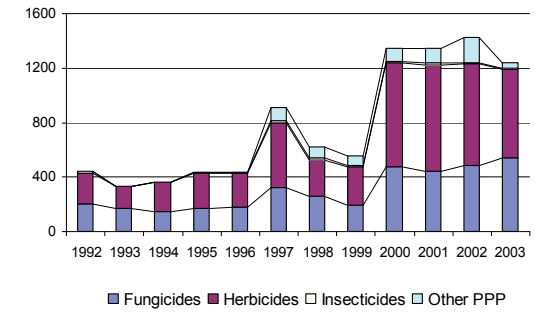


Figure 3.9.2: Quantity of PPP used by crop (in tonnes of AS)

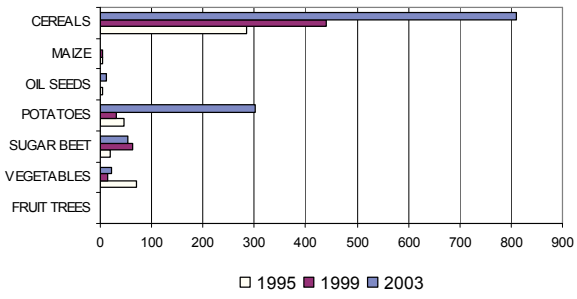


Figure 3.9.3: Dosage of PPP used by crop (kg AS/ha)

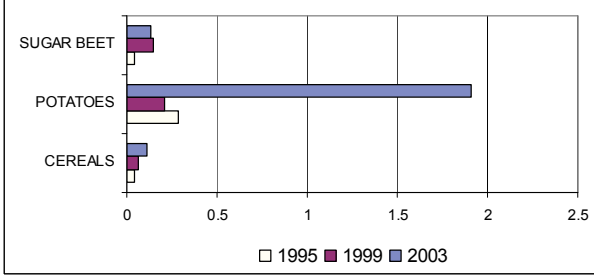
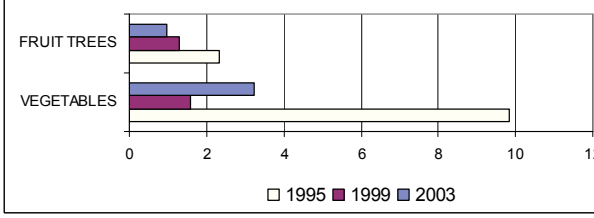


Figure 3.9.4: Dosage of PPP used by crop (kg AS/ha)



3.10 Italy

The area covered by the survey represents approximately 68% of the total usable agricultural area of Italy, which is close to 15.770.000 ha. The remaining area is mostly covered by permanent grassland. Olive trees, which covered more than 1.200.000 hectares in 2003, were also excluded from the survey. In addition, it should be noted that approximately 40% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

According to figure 3.10.1, overall PPP consumption reached its height in 1997 and then decreased every year until 2003. This decrease is due to fungicide use, which fell by 61% between 1997 and 2003. During this period, herbicides decreased by 10% and insecticides by 12%. At the same time the share of other PPP increased significantly.

Vines are the first crop in terms of overall PPP consumption and dosage in Italy. Although the area under vines decreased by only 7% between 1995 and 2003, the quantity of active substances used on this crop decreased by 60% during the same period. The most important active substance used on vines is sulphur. Its consumption was reduced by more than 70% between 1995 and 2003. Use of copper compounds also decreased by more than 50% over this period. At the same time the quantities of mancozeb used on vines more than doubled. Glyphosate is the active substance of choice for controlling weeds in vineyards.

Fruit trees come second in terms of total PPP use and dosage. Although sulphur is still the main active substance used on this crop, its use decreased by nearly 80% between 1995 and 2003. The other most commonly used fungicides are ziram, thiram and metiram. Petroleum oils are widely used as broad-spectrum insecticides in orchards.

Vegetables come in third position and the volume of PPP used on this crop rose significantly between 1995 and 2003. The main PPP used on vegetables are the soil disinfectant 1,3-dichloropropene, the fungicides sulphur and mancozeb, and the herbicides trifluralin and pendimethalin.

PPP consumption in citrus production is mainly based on petroleum oils and chlorpyrifos used as broad spectrum insecticides, glyphosate and paraquat used as weed killers and fosethyl as the main fungicide to control fungal diseases.

Of the arable crops, the potato is the most intensive in terms of dosages. Between 1995 and 2003, mancozeb partly replaced copper compounds for the control of late blight and other foliar diseases. Sulphur is also used in smaller quantities. The main herbicide used on potato crop is pendimethalin.

Figure 3.10.1: Use and composition of PPP (in tonnes of AS)

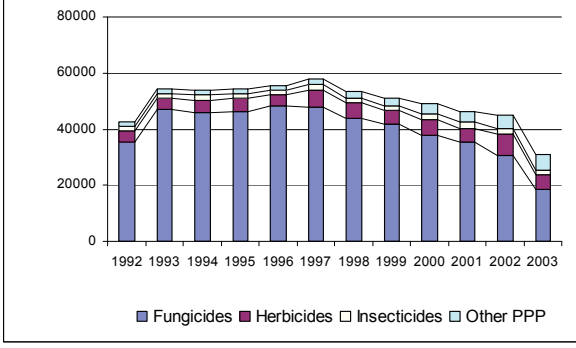


Figure 3.10.2: Quantity of PPP used by crop (in tonnes of AS)

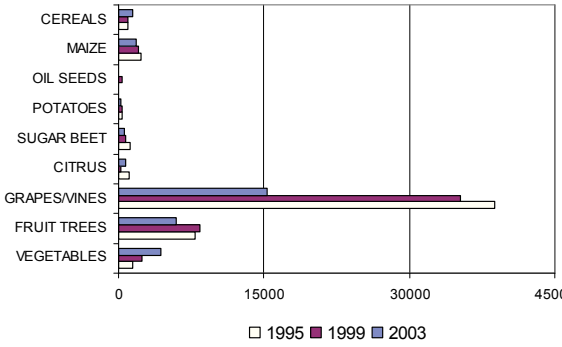


Figure 3.10.3: Dosage of PPP used by crop (kg AS/ha)

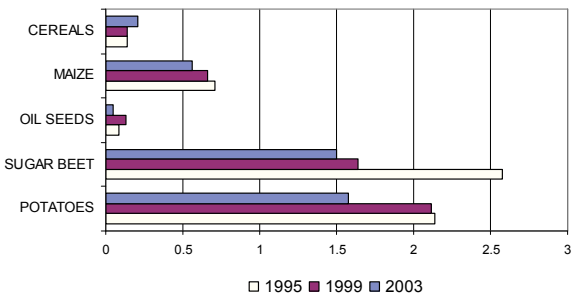
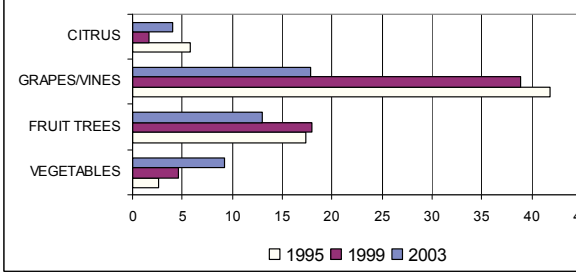


Figure 3.10.4: Dosage of PPP used by crop (kg AS/ha)



Sugar beet production depends mainly on the use of the following herbicides: glyphosate, chloridazon, ethofumesate, metamitron and phenmedipham.

The importance of cereals is mainly due to the size of the area cultivated, which makes up 30% of the total area covered by the survey. The main products used on this crop are the herbicides glyphosate, 2,4-D, MCPA and isoproturon. Prochloraz is the main fungicide used.

Maize production also mainly depends on the use of herbicides: terbuthylazine, S-metholachlor, alachlor, metolachlor and pendimethalin.

Oilseed crops are also mainly treated with herbicides: bentazone, pendimethalin, aclonifen, cycloxydim and oxyfluorfen.

3.11 Cyprus

According to the data available which, according to ECPA, are quite poor, the only crops having a significant impact on PPP use are speciality crops. They represent less than 25% of the total usable agricultural area of Cyprus, which is around 14.000 ha. Most of the arable crops are used as fodder and rely very little on PPP for their production. Olive trees, which covered more than 12.000 hectares in 2003, were not included in the survey.

As shown in figure 3.11.1, the total volume of PPP used in Cyprus varies from 66 to 81 tonnes of active substances. Insecticides and fungicides account for approximately 30 % each and herbicides and other PPP for less than 10 % each in the total volume of active substances.

Nematodes are a serious problem for most crops in Cyprus. The scarcity of irrigated land and the very short rotations very often oblige farmers to use nematicides in the event of serious nematode attack. Significant nematode damage occurs on citrus, potatoes, vegetables, bananas and vines.

Among speciality crops, vineyards come in first place for PPP consumption. Volumes of PPP used on this crop increased slightly between 2000 and 2003 and account for 60 % of the total volume of PPP used.

The main active substance used on vines is the organophosphorus insecticide, chlorpyrifos. It is used mainly to control nematodes, but also to prevent damage from the Mediterranean vine mealybug present in this area. The main fungicides used to control blight and other fungal diseases are mancozeb, dinocap and miclobutanil. Glyphosate is the most widely used herbicide.

Vegetables come in second place in terms of the volume of PPP used, but in first place for PPP dosage. Vegetables account for nearly 20% of the total volume of PPP used. The most important active substance on vegetables is the fungicide mancozeb, followed by the soil sterilant 1,3-dichloropropene used to control nematodes and soil insects, and the insecticide spinosad to prevent damage from a variety of insect pests, including caterpillars, leafminers, thrips and flies. Propyzamide is the main herbicide used on vegetable crops.

Citrus and fruit trees account for 12% and 2% respectively of the total PPP consumption. Citrus fruits are highly dependent on insecticides for their production. Chlorpyriphos is widely used to control soil nematodes and various insects, and fenazaquin is mainly used to prevent damage caused by the Citrus Red Mite.

Glyphosate is the herbicide most widely used on citrus and fruit trees.

Figure 3.11.1: Use and composition of PPP (in tonnes of AS)

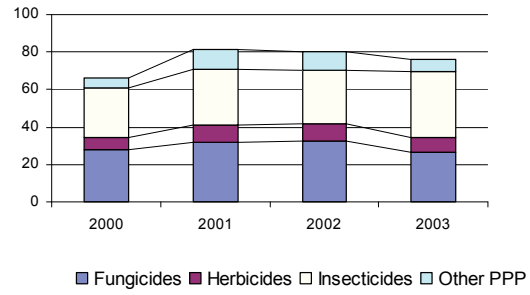


Figure 3.11.2: Quantity of PPP used by crop (in tonnes of AS)

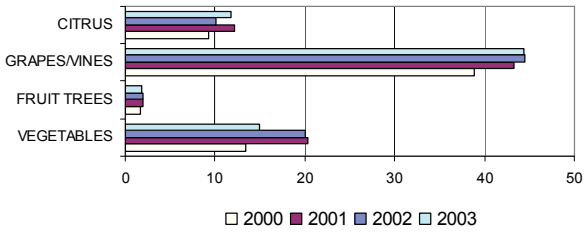
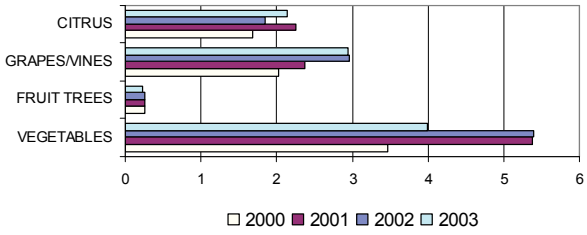


Figure 3.11.3: Dosage of PPP used by crop (kg AS/ha)



3.12 Latvia

The statistics available for Latvia show large variations in total usable agricultural area, with figures varying between around 1.600.000 and 2.500.000 ha. The area covered by the surveys varies between nearly 1.000.000 to 1.900.000 ha, representing from 62 to 76 % of the total UAA. The remainder is mainly covered by permanent grassland. The largest variations in the size of the area cultivated are observed not in the main crops covered by the survey, but for the other arable crops. Consequently, these variations have a very limited direct effect on the volumes of PPP used. It should also be noted that, depending on the years, between 45% and over 70% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.12.1 shows that the volumes of PPP used grew significantly between 2000 and 2003. These essentially consist of herbicides (85% of the total in 2003) and fungicides (14%). Insecticides and other PPP account for less than 1%.

The largest proportion of all PPP is used on cereals, which covered nearly half of the surveyed area in 2003. Although the area under cereals remained fairly constant between 2000 and 2003, the quantity of PPP used on this crop more than doubled. The main active substances used are the herbicides glyphosate, trifluralin, 2,4-D, linuron and dicamba. Conazole fungicides are also reported in the top-5 chemical classes used on this crop.

Potato is the second most important crop in terms of area cultivated and volume of PPP used. Mancozeb is by far the most widely used fungicide, followed by metalaxyl-M, cymoxanil and famoxadone. Diquat is the prime active substance used to destroy haulms before mechanical harvesting.

Oilseed crops and sugar beet account for quite limited cultivated areas. Herbicides are used principally on sugar beet, the main herbicides being glyphosate, haloxyfop and haloxyfop-p-butyl, clopyralid and trisulfuron. On oilseed crops, the main herbicides used are dimetachlor, clopyralid, haloxyfop and fluazifop-p-butyl. Thiamethoxam and various pyrethroid insecticides are used on oil seed crops to prevent insect damage.

The areas under vegetables and fruit trees are also very limited. The main active substances used on vegetables are the herbicides promethryn, clopyralid and fluazifop-p-butyl. The fungicide chlorothalonil and the insecticide diafenthiuron also appear among the top five active substances used on vegetables. Mancozeb, difenoconazole and cyprodinil are the main fungicides used on fruit trees, and thiamethoxam is reported as the main insecticide used on this crop.

Figure 3.12.1: Use and composition of PPP (in tonnes of AS)

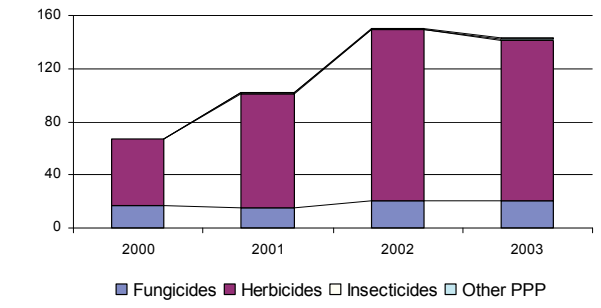


Figure 3.12.2: Quantity of PPP used by crop (in tonnes of AS)

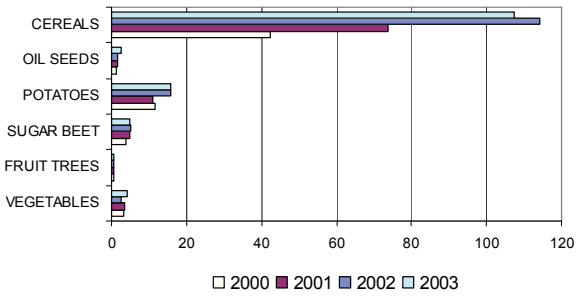
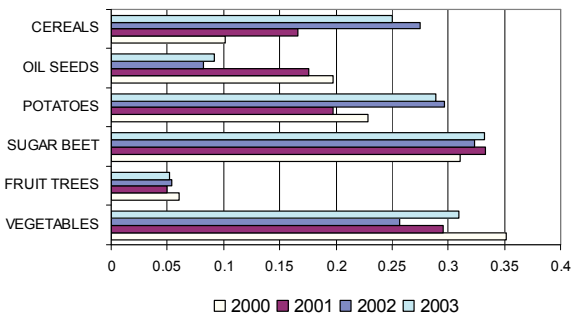


Figure 3.12.3: Dosage of PPP used by crop (kg AS/ha)



3.13 Lithuania

As with Latvia, the statistics available for Lithuania show large variations in the figures for the total usable agricultural area which vary between around 2.500.000 and 3.500.000 ha. The area covered by the surveys ranges from nearly 1.500.000 to 3.000.000 ha, representing from 60 to 86 % of the total UAA. The remainder is mainly covered by permanent grassland. The largest variations in the size of the area cultivated are observed not for the main crops covered by the survey, but for the other arable crops. Consequently, these variations have a very limited direct effect on the volumes of PPP used. It should also be noted that, depending on the year, between 30% and 60% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

The country profile, too, is very similar to that of Latvia. Figure 3.13.1 shows that the volumes of PPP used grew significantly between 2000 and 2003. They consist essentially of herbicides (85% of the total in 2003) and fungicides (14%). Insecticides represent 1% of the total.

The largest proportion of all PPP is used on cereals, which covered more than half of the surveyed area in 2003. Although the area under cereals remained fairly constant between 2000 and 2003, the quantity of PPP used on this crop more than tripled. The main active substances used are the herbicides glyphosate, 2,4-D and dicamba. Propiconazole and azoxystrobin are the two main fungicides reported on this crop.

The potato is the second most important crop in terms of area cultivated and volume of PPP used. Mancozeb is by far the most widely used fungicide, followed by cymoxanil, famoxadone and fluazinam.

Oilseed crops and sugar beet represent quite limited cultivated areas. Herbicides are the main substances used on sugar beet. These are mainly glyphosate, clopyralid, fluazifop-p-butyl, haloxyfop and trisulfuron. On oilseed crops, the main herbicides used are trifluralin, dimetachlor, clopyralid and fluazifop-p-butyl. Thiamethoxam is also used on oil seed crops to prevent insect damage.

Vegetables and fruit trees also occupy very limited areas. The main active substances used on vegetables are the herbicides promethryn and clopyralid. The fungicide penconazole and the wide spectrum insecticides, pirimiphos-methyl and thiamethoxam, also appear among the top five active substances used on vegetables.

Mancozeb, cyprodinil, difenoconazole and trifloxystrobine are the main fungicides used on fruit trees, and thiamethoxam is reported as the main insecticide used on this crop.

Figure 3.13.1: Use and composition of PPP (in tonnes of AS)

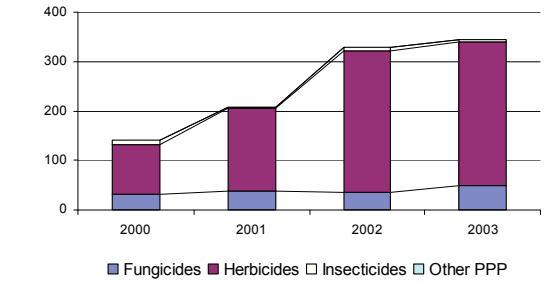


Figure 3.13.2: Quantity of PPP used by crop (in tonnes of AS)

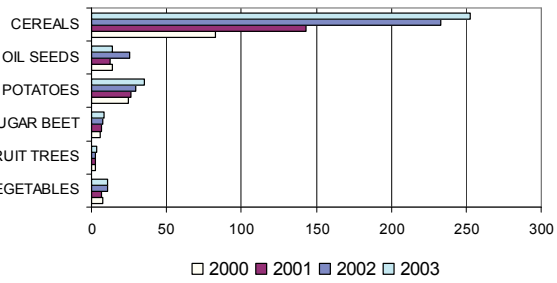
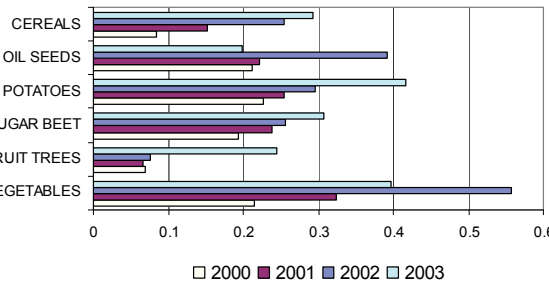


Figure 3.13.3: Dosage of PPP used by crop (kg AS/ha)



3.14 Hungary

The area covered by the survey represents approximately 82% of the total usable agricultural area of Hungary, which is around 6.000.000 ha. The remaining area is mostly covered by permanent grassland. It should also be noted that, depending on the year, between 20 and 30% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

According to figure 3.14.1, overall PPP consumption fluctuates between 4.400 and 5.000 tonnes of active substances. In 2003, herbicides accounted for 65% of the total volume of PPP used, fungicides for 29% and insecticides for about 5%.

Maize comes in first place for the volume of PPP used. This is due to the size of the crop, which occupies 27% of the area covered by the survey in 2003 and due to the PPP dosage, which is slightly higher than in cereals. Herbicides are virtually the only product used on maize, the top five being: acetochlor, atrazine, s-metholachlor, 2,4-D and bentazone.

Cereals come in first place in terms of the area cultivated and in second place for the quantity of PPP used. These are principally the herbicides 2,4-D, glyphosate, MCPA and dichlorprop-p. Sulphur is the main fungicide used on cereals.

Oilseeds are the third crop in terms of the area cultivated and volume of PPP used. The main products used on these crops are the herbicides dimethenamid, acetochlor, trifluralin, promethryn and s-metholachlor.

Among arable crops, PPP dosage is most intensive on sugar beet. The main PPPs are the herbicides chloridazon, s-metolachlor, glyphosate and dimethenamid. Terbufos is used as a soil insecticide, mainly to prevent damage from Sugar Beet Root Maggot.

The main active substances used as fungicides on potato crops are mancozeb and copper compounds. The principal herbicides are s-metolachlor and prometryn. Terbufos is also the main insecticide used on potato to prevent damage from soil insects and to control the spread of the Colorado Beetle.

Vines are the most intensive speciality crop for PPP use. Sulphur is by far the most important active substance used on this crop. It represents more than half of the total volume of PPP used on vines in 2003. Mancozeb, metiram and copper compounds are also used to control leaf and grape diseases. Glyphosate is the principal herbicide used in vineyards.

Figure 3.14.1: Use and composition of PPP (in tonnes of AS)

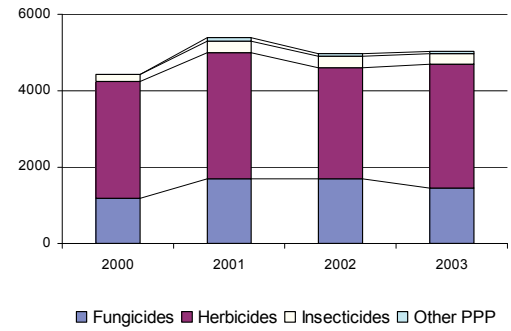


Figure 3.14.2: Quantity of PPP used by crop (in tonnes of AS)

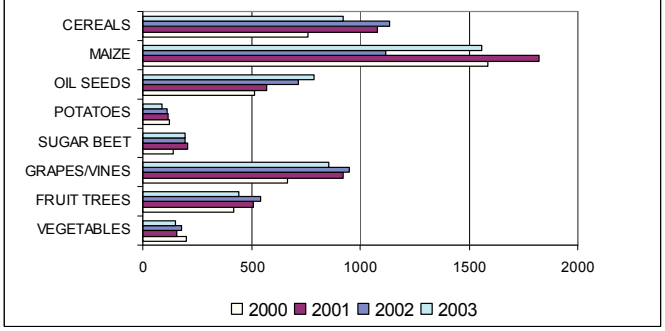


Figure 3.14.3: Dosage of PPP used by crop (kg AS/ha)

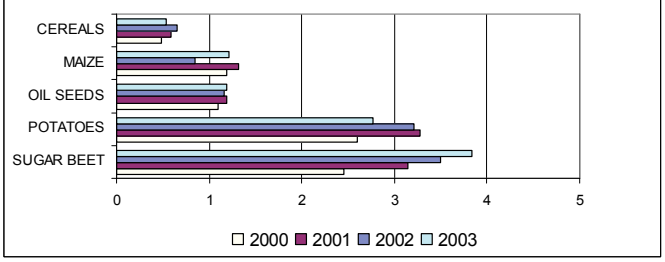
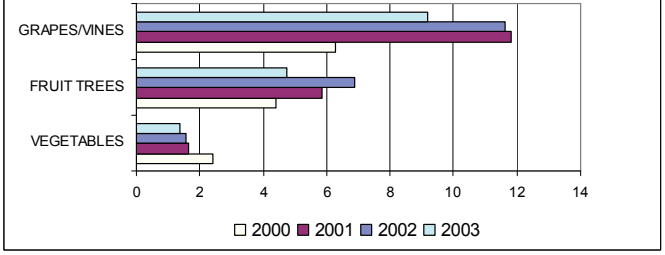


Figure 3.14.4: Dosage of PPP used by crop (kg AS/ha)



Sulphur is also the main fungicide used on fruit trees, together with mancozeb, which is used in comparable quantities. Glyphosate and triazine herbicides are the main active substances used for weed control in orchards. The wide spectrum insecticides dimethoate and methidation are the most widely used insecticides

For vegetables, the main herbicides are s-metholachlor and prometryn. Sulphur and mancozeb are the principal fungicides used and diazinon the main insecticide.

3.15 Malta

For Malta very few data are available on the area cultivated for the different crops. Moreover, the survey carried out by ECPA could only identify the use of glyphosate in Malta. As a consequence, figures 3.15.1 and 3.15.2 refer only to the use of this herbicide in Malta. They cannot be regarded as being representative of the overall consumption of PPP in this country.

Note: The Agriculture and Fisheries Statistics Unit of the National Statistical Office of Malta published a report on 'Plant protection products Usages on Crops in Malta 2005' available at the Data Shop of the NSO.
http://www.nso.gov.mt

Figure 3.15.1: Use and composition of PPP (in tonnes of AS)

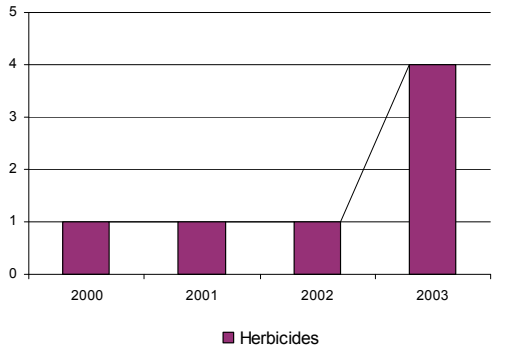
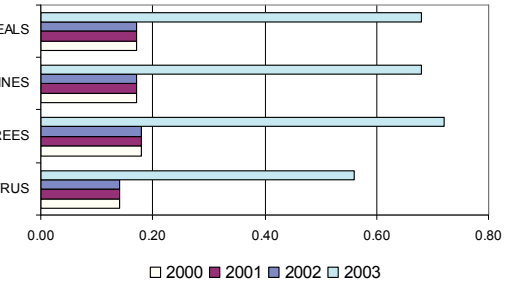


Figure 3.15.2: Quantity of PPP used by crop (in tonnes of AS)



3.16 Netherlands

The area covered by the survey is slightly over 1.000.000 ha, which represents on average 55% of the total usable agricultural area of the Netherlands. The part covered by permanent grassland has declined continuously from 1.000.000 ha in 1992 to less than 800.000 ha in 2003. It should also be noted that around 30% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.16.1 shows the trend and composition of PPP used between 1992 and 2003. After a constant increase in the total PPP consumption in the '90s, a relative stabilisation is observed after a sudden increase in 1997. According to similar data collected by the Dutch Authorities on actual use of PPP, the variations observed between 1999 and 2001 could be due to hoarding by farmers in advance of the withdrawal of authorisation for some important products. Actual use of PPP shows a more constant pattern over this period.

According to the data provided by ECPA, fungicides represent nearly 50% of the total of PPP used in 2003, herbicides 45%, insecticides 3% and other PPP 1.5%. According to the data collected by the Dutch authorities, ECPA data are believed to overestimate the importance of herbicides in the total volume of PPP used. The importance of other PPP observed between 1997 and 2002 is mainly associated with the use of soil sterilants on potato and sugar beet crops.

Among arable crops, the potato is the one that needs the most intensive protection in terms of plant health. The main products used on this crop are the fungicides mancozeb, metiram, fluazinam and chlorotalonil. Prosulfocarb is the main herbicide reported as being used on this crop. It is interesting to note that the peak observed in the use of PPP on potatoes in 2000 is mainly attributed to mancozeb consumption, which more than doubled. This is most probably an effect of hoarding in preparation for a temporary ban for this product.

In terms of size of the area cultivated, cereals come in second place for PPP use in the Netherlands. The main active substances used on cereals are the herbicides MCPA, glyphosate, isoproturon and mecoprop. The main fungicides used are fenpropimorph and various active substances from the conazoles group. The big increase in the volume of PPP used on cereals between 1999 and 2003 is mainly due to herbicides.

Herbicides are almost exclusively used on sugar beet crops. The main ones are metamitron, chloridazon, phenmedipham, ethofumesate and s-metolachlor.

Figure 3.16.1: Use and composition of PPP (in tonnes of AS)

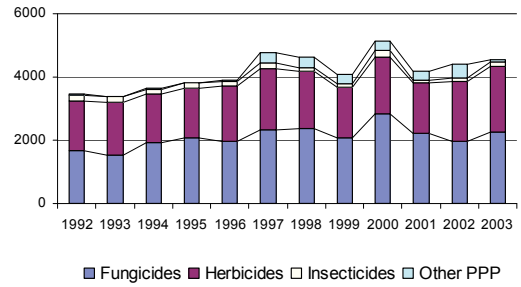


Figure 3.16.2: Volume of PPP used by crop (in tonnes of AS)

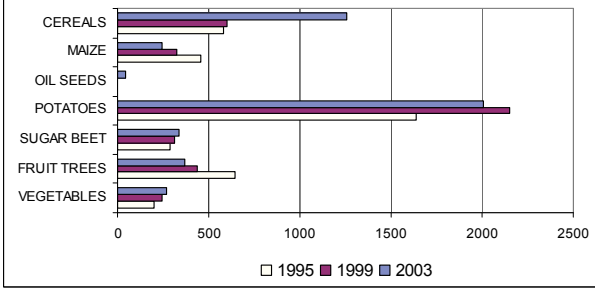
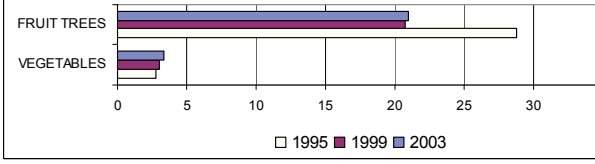


Figure 3.16.3: Dosage of PPP used by crop (kg AS/ha)

Figure 3.16.4: Dosage of PPP used by crop (kg AS/ha)



On maize, the main herbicides used are dimethenamid, chloridazon, therbuthylazine, sulcotrione and pyridate.

It should be noted that the use of chlormequat is reported for the first time on oilseed crops in 2003.

Production of top fruit in the Netherlands depends mainly on the use of the following fungicides: captan, sulphur, thiram and tolylfluanid. Amitrol is the main herbicide used in orchards.

Vegetable crops are also heavily dependent on the use of fungicides in particular. The main ones are chlorothalonil, iprodione, propamocarb and tolylfluanid. The main herbicide used is pendimethalin.

NOTE: The data provided by the European Crop Protection Association (ECPA) presented in this report were compared with the data collected by the Dutch Authorities on the use of PPP via specific surveys in almost sixty crops. It results from this comparison that the ECPA methodology tends to underestimate the volume of PPP used on the different crops and overall and this can be explained by the focussing of ECPA on major crops. This conclusion that ECPA underestimates is generally true for the total volume of PPP used as well as for the quantities of fungicides and insecticides used on all crops.

However, in 2000, the ECPA results exceed clearly the Dutch values for all categories of products and for the total. During this period important PPP like mancozeb were banned. The difference observed could thus be explained by hoarding up which appears to be addressed differently in both methodologies.

For the herbicides, the ECPA data almost always exceed the Dutch values and this is remarkable too. This overestimation is particularly evident when the use of herbicides on cereals is considered separately. These differences could at least partly be explained by the different methodologies used for the two surveys. Some herbicides used for the preparation of the land before sowing or after the harvest (MCPA, mecoprop-P) could have been taken into account in the ECPA survey but not or less in the survey on actual use carried out by the Dutch Authorities.

A more in depth analysis of the main active substances used on the different crops showed significant differences between the two approaches.

3.17 Austria

The area covered by the survey represents about 42% of the total usable agricultural area of Austria, which was close to 3.400.000 ha in 2003. The rest of the UAA is mainly covered by grassland (57% in 2003). It should also be noted that more than 20% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.17.1 shows a steady decline in the total volume of PPP used from 1992 until 2000. The sudden fall observed in 1996 is mainly due to the strong reduction in the use of herbicides. The year 2000 saw a steep decrease,, followed by a stabilisation until 2003. The decrease between 1999 and 2000 applied to both fungicides and herbicides.

The market for plant protection products in Austria is dominated by vineyards (36% in 2003) even though they represent only 3% of the total UAA. The total volume of PPP used on vineyards decreased by nearly 40%. Between 1995 and 2003, both the total volume of PPP and the PPP dosage for vineyards decreased significantly (by 40% and 32% respectively). This trend is mainly explained by a more than 50% reduction in the use of sulphur on this crop during this period. Nevertheless, sulphur remains the main fungicide used on vines, followed by folpet, chlorothalonil, dithianon and strobilurine fungicides. The most important herbicide in vineyards is glyphosate.

Among speciality crops, fruit trees also require quite intensive protection. However, owing to their limited size, they account for only a small part of the total volume of PPP used. The most important category of products used on fruit trees is fungicides, with mancozeb, sulphur, dithianon and pyrimethanil among the top five. Chlorpyrifos-methyl is the most widely used organophosphorus insecticide.

Vegetable crops are mainly treated with the soil disinfectant, dazomet. Mancozeb is the most widespread fungicide and bentazone, pendimethalin and MCPB are the main products used for weed control.

Because of their size (44% of the UAA), cereal crops are in pole position when it comes to the use of PPP. However, the volume of PPP used on this crop fell by 42% between 1995 and 2003. This is also due to the reduction in the use of both herbicides and fungicides. The main active substances used on cereals in 2003 were the herbicides mecoprop, 2,4-D, dichlorprop, isoproturon and MCPA. The fungicides used on this crop are mainly from the conazoles group.

Figure 3.17.1: Use and composition of PPP (in tonnes of AS)

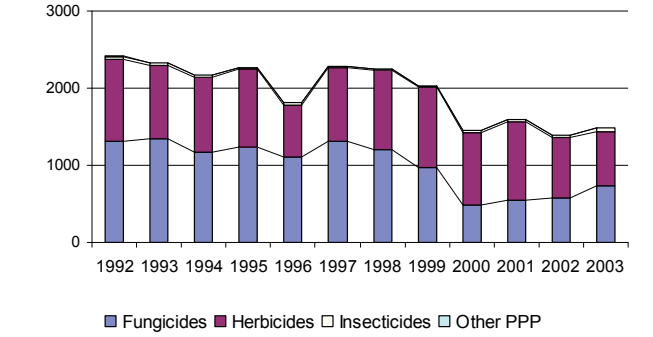


Figure 3.17.2: Volume of PPP used by crop (in tonnes of AS)

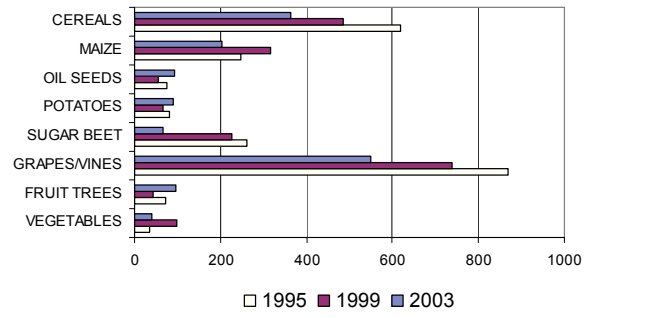


Figure 3.17.3: Dosage of PPP used by crop (kg AS/ha)

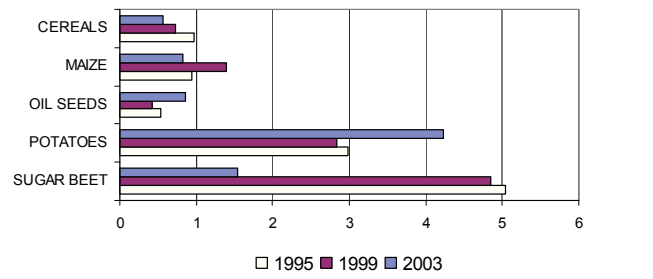
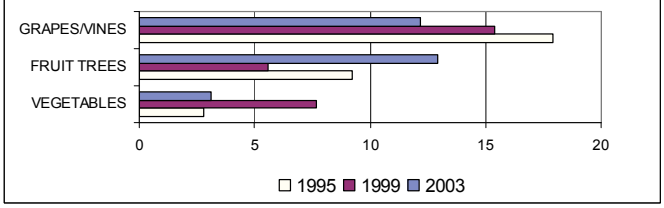


Figure 3.17.4: Dosage of PPP used by crop (kg AS/ha)



Maize is the second crop in Austria in terms of size. The main PPP used on this crop are herbicides - the top five being s-metholachlor, terbuthylazine, dimethenamid, pyridate and pendimethalin.

In volume terms, oilseed crops come third. They rely mainly on the use of the following herbicides: trifluralin, metazachlor, quinmerac, bentazone and pendimethalin.

In 2003, the potato was the arable crop with the most intensive PPP dosage. For potatoes, mancozeb is by far the most widely used fungicide, followed - a long way behind - by cymoxanil. Chlorpyrifos and, to a lesser extent, cypermethrin are also widely used as broad spectrum insecticides. Bentazone is the main herbicide used on this crop.

For sugar beet, the weed control programme is mainly based on the use of ethofumesate, phenmedipham, chloridazon and desmedipham. Inorganic sulphur is widely used to control sugar-beet powdery mildew.

3.18 Poland

The area covered by the survey represents on average 14.000.000 ha, which is about 80% of Poland's total usable agricultural area. The rest of the UAA is essentially covered by grassland. It should also be noted that around 20% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

The total volume of PPP used in Poland is dominated by herbicides (67%) and fungicides (25%).

With 60% of the total cultivated area, cereals are by far the principal crop in Poland. This explains their predominance in the total volume of PPP used (61%).

The most important substances that are used on this crop are the herbicides isoproturon, MCPA, glyphosate and 2,4-D and the growth regulator, chlormequat.

In terms of dosage, sugar beet is the most intensive crop in Poland. The weed control programme based on phenmedipham, ethofumesate, chloridazon, desmedipham and glyphosate is the most PPP-consuming.

Maize also depends heavily on the use of herbicides, mainly atrazine, glyphosate, acetochlor, s-metholachlor and pendimethalin.

On oilseed crops, trifluralin and metazachlor are the most widespread herbicides. The broad spectrum insecticide, chlorpyrifos, is also widely used and protection against fungal diseases is mainly based on carbendazim and tebuconazole.

On potato crops, blight and other leaf or tuber diseases are mainly prevented by using mancozeb, chlorothalonil, propamocarb and propineb. Linuron is the main herbicide used on this crop, followed by triazinone herbicides.

Fruit trees and vegetable crops together account for only 3% of the total UAA. However, because of the large quantity of PPP used per hectare, they make up a significant proportion of the total volume of PPP used in Poland. On fruit trees the main PPP used are the fungicides mancozeb, tolylfluanid, thiram, dithianon and dodine.

The PPP market for vegetable crops is also largely dominated by the fungicide mancozeb. The wide spectrum organophosphorus insecticides, chlorpyrifos, dimethoate and diazinon, are used to prevent different types of insect damage. Weed control is mainly based on propachlor, linuron and pendimethalin.

Figure 3.18.1: Use and composition of PPP (in tonnes of AS)

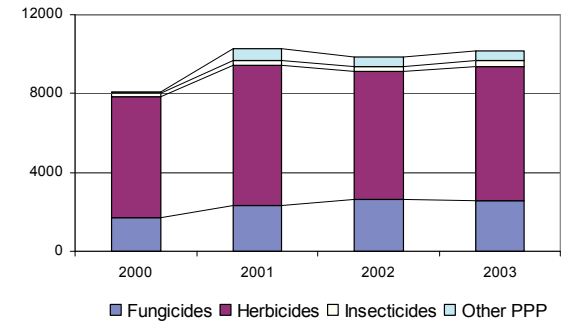


Figure 3.18.2: Volume of PPP used by crop (in tonnes of AS)

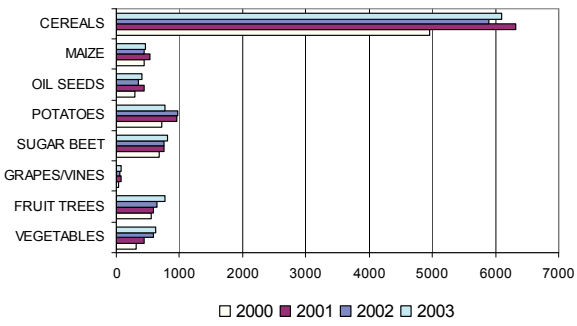
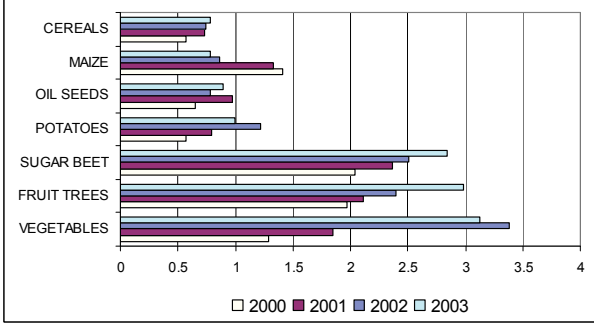


Figure 3.18.3: Dosage of PPP used by crop (kg AS/ha)



3.19 Portugal

The area covered by the survey decreased from 69% of the total usable agricultural area of Portugal in 1992 to a little over 50% in 2003. The total UAA of Portugal is fairly constant at around 4.000.000 ha. The rest of the UAA is covered by grassland which increased from 21% to 40% of the total UAA between 1992 and 2003. Olive trees, which covered 375.000 hectares in 2003, were not included in the survey. In addition, it should be noted that nearly 60% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.18.1 shows that the total volume of PPP used in Portugal more than doubled between 1992 and 2003 with a temporary decrease between 1997 and 2000. The market for PPP is largely dominated by fungicides, and the variations in the total volumes of PPP used are mainly influenced by the fluctuations in fungicides. However, the variations in the volumes of herbicides used follow essentially the same trends as the fungicides.

Vines cover more than 11% of the cultivated area and, in terms of size, are the third individual crop in Portugal. Owing to the very high quantity of PPP used per hectare, this crop is by far the most PPP dependent. In 2003, 84% of all PPP were used on vineyards. Sulphur is by far the most important active substance used on vines. The variations in the quantities of sulphur used have a strong influence on the total amount of PPP used. Between 1992 and 2003 the volume of sulphur used increased by more than 150%. The other main fungicides used are propineb, mancozeb and fosetyl. Weed control in the vineyards is mainly based on glyphosate.

Among the speciality crops, vegetables are the second most intensive in terms of PPP dosage. Sulphur is also the main fungicide used, followed by mancozeb, propineb and metiram. The soil sterilant 1,3-dichloropropene is widely used to disinfect the plots used for vegetable crops.

The main products used on top fruit and citrus trees are petroleum oils as a wide-spectrum insecticide and disinfectant. Copper compounds are the main fungicide used, followed by mancozeb and thiram on top fruit and fosethyl on citrus. Weed control in orchards depends mainly on glyphosate. Paraquat is also used as a total weed killer in citrus plantations.

Cereals rely mainly on the use of the herbicides isoproturon glyphosate, propanil, monilate and MCPA.

The main herbicides used on maize crops are atrazine, alachlor, s-metholachlor, EPTC and bentazone.

Figure 3.19.1: Use and composition of PPP (in tonnes of AS)

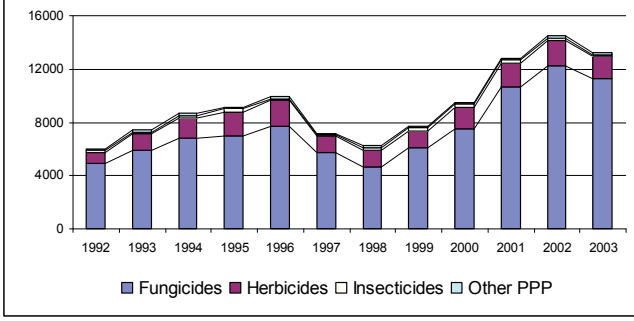


Figure 3.19.2: Quantity of PPP used by crop (tonnes of AS)

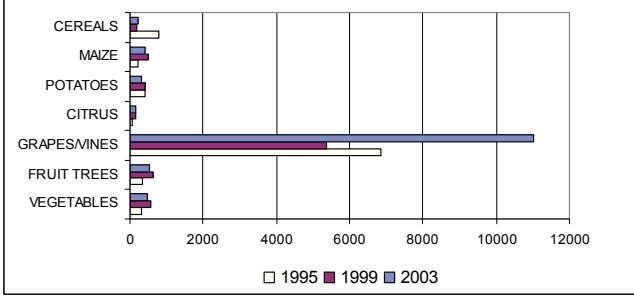


Figure 3.19.3: Dosage of PPP used by crop (kg AS/ha)

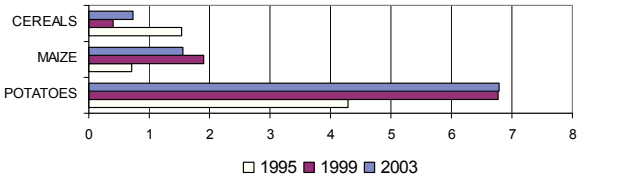
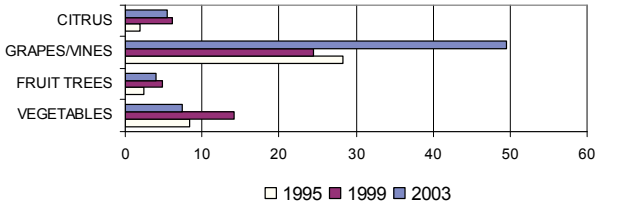


Figure 3.19.4: Dosage of PPP used by crop (kg AS/ha)



The most important active substance on sugar beet is the fungicide, dinocap, followed by sulphur and fenpropidin. Weed control is mainly based on ethofumesate, fenpropidin and phenmedipham.

The control of leaf and tuber diseases on potato crops is based mainly on the use of mancozeb, propineb and cymoxanil. Wide spectrum organophosphorus insecticides are used to control soil nematodes and various insects, and in 2003 the use of 1,3-dichloropropene was reported as a soil sterilant to disinfect the plots. EPTC is the main herbicide used on potatoes.

3.20 Slovenia

The area covered by the survey represents about 40% of the total usable agricultural area of 510.000.000 ha. The remaining 60% are mainly covered by permanent grassland. It should also be noted that, depending on the year, between 10 and 30% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.20.1 shows that the PPP market in Slovenia is dominated by herbicides and fungicides in comparable proportions. In 2003 the share of herbicides fell slightly to 36% of the total volume of PPP against 58% for fungicides and 2.5% for insecticides.

Although vineyards cover only 8.5% of the total cultivated area, they use more than half of the total quantity of PPP. This is due to the high dosages applied on this crop. By far the majority of PPP used are fungicides to protect the vines against blight and other fungal diseases. Mancozeb and sulphur dominate this market in comparable proportions, followed by fosetyl, folpet and dinocap. Wide spectrum organosphorus insecticides are used to prevent insect damage.

The second most intensive crop in terms of PPP dosage is top fruit production, which covers only 2.2% of the total cultivated area. The first active substance used on orchards is the wide spectrum insecticide diazinon. It is followed by the herbicides glyphosate and terbuthylazine. Sulphur and cyprodinil are the most widespread fungicides in Slovenia.

The protection of vegetable crops depends mainly on the fungicides mancozeb, propamocarb and sulphur and the wide spectrum insecticide, diazinon. Prometryn is the main herbicide for weed control.

Maize covers nearly 40% of the total cultivated area. It is also the most intensive arable crop in terms of PPP dosage. This explains why 22% of the total quantity of PPP is used on maize. Almost all of the active substances used on maize are herbicides, the top five being s-metholochlor, terbuthylazine, dicamba, isoxaflutole and mesotrione.

Cereals cover 28% of the area of the survey and account for 9.5% of the total volume of PPP used in Slovenia. The main substances used on this crop are the herbicides chlortoluron, isoproturon and glyphosate and the fungicides fenpropidin and propiconazole.

The main active substances used on potatoes are the fungicides mancozeb and propamocarb, the wide spectrum insecticide chlorpyrifos and the herbicide prometryn. Diquat is the main substance used to destroy the haulms before mechanical harvesting.

Figure 3.20.1: Use and composition of PPP (in tonnes of AS)

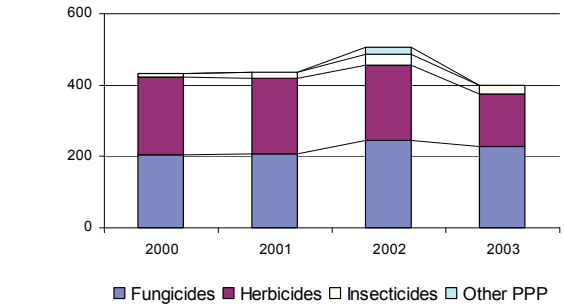


Figure 3.20.2: Volume of PPP used by crop (in tonnes of AS)

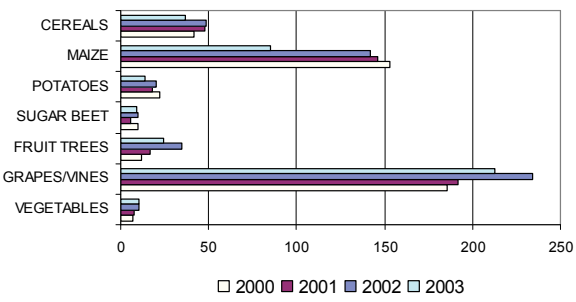


Figure 3.20.3: Dosage of PPP used by crop (kg AS/ha)

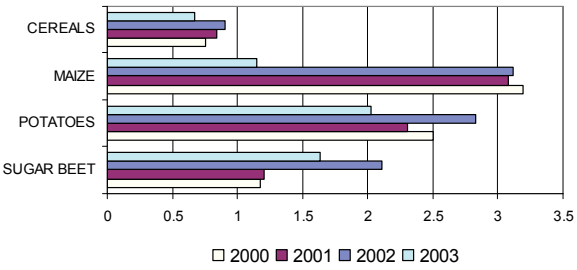
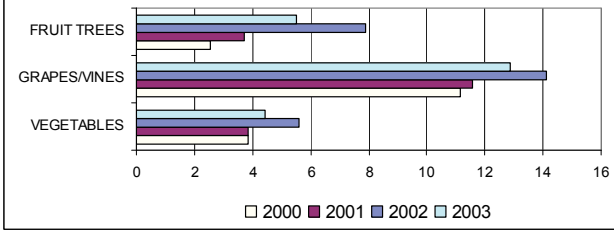


Figure 3.20.4: Dosage of PPP used by crop (kg AS/ha)



Weed control is the main problem on sugar beet. The main herbicides used are s-metholachlor, ethofumesate, desmedipham, clopyralid and fluazifop-p-butyl.

3.21 Slovakia

The area covered by the survey represents slightly over 60% of the total usable agricultural area of 2.250.000 ha. Most of the remaining 40% is covered by permanent grassland. It should also be noted that around 15% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.21.1 shows that the PPP market in Slovakia is largely dominated by herbicides, which represented 72% of the total volume of PPP in 2003. The proportion of fungicides in 2003 was 23%, with insecticides accounting for only 4.5%.

Cereals and maize take pride of place for PPP use. They are also the most important crops in terms of area cultivated, with 45% of the UAA being covered with cereals and 17% with maize.

Herbicides are the main products used on cereals, with MCPA, 2,4-D and glyphosate listed among the top-5 active substances. Carbendazim and propiconazole are the main fungicide active substances used on cereal crops.

On maize, herbicides take the lead, with acetochlor, atrazine, s-metolachlor, 2,4-D and glyphosate as the main active substances used.

Herbicides are also the most important active substances used on oilseed crops. Prometryn, trifluralin, metazachlor and acetochlor are the main active substances used. The organophosphorus insecticide, chlorpyrifos, is widely spread to prevent insect damage to these crops.

Of the arable crops, sugar beet and potato are the most intensive in terms of quantity of PPP used per hectare. Weed control in sugar beet crops is mainly based on the use of chloridazon, phenmedipham, ethofumesate and desmedipham. The organophosphorus insecticide, chlorpyrifos, is mainly used to prevent damage from soil insects.

Potato blight control is mainly based on the use of mancozeb, chlorothalonil and propamocarb. Weed control depends to a large extent on the use of metribuzin and terbutryn.

Although they do not appear in top position for the total quantity of PPP used owing to their limited size, grapes and fruit trees are the most intensive crops in terms of dosages.

In vineyards, fungicides are the most widespread products, with sulphur accounting for 60% of the total PPP quantity, followed by metiram, mancozeb and folpet. Weed control is mainly based on the use of glyphosate.

Figure 3.21.1: Use and composition of PPP (in tonnes of AS)

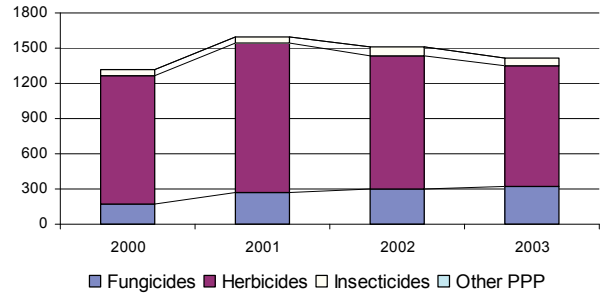


Figure 3.21.2: Quantity of PPP used by crop (in tonnes of AS)

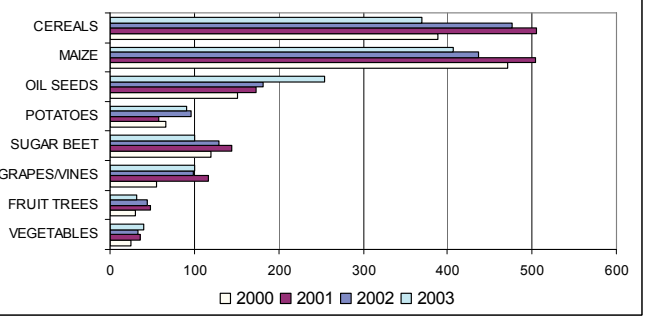
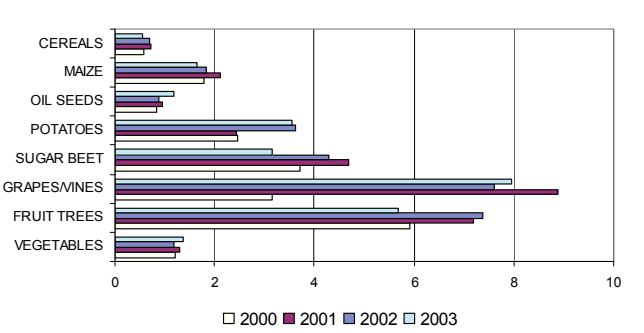


Figure 3.21.3: Dosage of PPP used by crop (kg AS/ha)



Sulphur is also the most important single active substance used on fruit trees (one third of the total PPP quantity), followed by the fungicides, mancozeb and metiram. Glyphosate is the main herbicide used in orchards, and insect control is mainly based on the broad-spectrum organophosphorus insecticide, chlorpyrifos-methyl.

The organophosphorus insecticide, diazinon, is the product primarily used to prevent insect damage on vegetable crops. Mancozeb and copper compounds are the main fungicides used on these crops. Prometryn and pendimethalin are the main herbicide active substances.

3.22 Finland

The area covered by the survey represents 99% of the total usable agricultural area of 2.200.000 ha. However, it should be noted that 40% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

From Figure 3.22.1 it can be seen that the PPP market in Finland is largely dominated by herbicides, which represented 77% of the total quantity of PPP used in 2003 against 17% for fungicides and less than 2% for insecticides.

The volume of PPP used in Finland increased almost continuously between 1992 and 2002. This increase is mainly due to herbicides, which more than doubled in volume between 1996 and 2002. However, the largest proportional increases were those observed for insecticides and fungicides, which increased by more than 600 and 500% respectively. The category of 'other PPP' has only been reported since 1997 and it has remained fairly constant since then.

As shown in figure 3.22.1, cereals come in first place in terms of the volume of PPP used. This is due to their size, as they occupy 54% of the total UAA in 2003. Herbicides are the most widespread PPP on cereals, with glyphosate, MCPA and dichlorprop-p being the main single active substances used. Chlormequat is also widely used as a growth regulator, and fungal diseases are mainly controlled with prochloraz and various conazole fungicides.

Potatoes were the most intensive arable crop in terms of dosage in 2003. However, it should be noted that the volume of PPP used on this crop varies widely from year to year according to the weather. In 2003, the main single active substances used were the fungicides mancozeb, fluazinam and propamocarb, the herbicide linuron and diquat as a haulm destructor.

Most of the PPP used on sugar beet are associated with the weed control programme. These are the herbicides phenmedipham, ethofumesate, desmediphame, clopyralid and fluazifop-p-butyl. Nitroguanidine insecticides are also used as seed treatment to prevent insect damage.

The main active substances used on oilseed crops are the herbicides trifluralin, metazachlor, clopyralid and fluazifop-p-butyl, and the insecticide thiamethoxam.

Concerning speciality crops, the main active substances used in orchards are the fungicides tolylfluanid, fenhexamid and dithianon, the insecticide methiocarb and the herbicide glufosinate.

On vegetable crops, aclonifen, bentazone, linuron and trifluralin are the main herbicides, and methiocarb the main insecticide used.

Figure 3.22.1: Use and composition of PPP (in tonnes of AS)

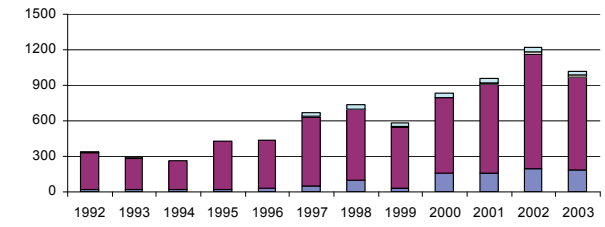


Figure 3.22.2: Volume of PPP used by crop (in tonnes of AS)

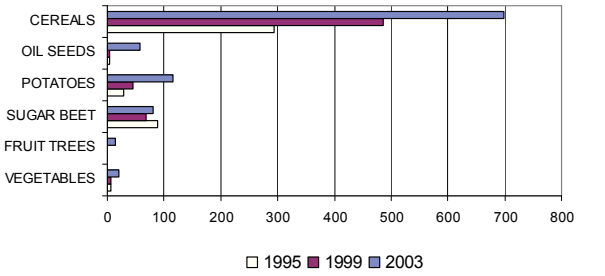


Figure 3.22.3: Dosage of PPP used by crop (kg AS/ha)

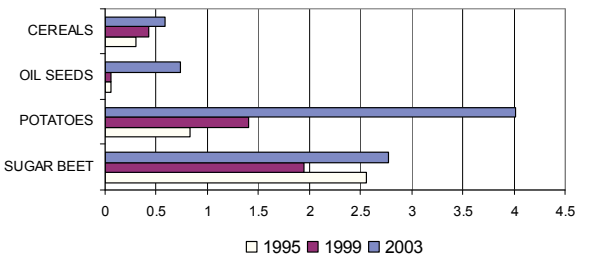
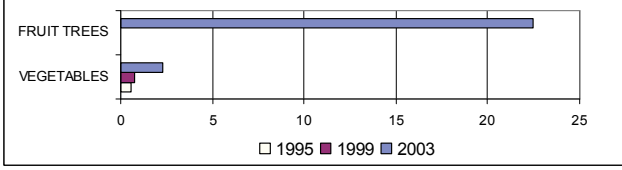


Figure 3.22.4: Dosage of PPP used by crop (kg AS/ha)



3.23 Sweden

The area covered by the survey represents approximately 85% of the total usable agricultural area of 3.130.000 ha. The rest is mainly covered by permanent grassland. It should also be noted that 50% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.23.1 shows a constant increase in the total quantity of PPP used in Sweden since 1992. In 2000 the volume of PPP used rose by 75%. This increase is mainly due to the quantity of herbicides, which doubled between 1999 and 2000. In 2003, herbicides represented 85% of the total quantity of PPP used. The volume of fungicides used has also grown steadily since 1992. In 2003 fungicides accounted for 12% of the total volume of PPP. Insecticides and other PPP are used in quite variable quantities; in 2003 they represented less than 4% of the total PPP volume.

Cereals cover more than 40% of the total UAA, which is why they appear in first position for PPP use. Figure 3.23.2 shows a huge increase in the quantity of PPP used on these crops between 1995 and 2003. This increase is mainly related to the use of the herbicides glyphosate, MCPA, isoproturon, dichlorprop-p and mecoprop-p. Fungicides of the strobilurine group are the most widely used in preventing fungal diseases on cereals.

Among arable crops, the potato is the most intensive in terms of PPP dosages. A huge increase in the quantity of PPP used on this crop was also observed between 1995 and 1999. The main active substances used on potato crops in 2003 were the fungicides fluazinam, mancozeb, propamocarb and metalaxyl-m and the haulm destructor, diquat, which is used to facilitate the mechanical harvesting of potatoes.

Most of the PPP used on sugar beet crops are herbicides. These are mainly phenmedipham, glyphosate, chloridazon and cycloxydim. Petroleum oils are used as adjuvants in herbicide treatments.

Herbicides are also the main active substances used on oilseed crops, with metazachlor, clopyralid and propyzamide coming in the top five active substances. The insecticides beta-cyfluthrin and imidacloprid are sprayed or incorporated in the seed treatment to prevent insect damage.

Amongst speciality crops, fruit trees are the most intensive in terms of dosage of PPP. Between 1995 and 2003 a huge increase in the quantity of PPP applied per hectare was observed. In 2003 the main active substances were the fungicides tolylfluanid, sulphur, iprodione, fenhexamid and dithianon.

Figure 3.23.1: Use and composition of PPP (in tonnes of AS)

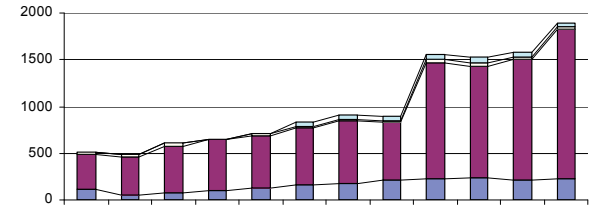


Figure 3.23.2: Volume of PPP used by crop (in tonnes of AS)

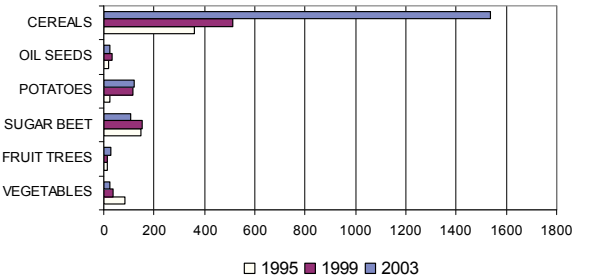


Figure 3.23.3: Dosage of PPP used by crop (kg AS/ha)

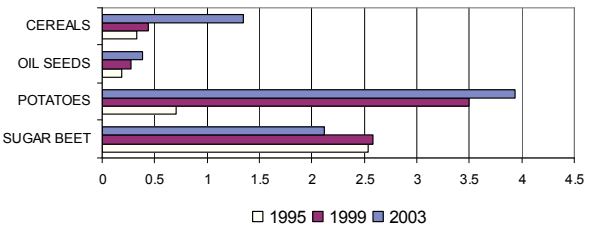
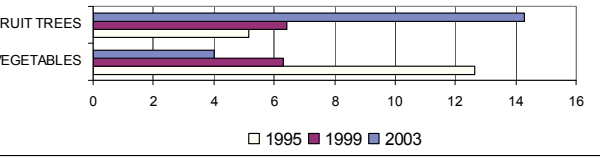


Figure 3.23.4: Dosage of PPP used by crop (kg AS/ha)



On vegetable crops, the main active substances used are the herbicides bentazone, pendimethalin and clopyralid, the fungicide fosetyl and the broad spectrum insecticide, dimethoate.

3.24 United Kingdom

The area covered by the survey represents only around 30% of the total 16.000.000 ha of usable agricultural area. The rest is mainly covered by permanent grassland. It should also be noted that 30% of the arable crops were classified as 'other arable crops' to which no specific PPP use could be attributed.

Figure 3.24.1 shows a constant increase in the total quantity of PPP used in the UK from 1992 to 2002, followed by a relative decrease in 2003. The shift observed between 1999 and 2003 could be partly due to the change in the survey methodology, and in particular to the list of active substances reported for each crop. In 2003, herbicides represented 61% of the total volume of PPP. The constant increase observed in the volume of herbicides used has strongly influenced the trend in total PPP volume. In 2003, fungicides represented 25% of the total. Since 1992, the volume of fungicides used has remained fairly constant, as has the volume of insecticides used. In 2003, insecticides accounted for 2.3% of the total. Since it has been reported in 1997, the volume of other PPP has been fairly constant.

Cereals cover 55% of the total UAA and are consequently the most important crops for PPP use. Between 1992 and 2003, a significant increase was observed in the quantity of PPP used on these crops. This was mainly driven by the increase in the use of the herbicides isoproturon, glyphosate, pendimethalin and trifluralin. Chlormequat is also in widespread use as a growth regulator.

In terms of PPP dosage, the potato is the most intensive crop in the UK. Between 1995 and 2003, there was a huge increase in the quantity of PPP used on this crop. Of the 16 kg of active substances used per hectare, the most important are the fungicides mancozeb, cymoxanil and fluazinam - which are mainly used to control potato blight, the soil disinfectant 1,3-dichloropropene and the dessicant, diquat, which is used to destroy the haulms before the harvest.

The single most important active substance used on sugar beet is sulphur, to prevent the spread of powdery mildew. Weed control is mainly based on glyphosate, phenmedipham and chloridazon. The insecticide oxamyl is used for the control of nematodes and some insect pests.

Figure 3.24.1: Use and composition of PPP (tonnes of active substance)

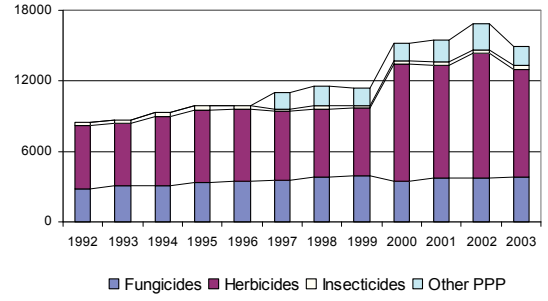


Figure 3.24.2: Quantity of PPP used by crop (in tonnes of AS)

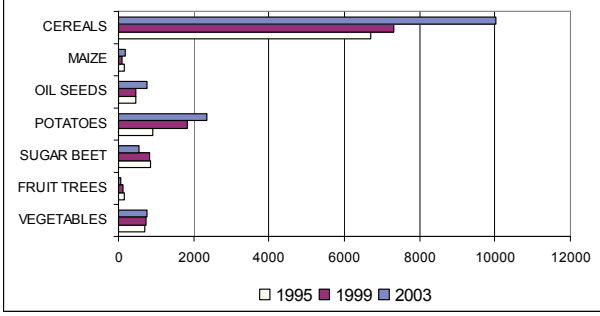
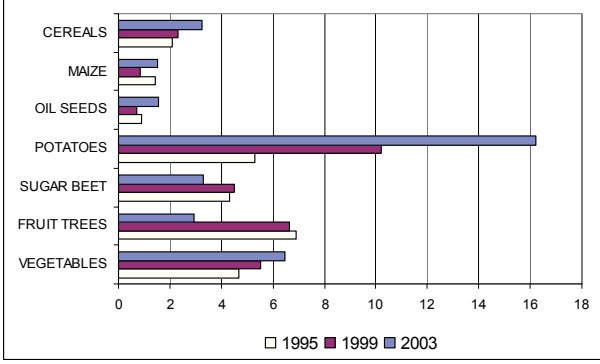


Figure 3.24.3: Dosage of PPP used by crop (kg AS/ha)



The main active substances used on oilseed crops are the herbicides metazachlor, trifluralin, propyzamide and gyphosate and the fungicide carbendazim.

The main active substances used on orchards are the fungicides dithianon, sulphur, myclobutanil and dinocap. The broad spectrum organophosphorus insecticide, chlorpyrifos, is widely used to control various insects.

On vegetable crops, chlorothalonil appears as the main single active substance used to control fungal diseases. Weed control is largely based on the use of simazine, propachlor, bentazone and MCPB.

Chapter 4

Detailed tables by country

4.1 Belgium and Luxembourg

Table 4.1.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	330	323	313	311	302	306	321	276	306	274	292	284
MAIZE	168	173	189	193	209	219	210	223	213	235	229	236
OIL SEEDS	15	15	19	19	19	18	19	23	22	26	25	29
POTATOES	64	49	52	57	62	56	59	67	67	63	62	60
SUGAR BEET	101	99	95	99	98	96	94	101	91	96	96	91
OTHER ARABLE CROPS	176	206	323	240	216	213	212	225	236	214	190	195
ARABLE CROPS Total	854	865	991	919	906	909	916	915	935	907	895	895
GRAPES/VINES	1	1	1	1	1	1	1	1	1	1	1	1
FRUIT TREES	15	15	16	16	16	17	18	18	18	18	18	18
VEGETABLES	55	57	57	56	52	51	53	54	52	52	54	56
FRUIT & VEGETABLES Total	71	73	74	73	69	69	73	74	71	72	74	76
Grand Total	925	938	1065	992	976	978	989	989	1006	979	968	970

Table 4.1.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	998	788	756	940	901	1063	1122	886	1061	850	822	808
MAIZE	340	319	356	399	386	452	427	422	338	355	362	378
OIL SEEDS	1	3	3	3	2	1	0	0	21	22	13	13
POTATOES	690	685	799	767	589	440	515	428	1182	1180	1246	1303
SUGAR BEET	351	363	353	363	378	411	442	394	445	468	351	299
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	62	72	32	43
ARABLE CROPS Total	2380	2158	2266	2472	2257	2366	2506	2130	3108	2948	2825	2842
GRAPES/VINES	:	:	0	0	0	9	17	17	0	0	0	0
FRUIT TREES	341	273	295	342	310	344	329	320	353	180	485	484
VEGETABLES	182	180	167	190	175	520	473	540	348	377	262	294
FRUIT & VEGETABLES Total	523	453	463	532	485	873	819	877	701	557	747	778
Grand Total	2903	2611	2729	3004	2742	3239	3325	3007	3809	3504	3572	3620

Table 4.1.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	3.0	2.4	2.4	3.0	3.0	3.5	3.5	3.2	3.5	3.1	2.8	2.8
MAIZE	2.0	1.8	1.9	2.1	1.8	2.1	2.0	1.9	1.6	1.5	1.6	1.6
OIL SEEDS	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.9	0.9	0.5	0.4
POTATOES	10.8	14.0	15.3	13.5	9.5	7.8	8.7	6.3	17.7	18.8	20.0	21.7
SUGAR BEET	3.5	3.7	3.7	3.7	3.9	4.3	4.7	3.9	4.9	4.9	3.6	3.3
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	0.3	0.3	0.2	0.2
ARABLE CROPS Total	2.8	2.5	2.3	2.7	2.5	2.6	2.7	2.3	3.3	3.2	3.2	3.2
GRAPES/VINES	0.0	0.0	0.2	0.2	0.1	6.7	12.7	12.8	0.0	0.0	0.1	0.1
FRUIT TREES	23.4	18.1	18.7	21.6	19.3	20.7	18.0	17.4	19.3	9.8	26.2	26.3
VEGETABLES	3.3	3.2	3.0	3.4	3.4	10.1	8.9	10.0	6.8	7.2	4.9	5.3
FRUIT & VEGETABLES Total	7.4	6.2	6.3	7.2	7.0	12.6	11.3	11.9	9.8	7.8	10.1	10.3
Grand Total	3.1	2.8	2.6	3.0	2.8	3.3	3.4	3.0	3.8	3.6	3.7	3.7

Table 4.1.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	94	74	71	89	85	100	106	83	100	80	77	76
MAIZE	100	94	105	118	114	134	126	125	100	105	107	112
OIL SEEDS	6	14	14	14	10	3	1	1	100	109	62	62
POTATOES	58	58	68	65	50	37	44	36	100	100	105	110
SUGAR BEET	79	82	79	82	85	92	99	89	100	105	79	67
OTHER ARABLE CROPS	-	-	-	-	-	-	-	-	100	117	52	69
ARABLE CROPS Total	77	69	73	80	73	76	81	69	100	95	91	91
GRAPES/VINES	-	-	-	-	-	-	-	-	-	-	-	-
FRUIT TREES	97	77	84	97	88	97	93	91	100	51	137	137
VEGETABLES	52	52	48	54	50	149	136	155	100	108	75	84
FRUIT & VEGETABLES Total	75	65	66	76	69	125	117	125	100	79	107	111
Grand Total	76	69	72	79	72	85	87	79	100	92	94	95

Table 4.1.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	34	30	28	31	33	33	34	29	28	24	23	22
MAIZE	12	12	13	13	14	14	13	14	9	10	10	10
OIL SEEDS	0	0	0	0	0	0	0	0	1	1	0	0
POTATOES	24	26	29	26	21	14	15	14	31	34	35	36
SUGAR BEET	12	14	13	12	14	13	13	13	12	13	10	8
OTHER ARABLE CROPS	0	0	0	0	0	0	0	0	2	2	1	1
ARABLE CROPS Total	82	83	83	82	82	73	75	71	82	84	79	79
GRAPES/VINES	0	0	0	0	0	0	1	1	0	0	0	0
FRUIT TREES	12	10	11	11	11	11	10	11	9	5	14	13
VEGETABLES	6	7	6	6	6	16	14	18	9	11	7	8
FRUIT & VEGETABLES Total	18	17	17	18	18	27	25	29	18	16	21	21
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.1.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
UREA HERBICIDES	1.1	AMIDE HERBICIDES	0.6	ANILIDE HERBICIDES	0.2	DITHIOCARBAMATE FUNGICIDES	15	PYRIDAZINONE HERBICIDES	0.8
PHENOXY HERBICIDES	0.4	TRIAZINE HERBICIDES	0.5	DINITROANILINE HERBICIDES	0.1	THIOCARBAMATE HERBICIDES	2.2	PYRIDYLMETHYLAMINE INSECTICIDES	0.6
PHYSIOLOGICAL PLANT GROWTH REGULATORS	0.3	TRIKETONE HERBICIDES	0.1	AMIDE HERBICIDES	0.1	BIPYRIDYLIUM HERBICIDES	0.8	BIS-CARBAMATE HERBICIDES	0.5
STROBILURINE FUNGICIDES	0.2	THIADIAZINE HERBICIDES	0.1	QUINOLINE HERBICIDES	0.0	DINITROANILINE FUNGICIDES	0.7	CHLOROACETANILIDE HERBICIDES	0.3
CONAZOLE FUNGICIDES	0.1	CHLOROACETANILIDE HERBICIDES	0.1	ARYLOXYPHENOXYPROPIONIC HERBICIDES	0.0	DIPHENYL ETHER HERBICIDES	0.4	BENZOFURANE HERBICIDES	0.3

Table 4.1.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

TOP FRUIT		VEGETABLES	
SOIL STERILANTS	13	DITHIOCARBAMATE FUNGICIDES	103
DITHIOCARBAMATE FUNGICIDES	4.9	SOIL STERILANTS	64
AMIDE FUNGICIDES	1.9	ORGANOPHOSPHORUS INSECTICIDES	20
INORGANIC SULPHUR	1.1	DINITROANILINE HERBICIDES	16
QUINONE FUNGICIDES	1.0	CHLOROACETANILIDE HERBICIDES	14

Table 4.1.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ISOPROTURON	H	59	47	14	11	11	195	205	162	408	336	333	313
CHLORMEQUAT	PGR	:	:	:	:	:	c	c	c	c	c	c	c
MECOPROP	H	22	18	19	8	11	13	11	6	2	2		32
PROSULFOCARB	H	64	83	135	159	196				57	20	30	32
MCPA	H	157	68	56	46	57	66	82	77	61	38	42	32
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		998	788	756	940	901	1063	1122	886	1061	850	822	808

Table 4.1.9: Quantities of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DIMETHENAMID	H	:	:	:	:	:	:	:	:	c	c	c	c
ATRAZINE	H	131	134	109	143	139	143	139	122	110	122	117	107
SULCOTRIONE	H	:	c	c	c	c	c	c	c	c	c	c	c
BENTAZONE	H	62	45	64	77	35	45	40	48	29	14	20	27
S-METOLACHLOR	H	:	:	:	:	:	:	:	:	:	c	c	c
OTHERS		147	128	157	147	176	264	247	252	112	50	36	53
TOTAL		340	319	356	399	386	452	427	422	338	355	362	378

Table 4.1.10: Quantities of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
METAZACHLOR	H	:	:	:	:	:	:	:	:	4	6	6	6
TRIFLURALIN	H	:	:	:	:	:	:	:	:	2	2	2	3
PROPYZAMIDE	H	:	:	:	:	:	:	:	:	3	3	3	3
QUINMERAC	H	:	:	:	:	:	:	:	:	c	c	c	c
FLUAZIFOP-P-BUTYL	H	:	:	:	:	:	:	:	:	:	c	c	c
OTHERS		1	3	3	3	2	1	0	0	10	10	0	0
TOTAL		1	3	3	3	2	1	0	0	21	22	13	13

Table 4.1.11: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	156	128	236	252	157	193	243	187	749	741	824	887
PROSULFOCARB	H	43	56	90	106	131	:	:	:	176	182	144	135
FLUAZINAM	F	:	:	:	:	:	:	:	:	c	c	c	c
DIQUAT	H	c	c	c	c	c	c	c	c	c	c	c	c
METIRAM	F	23	32	36	32	84	77	86	62	45	29	34	30
OTHERS		428	440	406	351	179	170	185	178	137	147	168	173
TOTAL		690	685	799	767	589	440	515	428	1182	1180	1246	1303

Table 4.1.12: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ALDICARB	I	:	:	:	:	:	c	c	c	c	c	c	c
CARBENDAZIM	F	5	3	1	2	2	2	2	2	1	1	1	0
CARBOFURAN	I	6	1	0	0	1	1	3	2	0	0	:	:
CHLORBUFAM	H	1		1	0	:	:	:	:	:	:	:	:
CHLORIDAZON	H	74	124	129	105	107	118	140	108	112	117	99	75
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		351	363	353	363	378	411	442	394	445	468	351	299

Table 4.1.13: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	:	17	260	247
MANCOZEB	F	1	0	:	:	29	15	:	:	4	7	72	77
TOLYLFLUANID	F	c	c	c	c	c	c	c	c	c	c	c	c
SULPHUR	F	71	46	38	43	64	78	88	74	37	22	17	21
DITHIANON	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		244	200	231	269	188	216	204	198	261	93	103	84
TOTAL		341	273	295	342	310	344	329	320	353	180	485	484

Table 4.1.14: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	19	19	20	20	25	19	13	14	76	87	95	102
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	41	39	39	47
DAZOMET	ZR	:	:	:	:	:	:	:	:	:	c	c	c
BENTAZONE	H	:	:	:	:	:	:	:	:	10	15	15	13
VINCLOZOLIN	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		146	144	130	154	137	488	447	514	211	214	89	101
TOTAL		182	180	167	190	175	520	473	540	348	377	262	294

4.2 Czech Republic

Table 4.2.1: Areas cultivated with the different crops
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	1603	1562	1492	1374
MAIZE	280	279	289	293
OIL SEEDS	403	430	410	421
POTATOES	69	54	38	36
SUGAR BEET	61	78	77	77
OTHER ARABLE CROPS	667	683	469	554
ARABLE CROPS Total	3084	3085	2775	2755
GRAPES/VINES	11	11	11	12
FRUIT TREES	:	:	:	:
VEGETABLES	18	18	18	18
FRUIT & VEGETABLES Total	30	30	29	30
Grand Total	3113	3114	2804	2785

Table 4.2.2: Quantity of PPP used by crop
(in 1000 ha)

CROP GROUP	2000	2001	2002	2003
CEREALS	1667	1896	1074	1324
MAIZE	292	439	441	426
OIL SEEDS	354	493	433	469
POTATOES	160	218	166	202
SUGAR BEET	216	302	322	289
OTHER ARABLE CROPS	5	5		6
ARABLE CROPS Total	2694	3353	2436	2718
GRAPES/VINES	61	149	108	84
FRUIT TREES	57	119	69	85
VEGETABLES	38	43	30	35
FRUIT & VEGETABLES Total	155	310	208	204
Grand Total	2849	3663	2644	2921

Table 4.2.3: Dosage of PPP used by crop
(in kg AS/ha)

	2000	2001	2002	2003
CEREALS	1.0	1.2	0.7	1.0
MAIZE	1.0	1.6	1.5	1.5
OIL SEEDS	0.9	1.1	1.1	1.1
POTATOES	2.3	4.0	4.3	5.6
SUGAR BEET	3.5	3.9	4.2	3.7
OTHER ARABLE CROPS	0.0	0.0	0.0	0.0
ARABLE CROPS Total	0.9	1.1	0.9	1.0
GRAPES/VINES	5.4	13.1	10.0	7.1
FRUIT TREES	:	:	:	:
VEGETABLES	2.1	2.3	1.7	1.9
FRUIT & VEGETABLES Total	5.3	10.5	7.1	6.8
Grand Total	0.9	1.2	0.9	1.0

Table 4.2.4: Index of quantity of PPP used by crop
(2000=100)

	2000	2001	2002	2003
CEREALS	100	114	64	79
MAIZE	100	151	151	146
OIL SEEDS	100	139	122	133
POTATOES	100	136	104	126
SUGAR BEET	100	140	149	134
OTHER ARABLE CROPS	100	106	:	130
ARABLE CROPS Total	100	124	90	101
GRAPES/VINES	100	245	179	139
FRUIT TREES	100	210	121	149
VEGETABLES	100	113	81	92
FRUIT & VEGETABLES Total	100	200	134	131
Grand Total	100	129	93	103

Table 4.2.5: Proportion of PPP quantity used by crop
(%)

	2000	2001	2002	2003
CEREALS	59	52	41	45
MAIZE	10	12	17	15
OIL SEEDS	12	13	16	16
POTATOES	6	6	6	7
SUGAR BEET	8	8	12	10
OTHER ARABLE CROPS	0	0	0	0
ARABLE CROPS Total	95	92	92	93
GRAPES/VINES	2	4	4	3
FRUIT TREES	2	3	3	3
VEGETABLES	1	1	1	1
FRUIT & VEGETABLES Total	5	8	8	7
Grand Total	100	100	100	100

Table 4.2.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
PHENOXY HERBICIDES	0.2	CHLORO-ACETANILIDE HERBICIDES	0.9	ANILIDE HERBICIDES	0.3	DITHIO-CARBAMATE FUNGICIDES	3.2	BIS-CARBAMATE HERBICIDES	1.2
ORGANO-PHOSPHORUS HERBICIDES	0.2	TRIAZINE HERBICIDES	0.4	ORGANO-PHOSPHORUS INSECTICIDES	0.1	CARBAMATE FUNGICIDES	0.3	PYRIDAZINONE HERBICIDES	0.7
PHYSIOLOGICAL PLANT GROWTH REGULATORS	0.2	ORGANO-PHOSPHORUS HERBICIDES	0.1	INORGANIC SULPHUR	0.1	AROMATIC FUNGICIDES	0.3	BENZOFURANE HERBICIDES	0.4
UREA HERBICIDES	0.1	PHENOXY HERBICIDES	0.0	DINITROANILINE HERBICIDES	0.1	ORGANO-PHOSPHORUS INSECTICIDES	0.3	TRIAZINONE HERBICIDES	0.3
DINITROANILINE HERBICIDES	0.1	SULFONYLUREA HERBICIDES	0.0	PHYSIOLOGICAL PLANT GROWTH REGULATORS	0.1	TRIAZINONE HERBICIDES	0.3	ORGANO-PHOSPHORUS HERBICIDES	0.3

Table 4.2.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

GRAPES		VEGETABLES	
INORGANIC SULPHUR	2.5	DITHIO-CARBAMATE FUNGICIDES	0.5
DITHIOCARBAMATE FUNGICIDES	1.2	PHENOXY HERBICIDES	0.4
ORGANOPHOSPHORUS HERBICIDES	1.1	DINITROANILINE HERBICIDES	0.3
ORGANOPHOSPHORUS INSECTICIDES	0.6	CHLORO-ACETANILIDE HERBICIDES	0.2
AMIDE FUNGICIDES	0.4	THIADIAZINE HERBICIDES	0.1

Table 4.2.8: Quantity of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c
CHLORMEQUAT	PGR	c	c	c	c
2,4-D	H	c	c	c	c
ISOPROTURON	H	245	213	28	144
MCPA	H	412	279	106	107
OTHERS		451	635	403	432
TOTAL		1667	1896	1074	1324

Table 4.2.9: Quantity of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
ACETOCHLOR	H	115	230	214	236
ATRAZINE	H	124	123	139	122
GLYPHOSATE	H	c	c	c	c
S-METOLACHLOR	H	:	c	c	c
2,4-D	H	c	c	c	c
OTHERS		15	28	28	19
TOTAL		292	439	441	426

Table 4.2.10: Quantity of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
METAZACHLOR	H	:	120	91	92
CHLORPYRIFOS	I	60	59	68	56
SULPHUR	F	:	26	42	55
TRIFLURALIN	H	44	46	42	50
DIMETHACHLOR	H	c	c	c	c
OTHERS		c	c	c	c
TOTAL		354	493	433	469

Table 4.2.11: Quantity of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	77	123	108	110
PROPAMOCARB	F	6	8		13
CHLOROTHALONIL	F	4	4	3	13
METRIBUZIN	H	5	5		10
CHLORPYRIFOS	I	10	10	11	9
OTHERS		59	67	44	48
TOTAL		160	218	166	202

Table 4.2.12: Quantity of the top-5 active substances applied to sugar beet crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
CHLORIDAZON	H	1	45	43	54
PHENMEDIPHAM	H	43	56	62	52
DESMEDIPHAM	H	34	47	41	41
ETHOFUMESATE	H	35	47	47	35
METAMITRON	H	26	17	40	27
OTHERS		77	90	90	80
TOTAL		216	302	322	289

Table 4.2.13: Quantity of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
SULPHUR	F	16	88	61	31
GLYPHOSATE	H	c	c	c	c
MANCOZEB	F	1	3	6	5
METIRAM	F	3	4	3	5
COPPER OXYCHLORIDE	F	c	c	c	c
OTHERS		19	21	12	20
TOTAL		61	149	108	84

Table 4.2.14: Quantity of the top-5 active substances applied to fruit tree crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
SULPHUR	F	:	42	27	29
GLYPHOSATE	H	c	c	c	c
MANCOZEB	F	9	8	10	12
CHLORPYRIFOS-METHYL	I	5	5	5	4
DODINE	F	4	4		4
OTHERS		c	c	c	c
TOTAL		57	119	69	85

Table 4.2.15: Quantity of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MCPB	H	4	4		7
MANCOZEB	F	1	3	6	7
PENDIMETHALIN	H	9	10	11	5
METIRAM	F	2	3	2	3
PROPACHLOR	H	c	c	c	c
OTHERS		c	c	c	c
TOTAL		38	43	30	35

4.3 Denmark

Table 4.3.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	1612	1438	1406	1454	1545	1535	1534	1497	1500	1538	1528	1485
MAIZE	20	26	31	37	42	43	47	48	61	79	96	118
OIL SEEDS	180	165	171	157	109	103	118	152	99	79	84	107
POTATOES	54	47	39	42	43	39	36	38	40	38	37	36
SUGAR BEET	65	66	66	68	70	69	66	63	59	56	58	50
OTHER ARABLE CROPS	605	760	797	743	995	993	1000	1023	1019	703	676	651
ARABLE CROPS Total	2536	2501	2510	2502	2803	2782	2801	2821	2779	2494	2479	2446
FRUIT TREES	5	5	5	5	4	5	5	5	5	5	5	5
VEGETABLES	9	14	12	11	11	10	11	10	10	6	6	7
FRUIT & VEGETABLES Total	14	19	16	16	15	15	16	15	14	10	10	11
Grand Total	2550	2520	2526	2517	2818	2797	2817	2836	2793	2504	2489	2457

Table 4.3.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	1288	1256	1536	1470	1367	885	1112	931	1376	1524	1462	1703
MAIZE	7	6	7	7	14	384	29	24	60	74	83	103
OIL SEEDS	86	37	29	34	69	59	57	82	14	26	19	25
POTATOES	483	331	262	263	291	149	128	181	178	231	328	378
SUGAR BEET	403	361	337	299	286	226	199	139	177	176	197	84
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	47	80	75	71
ARABLE CROPS Total	2267	1991	2171	2072	2026	1702	1526	1358	1852	2111	2164	2364
FRUIT TREES	0	18	27	47	45	47	57	50	49	71	55	50
VEGETABLES	446	451	216	243	226	266	701	377	111	41	46	49
FRUIT & VEGETABLES Total	446	468	243	290	271	313	758	427	160	112	102	100
Grand Total	2712	2459	2414	2363	2297	2015	2284	1785	2092	2311	2348	2549

Table 4.3.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.8	0.9	1.1	1.0	0.9	0.6	0.7	0.6	0.9	1.0	1.0	1.1
MAIZE	0.3	0.2	0.2	0.2	0.3	9.0	0.6	0.5	1.0	0.9	0.9	0.9
OIL SEEDS	0.5	0.2	0.2	0.2	0.6	0.6	0.5	0.5	0.1	0.3	0.2	0.2
POTATOES	9.0	7.1	6.7	6.3	6.7	3.8	3.6	4.8	4.5	6.0	8.9	10.5
SUGAR BEET	6.2	5.4	5.1	4.4	4.1	3.3	3.0	2.2	3.0	3.1	3.4	1.7
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	0.0	0.1	0.1	0.1
ARABLE CROPS Total	0.9	0.8	0.9	0.8	0.7	0.6	0.5	0.5	0.7	0.8	0.9	1.0
FRUIT TREES	0.0	3.8	5.8	10.1	11.5	9.9	11.9	10.4	10.7	15.3	12.0	10.7
VEGETABLES	50.2	31.2	18.6	22.1	21.3	26.7	62.2	38.2	11.3	7.1	7.9	7.3
FRUIT & VEGETABLES Total	32.9	24.5	15.0	18.5	18.6	21.3	47.2	29.1	11.1	10.7	9.7	8.7
Grand Total	1.1	1.0	1.0	0.9	0.8	0.7	0.8	0.6	0.7	0.9	0.9	1.0

Table 4.3.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	94	91	112	107	99	64	81	68	100	111	106	124
MAIZE	12	10	12	11	23	643	48	41	100	125	140	173
OIL SEEDS	620	264	208	241	492	421	409	592	100	184	138	181
POTATOES	270	185	147	147	163	84	72	101	100	129	184	212
SUGAR BEET	227	203	190	169	161	127	112	78	100	99	111	47
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	100	170	159	151
ARABLE CROPS Total	122	107	117	112	109	92	82	73	100	114	117	128
FRUIT TREES	0	36	55	96	91	96	116	101	100	144	112	102
VEGETABLES	402	407	195	219	204	240	633	340	100	37	42	44
FRUIT & VEGETABLES Total	278	292	152	181	169	196	473	267	100	70	64	62
Grand Total	130	118	115	113	110	96	109	85	100	110	112	122

Table 4.3.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	47	51	64	62	60	44	49	52	66	66	62	67
MAIZE	0	0	0	0	1	19	1	1	3	3	4	4
OIL SEEDS	3	1	1	1	3	3	2	5	1	1	1	1
POTATOES	18	13	11	11	13	7	6	10	9	10	14	15
SUGAR BEET	15	15	14	13	12	11	9	8	8	8	8	3
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	2	3	3	3
ARABLE CROPS Total	84	81	90	88	88	84	67	76	89	91	92	93
FRUIT TREES	0	1	1	2	2	2	3	3	2	3	2	2
VEGETABLES	16	18	9	10	10	13	31	21	5	2	2	2
FRUIT & VEGETABLES Total	16	19	10	12	12	16	33	24	8	5	4	4
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.3.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		OIL SEEDS		POTATOES		SUGAR BEET	
ORGANO-PHOSPHORUS HERBICIDES	0.4	AMIDE HERBICIDES	0.1	DITHIO-CARBAMATE FUNGICIDES	8.6	BIS-CARBAMATE HERBICIDES	0.7
THIOCARBAMATE HERBICIDES	0.3	PYRIDINECARBOXYLIC-ACID HERBICIDES	0.0	DINITROANILINE FUNGICIDES	0.4	BENZOFURANE HERBICIDES	0.3
PHENOXY HERBICIDES	0.1	UNCLASSIFIED HERBICIDES	0.0	THIOCARBAMATE HERBICIDES	0.4	ORGANOPHOSPHORUS HERBICIDES	0.2
DINITROANILINE HERBICIDES	0.1	ARYLOXYPHENOXYPROPIONIC HERBICIDES	0.0	DIPHENYL ETHER HERBICIDES	0.3	MINERAL OIL	0.
NITRILE HERBICIDES	0.1	OXAZOLE FUNGICIDES	0.0	BIPYRIDYLIUM HERBICIDES	0.2	OXAZOLE FUNGICIDES	0.1

Table 4.3.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

TOP FRUIT		VEGETABLES	
DITHIOCARBAMATE FUNGICIDES	1.5	DINITROANILINE HERBICIDES	2.6
INORGANIC SULPHUR	0.7	THIADIAZINE HERBICIDES	2.2
AMIDE FUNGICIDES	0.5	CARBAMATE INSECTICIDES	0.6
QUINONE FUNGICIDES	0.5	ORGANO-PHOSPHORUS FUNGICIDES	0.5
ANILIDE FUNGICIDES	0.5	PHENOXY HERBICIDES	0.4

Table 4.3.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GLYPHOSATE	H	334	286	377	397	315	235	287	236	482	549	439	590
PROSULFOCARB	H	:	:	:	:	:	:	:	:	218	323	345	447
MCPA	H	22	12	60	70	104	25	20	20	47	42	162	126
PENDIMETHALIN	H	92	98	110	196	225	:	:	:	126	152	29	106
FENPROPIMORPH	F	257	265	300	219	240	226	219	151	71	57	61	57
OTHERS		583	595	689	588	483	399	586	524	431	401	427	377
TOTAL		1288	1256	1536	1470	1367	885	1112	931	1376	1524	1462	1703

Table 4.3.9: Quantities of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PROPYZAMIDE	H	:	:	:	:	10	18	18	13	0	13	6	13
CLOPYRALID	H	:	7	7	8	17	:	:	:	4	3	3	3
CLOMAZONE	H	:	:	:	:	:	:	:	:	:	2	2	2
HALOXYFOP	H	:	:	:	:	:	:	:	:	1	1	2	2
TEBUCONAZOLE	F	:	:	:	:	:	:	:	1	4	3	2	1
OTHERS		86	30	22	26	41	41	39	68	6	3	4	3
TOTAL		86	37	29	34	69	59	57	82	14	26	19	25

Table 4.3.10: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	28	33	26	22	263	21	5	153	137	175	281	310
FLUAZINAM	F	:	:	:	:	:	:	:	:	10	13	14	15
PROSULFOCARB	H	:	:	:	:	:	:	:	:	2	2	2	14
ACLONIFEN	H	:	:	:	:	:	:	12	10	4	7	9	12
DIQUAT	H	:	:	:	:	:	:	:	:	4	6	6	8
OTHERS		455	298	236	241	28	128	111	19	21	27	15	19
TOTAL		483	331	262	263	291	149	128	181	178	231	328	378

Table 4.3.11: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PHENMEDIPHAM	H	:	:	:	:	:	7	11	8	38	42	40	32
ETHOFUMESATE	H	:	:	20	10	16	1	5	0	16	25	23	13
GLYPHOSATE	H	18	15	20	21	17	9	11	9	10	11	10	11
PETROLEUM OILS	ZR	:	:	:	:	:	:	:	:	:	:	:	7
HYMEXAZOL	F	:	:	:	:	:	:	:	:	5	3	4	5
OTHERS		385	346	297	269	254	209	171	121	110	96	120	17
TOTAL		403	361	337	299	286	226	199	139	177	176	197	84

Table 4.3.12: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	:	:	:	:	:	:	:	:	15	21	30	33
SULFUR	F	:	:	2	4	3	5	5	:	8	7	8	7
TOLYLFLUANID	F	:	2	2	2	2	:	:	:	1	1	1	3
DITHIANON	F	:	:	:	:	:	:	:	:	:	9	:	2
FENHEXAMID	F	:	:	:	:	:	:	:	:	3	3	3	2
OTHERS		0	15	22	42	41	42	52	50	22	30	14	2
TOTAL		0	18	27	47	45	47	57	50	49	71	55	50

Table 4.3.13: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PENDIMETHALIN	H	114	124	6	7	8		375	167	68	10	16	18
BENTAZONE	H	70	83	38	49	56	54	44	35	24	20	14	15
CARBOFURAN	I	:	:	:	:	:	:	:	:	0	:	:	4
FOSETYL	F	:	:	:	:	:	:	:	:	3	:	4	4
MCPA	H	57	68	5	7	17	15	29	28	8	4	2	2
OTHERS		74	63	19	25	21	197	253	148	7	8	10	6
TOTAL		315	338	68	88	102	266	701	377	111	41	46	49

4.4 Germany

Table 4.4.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	6219	5892	5890	6202	6335	6646	6701	6264	6655	6649	6542	6376
MAIZE	1538	1595	1550	1577	1699	1663	1576	1574	1515	1529	1518	1636
OIL SEEDS	1156	1127	1288	1782	990	1046	1155	1431	1216	1199	1337	1324
POTATOES	361	312	293	315	336	304	297	309	304	282	284	287
SUGAR BEET	534	522	500	513	515	504	503	489	452	448	459	446
OTHER ARABLE CROPS	1659	2284	2330	1446	2273	1981	1956	1755	1658	1702	1650	1758
ARABLE CROPS Total	11467	11733	11852	11835	12147	12143	12188	11821	11800	11810	11791	11827
GRAPES/VINES	100	103	104	103	102	102	102	101	100	100	99	98
FRUIT TREES	74	59	56	56	56	55	55	55	55	55	48	48
VEGETABLES	148	136	77	83	153	152	153	158	157	156	156	156
FRUIT & VEGETABLES Total	322	298	237	243	311	309	310	314	311	311	303	302
Grand Total	11790	12031	12089	12077	12459	12452	12499	12136	12112	12121	12094	12129

Table 4.4.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	10515	9917	9091	10380	10216	10730	12774	11304	15795	15710	15336	12366
MAIZE	2120	1479	1797	1370	1904	1936	2194	1969	1444	1462	1315	1529
OIL SEEDS	1165	761	967	1136	1070	1283	1456	1567	1724	1875	2348	1619
POTATOES	1944	1700	1272	1456	1641	1782	1995	1923	1787	1567	1762	1777
SUGAR BEET	2095	1913	1742	1795	1921	1801	1775	1481	1647	1407	1654	1037
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	51	195	282	185
ARABLE CROPS Total	17838	15769	14869	16136	16752	17531	20193	18243	22448	22215	22697	18514
GRAPES/VINES	1289	1583	1870	2735	2677	3922	2872	2816	2087	2308	2331	3052
FRUIT TREES	814	695	521	951	671	885	523	634	705	965	906	982
VEGETABLES	115	171	186	253	253	66	453	232	254	323	405	469
FRUIT & VEGETABLES Total	2219	2449	2576	3940	3601	4873	3849	3681	3047	3596	3642	4504
Grand Total	20056	18219	17445	20076	20353	22404	24042	21925	25494	25811	26339	23018

Table 4.4.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	1.7	1.7	1.5	1.7	1.6	1.6	1.9	1.8	2.4	2.4	2.3	1.9
MAIZE	1.4	0.9	1.2	0.9	1.1	1.2	1.4	1.3	1.0	1.0	0.9	0.9
OIL SEEDS	1.0	0.7	0.8	0.6	1.1	1.2	1.3	1.1	1.4	1.6	1.8	1.2
POTATOES	5.4	5.4	4.3	4.6	4.9	5.9	6.7	6.2	5.9	5.6	6.2	6.2
SUGAR BEET	3.9	3.7	3.5	3.5	3.7	3.6	3.5	3.0	3.6	3.1	3.6	2.3
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	:	0.1	0.2	0.1
ARABLE CROPS Total	1.6	1.3	1.3	1.4	1.4	1.4	1.7	1.5	1.9	1.9	1.9	1.6
GRAPES/VINES	12.8	15.4	18.0	26.5	26.1	38.3	28.3	27.8	20.9	23.1	23.6	31.1
FRUIT TREES	11.0	11.7	9.3	17.0	11.9	16.1	9.5	11.5	12.8	17.4	18.8	20.5
VEGETABLES	0.8	1.3	2.4	3.0	1.7	0.4	3.0	1.5	1.6	2.1	2.6	3.0
FRUIT & VEGETABLES Total	6.9	8.2	10.9	16.2	11.6	15.8	12.4	11.7	9.8	11.6	12.0	14.9
Grand Total	1.7	1.5	1.4	1.7	1.6	1.8	1.9	1.8	2.1	2.1	2.2	1.9

Table 4.4.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	67	63	58	66	65	68	81	72	100	99	97	78
MAIZE	147	102	124	95	132	134	152	136	100	101	91	106
OIL SEEDS	68	44	56	66	62	74	84	91	100	109	136	94
POTATOES	109	95	71	81	92	100	112	108	100	88	99	99
SUGAR BEET	127	116	106	109	117	109	108	90	100	85	100	63
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	100	382	553	364
ARABLE CROPS Total	79	70	66	72	75	78	90	81	100	99	101	82
GRAPES/VINES	62	76	90	131	128	188	138	135	100	111	112	146
FRUIT TREES	115	99	74	135	95	126	74	90	100	137	128	139
VEGETABLES	45	67	73	100	100	26	178	91	100	127	159	184
FRUIT & VEGETABLES Total	73	80	85	129	118	160	126	121	100	118	120	148
Grand Total	79	71	68	79	80	88	94	86	100	101	103	90

Table 4.4.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	52	54	52	52	50	48	53	52	62	61	58	54
MAIZE	11	8	10	7	9	9	9	9	6	6	5	7
OIL SEEDS	6	4	6	6	5	6	6	7	7	7	9	7
POTATOES	10	9	7	7	8	8	8	9	7	6	7	8
SUGAR BEET	10	10	10	9	9	8	7	7	6	5	6	5
OTHER ARABLE CROPS	0	0	0	0	0	0	0	0	0	1	1	1
ARABLE CROPS Total	89	87	85	80	82	78	84	83	88	86	86	80
GRAPES/VINES	6	9	11	14	13	18	12	13	8	9	9	13
FRUIT TREES	4	4	3	5	3	4	2	3	3	4	3	4
VEGETABLES	1	1	1	1	1	0	2	1	1	1	2	2
FRUIT & VEGETABLES Total	11	13	15	20	18	22	16	17	12	14	14	20
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.4.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
UREA HERBICIDES	0.5	CHLOROACETANILIDE HERBICIDES	0.3	ANILIDE HERBICIDES	0.7	DITHIO-CARBAMATE FUNGICIDES	3.0	BENZOFURANE HERBICIDES	0.6
PHYSIOLOGICAL PLANT GROWTH REGULATORS	0.3	TRIAZINE HERBICIDES	0.2	CONAZOLE FUNGICIDES	0.1	THIOCARBAMATE HERBICIDES	1.1	BIS-CARBAMATE HERBICIDES	0.5
ORGANO-PHOSPHORUS HERBICIDES	0.2	ORGANO-PHOSPHORUS HERBICIDES	0.1	QUINOLINE HERBICIDES	0.1	DINITROANILINE FUNGICIDES	0.4	ORGANO-PHOSPHORUS HERBICIDES	0.4
PHENOXY HERBICIDES	0.2	TRIKETONE HERBICIDES	0.1	AMIDE FUNGICIDES	0.1	CARBAMATE FUNGICIDES	0.3	PYRIDAZINONE HERBICIDES	0.3
CONAZOLE FUNGICIDES	0.1	CARBAMATE INSECTICIDES	0.1	DINITROANILINE HERBICIDES	0.0	BIPYRIDYLIUM HERBICIDES	0.2	UNCLASSIFIED FUNGICIDES	0.2

Table 4.4.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

GRAPES		FRUIT TREES		VEGETABLES	
INORGANIC SULPHUR	19	INORGANIC SULPHUR	9.5	INORGANIC SULPHUR	1.0
DITHIO-CARBAMATE FUNGICIDES	4.7	DITHIO-CARBAMATE FUNGICIDES	4.9	DINITROANILINE HERBICIDES	0.6
PHTHALIC ACID FUNGICIDES	2.8	AMIDE FUNGICIDES	1.8	DITHIOCARBAMATE FUNGICIDES	0.4
ORGANO-PHOSPHORUS HERBICIDES	1.2	ORGANO-PHOSPHORUS HERBICIDES	1.5	THIADIAZINE HERBICIDES	0.2
AMIDE FUNGICIDES	0.9	ORGANO-PHOSPHORUS FUNGICIDES	0.6	DIPHENYL ETHER HERBICIDES	0.2

Table 4.4.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ISOPROTURON	H	2612	2454	2473	2678	2580	2286	3511	2466	5518	4921	4075	3159
CHLORMEQUAT	PGR	c	c	c	c	c	c	c	c	c	c	c	c
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
MCPA	H	156	157	205	195	280	210	293	225	368	386	375	656
MECOPROP-P	H	446	396	386	412	538	384	348	351	524	396	315	396
OTHERS		6839	6084	5224	6232	5626	5593	6154	6117	6054	5659	6171	4790
TOTAL		10515	9917	9091	10380	10216	10730	12774	11304	15795	15710	15336	12366

Table 4.4.9: Quantities of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
S-METOLACHLOR	H	:	:	:	:	:	:	:	:	:	c	c	c
TERBUTHYLAZINE	H	569	449	552	327	626	530	594	620	379	357	357	368
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
METHIOCARB	I	c	c	c	c	c	c	c	c	c	c	c	c
THIRAM	F	:	:	:	:	:	:	:	:	:	:	:	89
OTHERS		1525	975	1166	976	1199	1270	1460	1247	889	904	346	371
TOTAL		2120	1479	1797	1370	1904	1936	2194	1969	1444	1462	1315	1529

Table 4.4.10: Quantities of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
METAZACHLOR	H	501	458	413	578	596	625	598	627	730	834	909	711
QUINMERAC	H	:	:	:	:	:	:	:	:	c	c	c	c
DIMETHACHLOR	H	c	c	c	c	c	c	c	c	c	c	c	c
TEBUCONAZOLE	F	33	14	22	:	44	:	:	109	145	136	166	155
BOSCALID	F	:	:	:	:	:	:	:	:	:	:	:	c
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		1165	761	967	1136	1070	1283	1456	1567	1724	1875	2348	1619

Table 4.4.11: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	273	254	244	284	348	847	998	884	761	600	692	704
PROSULFOCARB	H	635	344	294	292	448	100	95	93	340	282	277	308
METIRAM	F	256	258	97	108	154	122	124	123	97	88	79	149
FLUAZINAM	F	c	c	c	c	c	c	c	c	c	c	c	c
PROPAMOCARB	F	:	:	0	:	113	185	166	128	102	110	113	90
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		1944	1700	1272	1456	1641	1782	1995	1923	1787	1567	1762	1777

Table 4.4.12: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ETHOFUMESATE	H	253	232	203	211	195	182	165	125	223	138	264	290
PHENMEDIPHAM	H	154	113	119	122	109	99	113	78	190	137	175	184
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
CHLORIDAZON	H	204	181	185	176	184	279	239	189	160	160	190	154
FENPROPIDIN	F	:	:	:	:	:	:	:	:	:	35	54	79
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		2095	1913	1742	1795	1921	1801	1775	1481	1647	1407	1654	1037

Table 4.4.13: Quantities of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	645	918	1036	1498	1559	2794	1994	1907	1248	1514	1366	1934
METIRAM	F	:	:	246	272	298	285	291	289	253	230	205	388
FOLPET	F	:	:	:	1	3	0		57	27	90	130	278
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
TOLYLFLUANID	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		612	614	433	853	720	763	501	437	431	323	436	250
TOTAL		1289	1583	1870	2735	2677	3922	2872	2816	2087	2308	2331	3052

Table 4.4.14: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	136	142	236	323	260	438	114	298	257	491	265	454
MANCOZEB	F	26	39	27	249	:	:	:	21	169	190	169	208
TOLYLFLUANID	F	c	c	c	c	c	c	c	c	c	c	c	c
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
METIRAM	F	27	:	51	56	29	13	13	13	19	18	16	30
OTHERS		625	510	152	293	365	388	346	266	209	202	354	131
TOTAL		814	695	521	951	671	885	523	634	705	965	906	982

Table 4.4.15: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	:	:	:	:	:	:	:	:	35	65	77	154
PENDIMETHALIN	H	10	10	37	84	79	:	:	87	90	109	99	90
BENTAZONE	H	20	28	:	:	39	41	68	96	77	59	51	39
MANCOZEB	F	:	:	:	16	18	9	1	17	10	21	30	30
METIRAM	F	:	:	:	:	:	:	:	:	19	18	16	30
OTHERS		86	132	148	152	117	15	385	32	22	51	132	126
TOTAL		115	171	186	253	253	66	453	232	254	323	405	469

4.5 Estonia

Table 4.5.1: Areas cultivated with the different crops
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	329	274	259	263
OIL SEEDS	29	28	33	46
POTATOES	31	22	16	17
OTHER ARABLE CROPS	455	353	305	217
ARABLE CROPS Total	844	676	613	544
FRUIT TREES	8	2	1	1
VEGETABLES	4	3	3	4
FRUIT & VEGETABLES Total	12	5	4	4
Grand Total	856	681	618	548

Table 4.5.2: Quantity of PPP used by crop
(in 1000 ha)

CROP GROUP	2000	2001	2002	2003
CEREALS	29	55	63	63
OIL SEEDS	17	22	15	16
POTATOES	4	4	4	6
SUGAR BEET	1	2	3	3
ARABLE CROPS Total	51	83	85	88
FRUIT TREES	0	0	0	0
VEGETABLES	1	1	1	1
FRUIT & VEGETABLES Total	1	1	1	1
Grand Total	52	85	86	89

Table 4.5.3: Dosage of PPP used by crop
(in kg AS/ha)

	2000	2001	2002	2003
CEREALS	0.1	0.2	0.2	0.2
OIL SEEDS	0.6	0.8	0.4	0.4
POTATOES	0.1	0.2	0.3	0.3
ARABLE CROPS Total	0.1	0.1	0.1	0.2
FRUIT TREES	0.0	0.1	0.2	0.5
VEGETABLES	0.3	0.4	0.3	0.3
FRUIT & VEGETABLES Total	0.1	0.3	0.2	0.3
Grand Total	0.1	0.1	0.1	0.2

Table 4.5.4: Index of quantity of PPP used by crop
(2000=100)

	2000	2001	2002	2003
CEREALS	100	193	221	220
OIL SEEDS	100	130	88	99
POTATOES	100	100	104	136
ARABLE CROPS Total	100	164	167	172
FRUIT TREES	100	100	131	183
VEGETABLES	100	112	77	90
FRUIT & VEGETABLES Total	100	110	86	105
Grand Total	100	163	165	171

Table 4.5.5: Proportion of PPP quantity used by crop
(%)

	2000	2001	2002	2003
CEREALS	55	65	74	71
OIL SEEDS	32	26	17	18
POTATOES	8	5	5	7
ARABLE CROPS Total	98	98	99	99
FRUIT TREES	0	0	0	0
VEGETABLES	2	1	1	1
FRUIT & VEGETABLES Total	2	2	1	1
Grand Total	100	100	100	100

Table 4.5.6: Quantity of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c
DICAMBA	H	6	5	6	5
2,4-D	H	c	c	c	c
PROPICONAZOLE	F	0	1	1	1
OTHERS		c	c	c	c
TOTAL		29	55	63	63

Table 4.5.7: Quantity of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
TRIFLURALIN	H	15	20	12	14
HALOXYFOP	H	c	c	c	c
THIAMETHOXAM	I	c	c	c	c
FLUAZIFOP-P-BUTYL	H	c	c	c	c
CLOPYRALID	H	0	0	0	0
OTHERS		1	1	1	0
TOTAL		17	22	15	16

Table 4.5.8: Quantity of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	4	4	4	5
FLUAZINAM	F	c	c	c	c
METALAXYL-M	F	0	0	0	0
OXADIXYL	F	0	0	0	0
OTHERS		c	c	c	c
TOTAL		4	4	4	6

Table 4.5.9: Quantity of the top-5 active substances applied to sugar beet crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c
HALOXYFOP	H	c	c	c	c
CLOPYRALID	H	0	0	0	0
TOTAL		1	2	3	3

Table 4.5.10: Quantity of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
PROMETRYN	H	c	c	c	c
CLOPYRALID	H	0	0	0	0
DIAFENTHIURON	I	c	c	c	c
THIAMETHOXAM	I	c	c	c	c
OTHERS		:	:	:	:
TOTAL		1	1	1	1

4.6 Greece

Table 4.6.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	1195	1162	1147	1075	1106	1096	1072	1073	1005	1162	1077	1035
MAIZE	214	198	198	163	217	218	222	217	213	217	232	256
POTATOES	51	49	47	52	50	48	48	48	36	36	36	36
SUGAR BEET	50	46	40	42	40	53	36	39	50	43	42	39
OTHER ARABLE CROPS	809	842	415	917	869	853	877	1429	1491	1327	1377	1336
ARABLE CROPS Total	2320	2297	2250	2250	2282	2268	2256	2806	2795	2785	2764	2701
CITRUS	57	58	58	58	58	59	59	60	60	60	60	59
GRAPES/VINES	147	144	138	136	132	129	134	132	133	132	132	131
FRUIT TREES	142	143	142	141	136	136	139	137	137	135	136	133
VEGETABLES	128	125	126	129	130	128	130	130	134	125	126	126
FRUIT & VEGETABLES Total	474	470	464	464	457	452	461	459	464	451	453	450
Grand Total	2794	2767	2714	2714	2739	2719	2717	3265	3259	3236	3217	3151

Table 4.6.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	48	49	56	80	77	238	518	305	278	231	211	250
MAIZE	274	258	232	201	277	189	247	166	260	301	221	243
POTATOES	232	197	206	207	229	227	331	319	243	216	220	333
SUGAR BEET	267	248	241	461	501	660	830	420	248	214	272	177
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	416	408	307	383
ARABLE CROPS Total	820	752	737	948	1084	1314	1926	1210	1444	1370	1232	1386
CITRUS	110	99	105	119	121	78	76	64	122	120	121	136
GRAPES/VINES	9894	10195	10198	10213	10245	10170	10235	10475	5441	5306	5561	2659
FRUIT TREES	512	483	535	508	524	448	625	428	1323	1237	1311	1233
VEGETABLES	213	202	201	213	242	275	438	515	426	419	409	431
FRUIT & VEGETABLES Total	10729	10979	11039	11052	11131	10971	11374	11481	7312	7083	7403	4459
Grand Total	11550	11731	11775	12001	12215	12285	13300	12691	8756	8453	8635	5845

Table 4.6.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.0	0.0	0.0	0.1	0.1	0.2	0.5	0.3	0.3	0.2	0.2	0.2
MAIZE	1.3	1.3	1.2	1.2	1.3	0.9	1.1	0.8	1.2	1.4	0.9	1.0
POTATOES	4.5	4.0	4.4	4.0	4.6	4.8	6.8	6.7	6.8	6.0	6.1	9.4
SUGAR BEET	5.3	5.4	6.0	10.9	12.4	12.4	22.9	10.8	5.0	5.0	6.6	4.5
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	0.3	0.3	0.2	0.3
ARABLE CROPS Total	0.4	0.3	0.3	0.4	0.5	0.6	0.9	0.4	0.5	0.5	0.4	0.5
CITRUS	1.9	1.7	1.8	2.0	2.1	1.3	1.3	1.1	2.0	2.0	2.0	2.3
GRAPES/VINES	67.5	70.6	73.7	75.1	77.4	78.6	76.1	79.1	41.0	40.2	42.3	20.3
FRUIT TREES	3.6	3.4	3.8	3.6	3.9	3.3	4.5	3.1	9.6	9.2	9.6	9.3
VEGETABLES	1.7	1.6	1.6	1.7	1.9	2.2	3.4	4.0	3.2	3.4	3.3	3.4
FRUIT & VEGETABLES Total	22.6	23.4	23.8	23.8	24.4	24.3	24.7	25.0	15.8	15.7	16.3	9.9
Grand Total	4.1	4.2	4.3	4.4	4.5	4.5	4.9	3.9	2.7	2.6	2.7	1.9

Table 4.6.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	17	18	20	29	28	86	187	110	100	83	76	90
MAIZE	105	99	89	77	106	73	95	64	100	116	85	94
POTATOES	95	81	85	85	94	93	136	131	100	89	91	137
SUGAR BEET	108	100	97	186	202	266	334	169	100	86	110	71
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	100	98	74	92
ARABLE CROPS Total	57	52	51	66	75	91	133	84	100	95	85	96
CITRUS	90	82	87	98	99	64	63	52	100	99	100	112
GRAPES/VINES	182	187	187	188	188	187	188	193	100	98	102	49
FRUIT TREES	39	36	40	38	40	34	47	32	100	94	99	93
VEGETABLES	50	47	47	50	57	65	103	121	100	98	96	101
FRUIT & VEGETABLES Total	147	150	151	151	152	150	156	157	100	97	101	61
Grand Total	132	134	134	137	140	140	152	145	100	97	99	67

Table 4.6.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0	0	0	1	1	2	4	2	3	3	2	4
MAIZE	2	2	2	2	2	2	2	1	3	4	3	4
POTATOES	2	2	2	2	2	2	2	3	3	3	3	6
SUGAR BEET	2	2	2	4	4	5	6	3	3	3	3	3
OTHER ARABLE CROPS	0	0	0	0	0	0	0	0	5	5	4	7
ARABLE CROPS Total	7	6	6	8	9	11	14	10	16	16	14	24
CITRUS	1	1	1	1	1	1	1	1	1	1	1	2
GRAPES/VINES	86	87	87	85	84	83	77	83	62	63	64	45
FRUIT TREES	4	4	5	4	4	4	5	3	15	15	15	21
VEGETABLES	2	2	2	2	2	2	3	4	5	5	5	7
FRUIT & VEGETABLES Total	93	94	94	92	91	89	86	90	84	84	86	76
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.6.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		POTATOES		SUGAR BEET	
PHENOXY HERBICIDES	0.1	CHLORO-ACETANILIDE HERBICIDES	0.4	DITHIO-CARBAMATE FUNGICIDES	2.8	CHLORO-ACETANILIDE HERBICIDES	1.0
ORGANO-PHOSPHORUS HERBICIDES	0.1	TRIAZINE HERBICIDES	0.4	SOIL STERILANTS	2.8	INORGANIC SULPHUR	0.9
IMIDAZOLINONE HERBICIDES	0.0	TRIKETONE HERBICIDES	0.0	ORGANO-PHOSPHORUS INSECTICIDES	1.4	DITHIO-CARBAMATE FUNGICIDES	0.8
ARYLOXY-PHENOXY-PROPIONIC HERBICIDES	0.0	NITRILE HERBICIDES	0.0	BIPYRIDYLIUM HERBICIDES	0.6	SOIL STERILANTS	0.4
CYCLOHEXANE-DIONE HERBICIDES	0.0	BENZOIC-ACID HERBICIDES	0.0	OXIME-CARBAMATE INSECTICIDES	0.3	TRIAZINONE HERBICIDES	0.2

Table 4.6.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

CITRUS		GRAPES		FRUIT TREES		VEGETABLES	
ORGANO-PHOSPHORUS HERBICIDES	1.1	INORGANIC SULPHUR	17	INORGANIC SULPHUR	4.2	DITHIO-CARBAMATE FUNGICIDES	1.3
ORGANO-PHOSPHORUS INSECTICIDES	0.8	DITHIO-CARBAMATE FUNGICIDES	0.9	ORGANO-PHOSPHORUS INSECTICIDES	2.3	SOIL STERILANTS	0.5
BIPYRIDYLIUM HERBICIDES	0.1	ORGANO-PHOSPHORUS HERBICIDES	0.6	ORGANO-PHOSPHORUS HERBICIDES	0.6	ORGANO-PHOSPHORUS INSECTICIDES	0.3
COPPER COMPOUNDS	0.1	ORGANO-PHOSPHORUS INSECTICIDES	0.3	DITHIOCARBAMATE FUNGICIDES	0.5	ORGANO-PHOSPHORUS FUNGICIDES	0.2
DITHIO-CARBAMATE FUNGICIDES	0.1	TRIAZINE HERBICIDES	0.2	COPPER COMPOUNDS	0.4	AROMATIC FUNGICIDES	0.1

Table 4.6.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MECOPROP	H	:	:	:	3	:	:	68	43	97	92	71	71
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
2,4-D	H	C	c	c	c	c	c	c	c	c	c	c	c
IMAZAMETHABENZ	H	:	:	:	:	:	22	30	19	12	5	4	14
TRALKOXYDIM	H	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		20	17	17	20	20	109	318	107	114	60	35	49
TOTAL		48	49	56	80	77	238	518	305	278	231	211	250

Table 4.6.9: Quantities of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ATRAZINE	H	86	88	93	80	96	87	77	55	109	115	93	96
ALACHLOR	H	95	74	55	53	86		56	28	51	72	55	69
METOLACHLOR	H	76	81	68	50	54	54	53	39	54	51	43	42
SULCOTRIONE	H	:	:	:	:	:	:	:	:	:	c	c	c
BROMOXYNIL	H	3	3	3	2	5	3	5	5	4	5	5	6
OTHERS		14	11	13	16	35	45	56	38	42	c	c	c
TOTAL		274	258	232	201	277	189	247	166	260	301	221	243

Table 4.6.10: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	:	:	16	99
MANCOZEB	F	17	12	15	11	15	67	76	112	82	51	62	68
ETHOPROPHOS	I	c	c	c	c	c	c	c	c	c	c	c	c
PARAQUAT	H	22	16	21	21	24	:	:	:	5	7	7	22
PROPINEB	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		155	143	144	151	164	139	198	162	113	113	103	102
TOTAL		232	197	206	207	229	227	331	319	243	216	220	333

Table 4.6.11: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
METOLACHLOR	H	18	22	18	16	19	20	22	19	28	23	23	37
SULPHUR	F	120	120	120	360	354	509	664	354	12	6	52	37
MANCOZEB	F	:	:	:	:	:	:	:	:	32	32	32	32
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	12	11	20	15
METAMITRON	H	53	44	44	32	36	48	27	25	27	34	31	9
OTHERS		77	63	60	53	92	82	117	22	137	109	114	46
TOTAL		267	248	241	461	501	660	830	420	248	214	272	177

Table 4.6.12: Quantities of the top-5 active substances applied to citrus crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
CHLORPYRIFOS	I	4	4	4	4	4	5	6	6	16	16	18	20
PARATHION-METHYL	I	c	c	c	c	c	c	c	c	c	c	c	c
PARAQUAT	H	:	:	:	:	:	:	:	:	3	4	3	7
METHIDATHION	I	24	21	19	13	13	12	11	11	6	6	6	5
OTHERS		47	34	32	32	39	17	22	18	31	31	25	21
TOTAL		110	99	105	119	121	78	76	64	122	120	121	136

Table 4.6.13: Quantities of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	9276	9658	9667	9672	9676	9710	9692	9999	5054	4907	5183	2235
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
MANCOZEB	F	27	22	16	15	17	24	24	32	57	48	51	54
PROPINEB	F	c	c	c	c	c	c	c	c	c	c	c	c
AMITROL	H	3	1	:	:	:	:	4		12	23	26	26
OTHERS		462	395	379	367	393	324	413	349	213	220	185	211
TOTAL		9894	10195	10198	10213	10245	10170	10235	10475	5441	5306	5561	2659

Table 4.6.14: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	72	87	92	86	77	66	76	66	461	413	554	560
FENTHION	I	:	:	:	:	:	:	:	:	c	c	c	c
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
PARATHION-METHYL	I	:	:	:	:	:	:	:	:	c	c	c	c
CHLORPYRIFOS	I	20	20	20	20	20	25	30	30	33	33	40	42
OTHERS		417	372	412	387	403	298	468	287	510	503	430	315
TOTAL		512	483	535	508	524	448	625	428	1323	1237	1311	1233

Table 4.6.15: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	9	8	7	8	16	52	65	62	72	63	69	82
PROPINEB	F	c	c	c	c	c	c	c	c	c	c	c	c
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	48	45	79	62
FOSETYL	F	c	c	c	c	c	c	c	c	c	c	c	c
CHLOROTHALONIL	F		19	18	21	24	:	:	:	24	11	11	19
OTHERS		137	118	118	132	144	152	243	326	194	212	171	167
TOTAL		213	202	201	213	242	275	438	515	426	419	409	431

4.7 Spain

Table 4.7.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	7011	6161	6148	6336	6327	6502	6173	6302	6374	5915	6264	6151
MAIZE	512	386	457	462	544	592	548	478	515	596	550	561
OIL SEEDS	1557	2188	1470	1238	1300	1210	1238	1064	1002	996	851	888
POTATOES	257	208	201	206	180	150	134	136	119	54	110	101
SUGAR BEET	163	180	183	172	157	158	150	135	125	107	114	100
OTHER ARABLE CROPS	5566	5726	5102	5492	5347	5509	5412	5348	5114	5272	5005	5185
ARABLE CROPS Total	15067	14849	13562	13905	13856	14120	13655	13463	13249	12941	12893	12986
CITRUS	268	270	268	272	276	284	286	292	288	304	305	306
GRAPES/VINES	1405	1280	1233	1196	1164	1161	1165	1180	1186	1202	1186	1165
FRUIT TREES	924	932	933	953	945	972	961	957	961	968	852	971
VEGETABLES	427	400	398	368	366	371	366	374	375	368	379	365
FRUIT & VEGETABLES Total	3024	2884	2832	2789	2751	2788	2778	2802	2810	2841	2722	2807
Grand Total	18091	17733	16394	16694	16607	16908	16432	16266	16059	15782	15616	15794

Table 4.7.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	1305	1238	1420	1388	1554	2135	2272	2587	2494	2652	3083	3502
MAIZE	370	239	347	377	489	747	861	961	774	938	1019	1039
OIL SEEDS	183	241	247	219	176	113	124	192	146	192	200	203
POTATOES	284	231	307	380	416	829	2517	723	612	575	604	611
SUGAR BEET	354	391	474	557	650	911	1116	772	643	678	789	694
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	664	798	786	326
ARABLE CROPS Total	2495	2340	2795	2920	3285	4735	6891	5235	5333	5833	6482	6376
CITRUS	1620	1465	2755	2423	2216	2194	1836	2028	1798	2726	3001	3059
GRAPES/VINES	20608	19412	17696	16203	16412	16081	15909	16046	8047	10729	13507	13580
FRUIT TREES	1926	1882	1960	2005	1969	1742	1317	1346	3105	3249	2730	2490
VEGETABLES	2869	2789	2166	2299	2570	5939	5174	6941	6003	5434	5476	5777
FRUIT & VEGETABLES Total	27023	25547	24577	22928	23167	25957	24236	26361	18954	22138	24714	24907
Grand Total	29519	27887	27372	25849	26452	30691	31127	31595	24287	27971	31196	31283

Table 4.7.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.5	0.6
MAIZE	0.7	0.6	0.8	0.8	0.9	1.3	1.6	2.0	1.5	1.6	1.9	1.9
OIL SEEDS	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2
POTATOES	1.1	1.1	1.5	1.8	2.3	5.5	18.9	5.3	5.2	10.6	5.5	6.0
SUGAR BEET	2.2	2.2	2.6	3.2	4.1	5.8	7.5	5.7	5.1	6.3	6.9	7.0
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	0.1	0.2	0.2	0.1
ARABLE CROPS Total	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.4	0.5	0.5	0.5
CITRUS	6.1	5.4	10.3	8.9	8.0	7.7	6.4	7.0	6.2	9.0	9.8	10.0
GRAPES/VINES	14.7	15.2	14.4	13.5	14.1	13.8	13.7	13.6	6.8	8.9	11.4	11.7
FRUIT TREES	2.1	2.0	2.1	2.1	2.1	1.8	1.4	1.4	3.2	3.4	3.2	2.6
VEGETABLES	6.7	7.0	5.4	6.3	7.0	16.0	14.1	18.6	16.0	14.8	14.4	15.8
FRUIT & VEGETABLES Total	8.9	8.9	8.7	8.2	8.4	9.3	8.7	9.4	6.7	7.8	9.1	8.9
Grand Total	1.6	1.6	1.7	1.5	1.6	1.8	1.9	1.9	1.5	1.8	2.0	2.0

Table 4.7.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	52	50	57	56	62	86	91	104	100	106	124	140
MAIZE	48	31	45	49	63	96	111	124	100	121	132	134
OIL SEEDS	125	166	170	151	121	78	85	132	100	132	138	139
POTATOES	46	38	50	62	68	135	411	118	100	94	99	100
SUGAR BEET	55	61	74	87	101	142	174	120	100	106	123	108
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	100	120	118	49
ARABLE CROPS Total	47	44	52	55	62	89	129	98	100	109	122	120
CITRUS	90	81	153	135	123	122	102	113	100	152	167	170
GRAPES/VINES	256	241	220	201	204	200	198	199	100	133	168	169
FRUIT TREES	62	61	63	65	63	56	42	43	100	105	88	80
VEGETABLES	48	46	36	38	43	99	86	116	100	91	91	96
FRUIT & VEGETABLES Total	143	135	130	121	122	137	128	139	100	117	130	131
Grand Total	122	115	113	106	109	126	128	130	100	115	128	129

Table 4.7.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	4	4	5	5	6	7	7	8	10	9	10	11
MAIZE	1	1	1	1	2	2	3	3	3	3	3	3
OIL SEEDS	1	1	1	1	1	0	0	1	1	1	1	1
POTATOES	1	1	1	1	2	3	8	2	3	2	2	2
SUGAR BEET	1	1	2	2	2	3	4	2	3	2	3	2
OTHER ARABLE CROPS	0	0	0	0	0	0	0	0	3	3	3	1
ARABLE CROPS Total	8	8	10	11	12	15	22	17	22	21	21	20
CITRUS	5	5	10	9	8	7	6	6	7	10	10	10
GRAPES/VINES	70	70	65	63	62	52	51	51	33	38	43	43
FRUIT TREES	7	7	7	8	7	6	4	4	13	12	9	8
VEGETABLES	10	10	8	9	10	19	17	22	25	19	18	18
FRUIT & VEGETABLES Total	92	92	90	89	88	85	78	83	78	79	79	80
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.7.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		POTATOES		SUGAR BEET	
PHENOXY HERBICIDES	0.2	CHLORO-ACETANILIDE HERBICIDES	1.1	DITHIO-CARBAMATE FUNGICIDES	2.2	INORGANIC SULPHUR	4.3
ORGANO-PHOSPHORUS HERBICIDES	0.2	TRIAZINE HERBICIDES	0.4	SOIL STERILANTS	1.7	BIS-CARBAMATE HERBICIDES	0.5
UREA HERBICIDES	0.1	ORGANO-PHOSPHORUS HERBICIDES	0.1	ORGANO-PHOSPHORUS INSECTICIDES	0.3	BENZOFURANE HERBICIDES	0.4
ARYLOXY-PHENOXY-PROPIONIC HERBICIDES	0.0	ORGANO-PHOSPHORUS INSECTICIDES	0.1	COPPER COMPOUNDS	0.2	ORGANO-PHOSPHORUS INSECTICIDES	0.3
THIOCARBAMATE HERBICIDES	0.0	PHENOXY HERBICIDES	0.1	ORGANO-PHOSPHORUS FUNGICIDES	0.2	URACIL HERBICIDES	0.2

Table 4.7.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

CITRUS		GRAPES		FRUIT TREES		VEGETABLES	
ORGANO-PHOSPHORUS HERBICIDES	5.6	INORGANIC SULPHUR	9.6	COPPER COMPOUNDS	0.5	SOIL STERILANTS	8.45
ORGANO-PHOSPHORUS INSECTICIDES	1.3	SOIL STERILANTS	0.6	ORGANO-PHOSPHORUS INSECTICIDES	0.4	INORGANIC SULPHUR	2.1
DITHIO-CARBAMATE FUNGICIDES	0.7	ORGANO-PHOSPHORUS HERBICIDES	0.4	INORGANIC SULPHUR	0.4	DITHIO-CARBAMATE FUNGICIDES	1.8
ORGANO-PHOSPHORUS FUNGICIDES	0.7	DITHIO-CARBAMATE FUNGICIDES	0.3	DITHIO-CARBAMATE FUNGICIDES	0.3	OXIME-CARBAMATE INSECTICIDES	0.7
ORGANOCHLORINE INSECTICIDES	0.3	COPPER COMPOUNDS	0.1	ORGANO-PHOSPHORUS HERBICIDES	0.2	ORGANO-PHOSPHORUS INSECTICIDES	0.4

Table 4.7.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
2,4-D	H	c	c	c	c	c	c	c	c	c	c	c	c
ISOPROTURON	H	118	110	104	101	90	101	120	188	308	274	391	373
MCPA	H	46	40	64	56	86	120	106	160	216	339	317	299
MECOPROP	H	15	9	13	3	:	:	:	47	133	156	138	171
OTHERS		853	705	864	848	862	1041	1072	1101	707	697	620	779
TOTAL		1305	1238	1420	1388	1554	2135	2272	2587	2494	2652	3083	3502

Table 4.7.9: Quantities of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ALACHLOR	H	:	:	:	:	:	200	246	331	164	319	304	268
ATRAZINE	H	139	90	136	149	204	220	259	275	158	172	188	246
ACETOCHLOR	H	:	:	:	2	:	34	40	45	142	130	199	214
METOLACHLOR	H	102	75	117	141	168	181	194	153	156	175	158	136
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		370	239	347	377	489	747	861	961	774	938	1019	1039

Table 4.7.10: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	104	78	131	160	185	169	147	104	169	192	223	218
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	271	161	125	170
FOSETYL	F	c	c	c	c	c	c	c	c	c	c	c	c
CYMOXANIL	F	3	3	3	3	4	5	5	4	13	11	14	14
COPPER OXYCHLORIDE	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		168	140	167	208	212	634	2342	593	129	177	200	172
TOTAL		284	231	307	380	416	829	2517	723	612	575	604	611

Table 4.7.11: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	72	79	114	224	306	540	743	433	307	342	430	433
ETHOFUMESATE	H	31	32	34	25	34	38	42	32	25	39	42	40
PHENMEDIPHAM	H	18	18	16	11	9	11	15	13	30	33	39	31
LENACIL	H	19	20	21	22	26	17	20	24	16	17	20	24
DESMEDIPHAM	H	10	10	9	6	5	6	6	7	14	19	22	20
OTHERS		205	233	281	269	269	299	291	263	252	228	237	146
TOTAL		354	391	474	557	650	911	1116	772	643	678	789	694

Table 4.7.12: Quantities of the top-5 active substances applied to citrus crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
MANCOZEB	F	3	1	25	23	52	19	19	12	126	154	185	219
FOSETYL	F	c	c	c	c	c	c	c	c	c	c	c	c
CHLORPYRIFOS	I	21	39	53	45	43	127	156	492	110	179	194	201
DICOFOL	I	11	3	2	2	2	1	2	4	53	83	96	99
OTHERS		1190	972	2199	1873	1505	580	601	673	772	939	885	627
TOTAL		1620	1465	2755	2423	2216	2194	1836	2028	1798	2726	3001	3059

Table 4.7.13: Quantities of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	19714	18585	16925	15438	15466	14818	14568	14501	6344	8533	11109	11203
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	277	740	809	692
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
MANCOZEB	F	45	33	27	30	33	100	61	57	210	267	305	337
FOLPET	F	94	58	49	61	53	109	128	87	111	79	89	84
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		20608	19412	17696	16203	16412	16081	15909	16046	8047	10729	13507	13580

Table 4.7.14: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	528	600	652	611	607	772	614	573	520	553	411	373
COPPER OXYCHLORIDE	F	c	c	c	c	c	c	c	c	c	c	c	c
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
MANCOZEB	F	4	1	4	6	5	8	4	3	38	160	155	144
COPPER SULPHATE	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		1004	867	899	1024	937	938	654	713	2317	1801	1605	1405
TOTAL		1926	1882	1960	2005	1969	1742	1317	1346	3105	3249	2730	2490

Table 4.7.15: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	4032	2843	2978	3088
SULPHUR	F	2215	2141	1435	1405	1506	1241	989	1003	579	718	495	759
MANCOZEB	F	112	101	108	116	141	252	305	285	337	470	527	538
METHOMYL	I	28	25	31	35	35	19	22	34	189	178	177	226
PENDIMETHALIN	H	:	:	:	44	26	29	62	55	68	69	90	82
OTHERS		514	522	591	700	862	4397	3796	5564	798	1155	1208	1084
TOTAL		2869	2789	2166	2299	2570	5939	5174	6941	6003	5434	5476	5777

4.8 France

Table 4.8.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	7458	6671	6478	6615	7075	7316	7392	7126	7310	7020	7497	7267
MAIZE	3374	3310	3112	3180	3272	3292	3210	3102	3161	3388	3241	3268
OIL SEEDS	1729	1458	1853	1931	1874	1970	2050	2287	2010	1923	1736	1865
POTATOES	168	179	159	160	165	168	163	158	163	162	162	157
SUGAR BEET	459	439	434	455	456	458	451	436	410	429	438	400
OTHER ARABLE CROPS	4662	6019	6116	5871	5320	5102	5096	5210	5259	5378	5243	5348
ARABLE CROPS Total	17851	18077	18152	18212	18162	18305	18362	18318	18311	18300	18318	18305
CITRUS	3	3	2	2	3	2	2	2	2	2	2	2
GRAPES/VINES	942	933	924	917	909	902	900	901	900	896	862	851
FRUIT TREES	213	214	213	208	204	201	195	198	196	189	167	167
VEGETABLES	320	304	305	310	307	298	301	297	288	290	289	287
FRUIT & VEGETABLES Total	1478	1453	1445	1436	1423	1403	1398	1398	1386	1377	1320	1307
Grand Total	19328	19530	19598	19648	19585	19708	19760	19716	19697	19678	19638	19612

Table 4.8.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	12402	10134	9556	10945	11243	17062	18746	17577	21309	19649	19825	15557
MAIZE	5732	4995	4930	6471	5950	8616	9094	9451	7945	6357	6563	4570
OIL SEEDS	1770	1157	1568	2146	2365	4071	6624	5500	5443	4296	3693	3367
POTATOES	1837	1748	1769	1847	1905	1627	1659	1726	3289	2991	3156	2732
SUGAR BEET	1975	1812	1613	1911	2104	2105	1938	1848	1656	1608	1753	1260
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	533	383	370	276
ARABLE CROPS Total	23716	19845	19437	23320	23568	33481	38060	36101	40174	35283	35360	27762
CITRUS	7	7	9	10	11	:	:	:	:	18	20	21
GRAPES/VINES	31616	37533	29369	40164	39397	45261	42341	40491	41826	35523	31281	27738
FRUIT TREES	4320	5117	5271	5840	5050	4570	4309	3264	2559	3142	3201	2747
VEGETABLES	2727	2542	2357	2456	2602	2319	2485	2566	2478	2636	1649	2033
FRUIT & VEGETABLES Total	38671	45199	37005	48470	47061	52150	49136	46321	46863	41318	36151	32538
Grand Total	62386	65044	56442	71791	70628	85631	87196	82423	87037	76601	71511	60301

Table 4.8.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	1.7	1.5	1.5	1.7	1.6	2.3	2.5	2.5	2.9	2.8	2.6	2.1
MAIZE	1.7	1.5	1.6	2.0	1.8	2.6	2.8	3.0	2.5	1.9	2.0	1.4
OIL SEEDS	1.0	0.8	0.8	1.1	1.3	2.1	3.2	2.4	2.7	2.2	2.1	1.8
POTATOES	10.9	9.7	11.1	11.5	11.5	9.7	10.2	10.9	20.2	18.5	19.4	17.3
SUGAR BEET	4.3	4.1	3.7	4.2	4.6	4.6	4.3	4.2	4.0	3.7	4.0	3.2
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	0.1	0.1	0.1	0.1
ARABLE CROPS Total	1.3	1.1	1.1	1.3	1.3	1.8	2.1	2.0	2.2	1.9	1.9	1.5
CITRUS	2.9	3.0	3.5	4.2	4.5	-	-	-	-	7.9	9.4	9.5
GRAPES/VINES	33.6	40.2	31.8	43.8	43.3	50.2	47.0	45.0	46.5	39.7	36.3	32.6
FRUIT TREES	20.3	23.9	24.7	28.1	24.7	22.8	22.1	16.5	13.1	16.6	19.2	16.5
VEGETABLES	8.5	8.4	7.7	7.9	8.5	7.8	8.3	8.6	8.6	9.1	5.7	7.1
FRUIT & VEGETABLES Total	26.2	31.1	25.6	33.7	33.1	37.2	35.1	33.1	33.8	30.0	27.4	24.9
Grand Total	3.2	3.3	2.9	3.7	3.6	4.3	4.4	4.2	4.4	3.9	3.6	3.1

Table 4.8.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	58	48	45	51	53	80	88	82	100	92	93	73
MAIZE	72	63	62	81	75	108	114	119	100	80	83	58
OIL SEEDS	33	21	29	39	43	75	122	101	100	79	68	62
POTATOES	56	53	54	56	58	49	50	52	100	91	96	83
SUGAR BEET	119	109	97	115	127	127	117	112	100	97	106	76
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	100	72	69	52
ARABLE CROPS Total	59	49	48	58	59	83	95	90	100	88	88	69
CITRUS	-	-	-	-	-	-	-	-	-	-	-	-
GRAPES/VINES	76	90	70	96	94	108	101	97	100	85	75	66
FRUIT TREES	169	200	206	228	197	179	168	128	100	123	125	107
VEGETABLES	110	103	95	99	105	94	100	104	100	106	67	82
FRUIT & VEGETABLES Total	83	96	79	103	100	111	105	99	100	88	77	69
Grand Total	72	75	65	82	81	98	100	95	100	88	82	69

Table 4.8.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	20	16	17	15	16	20	21	21	24	26	28	26
MAIZE	9	8	9	9	8	10	10	11	9	8	9	8
OIL SEEDS	3	2	3	3	3	5	8	7	6	6	5	6
POTATOES	3	3	3	3	3	2	2	2	4	4	4	5
SUGAR BEET	3	3	3	3	3	2	2	2	2	2	2	2
OTHER ARABLE CROPS	0	0	0	0	0	0	0	0	1	1	1	0
ARABLE CROPS Total	38	31	34	32	33	39	44	44	46	46	49	46
CITRUS	0	0	0	0	0	0	0	0	0	0	0	0
GRAPES/VINES	51	58	52	56	56	53	49	49	48	46	44	46
FRUIT TREES	7	8	9	8	7	5	5	4	3	4	4	5
VEGETABLES	4	4	4	3	4	3	3	3	3	3	2	3
FRUIT & VEGETABLES Total	62	69	66	68	67	61	56	56	54	54	51	54
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.8.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
UREA HERBICIDES	0.5	CHLOROACETANILIDE HERBICIDES	0.7	DINITROANILINE HERBICIDES	0.7	DITHIO-CARBAMATE FUNGICIDES	11	BIS-CARBAMATE HERBICIDES	0.5
PHYSIOLOGICAL PLANT GROWTH REGULATORS	0.3	ORGANO-PHOSPHORUS HERBICIDES	0.	ANILIDE HERBICIDES	0.4	THIOCARBAMATE HERBICIDES	1.9	BENZOFURANE HERBICIDES	0.5
PHENOXY HERBICIDES	0.3	AMIDE HERBICIDES	0.1	DIPHENYL ETHER HERBICIDES	0.2	PHTHALIC ACID FUNGICIDES	1.6	ORGANO-PHOSPHORUS HERBICIDES	0.4
ORGANO-PHOSPHORUS HERBICIDES	0.2	TRIKETONE HERBICIDES	0.1	AMIDE HERBICIDES	0.2	DINITROANILINE FUNGICIDES	0.3	PYRIDAZINONE HERBICIDES	0.4
STROBILURINE FUNGICIDES	0.1	CARBAMATE INSECTICIDES	0.1	CHLORO-ACETANILIDE HERBICIDES	0.1	MORPHOLINE FUNGICIDES	0.3	INORGANIC SULPHUR	0.0

Table 4.8.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

CITRUS		GRAPES		FRUIT TREES		VEGETABLES	
MINERAL OIL	8.6	INORGANIC SULPHUR	20	INORGANIC SULPHUR	6.3	SOIL STERILANTS	3.3
ORGANO-PHOSPHORUS INSECTICIDES	0.8	DITHIOCARBAMATE FUNGICIDES	2.6	DITHIOCARBAMATE FUNGICIDES	2.9	DINITROANILINE HERBICIDES	0.7
CARBAMATE INSECTICIDES	0.2	ORGANO-PHOSPHORUS FUNGICIDES	2.5	MINERAL OIL	2.6	THIADIAZINE HERBICIDES	0.6
PYRETHROID INSECTICIDES	0.0	PHTHALIC ACID FUNGICIDES	1.9	PHTHALIC ACID FUNGICIDES	1.1	DITHIO-CARBAMATE FUNGICIDES	0.4
		ORGANO-PHOSPHORUS HERBICIDES	1.0	ORGANO-PHOSPHORUS INSECTICIDES	0.6	ORGANO-PHOSPHORUS INSECTICIDES	0.3

Table 4.8.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ISOPROTURON	H	1048	842	780	800	1017	2171	2263	1892	5708	3776	4495	3502
CHLORMEQUAT	PGR	c	c	c	c	c	c	c	c	c	c	c	c
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
MCPA	H	55	41	35	27	20	115	126	148	1191	1119	978	962
CHOLINE CHLORIDE	ZR	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		10152	7990	7289	8221	8041	10105	10722	9942	9333	9732	9402	7161
TOTAL		12402	10134	9556	10945	11243	17062	18746	17577	21309	19649	19825	15557

Table 4.8.9: Quantities of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ACETOCHLOR	H	:	:	:	:	:	7	45	132	307	271	335	814
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
ALACHLOR	H	50	53	71	96	80	2441	3125	3622	2385	1703	2497	745
S-METOLACHLOR	H	:	:	:	:	:	:	:	:	:	c	c	c
SULCOTRIONE	H	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		5372	4810	4721	6154	5544	5488	4999	4718	3913	2962	2316	1415
TOTAL		5732	4995	4930	6471	5950	8616	9094	9451	7945	6357	6563	4570

Table 4.8.10: Quantities of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
TRIFLURALIN	H	:	:	:	:	:	600	2909	1491	1199	979	1017	1066
METAZACHLOR	H	172	193	270	320	367	440	539	458	441	423	317	457
ACLONIFEN	H	:	:	:	:	:	c	c	c	c	c	c	c
NAPROPAMIDE	H	86	18	42	161	54	84	84	90	108	233	213	259
DIMETHACHLOR	H	:	:	:	:	:	c	c	c	c	c	c	c
OTHERS		1511	946	1257	1665	1944	2375	2586	2960	3229	2094	1634	1001
TOTAL		1770	1157	1568	2146	2365	4071	6624	5500	5443	4296	3693	3367

Table 4.8.11: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	1141	896	876	804	810	998	1227	1098	2412	2039	2146	1779
PROSULFOCARB	H	189	172	240	415	368	:	:	:	250	268	296	294
FOLPET	F	:	:	:	:	:	:	:	:	142	236	276	249
FLUAZINAM	F	:	:	c	c	c	c	c	c	c	c	c	c
DIMETHOMORPH	F	:	:	c	c	c	c	c	c	c	c	c	c
OTHERS		506	681	651	626	718	571	380	580	378	354	326	312
TOTAL		1837	1748	1769	1847	1905	1627	1659	1726	3289	2991	3156	2732

Table 4.8.12: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ETHOFUMESATE	H	96	86	71	80	60	77	71	88	119	126	151	184
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
CHLORIDAZON	H	209	166	186	203	272	262	167	238	217	200	166	159
PHENMEDIPHAM	H	56	47	47	60	44	60	58	69	127	140	154	158
SULPHUR	F	424	424	372	515	686	631	577	470	193	168	152	128
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		1975	1812	1613	1911	2104	2105	1938	1848	1656	1608	1753	1260

Table 4.8.13: Quantities of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	21788	25967	18625	28714	28109	31847	29088	26338	28071	22885	20439	17845
FOSETYL	F	c	c	c	c	c	c	c	c	c	c	c	c
FOLPET	F	1838	2353	2342	1943	1958	2318	2106	2272	2119	1822	1629	1609
MANCOZEB	F	1815	2104	1490	1832	1881	1665	1826	1190	2168	2049	1625	1342
METIRAM	F	:	:	:	:	:	494	570	978	931	894	956	882
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		31616	37533	29369	40164	39397	45261	42341	40491	41826	35523	31281	27738

Table 4.8.14: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	1781	1951	2069	2357	2241	2172	1909	1196	858	1432	1265	1056
PETROLEUM OILS	ZR	13	362	395	405	440	494	511	473	293	261	389	433
MANCOZEB	F	402	576	365	346	178	168	310	192	405	447	417	365
CAPTAN	F	359	536	615	818	602	375	378	265	126	182	257	191
IPRODIONE	F	:	:	:	:	:	21	19	15	15	13	13	74
OTHERS		1765	1693	1826	1915	1588	1340	1182	1122	862	808	860	627
TOTAL		4320	5117	5271	5840	5050	4570	4309	3264	2559	3142	3201	2747

Table 4.8.15: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	1442	1365	309	489
DAZOMET	ZR	c	c	c	c	c	c	c	c	c	c	c	c
BENTAZONE	H	171	140	91	102	220	160	160	196	185	87	192	165
PENDIMETHALIN	H	5	5	11	11	10	154	153	160	129	108	119	158
MANCOZEB	F	77	17	124	66	68	116	242	137	413	376	328	114
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		2727	2542	2357	2456	2602	2319	2485	2566	2478	2636	1649	2033

4.9 Ireland

Table 4.9.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	300	285	270	274	293	310	301	290	279	286	299	303
OIL SEEDS	466	477	612	660	466	477	612	660	466	477	612	660
POTATOES	22	22	21	22	24	18	18	17	14	14	15	14
SUGAR BEET	31	32	35	35	32	32	33	34	32	31	31	32
OTHER ARABLE CROPS	138	142	156	60	282	198	120	76	269	321	199	158
ARABLE CROPS Total	958	958	1095	1051	1097	1035	1084	1076	1074	1148	1177	1182
FRUIT TREES	2	2	2	2	2	2	2	2	2	2	2	2
VEGETABLES	7	7	7	7	7	7	7	9	6	6	6	7
FRUIT & VEGETABLES Total	9	9	9	9	9	9	9	10	8	8	7	9
Grand Total	966	966	1104	1060	1106	1044	1093	1087	1081	1156	1184	1191

Table 4.9.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	249	195	212	284	282	736	489	440	997	1017	1027	810
OIL SEEDS	7	8	5	4	5	6	1	0	3	25	7	13
POTATOES	73	48	58	45	50	61	32	33	238	224	293	301
SUGAR BEET	56	14	19	19	17	82	76	62	76	33	42	53
ARABLE CROPS Total	385	265	294	358	360	890	601	540	1313	1301	1370	1177
FRUIT TREES	2	2	4	3	3	0	1	2	2	11	12	1
VEGETABLES	58	62	67	70	72	19	17	14	6	6	6	23
FRUIT & VEGETABLES Total	60	63	71	73	75	20	17	16	8	17	18	24
Grand Total	445	328	364	431	435	910	618	555	1321	1317	1388	1201

Table 4.9.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.8	0.7	0.8	1.0	1.0	2.4	1.6	1.5	3.6	3.6	3.4	2.7
OIL SEEDS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
POTATOES	3.3	2.2	2.7	2.0	2.1	3.3	1.7	1.9	17.6	15.7	19.1	21.2
SUGAR BEET	1.8	0.4	0.5	0.5	0.5	2.5	2.3	1.8	2.4	1.1	1.3	1.7
ARABLE CROPS Total	0.4	0.3	0.3	0.3	0.3	0.9	0.6	0.5	1.2	1.1	1.2	1.0
FRUIT TREES	1.6	1.3	2.5	2.3	2.0	0.1	0.4	1.3	1.5	7.4	8.3	1.0
VEGETABLES	8.2	8.6	9.4	9.8	10.1	2.7	2.4	1.6	0.9	0.9	1.0	3.2
FRUIT & VEGETABLES Total	7.0	7.3	8.2	8.5	8.7	2.3	2.0	1.5	1.0	2.1	2.4	2.8
Grand Total	0.5	0.3	0.3	0.4	0.4	0.9	0.6	0.5	1.2	1.1	1.2	1.0

Table 4.9.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	25	20	21	28	28	74	49	44	100	102	103	81
OIL SEEDS	259	312	211	173	198	235	30	19	100	988	279	521
POTATOES	31	20	24	19	21	26	13	14	100	94	123	126
SUGAR BEET	74	19	25	25	22	108	101	82	100	44	55	69
ARABLE CROPS Total	29	20	22	27	27	68	46	41	100	99	104	90
FRUIT TREES	103	84	165	153	134	9	26	86	100	486	546	63
VEGETABLES	1041	1107	1203	1260	1297	351	302	247	100	100	104	410
FRUIT & VEGETABLES Total	768	809	901	937	958	251	222	200	100	213	233	309
Grand Total	34	25	28	33	33	69	47	42	100	100	105	91

Table 4.9.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	56	59	58	66	65	81	79	79	75	77	74	67
OIL SEEDS	1	2	1	1	1	1	0	0	0	2	1	1
POTATOES	16	15	16	11	12	7	5	6	18	17	21	25
SUGAR BEET	13	4	5	4	4	9	12	11	6	3	3	4
ARABLE CROPS Total	86	81	81	83	83	98	97	97	99	99	99	98
FRUIT TREES	1	1	1	1	1	0	0	0	0	1	1	0
VEGETABLES	13	19	18	16	17	2	3	2	0	0	0	2
FRUIT & VEGETABLES Total	14	19	19	17	17	2	3	3	1	1	1	2
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.9.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		POTATOES		SUGAR BEET	
ORGANO-PHOSPHORUS HERBICIDES	1.0	DITHIO-CARBAMATE FUNGICIDES	18	ORGANO-PHOSPHORUS HERBICIDES	1.2
PHENOXY HERBICIDES	0.6	BIPYRIDYLIUM HERBICIDES	0.9	URACIL HERBICIDES	0.3
AROMATIC FUNGICIDES	0.2	DINITROANILINE FUNGICIDES	0.8	PYRIDINE-CARBOXYLIC-ACID HERBICIDES	0.1
CONAZOLE FUNGICIDES	0.2	MORPHOLINE FUNGICIDES	0.3	PYRIDAZINONE HERBICIDES	0.0
MORPHOLINE FUNGICIDES	0.1	AMIDE FUNGICIDES	0.2	CONAZOLE FUNGICIDES	0.0

Table 4.9.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

FRUIT TREES		VEGETABLES	
STROBILURINE FUNGICIDES	0.8	CHLORO-ACETANILIDE HERBICIDES	2.3
CONAZOLE FUNGICIDES	0.1	ORGANO-PHOSPHORUS INSECTICIDES	0.4
PYRAZOLE (PHENYL-) INSECTICIDES	0.0	INORGANIC SULPHUR	0.3
		DINITROANILINE HERBICIDES	0.1
		ANILIDE HERBICIDES	0.1

Table 4.9.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
MECOPROP-P	H	21	:	:	16		90	83	87	144	207	188	131
CHLOROTHALONIL	F	21	23	23	21	16	13	11	4	:	1	3	68
MCPA	H	:	:	:	:	:	21	34	37	68	97	108	46
FENPROPIMORPH	F	8	7	4	16	34	89	71	47	40	42	34	44
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		249	195	212	284	282	736	489	440	997	1017	1027	810

Table 4.9.9: Quantities of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
METAZACHLOR	H	:	:	:	:	:	:	:	:	1	3	2	3
CHLORFEN-VINPHOS	I	c	c	c	c	c	c	c	c	c	c	c	c
PROPYZAMIDE	H	:	:	:	:	:	:	:	:	:	1	1	2
PROCHLORAZ	F	:	:	:	:	:	:	:	:	:	:	:	2
IPRODIONE	F	:	:	:	:	:	:	:	:	:	:	:	1
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		7	8	5	4	5	6	1	0	3	25	7	13

Table 4.9.10: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	37	38	35	27	32	50	23	21	190	189	254	262
FLUAZINAM	F	:	:	:	:	:	:	:	:	c	c	c	c
PARAQUAT	H	2	2	2	2	2	:	:	:	8	9	9	8
DIQUAT	H	c	c	c	c	c	c	c	c	c	c	c	c
DIMETHOMORPH	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		18	8	8	5	5	9	9	12	26	7	9	11
TOTAL		73	48	58	45	50	61	32	33	238	224	293	301

Table 4.9.11: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
LENACIL	H	9	10	10	12	10	6	7	9	7	9	8	9
CLOPYRALID	H	2	1	1	1	1		1	2	2	2	2	2
CHLORIDAZON	H	:	:	:	:	:	4	0	:	:	:	:	1
FLUSILAZOLE	F	1	1	1	1	1	9	9	1	0	0	0	1
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		56	14	19	19	17	82	76	62	76	33	42	53

Table 4.9.12: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
KRESOXIM-METHYL	F	:	:	:	:	:	c	c	c	c	c	c	c
MYCLOBUTANIL	F	:	:	:	:	:	:	:	:	0	0	0	0
TEBUFENPYRAD	I	:	:	:	:	:	:	:	:	:	:	0	0
DITHIANON	F	:	:	:	:	:	c	c	c	c	c	c	c
FENARIMOL	F	:	:	:	:	:	:	0	0	:	:	:	:
OTHERS		2	2	4	3	3	0	0	0	0	0	0	0
TOTAL		2	2	4	3	3	0	1	2	2	11	12	1

Table 4.9.13: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PROPACHLOR	H	c	c	c	c	c	c	c	c	c	c	c	c
DIMETHOATE	I	:	:	:	:	:	:	:	:	:	:	:	3
SULPHUR	F	:	:	:	:	:	:	:	:	:	:	:	2
TRIFLURALIN	H	:	:	:	:	:	:	:	:	1	1	1	1
METAZACHLOR	H	:	:	:	:	:	4	3	2	2	0	0	0
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		58	62	67	70	72	19	17	14	6	6	6	23

4.10 Italy

Table 4.10.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	3374	3145	3194	3283	3199	3157	3097	3145	3070	3024	3172	2984
MAIZE	1137	1221	1186	1214	1314	1329	1252	1311	1349	1404	1386	1445
OIL SEEDS	466	311	451	475	542	603	647	505	506	468	327	308
POTATOES	106	93	86	89	91	91	90	87	83	80	77	74
SUGAR BEET	296	280	282	284	250	297	284	284	249	223	246	214
OTHER ARABLE CROPS	4180	3967	3774	3570	3199	3030	3054	3221	3167	3088	3033	2935
ARABLE CROPS Total	9559	9017	8975	8915	8594	8507	8425	8553	8424	8286	8241	7959
CITRUS	182	183	184	185	184	184	183	182	182	181	179	173
GRAPES/VINES	1005	979	956	927	922	910	905	908	908	892	872	862
FRUIT TREES	828	823	809	456	456	456	456	472	461	464	462	454
VEGETABLES	582	480	473	577	577	577	555	537	538	466	466	475
FRUIT & VEGETABLES Total	2598	2465	2423	2145	2139	2127	2099	2099	2089	2003	1979	1964
Grand Total	12157	11482	11397	11060	10733	10633	10524	10652	10513	10289	10220	9923

Table 4.10.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	609	722	941	914	870	1260	1287	997	1724	1651	1696	1486
MAIZE	2080	1981	2119	2257	1988	2596	2515	2062	1954	1553	2063	1840
OIL SEEDS	62	86	143	157	136	127	143	307	112	132	107	93
POTATOES	281	311	317	343	316	313	254	334	332	270	332	249
SUGAR BEET	1232	1159	1225	1171	962	1236	1097	713	862	840	879	600
ARABLE CROPS Total	4265	4257	4744	4843	4272	5532	5295	4413	5055	4515	5174	4315
CITRUS	1042	995	978	1067	1041	348	383	304	632	733	821	701
GRAPES/VINES	28703	39909	38974	38781	41580	40704	36715	35279	34036	31711	27430	15345
FRUIT TREES	7381	8131	7992	7946	6955	8779	8603	8449	6297	6273	6962	5905
VEGETABLES	1087	1151	1238	1502	1613	2721	2662	2458	2845	2978	4517	4373
FRUIT & VEGETABLES Total	38213	50187	49182	49296	51189	52552	48363	46490	43810	41695	39730	26324
Grand Total	42478	54444	53926	54139	55461	58084	53658	50902	48866	46210	44904	30639

Table 4.10.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.6	0.5	0.5	0.5
MAIZE	1.8	1.6	1.8	1.9	1.5	2.0	2.0	1.6	1.4	1.1	1.5	1.3
OIL SEEDS	0.1	0.3	0.3	0.3	0.3	0.2	0.2	0.6	0.2	0.3	0.3	0.3
POTATOES	2.7	3.3	3.7	3.8	3.5	3.5	2.8	3.8	4.0	3.4	4.3	3.4
SUGAR BEET	4.2	4.1	4.3	4.1	3.9	4.2	3.9	2.5	3.5	3.8	3.6	2.8
ARABLE CROPS Total	0.4	0.5	0.5	0.5	0.5	0.7	0.6	0.5	0.6	0.5	0.6	0.5
CITRUS	5.7	5.4	5.3	5.8	5.7	1.9	2.1	1.7	3.5	4.0	4.6	4.1
GRAPES/VINES	28.5	40.8	40.7	41.8	45.1	44.7	40.6	38.8	37.5	35.6	31.5	17.8
FRUIT TREES	8.9	9.9	9.9	17.4	15.2	19.2	18.9	17.9	13.7	13.5	15.1	13.0
VEGETABLES	1.9	2.4	2.6	2.6	2.8	4.7	4.8	4.6	5.3	6.4	9.7	9.2
FRUIT & VEGETABLES Total	14.7	20.4	20.3	23.0	23.9	24.7	23.0	22.2	21.0	20.8	20.1	13.4
Grand Total	3.5	4.7	4.7	4.9	5.2	5.5	5.1	4.8	4.6	4.5	4.4	3.1

Table 4.10.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	35	42	55	53	50	73	75	58	100	96	98	86
MAIZE	106	101	108	116	102	133	129	106	100	80	106	94
OIL SEEDS	55	76	128	141	121	113	128	274	100	118	95	83
POTATOES	85	93	95	103	95	94	76	100	100	81	100	75
SUGAR BEET	143	134	142	136	112	143	127	83	100	98	102	70
ARABLE CROPS Total	84	84	94	96	85	109	105	87	100	89	102	85
CITRUS	165	158	155	169	165	55	61	48	100	116	130	111
GRAPES/VINES	84	117	115	114	122	120	108	104	100	93	81	45
FRUIT TREES	117	129	127	126	110	139	137	134	100	100	111	94
VEGETABLES	38	40	44	53	57	96	94	86	100	105	159	154
FRUIT & VEGETABLES Total	87	115	112	113	117	120	110	106	100	95	91	60
Grand Total	87	111	110	111	113	119	110	104	100	95	92	63

Table 4.10.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	1	1	2	2	2	2	2	2	4	4	4	5
MAIZE	5	4	4	4	4	4	5	4	4	3	5	6
OIL SEEDS	0	0	0	0	0	0	0	1	0	0	0	0
POTATOES	1	1	1	1	1	1	0	1	1	1	1	1
SUGAR BEET	3	2	2	2	2	2	2	1	2	2	2	2
ARABLE CROPS Total	10	8	9	9	8	10	10	9	10	10	12	14
CITRUS	2	2	2	2	2	1	1	1	1	2	2	2
GRAPES/VINES	68	73	72	72	75	70	68	69	70	69	61	50
FRUIT TREES	17	15	15	15	13	15	16	17	13	14	16	19
VEGETABLES	3	2	2	3	3	5	5	5	6	6	10	14
FRUIT & VEGETABLES Total	90	92	91	91	92	90	90	91	90	90	88	86
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.10.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
ORGANO-PHOSPHORUS HERBICIDES	0.2	CHLORO-ACETANILIDE HERBICIDES	0.5	THIADIAZINE HERBICIDES	0.1	DITHIO-CARBAMATE FUNGICIDES	1.1	ORGANO-PHOSPHORUS HERBICIDES	0.8
PHENOXY HERBICIDES	0.2	TRIAZINE HERBICIDES	0.3	DIPHENYL ETHER HERBICIDES	0.1	COPPER COMPOUNDS	0.9	PYRIDAZINONE HERBICIDES	0.4
UREA HERBICIDES	0.0	DINITROANILINE HERBICIDES	0.1	DINITROANILINE HERBICIDES	0.1	ORGANO-PHOSPHORUS INSECTICIDES	0.3	BENZOFURANE HERBICIDES	0.3
ARYLOXY-PHENOXYPROPIONIC HERBICIDES	0.0	AMIDE HERBICIDES	0.1	ANILIDE HERBICIDES	0.0	DINITROANILINE HERBICIDES	0.9	TRIAZINONE HERBICIDES	0.3
CONAZOLE FUNGICIDES	0.0	BENZOIC-ACID HERBICIDES	0.1	CYCLO-HEXANEDIONE HERBICIDES	0.0	INORGANIC SULPHUR	0.1	BIS-CARBAMATE HERBICIDES	0.3

Table 4.10.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

CITRUS		GRAPES		FRUIT TREES		VEGETABLES	
MINERAL OIL	2.4	INORGANIC SULPHUR	10	MINERAL OIL	5.1	OTHER SOIL STERILANTS	5.7
ORGANO-PHOSPHORUS HERBICIDES	1.1	DITHIO-CARBAMATE FUNGICIDES	3.6	DITHIO-CARBAMATE FUNGICIDES	3.0	DINITROANILINE HERBICIDES	0.6
ORGANO-PHOSPHORUS INSECTICIDES	0.3	COPPER COMPOUNDS	1.4	INORGANIC SULPHUR	1.3	DITHIO-CARBAMATE FUNGICIDES	0.6
BIPYRIDYLIUM HERBICIDES	0.1	ORGANO-PHOSPHORUS HERBICIDES	0.6	ORGANO-PHOSPHORUS INSECTICIDES	0.9	COPPER COMPOUNDS	0.6
COPPER COMPOUNDS	0.1	ORGANO-PHOSPHORUS INSECTICIDES	0.4	ORGANO-PHOSPHORUS HERBICIDES	0.6	INORGANIC SULPHUR	0.4

Table 4.10.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
2,4-D	H	c	c	c	c	c	c	c	c	c	c	c	c
MCPA	H	68	78	100	76	62	127	135	105	290	186	183	198
ISOPROTURON	H	13	13	13	5	3	15	23	9	29	27	29	40
PROCHLORAZ	F	5	1	18	9	8	9	10	14	24	31	34	27
OTHERS		306	342	511	506	450	726	678	547	729	586	597	326
TOTAL		609	722	941	914	870	1260	1287	997	1724	1651	1696	1486

Table 4.10.9: Quantities of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
TERBUTHYLAZINE	H	496	460	476	474	456	382	336	332	320	384	378	442
S-METOLACHLOR	H	:	:	:	:	:	:	:	:	:	c	c	c
ALACHLOR	H	45	43	50	43	28	768	686	602	504		534	255
METOLACHLOR	H	896	828	860	846	765	766	706	602	548	560	252	114
PENDIMETHALIN	H	77	87	109	109	113	261	292	207	208	148	119	97
OTHERS		567	564	623	785	626	419	495	319	374	c	c	c
TOTAL		2080	1981	2119	2257	1988	2596	2515	2062	1954	1553	2063	1840

Table 4.10.10: Quantities of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BENTAZONE	H	:	:	:	:	:	:	:	:	5	12	18	22
PENDIMETHALIN	H	19	25	40	38	33	36	66	20	28	32	17	15
ACLONIFEN	H	:	:	:	:	c	c	c	c	c	c	c	c
CYCLOXYDIM	H	:	:	:	:	c	c	c	c	c	c	c	c
OXYFLUORFEN	H	:	:	:	:	:	:	:	:	1	2	10	8
OTHERS		43	60	103	120	102	91	77	277	51	53	42	28
TOTAL		62	86	143	157	136	127	143	307	112	132	107	93

Table 4.10.11: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	4	7	8	11	5	4	4	5	89	87	86	79
COPPER OXYCHLORIDE	F	c	c	c	c	c	c	c	c	c	c	c	c
COPPER	F	48	50	54	48	50	195	160	141	30	25	33	26
PENDIMETHALIN	H	:	:	:	:	:	0	3	3	5	15	20	13
SULPHUR	F	:	:	:	:	:	1	1	0	7	9	12	11
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		281	311	317	343	316	313	254	334	332	270	332	249

Table 4.10.12: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
CHLORIDAZON	H	364	262	246	217	143	220	144	158	130	106	169	88
ETHOFUMESATE	H	:	42	88	31	24	93	87	3	67	57	79	71
METAMITRON	H	337	316	339	341	279	363	352	219	128	128	146	62
PHENMEDIPHAM	H	:	45	24	24	15	44	35	2	73	57	59	48
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		1232	1159	1225	1171	962	1236	1097	713	862	840	879	600

Table 4.10.13: Quantities of the top-5 active substances applied to citrus crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PETROLEUM OILS	ZR	522	474	452	493	430	:	:	:	314	356	399	417
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
CHLORPYRIFOS	I	2	3	2	6	3	9	9	9	16	16	18	15
FOSETYL	F	c	c	c	c	c	c	c	c	c	c	c	c
PARAQUAT	H	17	19	19	21	18	:	:	:	6	5	7	11
OTHERS		251	252	254	221	241	174	187	179	142	133	199	66
TOTAL		1042	995	978	1067	1041	348	383	304	632	733	821	701

Table 4.10.14: Quantities of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	22363	33142	33236	32265	35512	33471	28609	27746	27792	25030	20474	8753
MANCOZEB	F	1244	1804	943	1479	1052	1248	1099	930	2821	3133	3030	3016
COPPER OXYCHLORIDE	F	c	c	c	c	c	c	c	c	c	c	c	c
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
COPPER	F	1766	658	588	610	626	4172	5265	5199	361	374	496	354
OTHERS		1411	2013	1876	1978	1924	1481	1350	1102	2229	2271	2521	2204
TOTAL		28703	39909	38974	38781	41580	40704	36715	35279	34036	31711	27430	15345

Table 4.10.15: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PETROLEUM OILS	ZR	962	1215	1158	1158	1166	1597	1570	1642	2101	2130	2348	2313
SULPHUR	F	2738	2842	2800	2774	1727	2414	2626	2495	867	890	713	602
ZIRAM	F	1013	968	978	1022	970	781	729	672	656	481	490	487
THIRAM	F	207	251	236	246	290	296	282	333	359	400	430	417
METIRAM	F	2	477	447	447	346	493	435	419	415	410	328	309
OTHERS		2459	2378	2373	2297	2456	3198	2960	2889	1899	1961	2653	1776
TOTAL		7381	8131	7992	7946	6955	8779	8603	8449	6297	6273	6962	5905

Table 4.10.16: Quantities of the top-5 active substances applied to vegetables crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	1100	1381	2073	2716
SULPHUR	F	81	106	100	106	121	184	128	136	91	86	112	178
TRIFLURALIN	H	23	30	30	38	27	31	30	32	106	87	96	166
MANCOZEB	F	13	33	32	43	46	52	47	41	200	195	194	156
PENDIMETHALIN	H	23	27	35	34	35	4	43	28	86	135	225	119
OTHERS		949	955	1041	1282	1384	2450	2415	2220	1262	1094	1817	1039
TOTAL		1087	1151	1238	1502	1613	2721	2662	2458	2845	2978	4517	4373

4.11 Cyprus

Table 4.11.1: Areas cultivated with the different crops (in 1000 ha)

	2000	2001	2002	2003
CITRUS	5	5	5	6
GRAPES/VINES	19	18	15	15
FRUIT TREES	6	7	8	8
VEGETABLES	4	4	4	4
FRUIT & VEGETABLES Total	35	35	32	32
Grand Total	35	35	32	32

Table 4.11.2: Quantity of PPP used by crop (in 1000 ha)

	2000	2001	2002	2003
CITRUS	9	12	10	12
GRAPES/VINES	39	43	44	44
FRUIT TREES	2	2	2	2
VEGETABLES	13	20	20	15
FRUIT & VEGETABLES Total	63	78	77	73
Grand Total	63	78	77	73

Table 4.11.3: Dosage of PPP used by crop (in kg AS/ha)

	2000	2001	2002	2003
CITRUS	1.7	2.3	1.8	2.1
GRAPES/VINES	2.0	2.4	3.0	3.0
FRUIT TREES	0.3	0.3	0.3	0.2
VEGETABLES	3.5	5.4	5.4	4.0
FRUIT & VEGETABLES Total	1.8	2.2	2.4	2.3
Grand Total	1.8	2.2	2.4	2.3

Table 4.11.4: Index of quantity of PPP used by crop (2000=100)

	2000	2001	2002	2003
CITRUS	100	133	110	128
GRAPES/VINES	100	111	115	114
FRUIT TREES	100	122	122	111
VEGETABLES	100	151	149	111
FRUIT & VEGETABLES Total	100	123	122	116
Grand Total	100	123	122	116

Table 4.11.5: Proportion of PPP quantity used by crop (%)

	2000	2001	2002	2003
CITRUS	15	16	13	16
GRAPES/VINES	62	56	58	61
FRUIT TREES	3	3	3	2
VEGETABLES	21	26	26	20
FRUIT & VEGETABLES Total	100	100	100	100
Grand Total	100	100	100	100

Table 4.11.6: Quantity of the top-5 active substances applied to citrus crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
CHLORPYRIFOS	I	7	9	9	10
GLYPHOSATE	H	c	c	c	c
FENAZAQUIN	I	c	c	c	c
TOTAL		9	12	10	12

Table 4.11.7: Quantity of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
CHLORPYRIFOS	I	17	19	20	24
MANCOZEB	F	20	22	22	18
GLYPHOSATE	H	c	c	c	c
DINOCAP	F	0	0	0	0
MYCLOBUTANIL	F	0	0	0	0
OTHERS		c	c	c	c
TOTAL		39	43	44	44

Table 4.11.8: Quantity of the top-5 active substances applied to fruit tree crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c
TOTAL		c	c	c	c

Table 4.11.9: Quantity of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	8	9	10	8
1,3-DICHLORO-ROPENE	ZR	5	10	10	7
SPINOSAD	I	c	c	c	c
PROPYZAMIDE	H	0	0	0	0
OTHERS		c	c	c	c
TOTAL		13	20	20	15

4.12 Latvia

Table 4.12.1: Areas cultivated with the different crops
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	420	444	415	429
OIL SEEDS	7	9	21	28
POTATOES	51	55	54	55
SUGAR BEET	13	14	16	14
OTHER ARABLE CROPS	1359	1322	467	429
ARABLE CROPS Total	1851	1845	973	956
CITRUS	10	11	11	11
FRUIT TREES	9	12	11	13
FRUIT & VEGETABLES Total	20	23	22	24
Grand Total	1871	1868	995	980

Table 4.12.2: Quantity of PPP used by crop
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	42	74	114	107
OIL SEEDS	1	2	2	3
POTATOES	12	11	16	16
SUGAR BEET	4	5	5	5
ARABLE CROPS Total	59	91	137	131
CITRUS	1	1	1	1
FRUIT TREES	3	4	3	4
FRUIT & VEGETABLES Total	4	4	3	5
Grand Total	63	95	140	135

Table 4.12.3: Dosage of PPP used by crop
(in kg AS/ha)

	2000	2001	2002	2003
CEREALS	0.1	0.2	0.3	0.3
OIL SEEDS	0.2	0.2	0.1	0.1
POTATOES	0.2	0.2	0.3	0.3
SUGAR BEET	0.3	0.3	0.3	0.3
ARABLE CROPS Total	0.0	0.0	0.1	0.1
CITRUS	0.1	0.0	0.1	0.1
FRUIT TREES	0.4	0.3	0.3	0.3
FRUIT & VEGETABLES Total	0.2	0.2	0.2	0.2
Grand Total	0.0	0.1	0.1	0.1

Table 4.12.4: Index of quantity of PPP used by crop
(2000=100)

	2000	2001	2002	2003
CEREALS	100	174	270	254
OIL SEEDS	100	109	118	181
POTATOES	100	93	136	135
SUGAR BEET	100	119	130	121
ARABLE CROPS Total	100	153	230	220
CITRUS	100	88	96	89
FRUIT TREES	100	109	85	127
FRUIT & VEGETABLES Total	100	106	87	121
Grand Total	100	150	222	214

Table 4.12.5: Proportion of PPP quantity used by crop
(%)

	2000	2001	2002	2003
CEREALS	67	78	81	79
OIL SEEDS	2	2	1	2
POTATOES	18	11	11	12
SUGAR BEET	6	5	4	4
ARABLE CROPS Total	94	96	98	97
CITRUS	1	1	0	0
FRUIT TREES	5	4	2	3
FRUIT & VEGETABLES Total	6	4	2	3
Grand Total	100	100	100	100

Table 4.12.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
ORGANO-PHOSPHORUS HERBICIDES	0.2	SULFONYLUREA HERBICIDES	0.0	ANILIDE HERBICIDES	0.0	DITHIO-CARBAMATE FUNGICIDES	0.2	ORGANO-PHOSPHORUS HERBICIDES	0.2
DINITROANILINE HERBICIDES	0.0			ARYLOXY-PHENOXYPROPIONIC HERBICIDES	0.0	AMIDE FUNGICIDES	0.0	ARYLOXY-PHENOXYPROPIONIC HERBICIDES	0.1
PHENOXY HERBICIDES	0.0			PYRIDINE-CARBOXYLIC-ACID HERBICIDES	0.0	ALIPHATIC NITROGEN FUNGICIDES	0.0	PYRIDINE-CARBOXYLIC-ACID HERBICIDES	0.0
UREA HERBICIDES	0.0			NITROGUANIDINE INSECTICIDES	0.0	OXAZOLE FUNGICIDES	0.0	SULFONYLUREA HERBICIDES	0.0
CONAZOLE FUNGICIDES	0.0			PYRETHROID INSECTICIDES	0.0	BIPYRIDYLIUM HERBICIDES	0.0		

Table 4.12.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

TOP FRUIT		VEGETABLES	
DITHIO-CARBAMATE FUNGICIDES	0.0	METHYL-THIOTRIAZINE HERBICIDES	0.2
CONAZOLE FUNGICIDES	0.0	AROMATIC FUNGICIDES	0.0
NITROGUANIDINE INSECTICIDES	0.0	PYRIDINE-CARBOXYLIC-ACID HERBICIDES	0.0
PYRIMIDINE FUNGICIDES	0.0	ARYLOXY-PHENOXYPROPIONIC HERBICIDES	0.0
		UREA INSECTICIDES	0.0

Table 4.12.8: Quantity of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c
TRIFLURALIN	H	2	3	7	13
2,4-D	H	c	c	c	c
LINURON	H	1	1	4	6
DICAMBA	H	3	2	2	2
OTHERS		5	5	7	6
TOTAL		42	73	114	107

Table 4.12.9: Quantity of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
DIMETHACHLOR	H	c	c	c	c
CLOPYRALID	H	0.3	0.3	0.4	0.5
HALOXYFOP	H	c	c	c	c
FLUAZIFOP-P-BUTYL	H	c	c	c	c
THIAMETHOXAM	I	c	c	c	c
OTHERS		0.0	0.0	0.0	0.0
TOTAL		1.4	1.5	1.7	2.6

Table 4.12.10: Quantity of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	10.9	9.9	12.9	13.5
METALAXYL-M	F	0.4	0.4	0.5	0.6
CYMOXANIL	F	0.0	0.0	0.8	0.5
FAMOXADONE	F	c	c	c	c
DIQUAT	H	c	c	c	c
OTHERS		0.1	0.2	0.5	0.3
TOTAL		11.7	10.9	15.9	15.8

Table 4.12.11: Quantity of the top-5 active substances applied to sugar beet crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c
HALOXYFOP	H	c	c	c	c
CLOPYRALID	H	0.3	0.3	0.4	0.5
FLUAZIFOP-P-BUTYL	H	c	c	c	c
TRIFLU-SULPHURON	H	c	c	c	c
OTHERS		0.0	0.1	0.0	0.0
TOTAL		3.9	4.7	5.1	4.8

Table 4.12.12: Quantity of the top-5 active substances applied to fruit tree crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	0.5	0.5	0.5	0.5
DIFENOCONAZOLE	F	0.1	0.0	0.1	0.1
THIAMETHOXAM	I	c	c	c	c
CYPRODINIL	F	0.1	0.1	0.0	0.0
OTHERS					
TOTAL		0.6	0.6	0.6	0.6

Table 4.12.13: Quantity of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
PROMETRYN	H	c	c	c	c
CHLOROTHALONIL	F		0.0	0.0	0.6
CLOPYRALID	H	0.2	0.2	0.2	0.3
DIAFENTHIURON	I	c	c	c	c
FLUAZIFOP-P-BUTYL	H	c	c	c	c
OTHERS		0.1	0.1	0.1	0.2
TOTAL		3.2	3.5	2.7	4.1

4.13 Lithuania

Table 4.13.1: Areas cultivated with the different crops
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	980	936	915	862
OIL SEEDS	64	55	66	71
POTATOES	109	103	99	84
SUGAR BEET	28	27	29	26
OTHER ARABLE CROPS	1741	499	514	436
ARABLE CROPS Total	2932	1631	1639	1496
FRUIT TREES	36	37	38	15
VEGETABLES	33	19	19	26
FRUIT & VEGETABLES Total	69	56	57	41
Grand Total	3002	1687	1696	1537

Table 4.13.2: Quantity of PPP used by crop
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	82	143	233	253
OIL SEEDS	14	12	26	14
POTATOES	25	26	29	35
SUGAR BEET	5	6	7	8
ARABLE CROPS Total	127	187	296	310
FRUIT TREES	3	2	3	4
VEGETABLES	7	6	11	10
FRUIT & VEGETABLES Total	10	9	13	14
Grand Total	136	196	309	324

Table 4.13.3: Dosage of PPP used by crop
(in kg AS/ha)

	2000	2001	2002	2003
CEREALS	0.1	0.2	0.3	0.3
OIL SEEDS	0.2	0.2	0.4	0.2
POTATOES	0.2	0.3	0.3	0.4
SUGAR BEET	0.2	0.2	0.3	0.3
ARABLE CROPS Total	0.0	0.1	0.2	0.2
FRUIT TREES	0.1	0.1	0.1	0.2
VEGETABLES	0.2	0.3	0.6	0.4
FRUIT & VEGETABLES Total	0.1	0.2	0.2	0.3
Grand Total	0.0	0.1	0.2	0.2

Table 4.13.4: Index of quantity of PPP used by crop
(2000=100)

	2000	2001	2002	2003
CEREALS	100	173	283	307
OIL SEEDS	100	90	189	104
POTATOES	100	105	119	142
SUGAR BEET	100	118	140	147
ARABLE CROPS Total	100	148	234	245
FRUIT TREES	100	97	113	144
VEGETABLES	100	88	150	147
FRUIT & VEGETABLES Total	100	90	140	146
Grand Total	100	144	227	238

Table 4.13.5: Proportion of PPP quantity used by crop
(%)

	2000	2001	2002	2003
CEREALS	60	73	75	78
OIL SEEDS	10	6	8	4
POTATOES	18	13	10	11
SUGAR BEET	4	3	2	2
ARABLE CROPS Total	93	96	96	96
FRUIT TREES	2	1	1	1
VEGETABLES	5	3	3	3
FRUIT & VEGETABLES Total	7	4	4	4
Grand Total	100	100	100	100

Table 4.13.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
ORGANO-PHOSPHORUS HERBICIDES	0.2	SULFONYLUREA HERBICIDES	0.0	DINITROANILINE HERBICIDES	0.1	DITHIO-CARBAMATE FUNGICIDES	0.4	ORGANO-PHOSPHORUS HERBICIDES	0.2
PHENOXY HERBICIDES	0.0			ANILIDE HERBICIDES	0.1			ARYLOXY-PHENOXYPROPIONIC HERBICIDES	0.0
BENZOIC-ACID HERBICIDES	0.0			ARYLOXY-PHENOXYPROPIONIC HERBICIDES	0.0			PYRIDINE-CARBOXYLIC-ACID HERBICIDES	0.0
CONAZOLE FUNGICIDES	0.0			PYRIDINE-CARBOXYLIC-ACID HERBICIDES	0.0				

Table 4.13.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

FRUIT TREES		VEGETABLES	
DITHIO-CARBAMATE FUNGICIDES	0.2	METHYL-THIOTRIAZINE HERBICIDES	0.3
PYRIMIDINE FUNGICIDES	0.0	ORGANO-PHOSPHORUS INSECTICIDES	0.1
NITROGUANIDINE INSECTICIDES	0.0	PYRIDINE-CARBOXYLIC-ACID HERBICIDES	0.0
		NITROGUANIDINE INSECTICIDES	0.0

Table 4.13.8: Quantity of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c
2,4-D	H	c	c	c	c
DICAMBA	H	7	9	12	12
PROPICONAZOLE	F	4	6	4	8
AZOXYSTROBIN	F	c	c	c	c
OTHERS		3	7	2	4
TOTAL		82	143	233	253

Table 4.13.9: Quantity of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
TRIFLURALIN	H	6.0	7.6	6.8	7.4
DIMETHACHLOR	H	c	c	c	c
CLOPYRALID	H	0.3	0.3	0.7	0.8
FLUAZIFOP-P-BUTYL	H	c	c	c	c
THIAMETHOXAM	I	c	c	c	c
OTHERS		6.1	0.2	3.5	0.7
TOTAL		14	12	26	14

Table 4.13.10: Quantity of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	23.0	22.7	26.3	32.9
CYMOXANIL	F	0.0	0.0	0.3	0.4
FAMOXADONE	F	c	c	c	c
FLUAZIFOP-P-BUTYL	H	c	c	c	c
FLUAZINAM	F	c	c	c	c
OTHERS		1.5	1.5	1.6	0.8
TOTAL		25	26	29	35

Table 4.13.11: Quantity of the top-5 active substances applied to sugar beet crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c
CLOPYRALID	H	0.3	0.3	0.7	0.8
FLUAZIFOP-P-BUTYL	H	c	c	c	c
HALOXYFOP	H	c	c	c	c
TRIFLU-SULPHURON	H	c	c	c	c
OTHERS		0.3	0.0	0.0	0.0
TOTAL		5	6	7	8

Table 4.13.12: Quantity of the top-5 active substances applied to fruit tree crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	2.2	2.3	2.5	3.3
CYPRODINIL	F	0.2	0.1	0.3	0.2
THIAMETHOXAM	I	c	c	c	c
DIFENOCONAZOLE	F	0.1	0.0	0.0	0.0
TRIFLOXY-STROBINE	F	c	c	c	c
TOTAL		3	2	3	4

Table 4.13.13: Quantity of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
PROMETRYN	H	c	c	c	c
PIRIMIPHOS-METHYL	I	c	c	c	c
CLOPYRALID	H	0.2	0.2	0.4	0.4
THIAMETHOXAM	I	c	c	c	c
PENCONAZOLE	F	c	c	c	c
OTHERS		1.4	1.0	0.4	0.0
TOTAL		7	6	11	10

4.14 Hungary

Table 4.14.1: Areas cultivated with the different crops
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	1571	1823	1748	1741
MAIZE	1340	1387	1327	1278
OIL SEEDS	466	477	612	660
POTATOES	47	36	34	31
SUGAR BEET	57	66	55	52
OTHER ARABLE CROPS	1579	1047	1182	736
ARABLE CROPS Total	5059	4836	4959	4498
GRAPES/VINES	106	78	82	93
FRUIT TREES	95	87	79	93
VEGETABLES	84	94	114	111
FRUIT & VEGETABLES Total	285	260	275	296
Grand Total	5344	5096	5234	4794

Table 4.14.2: Quantity of PPP used by crop
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	757	1076	1132	922
MAIZE	1585	1822	1118	1559
OIL SEEDS	513	568	714	787
POTATOES	121	119	109	87
SUGAR BEET	141	206	194	198
ARABLE CROPS Total	3118	3792	3267	3553
GRAPES/VINES	664	924	952	854
FRUIT TREES	419	510	543	441
VEGETABLES	202	155	180	152
FRUIT & VEGETABLES Total	1298	1600	1699	1472
Grand Total	4416	5391	4966	5025

Table 4.14.3: Dosage of PPP used by crop
(in kg AS/ha)

	2000	2001	2002	2003
CEREALS	0.5	0.6	0.6	0.5
MAIZE	1.2	1.3	0.8	1.2
OIL SEEDS	1.1	1.2	1.2	1.2
POTATOES	2.6	3.3	3.2	2.8
SUGAR BEET	2.5	3.1	3.5	3.8
ARABLE CROPS Total	0.6	0.8	0.7	0.8
GRAPES/VINES	6.3	11.8	11.6	9.2
FRUIT TREES	4.4	5.8	6.9	4.8
VEGETABLES	2.4	1.6	1.6	1.4
FRUIT & VEGETABLES Total	4.6	6.2	6.2	5.0
Grand Total	0.8	1.1	0.9	1.0

Table 4.14.4: Index of quantity of PPP used by crop
(2000=100)

	2000	2001	2002	2003
CEREALS	100	142	150	122
MAIZE	100	115	71	98
OIL SEEDS	100	111	139	153
POTATOES	100	98	90	71
SUGAR BEET	100	146	137	140
ARABLE CROPS Total	100	122	105	114
GRAPES/VINES	100	139	143	129
FRUIT TREES	100	122	130	105
VEGETABLES	100	77	89	75
FRUIT & VEGETABLES Total	100	123	131	113
Grand Total	100	122	112	114

Table 4.14.5: Proportion of PPP quantity used by crop
(%)

	2000	2001	2002	2003
CEREALS	17	20	23	18
MAIZE	36	34	23	31
OIL SEEDS	12	11	14	16
POTATOES	3	2	2	2
SUGAR BEET	3	4	4	4
ARABLE CROPS Total	71	70	66	71
GRAPES/VINES	15	17	19	17
FRUIT TREES	9	9	11	9
VEGETABLES	5	3	4	3
FRUIT & VEGETABLES Total	29	30	34	29
Grand Total	100	100	100	100

Table 4.14.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
PHENOXY HERBICIDES	0.2	CHLORO-ACETANILIDE HERBICIDES	0.5	AMIDE HERBICIDES	0.3	DITHIO-CARBAMATE FUNGICIDES	0.7	PYRIDAZINONE HERBICIDES	1.2
INORGANIC SULPHUR	0.1	TRIAZINE HERBICIDES	0.3	CHLOROACETANILIDE HERBICIDES	0.3	CHLOROACETANILIDE HERBICIDES	0.5	CHLORO-ACETANILIDE HERBICIDES	0.8
ORGANO-PHOSPHORUS HERBICIDES	0.1	PHENOXY HERBICIDES	0.1	METHYL-THIOTRIAZINE HERBICIDES	0.1	METHYL-THIOTRIAZINE HERBICIDES	0.4	ORGANO-PHOSPHORUS INSECTICIDES	0.6
CONAZOLE FUNGICIDES	0.0	THIADIAZINE HERBICIDES	0.1	DINITROANILINE HERBICIDES	0.1	COPPER COMPOUNDS	0.4	ORGANO-PHOSPHORUS HERBICIDES	0.5
MORPHOLINE FUNGICIDES	0.0	DINITROANILINE HERBICIDES	0.0	BIPYRIDYLIUM HERBICIDES	0.1	ORGANO-PHOSPHORUS INSECTICIDES	0.4	AMIDE HERBICIDES	0.5

Table 4.14.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

CITRUS	GRAPES		TOP FRUIT		VEGETABLES	
ORGANO-PHOSPHORUS HERBICIDES	INORGANIC SULPHUR	5.0	INORGANIC SULPHUR	1.7	CHLORO-ACETANILIDE HERBICIDES	0.4
	DITHIO-CARBAMATE FUNGICIDES	1.5	DITHIO-CARBAMATE FUNGICIDES	1.3	METHYL-THIOTRIAZINE HERBICIDES	0.2
	ORGANO-PHOSPHORUS HERBICIDES	1.1	ORGANO-PHOSPHORUS INSECTICIDES	0.6	ORGANO--PHOSPHORUS INSECTICIDES	0.2
	ORGANO-PHOSPHORUS INSECTICIDES	0.5	ORGANO-PHOSPHORUS HERBICIDES	0.6	INORGANIC SULPHUR	0.1
	COPPER COMPOUNDS	0.3	TRIAZINE HERBICIDES	0.1	DITHIOCARBAMATE FUNGICIDES	0.1

Table 4.14.8: Quantity of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
2,4-D	H	c	c	c	c
SULPHUR	F	27	189	151	131
GLYPHOSATE	H	c	c	c	c
MCPA	H	148	129	133	92
DICHLORPROP-P	H	15	13	9	52
OTHERS		283	429	459	342
TOTAL		757	1076	1132	922

Table 4.14.9: Quantity of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
ACETOCHLOR	H	564	632	83	461
ATRAZINE	H	444	568	442	441
S-METOLACHLOR	H	c	c	c	c
2,4-D	H	c	c	c	c
BENTAZONE	H	:	23	46	60
OTHERS		165	216	226	275
TOTAL		1585	1822	1118	1559

Table 4.14.10: Quantity of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
DIMETHENAMID	H	c	c	c	c
ACETOCHLOR	H	118	122	45	91
TRIFLURALIN	H	88	88	88	89
PROMETRYN	H	c	c	c	c
S-METOLACHLOR	H	c	c	c	c
OTHERS		170	189	255	229
TOTAL		513	568	714	787

Table 4.14.11: Quantity of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	35	27	27	21
S-METOLACHLOR	H	c	c	c	c
PROMETRYN	H	c	c	c	c
COPPER	F	11	6	13	11
TERBUFOS	I	c	c	c	c
OTHERS		36	39	28	17
TOTAL		121	119	109	87

Table 4.14.12: Quantity of the top-5 active substances applied to sugar beet crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
CHLORIDAZON	H		73	61	60
S-METOLACHLOR	H	c	c	c	c
GLYPHOSATE	H	c	c	c	c
DIMETHENAMID	H	c	c	c	c
TERBUFOS	I	c	c	c	c
OTHERS		48	54	26	21
TOTAL		141	206	194	198

4.14.13: Quantity of the top-5 active substances applied to citrus crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c
TOTAL		c	c	c	c

4.14.14: Quantity of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
SULPHUR	F	345	572	568	467
GLYPHOSATE	H	c	c	c	c
MANCOZEB	F	118	119	133	93
METIRAM	F	:	31	20	46
DIMETHOATE	I	17	48	23	26
OTHERS		127	102	115	126
TOTAL		664	924	952	854

4.14.15: Quantity of the top-5 active substances applied to fruit tree crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
SULPHUR	F	136	189	174	163
MANCOZEB	F	143	148	159	107
GLYPHOSATE	H	c	c	c	c
DIMETHOATE	I	10	36	62	27
METHIDATHION	I	11	13	11	10
OTHERS		86	91	91	80
TOTAL		419	510	543	441

4.14.16: Quantity of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
S-METOLACHLOR	H	c	c	c	c
SULPHUR	F	25	26	18	17
MANCOZEB	F	21	19	21	15
PROMETRYN	H	c	c	c	c
DIAZINON	I	c	c	c	c
OTHERS		88	48	81	56
TOTAL		202	155	180	152

4.15 Malta

Table 4.15.1: Quantity of PPP used by crop
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	0.2	0.2	0.2	0.7
	0.2	0.2	0.2	0.7
CITRUS	0.1	0.1	0.1	0.6
GRAPES/VINES	0.2	0.2	0.2	0.7
FRUIT TREES	0.2	0.2	0.2	0.7
FRUIT & VEGETABLES Total	0.5	0.5	0.5	2.0
Grand Total	0.7	0.7	0.7	2.6

Table 4.15.2: Index of quantity of PPP used by crop
(2000=100)

	2000	2001	2002	2003
CEREALS	100	100	100	400
	100	100	100	400
CITRUS	100	100	100	400
GRAPES/VINES	100	100	100	400
FRUIT TREES	100	100	100	400
FRUIT & VEGETABLES Total	100	100	100	400
Grand Total	100	100	100	400

Table 4.15.3: Proportion of PPP quantity used by crop
(%)

	2000	2001	2002	2003
CEREALS	26	26	26	26
	26	26	26	26
CITRUS	21	21	21	21
GRAPES/VINES	26	26	26	26
FRUIT TREES	27	27	27	27
FRUIT & VEGETABLES Total	74	74	74	74
Grand Total	100	100	100	100

4.16 Netherlands

Table 4.16.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	176	176	183	190	195	195	198	174	206	209	209	201
MAIZE	225	240	240	228	234	245	234	247	226	231	238	241
OIL SEEDS	9	7	7	7	5	5	6	7	6	6	5	6
POTATOES	187	176	171	179	185	180	181	180	180	164	165	159
SUGAR BEET	121	117	115	116	117	114	113	120	111	109	109	103
OTHER ARABLE CROPS	177	183	190	201	192	228	249	280	290	286	285	377
ARABLE CROPS Total	896	898	899	915	923	967	926	1007	1018	1005	1011	1087
FRUIT TREES	24	23	23	22	22	22	22	21	20	19	19	18
VEGETABLES	75	73	75	74	74	68	72	80	75	74	76	80
FRUIT & VEGETABLES Total	99	96	99	96	96	91	94	101	95	92	94	98
Grand Total	995	994	998	1011	1019	1058	1019	1108	1113	1097	1106	1185

Table 4.16.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	597	710	512	578	698	728	746	602	1031	939	1077	1257
MAIZE	518	464	482	458	519	495	446	326	216	165	214	247
OIL SEEDS	:	:	:	:	:	6	7	6	8	11	12	46
POTATOES	1416	1333	1680	1635	1606	2500	2284	2149	2922	2311	2116	2003
SUGAR BEET	298	295	259	286	252	343	268	311	478	436	408	340
ARABLE CROPS Total	2829	2801	2933	2957	3075	4072	3752	3395	4662	3862	3826	3894
FRUIT TREES	451	411	488	644	519	471	589	438	253	181	367	371
VEGETABLES	186	185	206	203	300	233	263	243	216	138	198	266
FRUIT & VEGETABLES Total	637	596	694	847	819	704	853	680	469	319	565	637
Grand Total	3466	3398	3627	3804	3894	4776	4604	4075	5131	4181	4391	4531

Table 4.16.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	3.4	4.0	2.8	3.0	3.6	3.7	3.8	3.5	5.0	4.5	5.1	6.3
MAIZE	2.3	1.9	2.0	2.0	2.2	2.0	1.9	1.3	1.0	0.7	0.9	1.0
OIL SEEDS	:	:	:	:	:	1.2	1.3	1.0	1.3	1.8	2.3	7.8
POTATOES	7.6	7.6	9.8	9.1	8.7	13.9	12.6	12.0	16.2	14.1	12.8	12.6
SUGAR BEET	2.5	2.5	2.3	2.5	2.2	3.0	2.4	2.6	4.3	4.0	3.7	3.3
ARABLE CROPS Total	3.2	3.1	3.3	3.2	3.3	4.2	4.1	3.4	4.6	3.8	3.8	3.6
FRUIT TREES	19.1	17.6	20.9	28.8	23.4	21.2	27.2	20.7	12.8	9.6	19.8	21.0
VEGETABLES	2.5	2.5	2.7	2.7	4.0	3.4	3.7	3.0	2.9	1.9	2.6	3.3
FRUIT & VEGETABLES Total	6.4	6.2	7.0	8.8	8.5	7.8	9.1	6.7	4.9	3.5	6.0	6.5
Grand Total	3.5	3.4	3.6	3.8	3.8	4.5	4.5	3.7	4.6	3.8	4.0	3.8

Table 4.16.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	58	69	50	56	68	71	72	58	100	91	105	122
MAIZE	240	215	223	212	240	229	207	151	100	77	99	114
OIL SEEDS	:	:	:	:	:	81	92	84	100	147	151	602
POTATOES	48	46	58	56	55	86	78	74	100	79	72	69
SUGAR BEET	62	62	54	60	53	72	56	65	100	91	85	71
ARABLE CROPS Total	61	60	63	63	66	87	80	73	100	83	82	84
FRUIT TREES	178	163	193	255	205	186	233	173	100	72	145	147
VEGETABLES	86	86	95	94	139	108	122	112	100	64	92	123
FRUIT & VEGETABLES Total	136	127	148	181	175	150	182	145	100	68	120	136
Grand Total	68	66	71	74	76	93	90	79	100	81	86	88

Table 4.16.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	17	21	14	15	18	15	16	15	20	22	25	28
MAIZE	15	14	13	12	13	10	10	8	4	4	5	5
OIL SEEDS	0	0	0	0	0	0	0	0	0	0	0	1
POTATOES	41	39	46	43	41	52	50	53	57	55	48	44
SUGAR BEET	9	9	7	8	6	7	6	8	9	10	9	8
ARABLE CROPS Total	82	82	81	78	79	85	81	83	91	92	87	86
FRUIT TREES	13	12	13	17	13	10	13	11	5	4	8	8
VEGETABLES	5	5	6	5	8	5	6	6	4	3	5	6
FRUIT & VEGETABLES Total	18	18	19	22	21	15	19	17	9	8	13	14
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.16.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
PHENOXY HERBICIDES	2.4	AMIDE HERBICIDES	0.2	PHYSIOLOGICAL PLANT GROWTH REGULATORS	5.7	DITHIO-CARBAMATE FUNGICIDES	7.1	TRIAZINONE HERBICIDES	1.1
ORGANO-PHOSPHORUS HERBICIDES	1.5	PYRIDAZINONE HERBICIDES	0.2	ANILIDE HERBICIDES	2.1	DINITROANILINE FUNGICIDES	1.0	PYRIDAZINONE HERBICIDES	0.6
UREA HERBICIDES	1.3	TRIAZINE HERBICIDES	0.2	AMIDE HERBICIDES	0.0	THIOCARBAMATE HERBICIDES	0.7	BIS-CARBAMATE HERBICIDES	0.5
CONAZOLE FUNGICIDES	0.2	TRIKETONE HERBICIDES	0.2			CARBAMATE FUNGICIDES	0.6	BENZOFURANE HERBICIDES	0.4
MORPHOLINE FUNGICIDES	0.2	DIAZINE HERBICIDES	0.1			AROMATIC FUNGICIDES	0.6	CHLOROACETANILIDE HERBICIDES	0.2

Table 4.16.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

FRUIT TREES		VEGETABLES	
DITHIO-CARBAMATE FUNGICIDES	4.1	AROMATIC FUNGICIDES	0.4
PHTHALIC ACID FUNGICIDES	3.5	IMIDAZOLE FUNGICIDES	0.3
INORGANIC SULPHUR	3.5	AMIDE FUNGICIDES	0.3
AMIDE FUNGICIDES	2.5	DITHIO-CARBAMATE FUNGICIDES	0.3
TRIAZOLE HERBICIDES	1.1	CARBAMATE INSECTICIDES	0.3

Table 4.16.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MCPA	H	112	108	113	78	176	107	138	78	182	211	243	328
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
ISOPROTURON	H	6	3	2	:	:	73	51	13	205	145	155	255
MECOPROP-P	H	108	248	117	129	103	140	135	91	124	133	114	134
FENPROPIMORPH	F	26	18	35	56	99	64	60	45	44	42	42	38
OTHERS		244	249	165	180	178	189	213	176	231	172	186	195
TOTAL		597	710	512	578	698	728	746	602	1031	939	1077	1257

Table 4.16.9: Quantities of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DIMETHENAMID-P	H	:	:	:	:	:	:	:	:	c	c	c	c
CHLORIDAZON	H	:	:	:	:	:	:	:	:	4	11	51	48
TERBUTHYLAZINE	H	:	:	1	0	1	3	4	6	31	37	35	45
SULCOTRIONE	H	:	:	:	:	:	:	:	:	c	c	c	c
PYRIDATE	H	1	:	:	:	47	61	90	88	55	48	51	23
OTHERS		517	464	481	458	471	432	352	232	79	69	53	42
TOTAL		518	464	482	458	519	495	446	326	216	165	214	247

Table 4.16.10: Quantities of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CHLORMEQUAT	PGR	:	:	:	:	:	c	c	c	c	c	c	c
METAZACHLOR	H	:	:	:	:	:	4	4	4	8	11	12	13
PROPYZAMIDE	H	:	:	:	:	:	:	:	:	0	0	0	0
SIMAZINE	H	:	:	:	:	:	:	:	:	:	:	:	:
VINCLOZOLIN	F	:	:	:	:	:	c	c	c	c	c	c	c
OTHERS		:	:	:	:	:	6	7	6	8	11	12	46
TOTAL		0	0	0	0	0	13	14	13	15	23	23	93

Table 4.16.11: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	601	630	788	707	550	532	612	655	1547	1245	103	684
METIRAM	F	43	50	72	78	65	114	93	124	143	162	642	434
FLUAZINAM	F	c	c	c	c	c	c	c	c	c	c	c	c
PROSULFOCARB	H	3	31	39	48	56	95	95	95	108	80	101	109
CHLOROTHALONIL	F	:	:	:	11	14	58	294	134	:	15	165	103
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		1416	1333	1680	1635	1606	2500	2284	2149	2922	2311	2116	2003

Table 4.16.12: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
METAMITRON	H	158	155	99	113	45	138	125	131	163	166	145	118
CHLORIDAZON	H	87	80	78	101	116	101	74	83	47	13	63	59
PHENMEDIPHAM	H	:	1	9	:	10	36	21	27	62	64	71	51
ETHOFUMESATE	H	:	1	13	16	13	27	18	31	56	55	57	41
S-METOLACHLOR	H	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		298	295	259	286	252	343	268	311	478	436	408	340

Table 4.16.13: Quantities of the top-5 active substances applied to fruit tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CAPTAN	F	272	243	282	417	298	252	145	100	24	39	44	62
SULPHUR	F	22	22	22	22	22	64	100	72	58	74	43	61
THIRAM	F	:	10	10	17	11	13	14	8	2	9	34	59
TOLYLFLUANID	F	c	c	c	c	c	c	c	c	c	c	c	c
AMITROL	H	0	:	:	:	:	:	:	:	:	0	6	20
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		451	411	488	644	519	471	589	438	253	181	367	371

Table 4.16.14: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CHLOROTHALONIL	F	0	5	0		29		10		18	0	41	30
IPRODIONE	F	:	:	:	:	:	0	2	:	1	:	0	28
PENDIMETHALIN	H	8	9	22	17	19	:	11	18	15	11	15	20
PROPAMOCARB	F	:	:	:	:	38	3	11	:	15	:	6	19
TOLYLFLUANID	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		186	185	206	203	300	233	263	243	216	138	198	266

4.17 Austria

Table 4.17.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	665	655	642	634	654	687	695	657	666	653	642	636
MAIZE	274	271	273	264	264	245	224	229	238	244	246	246
OIL SEEDS	143	113	108	143	113	108	113	130	109	111	110	108
POTATOES	33	31	30	27	26	23	23	23	24	23	23	21
SUGAR BEET	54	53	52	52	53	52	50	46	43	45	45	43
OTHER ARABLE CROPS	250	278	298	283	291	281	282	299	302	304	313	325
ARABLE CROPS Total	1418	1402	1403	1403	1402	1397	1386	1385	1381	1379	1378	1379
GRAPES/VINES	54	50	49	49	49	48	48	48	47	46	46	45
FRUIT TREES	8	8	8	8	8	8	8	8	8	8	7	7
VEGETABLES	9	8	8	12	12	12	12	13	13	13	13	13
FRUIT & VEGETABLES Total	70	66	65	68	68	68	68	68	67	67	66	65
Grand Total	1488	1468	1468	1471	1471	1465	1454	1453	1448	1446	1445	1445

Table 4.17.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	510	314	471	620	309	554	576	485	607	635	485	362
MAIZE	374	456	321	248	226	209	202	318	192	231	201	204
OIL SEEDS	107	118	101	76	56	31	42	55	79	93	62	92
POTATOES	109	102	95	81	100	81	77	66	98	44	75	89
SUGAR BEET	284	284	251	261	258	334	327	226	75	82	64	67
ARABLE CROPS Total	1383	1274	1238	1286	949	1208	1224	1150	1052	1086	887	814
GRAPES/VINES	929	931	803	870	736	966	908	737	295	428	386	549
FRUIT TREES	80	100	109	71	90	50	52	43	87	48	89	95
VEGETABLES	25	23	27	34	31	52	64	98	19	38	25	41
FRUIT & VEGETABLES Total	1034	1055	940	975	858	1068	1023	878	401	514	500	685
Grand Total	2417	2329	2178	2261	1807	2276	2247	2028	1453	1600	1387	1499

Table 4.17.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.8	0.5	0.7	1.0	0.5	0.8	0.8	0.7	0.9	1.0	0.8	0.6
MAIZE	1.4	1.7	1.2	0.9	0.9	0.9	0.9	1.4	0.8	0.9	0.8	0.8
OIL SEEDS	0.7	1.0	0.9	0.5	0.5	0.3	0.4	0.4	0.7	0.8	0.6	0.9
POTATOES	3.3	3.3	3.2	3.0	3.8	3.4	3.4	2.8	4.1	1.9	3.4	4.2
SUGAR BEET	5.3	5.3	4.8	5.1	4.9	6.5	6.6	4.9	1.8	1.8	1.4	1.5
ARABLE CROPS Total	1.0	0.9	0.9	0.9	0.7	0.9	0.9	0.8	0.8	0.8	0.6	0.6
GRAPES/VINES	17.3	18.5	16.3	17.9	15.2	20.2	18.9	15.4	6.3	9.3	8.4	12.2
FRUIT TREES	10.3	12.9	14.1	9.2	11.7	6.4	6.7	5.6	11.3	6.2	12.2	12.9
VEGETABLES	2.8	3.0	3.4	2.8	2.6	4.2	5.4	7.6	1.5	2.9	2.0	3.1
FRUIT & VEGETABLES Total	14.7	16.0	14.4	14.3	12.6	15.7	15.1	12.8	6.0	7.7	7.6	10.5
Grand Total	1.6	1.6	1.5	1.5	1.2	1.6	1.5	1.4	1.0	1.1	1.0	1.0

Table 4.17.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	84	52	78	102	51	91	95	80	100	105	80	60
MAIZE	194	237	167	129	118	109	105	166	100	120	104	106
OIL SEEDS	135	150	128	96	71	39	53	70	100	117	78	116
POTATOES	112	103	97	82	102	82	79	67	100	45	77	91
SUGAR BEET	377	378	333	347	343	444	434	300	100	109	85	89
ARABLE CROPS Total	131	121	118	122	90	115	116	109	100	103	84	77
GRAPES/VINES	315	316	272	295	250	327	308	250	100	145	131	186
FRUIT TREES	92	115	125	82	104	57	59	49	100	55	102	109
VEGETABLES	132	123	144	176	161	273	336	513	100	199	132	214
FRUIT & VEGETABLES Total	258	263	234	243	214	266	255	219	100	128	125	171
Grand Total	166	160	150	156	124	157	155	140	100	110	95	103

Table 4.17.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	21	13	22	27	17	24	26	24	42	40	35	24
MAIZE	15	20	15	11	13	9	9	16	13	14	14	14
OIL SEEDS	4	5	5	3	3	1	2	3	5	6	4	6
POTATOES	5	4	4	4	6	4	3	3	7	3	5	6
SUGAR BEET	12	12	12	12	14	15	15	11	5	5	5	4
ARABLE CROPS Total	57	55	57	57	53	53	54	57	72	68	64	54
GRAPES/VINES	38	40	37	38	41	42	40	36	20	27	28	37
FRUIT TREES	3	4	5	3	5	2	2	2	6	3	6	6
VEGETABLES	1	1	1	1	2	2	3	5	1	2	2	3
FRUIT & VEGETABLES Total	43	45	43	43	47	47	46	43	28	32	36	46
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.17.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
PHENOXY HERBICIDES	0.4	CHLORO-ACETANILIDE HERBICIDES	0.3	DINITROANILINE HERBICIDES	0.5	DITHIO-CARBAMATE FUNGICIDES	2.8	BENZOFURANE HERBICIDES	0.6
UREA HERBICIDES	0.1	TRIAZINE HERBICIDES	0.2	ANILIDE HERBICIDES	0.3	ORGANO-PHOSPHORUS INSECTICIDES	0.8	BIS-CARBAMATE HERBICIDES	0.4
CONAZOLE FUNGICIDES	0.0	AMIDE HERBICIDES	0.1	QUINOLINE HERBICIDES	0.1	PYRETHROID INSECTICIDES	0.2	INORGANIC SULPHUR	0.2
NITRILE HERBICIDES	0.0	DIAZINE HERBICIDES	0.1	THIADIAZINE HERBICIDES	0.0	ALIPHATIC NITROGEN FUNGICIDES	0.1	PYRIDAZINONE HERBICIDES	0.2
CHLORO-ACETANILIDE HERBICIDES	0.0	DINITROANILINE HERBICIDES	0.1	PYRETHROID INSECTICIDES	0.0	THIADIAZINE HERBICIDES	0.1	CONAZOLE FUNGICIDES	0.1

Table 4.17.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

GRAPES		FRUIT TREES		VEGETABLES	
INORGANIC SULPHUR	8.1	DITHIO-CARBAMATE FUNGICIDES	7.0	SOIL STERILANTS	0.8
PHTHALIC ACID FUNGICIDES	0.9	INORGANIC SULPHUR	2.3	THIADIAZINE HERBICIDES	0.7
DITHIO-CARBAMATE FUNGICIDES	0.6	ORGANO-PHOSPHORUS INSECTICIDES	2.2	DITHIO-CARBAMATE FUNGICIDES	0.7
ORGANO-PHOSPHORUS HERBICIDES	0.3	QUINONE FUNGICIDES	1.1	DINITROANILINE HERBICIDES	0.3
STROBILURINE FUNGICIDES	0.3	PYRIMIDINE FUNGICIDES	0.1	PHENOXY HERBICIDES	0.2

Table 4.17.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MECOPROP	H	46	32	174	341	63	225	241	186	205	193	111	103
2,4-D	H	c	c	c	c	c	c	c	c	c	c	c	c
DICHLORPROP	H	27	18	26	46	20	1	3	6	42	72	38	38
ISOPROTURON	H	17	11	12	12	17	22	29	37	49	69	32	32
MCPA	H	30	21	15	0	22	27	24	24	28	32	24	26
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		510	314	471	620	309	554	576	485	607	635	485	362

Table 4.17.9: Quantities of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
S-METOLACHLOR	H	:	:	:	:	:	:	:	:	c	c	c	c
TERBUTHYLAZINE	H	0	0	3	16	18	21	23	28	9	33	36	38
DIMETHENAMID	H	:	:	:	:	:	:	:	:	c	c	c	c
PYRIDATE	H	64	76	92	66	36	32	22	28	4	22	19	19
PENDIMETHALIN	H	:	:	25	41	55	50	44	56	49	33	30	15
OTHERS		309	380	201	124	117	106	112	206	92	101	40	41
TOTAL		374	456	321	248	226	209	202	318	192	231	201	204

Table 4.17.10: Quantities of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
TRIFLURALIN	H	:	:	:	:	:	:	:	:	40	41	28	48
METAZACHLOR	H	43	51	42	32	22	28	42	32	25	27	21	29
QUINMERAC	H	c	c	c	c	c	C	c	c	c	c	c	c
BENTAZONE	H	9	10	8	3	1	:	:	:	:	2	3	3
PENDIMETHALIN	H	:	:	:	:	:	:	:	:	4	12	4	1
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		107	118	101	76	56	31	42	55	79	93	62	92

Table 4.17.11: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	66	60	55	49	66	56	56	51	66	29	57	59
CHLORPYRIFOS	I	:	:	:	:	:	:	:	:	8	8	13	16
CYPERMETHRIN	I	0	0	0	0	0	0	0	1	0	:	:	4
CYMOXANIL	F	:	:	:	:	:	7	6	3	1	1	1	2
BENTAZONE	H	10	8	10	4	0	:	:	:	:	1	2	2
OTHERS		34	33	30	27	33	18	15	12	23	5	3	6
TOTAL		109	102	95	81	100	81	77	66	98	44	75	89

Table 4.17.12: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ETHOFUMESATE	H	:	:	:	:	:	:	:	:	18	20	24	24
PHENMEDIPHAM	H	:	:	:	:	:	:	:	:	15	15	15	15
SULPHUR	F	168	173	136	164	168	195	174	100	:	:	8	8
CHLORIDAZON	H	11	12	11	11	11	12	12	9	8	8	6	7
DESMEDIPHAM	H	:	:	:	:	:	:	:	:	2	2	3	3
OTHERS		105	99	104	85	79	127	141	116	33	37	8	10
TOTAL		284	284	251	261	258	334	327	226	75	82	64	67

Table 4.17.13: Quantities of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	615	652	551	707	626	737	685	509	118	273	296	365
FOLPET	F	:	:	:	9	3	46	46	41	36	45	6	44
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
CHLOROTHALONIL	F	:	:	:	10	:	:	:	:	20	15	15	15
DITHIANON	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		293	261	233	122	87	133	118	146	109	77	52	96
TOTAL		929	931	803	870	736	966	908	737	295	428	386	549

Table 4.17.14: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	:	:	:	:	:	:	:	:	44	9	55	52
SULPHUR	F	32	32	32	32	32	28	24	21	13	15	18	18
CHLORPYRIFOS-METHYL	I	:	:	:	:	:	:	:	:	9	15	9	16
DITHIANON	F	c	c	c	c	c	c	c	c	c	c	c	c
PYRIMETHANIL	F	:	:	:	:	:	:	:	:	:	:	:	1
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		80	100	109	71	90	50	52	43	87	48	89	95

Table 4.17.15: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DAZOMET	ZR	:	:	:	:	:	:	:	:	:	c	c	c
BENTAZONE	H	:	:	:	:	3	6	9	8	7	9	7	9
MANCOZEB	F	6	7	8	10	8	7	7	5	:	6	5	9
PENDIMETHALIN	H	:	:	4	6	8	9	11	8	8	13	5	4
MCPB	H	:	:	:	:	:	7	10	10	:	4	4	3
OTHERS		19	16	16	18	12	23	28	67	4	c	c	c
TOTAL		25	23	27	34	31	52	64	98	19	38	25	41

4.18 Poland

Table 4.18.1: Areas cultivated with the different crops
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	8661	8596	7975	7807
MAIZE	315	404	515	596
OIL SEEDS	452	462	453	461
POTATOES	1251	1194	803	766
SUGAR BEET	333	317	303	286
OTHER ARABLE CROPS	3051	3072	2990	2639
ARABLE CROPS Total	14063	14046	13038	12554
FRUIT TREES	277	280	272	258
VEGETABLES	248	240	171	198
FRUIT & VEGETABLES Total	525	520	443	457
Grand Total	14587	14565	13482	13011

Table 4.18.2: Quantity of PPP used by crop
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	4965	6321	5904	6091
MAIZE	443	536	444	468
OIL SEEDS	293	450	353	412
POTATOES	714	949	982	763
SUGAR BEET	680	750	759	813
ARABLE CROPS Total	7105	9011	8441	8548
FRUIT TREES	545	590	652	770
VEGETABLES	319	442	579	621
FRUIT & VEGETABLES Total	902	1110	1289	1456
Grand Total	8007	10121	9730	10004

Table 4.18.3: Dosage of PPP used by crop
(in kg AS/ha)

	2000	2001	2002	2003
CEREALS	0.6	0.7	0.7	0.8
MAIZE	1.4	1.3	0.9	0.8
OIL SEEDS	0.6	1.0	0.8	0.9
POTATOES	0.6	0.8	1.2	1.0
SUGAR BEET	2.0	2.4	2.5	2.8
ARABLE CROPS Total	0.5	0.6	0.6	0.7
FRUIT TREES	2.0	2.1	2.4	3.0
VEGETABLES	1.3	1.8	3.4	3.1
FRUIT & VEGETABLES Total	1.7	2.1	2.9	3.2
Grand Total	0.5	0.7	0.7	0.8

Table 4.18.4: Index of quantity of PPP used by crop
(2000=100)

	2000	2001	2002	2003
CEREALS	100	127	119	123
MAIZE	100	121	100	106
OIL SEEDS	100	154	121	141
POTATOES	100	133	137	107
SUGAR BEET	100	110	112	120
ARABLE CROPS Total	100	127	119	120
FRUIT TREES	100	108	120	141
VEGETABLES	100	139	182	195
FRUIT & VEGETABLES Total	100	123	143	161
Grand Total	100	126	122	125

Table 4.18.5: Proportion of PPP quantity used by crop
(%)

	2000	2001	2002	2003
CEREALS	62	62	61	61
MAIZE	6	5	5	5
OIL SEEDS	4	4	4	4
POTATOES	9	9	10	8
SUGAR BEET	8	7	8	8
ARABLE CROPS Total	89	89	87	85
FRUIT TREES	7	6	7	8
VEGETABLES	4	4	6	6
FRUIT & VEGETABLES Total	11	11	13	15
Grand Total	100	100	100	100

Table 4.18.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
PHENOXY HERBICIDES	0.3	TRIAZINE HERBICIDES	0.4	ANILIDE HERBICIDES	0.2	DITHIO-CARBAMATE FUNGICIDES	0.5	BIS-CARBAMATE HERBICIDES	0.8
UREA HERBICIDES	0.2	ORGANO-PHOSPHORUS HERBICIDES	0.2	DINITROANILINE HERBICIDES	0.2	AROMATIC FUNGICIDES	0.2	BENZOFURANE HERBICIDES	0.4
ORGANO-PHOSPHORUS HERBICIDES	0.1	CHLORO-ACETANILIDE HERBICIDES	0.2	ORGANO-PHOSPHORUS INSECTICIDES	0.2	UREA HERBICIDES	0.1	PYRIDAZINONE HERBICIDES	0.4
PHYSIOLOGICAL PLANT GROWTH REGULATORS	0.1	DINITROANILINE HERBICIDES	0.0	CONAZOLE FUNGICIDES	0.1	CARBAMATE FUNGICIDES	0.1	ORGANO-PHOSPHORUS HERBICIDES	0.3
DINITROANILINE HERBICIDES	0.0	SULFONYLUREA HERBICIDES	0.0	BENZIMIDAZOLE FUNGICIDES	0.1	TRIAZINONE HERBICIDES	0.0	TRIAZINONE HERBICIDES	0.3

Table 4.18.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

FRUIT TREES		VEGETABLES	
DITHIO-CARBAMATE FUNGICIDES	1.2	DITHIO-CARBAMATE FUNGICIDES	1.6
AMIDE FUNGICIDES	0.3	ORGANO-PHOSPHORUS INSECTICIDES	0.3
PYRIMIDINE FUNGICIDES	0.2	CHLORO-ACETANILIDE HERBICIDES	0.3
QUINONE FUNGICIDES	0.2	UREA HERBICIDES	0.1
PHENOXY HERBICIDES	0.2	DINITROANILINE HERBICIDES	0.1

Table 4.18.8: Quantity of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
ISOPROTURON	H	936	1048	1040	1355
MCPA	H	1518	1420	1286	1248
GLYPHOSATE	H	c	c	c	c
2,4-D	H	c	c	c	c
CHLORMEQUAT	PGR	c	c	c	c
OTHERS		1286	1777	1706	1594
TOTAL		4965	6321	5904	6091

Table 4.18.9: Quantity of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
ATRAZINE	H	270	239	214	230
GLYPHOSATE	H	c	c	c	c
ACETOCHLOR	H	53	95	58	79
S-METOLACHLOR	H	c	c	c	c
PENDIMETHALIN	H	14	15	16	12
OTHERS		17	29	35	25
TOTAL		443	536	444	468

Table 4.18.10: Quantity of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
TRIFLURALIN	H	106	92	72	88
METAZACHLOR	H	13	137	36	77
CHLORPYRIFOS	I	28	43	50	68
CARBENDAZIM	F	22	30	33	26
TEBUCONAZOLE	F	7	19	25	20
OTHERS		117	130	137	133
TOTAL		293	450	353	412

Table 4.18.11: Quantity of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	286	346	401	356
CHLOROTHALONIL	F	80	193	195	120
LINURON	H	63	67	49	59
PROPAMOCARB	F	55	131	116	54
PROPINEB	F	c	c	c	c
OTHERS		c	c	c	c
TOTAL		714	949	982	763

Table 4.18.12: Quantity of the top-5 active substances applied to sugar beet crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
PHENMEDIPHAM	H	110	111	113	136
ETHOFUMESATE	H	98	111	120	121
CHLORIDAZON	H	104	104	113	111
DESMEDIPHAM	H	90	75	79	105
GLYPHOSATE	H	c	c	c	c
OTHERS		c	c	c	c
TOTAL		680	750	759	813

4.18.13: Quantity of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c
TOTAL		c	c	c	c

4.18.14: Quantity of the top-5 active substances applied to fruit tree crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	145	161	180	198
TOLYLFLUANID	F	c	c	c	c
THIRAM	F	5	14	26	64
DITHIANON	F	c	c	c	c
DODINE	F	43	47	57	51
OTHERS		266	308	294	321
TOTAL		545	590	652	770

4.18.15: Quantity of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	170	258	315	316
PROPACHLOR	H	c	c	c	c
CHLORPYRIFOS	I	14	21	25	34
LINURON	H	:	:	13	28
DIMETHOATE	I	2	14	11	25
OTHERS		c	c	c	c
TOTAL		319	442	579	621

4.19 Portugal

Table 4.19.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	572	542	504	512	485	517	324	430	425	338	375	309
MAIZE	287	292	299	299	307	316	324	272	261	263	254	258
OIL SEEDS	77	95	133	94	101	67	60	50	52	42	38	37
POTATOES	109	88	85	96	89	82	86	62	57	50	53	48
SUGAR BEET	-	1	1	1	1	4	3	8	8	5	9	7
OTHER ARABLE CROPS	1314	1314	1333	1308	1315	1297	1296	916	913	889	861	851
ARABLE CROPS Total	2359	2331	2355	2310	2297	2282	2093	1739	1717	1587	1589	1511
CITRUS	27	26	26	26	26	27	27	27	27	28	28	28
GRAPES/VINES	264	255	248	242	237	232	226	219	220	223	223	222
FRUIT TREES	138	138	137	137	135	134	133	130	130	130	130	130
VEGETABLES	25	26	33	37	40	40	42	40	40	61	64	65
FRUIT & VEGETABLES Total	454	445	444	442	439	433	428	417	418	441	444	445
Grand Total	2814	2776	2799	2752	2735	2715	2521	2156	2135	2028	2033	1956

Table 4.19.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	88	349	544	792	819	145	155	176	312	284	234	228
MAIZE	156	149	186	212	255	475	518	518	371	462	498	404
OIL SEEDS	5	4	38	39	28	9	2	9	0	0	0	1
POTATOES	255	327	485	411	433	289	433	422	413	388	373	327
SUGAR BEET	:	0	0	0	3	6	9	12	28	27	51	44
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	44	91	43	63
ARABLE CROPS Total	505	828	1253	1453	1537	924	1118	1137	1168	1252	1200	1067
CITRUS	62	62	64	50	74	30	139	169	162	171	148	151
GRAPES/VINES	4908	5905	6599	6850	7476	5817	4311	5374	6882	10427	12077	11032
FRUIT TREES	351	359	417	339	359	230	523	623	627	542	516	527
VEGETABLES	183	235	290	311	361	109	269	570	647	380	600	477
FRUIT & VEGETABLES Total	5503	6561	7370	7549	8270	6186	5242	6735	8318	11520	13340	12187
Grand Total	6008	7389	8623	9002	9807	7110	6360	7872	9485	12772	14539	13255

Table 4.19.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.2	0.6	1.1	1.5	1.7	0.3	0.5	0.4	0.7	0.8	0.6	0.7
MAIZE	0.5	0.5	0.6	0.7	0.8	1.5	1.6	1.9	1.4	1.8	2.0	1.6
POTATOES	2.3	3.7	5.7	4.3	4.9	3.5	5.0	6.8	7.2	7.8	7.1	6.8
SUGAR BEET	:	0.2	0.1	0.1	4.1	1.6	2.6	1.5	3.5	5.0	5.6	5.9
ARABLE CROPS Total	0.2	0.4	0.5	0.6	0.7	0.4	0.5	0.7	0.7	0.8	0.8	0.7
CITRUS	2.3	2.4	2.5	1.9	2.8	1.1	5.1	6.2	5.9	6.2	5.3	5.4
GRAPES/VINES	18.6	23.2	26.7	28.3	31.6	25.0	19.0	24.5	31.2	46.9	54.2	49.6
FRUIT TREES	2.5	2.6	3.0	2.5	2.6	1.7	3.9	4.8	4.8	4.2	4.0	4.1
VEGETABLES	7.3	8.9	8.7	8.3	9.0	2.8	6.5	14.1	16.1	6.2	9.4	7.3
FRUIT & VEGETABLES Total	12.1	14.8	16.6	17.1	18.9	14.3	12.2	16.2	19.9	26.1	30.0	27.4
Grand Total	2.1	2.7	3.1	3.3	3.6	2.6	2.5	3.7	4.4	6.3	7.2	6.8

Table 4.19.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	28	112	174	253	262	47	50	56	100	91	75	73
MAIZE	42	40	50	57	69	128	140	139	100	125	134	109
POTATOES	62	79	118	100	105	70	105	102	100	94	90	79
SUGAR BEET	-	-	-	-	11	20	32	45	100	96	182	158
ARABLE CROPS Total	43	71	107	124	132	79	96	97	100	107	103	91
CITRUS	38	38	39	31	46	19	86	104	100	106	91	93
GRAPES/VINES	71	86	96	100	109	85	63	78	100	152	175	160
FRUIT TREES	56	57	66	54	57	37	83	99	100	86	82	84
VEGETABLES	28	36	45	48	56	17	42	88	100	59	93	74
FRUIT & VEGETABLES Total	66	79	89	91	99	74	63	81	100	139	160	147
Grand Total	63	78	91	95	103	75	67	83	100	135	153	140

Table 4.19.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	1.5	4.7	6.3	8.8	8.3	2.0	2.4	2.2	3.3	2.2	1.6	1.7
MAIZE	2.6	2.0	2.2	2.4	2.6	6.7	8.1	6.6	3.9	3.6	3.4	3.0
POTATOES	4.3	4.4	5.6	4.6	4.4	4.1	6.8	5.4	4.4	3.0	2.6	2.5
SUGAR BEET	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.2	0.3	0.3
ARABLE CROPS Total	8	11	15	16	16	13	18	14	12	10	8	8
CITRUS	1.0	0.8	0.7	0.5	0.8	0.4	2.2	2.1	1.7	1.3	1.0	1.1
GRAPES/VINES	81.7	79.9	76.5	76.1	76.2	81.8	67.8	68.3	72.6	81.6	83.1	83.2
FRUIT TREES	5.8	4.9	4.8	3.8	3.7	3.2	8.2	7.9	6.6	4.2	3.5	4.0
VEGETABLES	3.0	3.2	3.4	3.5	3.7	1.5	4.2	7.2	6.8	3.0	4.1	3.6
FRUIT & VEGETABLES Total	92	89	85	84	84	87	82	86	88	90	92	92
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.19.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		POTATOES		SUGAR BEET	
UREA HERBICIDES	0.2	TRIAZINE HERBICIDES	0.8	DITHIO-CARBAMATE FUNGICIDES	4.9	DINITROPHENOL FUNGICIDES	1.6
ORGANO-PHOSPHORUS HERBICIDES	0.1	CHLORO-ACETANILIDE HERBICIDES	0.6	SOIL STERILANTS	0.4	BENZOFURANE HERBICIDES	1.1
ANILIDE HERBICIDES	0.1	THIOCARBAMATE HERBICIDES	0.1	ORGANO-PHOSPHORUS INSECTICIDES	0.3	INORGANIC SULPHUR	0.9
PHENOXY HERBICIDES	0.1	THIADIAZINE HERBICIDES	0.1	THIOCARBAMATE HERBICIDES	0.3	BIS-CARBAMATE HERBICIDES	0.6
THIOCARBAMATE HERBICIDES	0.1	TRIKETONE HERBICIDES	0.0	ALIPHATIC NITROGEN FUNGICIDES	0.2	CONAZOLE FUNGICIDES	0.5

Table 4.19.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

CITRUS		GRAPES		FRUIT TREES		VEGETABLES	
MINERAL OIL	2.7	INORGANIC SULPHUR	42	MINERAL OIL	0.9	INORGANIC SULPHUR	3.4
ORGANO-PHOSPHORUS HERBICIDES	1.3	ORGANO-PHOSPHORUS HERBICIDES	2.3	DITHIO-CARBAMATE FUNGICIDES	0.9	DITHIO-CARBAMATE FUNGICIDES	2.3
ORGANO-PHOSPHORUS INSECTICIDES	0.3	DITHIO-CARBAMATE FUNGICIDES	2.3	COPPER COMPOUNDS	0.6	OTHER SOIL STERILANTS	0.2
COPPER COMPOUNDS	0.3	TRIAZINE HERBICIDES	0.5	ORGANO-PHOSPHORUS HERBICIDES	0.5	ORGANO-PHOSPHORUS INSECTICIDES	0.2
ORGANO-PHOSPHORUS FUNGICIDES	0.2	ORGANO-PHOSPHORUS FUNGICIDES	0.5	ORGANO-PHOSPHORUS INSECTICIDES	0.3	COPPER COMPOUNDS	0.2

Table 4.19.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ISOPROTURON	H	8	47	99	150	146	17	18	17	39	33	43	47
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
PROPANIL	H	c	c	c	c	c	c	c	c	c	c	c	c
MOLINATE	H	c	c	c	c	c	c	c	c	c	c	c	c
MCPA	H	4	3	4	4	3	8	7	7	13	30	22	24
OTHERS		61	284	424	619	650	74	74	86	102	45	45	49
TOTAL		88	349	544	792	819	145	155	176	312	284	234	228

Table 4.19.9: Quantities of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ATRAZINE	H	51	59	77	98	105	156	170	163	170	200	211	199
ALACHLOR	H	56	37	49	57	75	242	259	254	81	91	85	85
S-METOLACHLOR	H	c	c	c	c	c	c	c	c	c	c	c	c
EPTC	H	c	c	c	c	c	c	c	c	c	c	c	c
BENTAZONE	H	:	:	:	:	:	:	:	:	13	20	23	12
OTHERS		39	43	53	53	68	77	89	100	71	117	73	17
TOTAL		156	149	186	212	255	475	518	518	371	462	498	404

Table 4.19.10: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	54	92	238	193	191	108	193	196	198	176	198	165
PROPINEB	F	c	c	c	c	c	c	c	c	c	c	c	c
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	:	:	:	19
EPTC	H	c	c	c	c	c	c	c	c	c	c	c	c
CYMOXANIL	F	9	11	15	15	16	15	20	17	16	15	14	10
OTHERS		57	65	71	69	73	54	100	100	103	100	75	47
TOTAL		255	327	485	411	433	289	433	422	413	388	373	327

Table 4.19.11: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DINOCAP	F	:	:	:	:	:	:	:	:	:	:	13	12
ETHOFUMESATE	H	:	:	:	:	3	3	5	5	7	7	7	8
SULPHUR	F	:	:	:	:	:	:	:	:	:	:	5	7
FENPROPIDIN	F	:	:	:	:	:	:	:	:	1	1	2	3
PHENMEDIPHAM	H	:	:	:	:	:	:	:	:	2	2	2	3
OTHERS		0	0	0	0	0	2	4	7	18	17	22	11
TOTAL		0	0	0	0	3	6	9	12	28	27	51	44

Table 4.19.12: Quantities of the top-5 active substances applied to citrus crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PETROLEUM OILS	ZR	22	16	14	3	18	1	78	90	70	59	62	77
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
COPPER OXYCHLORIDE	F	c	c	c	c	c	c	c	c	c	c	c	c
FOSETYL	F	c	c	c	c	c	c	c	c	c	c	c	c
PARAQUAT	H	3	3	4	3	4	:	:	:	4	6	5	4
OTHERS		25	29	28	25	25	14	40	53	36	45	32	22
TOTAL		62	62	64	50	74	30	139	169	162	171	148	151

Table 4.19.13: Quantities of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	3632	4325	4836	5222	5840	4289	2699	3695	5218	8621	10262	9361
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
PROPINEB	F	c	c	c	c	c	c	c	c	c	c	c	c
MANCOZEB	F	127	129	178	161	160	109	145	182	242	254	274	229
FOSETYL	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		580	785	819	715	787	700	678	682	679	739	620	538
TOTAL		4908	5905	6599	6850	7476	5817	4311	5374	6882	10427	12077	11032

Table 4.19.14: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PETROLEUM OILS	ZR	71	64	63	7	4	37	129	131	107	92	66	115
COPPER OXYCHLORIDE	F	c	c	c	c	c	c	c	c	c	c	c	c
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
MANCOZEB	F	14	18	41	25	14	5	35	33	72	64	68	62
THIRAM	F	46	46	42	37	33	32	32	36	42	52	39	40
OTHERS		204	210	247	244	283	150	300	398	261	204	211	179
TOTAL		351	359	417	339	359	230	523	623	627	542	516	527

Table 4.19.15: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	46	27	33	36	41	38	52	344	383	127	169	219
MANCOZEB	F	19	23	25	30	44	14	84	81	94	83	79	107
PROPINEB	F	c	c	c	c	c	c	c	c	c	c	c	c
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	:	:	168	15
METIRAM	F	:	:	:	:	:	:	:	:	10	15	4	12
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		183	235	290	311	361	109	269	570	647	380	600	477

4.20 Slovenia

Table 4.20.1: Areas cultivated with the different crops
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	55	57	54	55
MAIZE	48	48	46	74
OIL SEEDS	:	:	:	14
POTATOES	9	8	7	7
SUGAR BEET	8	5	4	5
OTHER ARABLE CROPS	56	56	57	17
ARABLE CROPS Total	176	173	168	173
GRAPES/VINES	17	17	17	17
FRUIT TREES	5	5	4	4
VEGETABLES	2	2	2	2
FRUIT & VEGETABLES Total	23	23	23	23
Grand Total	199	196	191	196

Table 4.20.2: Quantity of PPP used by crop
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	42	48	49	37
MAIZE	153	146	142	85
OIL SEEDS	3	1	2	2
POTATOES	22	18	20	14
SUGAR BEET	10	6	9	9
OTHER ARABLE CROPS	0	0	4	3
ARABLE CROPS Total	230	219	226	150
GRAPES/VINES	185	192	234	213
FRUIT TREES	12	17	35	24
VEGETABLES	7	8	10	10
FRUIT & VEGETABLES Total	204	217	279	248
Grand Total	434	436	505	397

Table 4.20.3: Dosage of PPP used by crop
(in kg AS/ha)

	2000	2001	2002	2003
CEREALS	0.8	0.8	0.9	0.7
MAIZE	3.2	3.1	3.1	1.1
OIL SEEDS	:	:	:	0.1
POTATOES	2.5	2.3	2.8	2.0
SUGAR BEET	1.2	1.2	2.1	1.6
OTHER ARABLE CROPS	0.0	0.0	0.1	0.2
ARABLE CROPS Total	1.3	1.3	1.3	0.9
GRAPES/VINES	11.2	11.6	14.1	12.9
FRUIT TREES	2.6	3.7	7.9	5.5
VEGETABLES	3.8	3.9	5.6	4.4
FRUIT & VEGETABLES Total	8.9	9.4	12.2	10.6
Grand Total	2.2	2.2	2.6	2.0

Table 4.20.4: Index of quantity of PPP used by crop
(2000=100)

	2000	2001	2002	2003
CEREALS	100	115	117	89
MAIZE	100	96	93	55
OIL SEEDS	100	31	55	52
POTATOES	100	80	90	62
SUGAR BEET	100	59	99	92
ARABLE CROPS Total	100	95	98	65
GRAPES/VINES	100	104	126	115
FRUIT TREES	100	145	301	210
VEGETABLES	100	117	151	152
FRUIT & VEGETABLES Total	100	106	137	121
Grand Total	100	100	116	92

Table 4.20.5: Proportion of PPP quantity used by crop
(%)

	2000	2001	2002	2003
CEREALS	10	11	10	9
MAIZE	35	34	28	21
OIL SEEDS	1	0	0	0
POTATOES	5	4	4	3
SUGAR BEET	2	1	2	2
OTHER ARABLE CROPS	0	0	1	1
ARABLE CROPS Total	53	50	45	38
GRAPES/VINES	43	44	46	54
FRUIT TREES	3	4	7	6
VEGETABLES	2	2	2	3
FRUIT & VEGETABLES Total	47	50	55	62
Grand Total	100	100	100	100

Table 4.20.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
UREA HERBICIDES	0.5	CHLORO-ACETANILIDE HERBICIDES	0.8	DINITROANILINE HERBICIDES	0.1	DITHIO-CARBAMATE FUNGICIDES	1.1	BIS-CARBAMATE HERBICIDES	0.6
ORGANO-PHOSPHORUS HERBICIDES	0.1	TRIAZINE HERBICIDES	0.3	PHYSIOLOGICAL PLANT GROWTH REGULATORS	0.0	METHYL-THIOTRIAZINE HERBICIDES	0.4	CHLOROACETANILIDE HERBICIDES	0.5
CONAZOLE FUNGICIDES	0.	BENZOIC-ACID HERBICIDES	0.0	ARYLOXY-PHENOXY-PROPIONIC HERBICIDES	0.0	ORGANO-PHOSPHORUS INSECTICIDES	0.1	BENZOFURANE HERBICIDES	0.4
UNCLASSIFIED FUNGICIDES	0.0	ISOXAZOLE HERBICIDES	0.0	PYRETHROID INSECTICIDES	0.0	CARBAMATE FUNGICIDES	0.1	CONAZOLE FUNGICIDES	0.0
ANILIDE HERBICIDES	0.0	TRIKETONE HERBICIDES	0.0			BIPYRIDYLIUM HERBICIDES	0.1	PYRIDINE-CARBOXYLIC-ACID HERBICIDES	0.0

Table 4.20.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

GRAPES		FRUIT TREES		VEGETABLES	
DITHIO-CARBAMATE FUNGICIDES	5.2	ORGANO-PHOSPHORUS INSECTICIDES	2.0	DITHIO-CARBAMATE FUNGICIDES	1.1
INORGANIC SULPHUR	5.0	ORGANO-PHOSPHORUS HERBICIDES	1.6	ORGANO-PHOSPHORUS INSECTICIDES	0.9
ORGANO-PHOSPHORUS FUNGICIDES	1.1	TRIAZINE HERBICIDES	0.8	METHYL-THIOTRIAZINE HERBICIDES	0.6
PHTHALIC ACID FUNGICIDES	0.4	INORGANIC SULPHUR	0.4	CARBAMATE FUNGICIDES	0.4
ORGANO-PHOSPHORUS INSECTICIDES	0.3	PYRIMIDINE FUNGICIDES	0.2	INORGANIC SULPHUR	0.3

Table 4.20.8: Quantity of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
CHLOROTOLURON	H	28	24	22	21
ISOPROTURON	H	:	:	9	5
GLYPHOSATE	H	c	c	c	c
FENPROPIDIN	F	:	3	2	2
PROPICONAZOLE	F	1	3	2	2
OTHERS		c	c	c	c
TOTAL		42	48	49	37

Table 4.20.9: Quantity of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
S-METOLACHLOR	H	c	c	c	c
TERBUTHYLAZINE	H	6	5	7	22
DICAMBA	H	2	2	2	3
ISOXAFLUTOLE	H	c	c	c	c
MESOTRIONE	H	c	c	c	c
OTHERS		64	59	43	1
TOTAL		153	146	142	85

Table 4.20.10: Quantity of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
TRIFLURALIN	H	3	1	2	1
TRINEXAPAC-ETHYL	PGR	c	c	c	c
FLUAZIFOP-P-BUTYL	H	c	c	c	c
LAMBDA-CYHALOTHRIN	I	c	c	c	c
TOTAL		3	1	2	2

Table 4.20.11: Quantity of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	13	10	12	7
PROMETRYN	H	c	c	c	c
CHLORPYRIFOS	I	0	0	1	1
PROPAMOCARB	F	:	:	1	1
DIQUAT	H	c	c	c	c
OTHERS		1	1	1	1
TOTAL		22	18	20	14

Table 4.20.12: Quantity of the top-5 active substances applied to sugar beet crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
S-METOLACHLOR	H	c	c	c	c
TERBUTHYLAZINE	H	6	5	7	22
DICAMBA	H	2	2	2	3
ISOXAFLUTOLE	H	c	c	c	c
MESOTRIONE	H	c	c	c	c
OTHERS		64	59	43	1
TOTAL		153	146	142	85

4.20.13: Quantity of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	92	88	100	86
SULPHUR	F	83	92	84	83
FOSETYL	F	c	c	c	c
FOLPET	F	:	:	6	6
DINOCAP	F	0	0	3	4
OTHERS		c	c	c	c
TOTAL		185	192	234	213

4.20.14: Quantity of the top-5 active substances applied to fruit tree crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
DIAZINON	I	c	c	c	c
GLYPHOSATE	H	c	c	c	c
TERBUTHYLAZINE	H	2	3	3	4
SULPHUR	F	2	2	2	2
CYPRODINIL	F	1	1	1	1
OTHERS		3	3	19	3
TOTAL		12	17	35	24

4.20.15: Quantity of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	2	3	3	3
DIAZINON	I	c	c	c	c
PROMETRYN	H	c	c	c	c
PROPAMOCARB	F	:	:	1	1
SULPHUR	F	1	1	1	1
OTHERS		1	1	3	2
TOTAL		7	8	10	10

4.21 Slovakia

Table 4.21.1: Areas cultivated with the different crops
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	673	714	682	650
MAIZE	264	239	239	248
OIL SEEDS	178	181	204	213
POTATOES	27	24	26	26
SUGAR BEET	32	31	30	32
OTHER ARABLE CROPS	221	221	197	211
ARABLE CROPS Total	1396	1409	1377	1379
GRAPES/VINES	17	13	13	13
FRUIT TREES	5	7	6	6
VEGETABLES	21	28	28	29
FRUIT & VEGETABLES Total	43	47	46	47
Grand Total	1439	1457	1424	1426

Table 4.21.2: Quantity of PPP used by crop
(in 1000 ha)

	2000	2001	2002	2003
CEREALS	388	505	476	369
MAIZE	471	503	437	407
OIL SEEDS	151	173	181	255
POTATOES	66	57	96	91
SUGAR BEET	119	145	130	101
OTHER ARABLE CROPS	8	6	7	8
ARABLE CROPS Total	1204	1390	1327	1230
GRAPES/VINES	55	117	99	101
FRUIT TREES	30	48	44	32
VEGETABLES	25	36	33	39
FRUIT & VEGETABLES Total	110	201	176	172
Grand Total	1314	1591	1503	1402

Table 4.21.3: Dosage of PPP used by crop
(in kg AS/ha)

	2000	2001	2002	2003
CEREALS	0.6	0.7	0.7	0.6
MAIZE	1.8	2.1	1.8	1.6
OIL SEEDS	0.8	1.0	0.9	1.2
POTATOES	2.5	2.4	3.6	3.6
SUGAR BEET	3.7	4.7	4.3	3.2
ARABLE CROPS Total	0.9	1.0	1.0	0.9
GRAPES/VINES	3.2	8.9	7.6	8.0
FRUIT TREES	5.9	7.2	7.4	5.7
VEGETABLES	1.2	1.3	1.2	1.4
FRUIT & VEGETABLES Total	2.5	4.2	3.8	3.7
Grand Total	0.9	1.1	1.1	1.0

Table 4.21.4: Index of quantity of PPP used by crop
(2000=100)

	2000	2001	2002	2003
CEREALS	100	130	123	95
MAIZE	100	107	93	86
OIL SEEDS	100	115	120	169
POTATOES	100	86	144	137
SUGAR BEET	100	121	109	84
OTHER ARABLE CROPS	100	82	89	99
ARABLE CROPS Total	100	116	110	102
GRAPES/VINES	100	212	179	182
FRUIT TREES	100	161	148	108
VEGETABLES	100	144	132	157
FRUIT & VEGETABLES Total	100	183	160	156
Grand Total	100	121	114	107

Table 4.21.5: Proportion of PPP quantity used by crop
(%)

	2000	2001	2002	2003
CEREALS	30	32	32	26
MAIZE	36	32	29	29
OIL SEEDS	11	11	12	18
POTATOES	5	4	6	7
SUGAR BEET	9	9	9	7
OTHER ARABLE CROPS	1	0	0	1
ARABLE CROPS Total	92	87	88	88
GRAPES/VINES	4	7	7	7
FRUIT TREES	2	3	3	2
VEGETABLES	2	2	2	3
FRUIT & VEGETABLES Total	8	13	12	12
Grand Total	100	100	100	100

Table 4.21.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		MAIZE		OIL SEEDS		POTATOES		SUGAR BEET	
PHENOXY HERBICIDES	0.3	CHLORO-ACETANILIDE HERBICIDES	1.2	METHYL-THIOTRIAZINE HERBICIDES	0.2	DITHIO-CARBAMATE FUNGICIDES	1.6	PYRIDAZINONE HERBICIDES	0.8
ORGANO-PHOSPHORUS HERBICIDES	0.1	TRIAZINE HERBICIDES	0.3	DINITROANILINE HERBICIDES	0.2	AROMATIC FUNGICIDES	0.4	BIS-CARBAMATE HERBICIDES	0.7
CONAZOLE FUNGICIDES	0.1	PHENOXY HERBICIDES	0.0	ANILIDE HERBICIDES	0.2	CARBAMATE FUNGICIDES	0.4	BENZOFURANE HERBICIDES	0.4
BENZIMIDAZOLE FUNGICIDES	0.0	ORGANO-PHOSPHORUS HERBICIDES	0.0	CHLOROACETANILIDE HERBICIDES	0.1	TRIAZINONE HERBICIDES	0.3	ORGANO-PHOSPHORUS INSECTICIDES	0.3
UREA HERBICIDES	0.0	DINITROANILINE HERBICIDES	0.0	ORGANO-PHOSPHORUS INSECTICIDES	0.1	METHYL-THIOTRIAZINE HERBICIDES	0.2	ORGANO-PHOSPHORUS HERBICIDES	0.2

Table 4.21.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

GRAPES		FRUIT TREES		VEGETABLES	
INORGANIC SULPHUR	4.7	DITHIO-CARBAMATE FUNGICIDES	1.9	ORGANO-PHOSPHORUS INSECTICIDES	0.3
DITHIO-CARBAMATE FUNGICIDES	1.3	INORGANIC SULPHUR	1.8	METHYL-THIOTRIAZINE HERBICIDES	0.2
PHTHALIC ACID FUNGICIDES	0.4	ORGANO-PHOSPHORUS INSECTICIDES	0.8	DITHIO-CARBAMATE FUNGICIDES	0.2
ORGANO-PHOSPHORUS HERBICIDES	0.4	ORGANO-PHOSPHORUS HERBICIDES	0.6	COPPER COMPOUNDS	0.1
COPPER COMPOUNDS	0.4	QUINONE FUNGICIDES	0.1	DINITROANILINE HERBICIDES	0.1

Table 4.21.8: Quantity of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MCPA	H	185	193	155	104
2,4-D	H	c	c	c	c
GLYPHOSATE	H	c	c	c	c
CARBENDAZIM	F	12	15	22	18
PROPICONAZOLE	F	6	9	11	14
OTHERS		69	167	150	111
TOTAL		388	505	476	369

Table 4.21.9: Quantity of the top-5 active substances applied to maize crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
ACETOCHLOR	H	268	273	232	272
ATRAZINE	H	116	138	117	78
S-METOLACHLOR	H	c	c	c	c
2,4-D	H	c	c	c	c
GLYPHOSATE	H	c	c	c	c
OTHERS		23	38	38	20
TOTAL		471	503	437	407

Table 4.21.10: Quantity of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
PROMETRYN	H	c	c	c	c
TRIFLURALIN	H	18	19	26	43
METAZACHLOR	H	10	25	33	36
CHLORPYRIFOS	I	15	14	20	20
ACETOCHLOR	H	41	21	18	20
OTHERS		40	48	63	83
TOTAL		151	173	181	255

Table 4.21.11: Quantity of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
MANCOZEB	F	40	38	38	41
CHLOROTHALONIL	F	2	1	12	11
PROPAMOCARB	F	:	:	11	10
METRIBUZIN	H	:	:	6	8
TERBUTRYN	H	9	3	4	5
OTHERS		16	15	25	17
TOTAL		66	57	96	91

Table 4.21.12: Quantity of the top-5 active substances applied to sugar beet crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
CHLORIDAZON	H	14	31	30	25
PHENMEDIPHAM	H	20	23	16	15
ETHOFUMESATE	H	20	24	18	13
DESMEDIPHAM	H	17	18	13	9
CHLORPYRIFOS	I	6	6	8	8
OTHERS		43	43	44	31
TOTAL		119	145	130	101

4.21.13: Quantity of the top-5 active substances applied to grape and vine crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
SULPHUR	F	27	65	60	59
METIRAM	F	:	8	10	8
MANCOZEB	F	12	11	6	8
FOLPET	F	:	11	3	5
GLYPHOSATE	H	c	c	c	c
OTHERS		c	c	c	c
TOTAL		55	117	99	101

4.21.14: Quantity of the top-5 active substances applied to fruit tree crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
SULPHUR	F	:	11	11	11
MANCOZEB	F	6	6	9	8
GLYPHOSATE	H	c	c	c	c
METIRAM	F	:	2	2	2
CHLORPYRIFOS-METHYL	I	2	2	2	2
OTHERS		c	c	c	c
TOTAL		30	48	44	32

4.21.15: Quantity of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	2000	2001	2002	2003
DIAZINON	I	c	c	c	c
MANCOZEB	F	4	5	3	5
PROMETRYN	H	c	c	c	c
COPPER OXYCHLORIDE	F	c	c	c	c
PENDIMETHALIN	H	:	8	5	4
OTHERS		10	13	14	16
TOTAL		25	36	33	39

4.22 Finland

Table 4.22.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	917	923	945	978	1075	1113	1108	1128	1167	1156	1190	1192
OIL SEEDS	86	62	64	86	62	64	68	66	54	75	68	77
POTATOES	35	36	37	36	35	33	33	32	32	30	30	29
SUGAR BEET	32	33	34	35	35	35	33	35	32	31	31	29
OTHER ARABLE CROPS	1440	1220	1220	1007	915	880	924	916	893	893	898	885
ARABLE CROPS Total	2511	2275	2299	2141	2122	2125	2166	2177	2178	2185	2217	2212
FRUIT TREES	:	:	:	:	:	:	:	:	1	1	1	1
VEGETABLES	6	7	7	9	10	9	9	9	9	8	9	9
FRUIT & VEGETABLES Total	7	7	8	9	10	10	9	9	9	9	9	9
Grand Total	2517	2282	2307	2151	2132	2135	2175	2186	2187	2194	2226	2221

Table 4.22.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	192	139	148	294	306	584	634	485	582	675	846	699
OIL SEEDS	15	15	6	5	7	5	4	4	4	15	46	57
POTATOES	32	32	24	30	35	51	72	45	127	112	130	115
SUGAR BEET	95	92	77	89	82	65	72	68	83	105	125	80
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	1	4	3	1
ARABLE CROPS Total	335	279	254	418	430	706	783	602	797	911	1151	952
FRUIT TREES	:	:	:	:	:	:	2	:	20	19	23	14
VEGETABLES	5	8	5	5	8	11	12	7	16	15	18	20
FRUIT & VEGETABLES Total	5	8	5	5	8	11	14	7	36	35	41	34
Grand Total	339	287	259	423	438	717	797	608	833	945	1192	986

Table 4.22.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.2	0.2	0.2	0.3	0.3	0.5	0.6	0.4	0.5	0.6	0.7	0.6
OIL SEEDS	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.7	0.7
POTATOES	0.9	0.9	0.7	0.8	1.0	1.5	2.2	1.4	3.9	3.7	4.4	4.0
SUGAR BEET	2.9	2.8	2.3	2.6	2.4	1.9	2.2	1.9	2.6	3.4	4.1	2.8
ARABLE CROPS Total	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.4	0.4	0.5	0.4
FRUIT TREES	:	:	:	:	:	:	4.1	-	38.6	35.0	39.5	22.4
VEGETABLES	0.7	1.3	0.7	0.6	0.9	1.1	1.4	0.7	1.8	1.8	2.1	2.3
FRUIT & VEGETABLES Total	0.7	1.2	0.7	0.6	0.8	1.1	1.5	0.7	3.9	3.9	4.5	3.7
Grand Total	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.4	0.4	0.5	0.4

Table 4.22.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	33	24	25	51	53	100	109	83	100	116	146	120
OIL SEEDS	354	355	127	115	170	122	96	83	100	338	1072	1320
POTATOES	25	25	19	24	27	41	57	36	100	89	103	91
SUGAR BEET	114	110	92	107	98	78	87	81	100	126	150	96
ARABLE CROPS Total	42	35	32	52	54	89	98	76	100	114	145	119
FRUIT TREES	:	:	:	:	:	:	10	-	100	97	115	69
VEGETABLES	29	52	32	33	52	68	74	42	100	97	114	125
FRUIT & VEGETABLES Total	13	23	14	15	23	30	38	19	100	97	114	94
Grand Total	41	34	31	51	53	86	96	73	100	114	143	118

Table 4.22.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	57	49	57	69	70	82	80	80	70	71	71	71
OIL SEEDS	5	5	2	1	2	1	1	1	1	2	4	6
POTATOES	9	11	9	7	8	7	9	7	15	12	11	12
SUGAR BEET	28	32	30	21	19	9	9	11	10	11	11	8
ARABLE CROPS Total	99	97	98	99	98	98	98	99	96	96	97	97
FRUIT TREES	0	0	0	0	0	0	0	0	2	2	2	1
VEGETABLES	1	3	2	1	2	2	1	1	2	2	2	2
FRUIT & VEGETABLES Total	1	3	2	1	2	2	2	1	4	4	3	3
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.22.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		OIL SEEDS		POTATOES		SUGAR BEET	
ORGANO-PHOSPHORUS HERBICIDES	0.3	DINITROANILINE HERBICIDES	0.6	DITHIO-CARBAMATE FUNGICIDES	2.8	BIS-CARBAMATE HERBICIDES	1.6
PHENOXY HERBICIDES	0.1	ANILIDE HERBICIDES	0.0	DINITROANILINE FUNGICIDES	0.5	BENZOFURANE HERBICIDES	0.9
PHYSIOLOGICAL PLANT GROWTH REGULATORS	0.0	NITROGUANIDINE INSECTICIDES	0.0	UREA HERBICIDES	0.2	PYRIDINE-CARBOXYLIC-ACID HERBICIDES	0.1
CONAZOLE FUNGICIDES	0.0	PYRIDINECARBOXYLIC-ACID HERBICIDES	0.0	CARBAMATE FUNGICIDES	0.1	ARYLOXY-PHENOXY-PROPIONIC HERBICIDES	0.0
AMIDE FUNGICIDES	0.0	ARYLOXY-PHENOXY-PROPIONIC HERBICIDES	0.0	BIPYRIDYLIUM HERBICIDES	0.1	NITROGUANIDINE INSECTICIDES	0.0

Table 4.22.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

FRUIT TREES		VEGETABLES	
AMIDE FUNGICIDES	7.9	DIPHENYL ETHER HERBICIDES	0.7
CARBAMATE INSECTICIDES	2.9	CARBAMATE INSECTICIDES	0.3
ORGANO-PHOSPHORUS HERBICIDES	2.7	UREA HERBICIDES	0.3
ANILIDE FUNGICIDES	1.9	THIADIAZINE HERBICIDES	0.3
QUINONE FUNGICIDES	1.8	DINITROANILINE HERBICIDES	0.1

Table 4.22.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
MCPA	H	21	7	28	175	134	225	140	130	172	191	191	126
DICHLORPROP-P	H	:	:	:	2	:	15	49	62	45	28	28	24
CHLORMEQUAT	PGR	c	c	c	c	c	c	c	c	c	c	c	c
PROCHLORAZ	F	:	:	:	:	6	14	25		25	19	17	18
OTHERS		25	18	19	19	23	70	111	61	67	74	104	101
TOTAL		192	139	148	294	306	584	634	485	582	675	846	699

Table 4.22.9: Quantities of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
TRIFLURALIN	H	:	:	:	:	:	3	:	:	:	7	30	46
METAZACHLOR	H	:	:	:	:	3	2	3	3	2	2	7	4
THIAMETHOXAM	I	:	:	:	:	:	:	:	:	:	c	c	c
CLOPYRALID	H	:	:	:	:	:	:	:	:	1	1	1	2
FLUAZIFOP-P-BUTYL	H	:	:	:	:	:	:	:	:	:	1	1	1
OTHERS		15	15	6	5	5	1	2	1	1	1	4	1
TOTAL		15	15	6	5	7	5	4	4	4	15	46	57

Table 4.22.10: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	11	11	5	2	5	17	36	22	84	76	96	80
FLUAZINAM	F	c	c	c	c	c	c	c	c	c	c	c	c
LINURON	H	:	:	:	:	:	4	:	4	4	5	5	5
PROPAMOCARB	F	:	:	:	:	3	4	5	:	5	4	4	4
DIQUAT	H	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		17	16	15	19	17	19	20	19	16	13	9	9
TOTAL		32	32	24	30	35	51	72	45	127	112	130	115

Table 4.22.11: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PHENMEDIPHAM	H	:	:	:	:	:	:	:	:	25	37	39	44
ETHOFUMESATE	H	:	:	:	:	:	:	:	:	13	28	30	28
DESMEDIPHAM	H	:	:	:	:	:	:	:	:	2	3	4	3
CLOPYRALID	H	:	:	:	:	:	:	:	:	1	1	1	2
FLUAZIFOP-P-BUTYL	H	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		95	92	77	89	82	65	72	68	83	105	125	80

Table 4.22.12: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
TOLYLFLUANID	F	:	:	:	:	:	:	c	c	c	c	c	c
METHIOCARB	I	:	:	:	:	:	:	:	:	2	2	2	2
GLUFOSINATE	H	:	:	:	:	:	:	:	:	2	2	2	2
FENHEXAMID	F	:	:	:	:	:	:	c	c	c	c	c	c
DITHIANON	F	:	:	:	:	:	:	c	c	c	c	c	c
OTHERS		0	0	0	0	0	0	0	0	11	10	12	3
TOTAL		0	0	0	0	0	0	2	0	20	19	23	14

Table 4.22.13: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ACLONIFEN	H	:	:	:	:	:	:	:	:	c	c	c	c
METHIOCARB	I	:	:	:	:	:	:	:	:	3	2	3	3
BENTAZONE	H	:	:	:	:	2	5	6	4	3	2	3	2
LINURON	H	:	:	:	:	:	:	:	:	2	2	2	2
TRIFLURALIN	H	:	:	:	:	:	:	:	:	:	1	1	1
OTHERS		5	8	5	5	6	5	6	3	c	c	c	c
TOTAL		5	8	5	5	8	11	12	7	16	15	18	20

4.23 Sweden

Table 4.23.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	1167	1152	1172	1104	1217	1268	1283	1153	1208	1165	1116	1146
OIL SEEDS	107	73	74	107	73	74	70	110	58	49	71	62
POTATOES	39	36	33	35	37	36	34	33	33	32	32	31
SUGAR BEET	48	52	53	58	59	60	59	60	55	55	55	50
OTHER ARABLE CROPS	1407	1306	1449	1428	1373	1292	1276	1325	1245	1375	1378	1348
ARABLE CROPS Total	2768	2619	2781	2732	2758	2729	2721	2681	2599	2679	2654	2642
FRUIT TREES	2	2	2	2	2	2	2	2	2	2	2	2
VEGETABLES	5	6	6	6	7	7	6	6	6	6	5	5
FRUIT & VEGETABLES Total	7	9	9	9	9	9	8	8	8	8	7	7
Grand Total	2775	2627	2790	2741	2767	2738	2729	2689	2607	2687	2662	2649

Table 4.23.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	255	247	326	362	420	505	551	514	1043	1067	1132	1539
OIL SEEDS	16	9	6	20	12	22	24	31	34	36	25	24
POTATOES	50	20	22	25	37	64	100	115	111	119	117	120
SUGAR BEET	121	123	149	147	127	171	160	154	225	163	183	106
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	11	15	13	5
ARABLE CROPS Total	443	400	504	554	596	768	841	819	1425	1400	1469	1794
FRUIT TREES	10	7	9	12	13	16	8	13	43	62	30	27
VEGETABLES	60	72	91	81	99	27	48	39	40	34	38	22
FRUIT & VEGETABLES Total	70	79	100	93	112	59	65	71	83	96	69	49
Grand Total	513	479	604	647	708	827	906	890	1508	1496	1538	1843

Table 4.23.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.9	0.9	1.0	1.3
OIL SEEDS	0.2	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.6	0.7	0.4	0.4
POTATOES	1.3	0.6	0.7	0.7	1.0	1.8	3.0	3.5	3.4	3.7	3.7	3.9
SUGAR BEET	2.5	2.4	2.8	2.5	2.1	2.9	2.7	2.6	4.1	3.0	3.3	2.1
ARABLE CROPS Total	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.5	0.6	0.7
FRUIT TREES	4.2	2.9	3.7	5.2	5.8	7.1	3.9	6.4	22.6	32.9	16.3	14.3
VEGETABLES	12.4	11.2	14.3	12.7	15.2	4.2	7.5	6.3	6.6	5.4	7.0	4.0
FRUIT & VEGETABLES Total	9.7	9.0	11.4	10.7	12.8	6.7	7.7	8.6	10.4	11.8	9.4	6.6
Grand Total	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.6	0.6	0.6	0.7

Table 4.23.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	24	24	31	35	40	48	53	49	100	102	108	147
OIL SEEDS	48	26	19	59	35	65	71	89	100	104	73	70
POTATOES	45	18	20	22	33	58	89	103	100	107	105	108
SUGAR BEET	54	55	66	65	56	76	71	69	100	73	81	47
ARABLE CROPS Total	31	28	35	39	42	54	59	57	100	98	103	126
FRUIT TREES	23	16	20	28	30	37	19	30	100	145	70	62
VEGETABLES	149	178	226	201	246	68	119	97	100	84	95	55
FRUIT & VEGETABLES Total	84	94	120	111	134	71	78	85	100	116	82	58
Grand Total	34	32	40	43	47	55	60	59	100	99	102	122

Table 4.23.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	50	52	54	56	59	61	61	58	69	71	74	84
OIL SEEDS	3	2	1	3	2	3	3	3	2	2	2	1
POTATOES	10	4	4	4	5	8	11	13	7	8	8	7
SUGAR BEET	24	26	25	23	18	21	18	17	15	11	12	6
ARABLE CROPS Total	86	84	83	86	84	93	93	92	94	94	96	97
FRUIT TREES	2	1	1	2	2	2	1	1	3	4	2	1
VEGETABLES	12	15	15	13	14	3	5	4	3	2	3	1
FRUIT & VEGETABLES Total	14	16	17	14	16	7	7	8	6	6	4	3
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.23.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		OIL SEEDS		POTATOES		SUGAR BEET	
ORGANO-PHOSPHORUS HERBICIDES	0.6	ANILIDE HERBICIDES	0.3	DINITROANILINE FUNGICIDES	1.1	BIS-CARBAMATE HERBICIDES	1.0
PHENOXY HERBICIDES	0.4	PYRIDINE-CARBOXYLIC-ACID HERBICIDES	0.0	DITHIO-CARBAMATE FUNGICIDES	0.9	MINERAL OIL	0.3
UREA HERBICIDES	0.2	PYRETHROID INSECTICIDES	0.0	CARBAMATE FUNGICIDES	0.5	ORGANO-PHOSPHORUS HERBICIDES	0.3
STROBILURINE FUNGICIDES	0.0	AMIDE HERBICIDES	0.0	BIPYRIDYLIUM HERBICIDES	0.3	PYRIDAZINONE HERBICIDES	0.2
PYRIDYLOXY-ACETIC-ACID HERBICIDES	0.0	PYRIDYL-METHYLAMINE INSECTICIDES	0.0	AMIDE FUNGICIDES	0.3	CYCLO-HEXANEDIONE HERBICIDES	0.0

Table 4.23.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

FRUIT TREES		VEGETABLES	
AMIDE FUNGICIDES	6.2	THIADIAZINE HERBICIDES	1.1
INORGANIC SULPHUR	2.6	ORGANO-PHOSPHORUS FUNGICIDES	0.8
IMIDAZOLE FUNGICIDES	1.9	ORGANO-PHOSPHORUS INSECTICIDES	0.8
ANILIDE FUNGICIDES	1.0	DINITROANILINE HERBICIDES	0.6
QUINONE FUNGICIDES	0.9	PYRIDINE-CARBOXYLIC-ACID HERBICIDES	0.3

Table 4.23.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
MCPA	H	:	:	:	5	5	28	94	25	84	105	95	297
ISOPROTURON	H	:	:	:	:	:	31	16	13	214	217	194	189
DICHLORPROP-P	H	:	:	:	:	:	35	31	36	:	51	40	96
MECOPROP-P	H	10	:	:	:	:	45	41	34	32	31	38	58
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		255	247	326	362	420	505	551	514	1043	1067	1132	1539

Table 4.23.9: Quantities of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
METAZACHLOR	H	:	:	:	:	:	17	17	23	26	28	14	18
CLOPYRALID	H	:	:	:	10	0	:	:	:	2	2	2	3
PROPYZAMIDE	H	:	:	:	:	:	:	:	:	0	1	1	1
BETA-CYFLUTHRIN	I	:	:	:	:	:	:	:	:	:	0	1	1
IMIDACLOPRID	I	:	:	:	:	:	:	:	:	:	0	1	1
OTHERS		16	9	6	10	12	5	7	8	6	4	6	1
TOTAL		16	9	6	20	12	22	24	31	34	36	25	24

Table 4.23.10: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
FLUAZINAM	F	:	:	:	:	:	:	:	:	c	c	c	c
MANCOZEB	F	15	7	8	11	21	44	79	87	30	25	20	27
PROPAMOCARB	F	:	:	:	:	:	:	:	:	8	14	9	14
DIQUAT	H	:	:	:	:	:	:	:	:	c	c	c	c
METALAXYL-M	F	:	:	:	:	:	:	:	:	3	4	11	10
OTHERS		35	13	14	13	16	20	21	28	25	24	27	26
TOTAL		50	20	22	25	37	64	100	115	111	119	117	120

Table 4.23.11: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
PHENMEDIPHAM	H	:	:	:	:	:	6	5	1	66	47	31	51
PETROLEUM OILS	ZR	:	:	:	:	:	:	:	:	:	:	:	16
GLYPHOSATE	H	:	:	:	:	:	c	c	c	c	c	c	c
CHLORIDAZON	H	:	:	:	:	:	18	19	20	13	7	10	11
CYCLOXYDIM	H	:	:	:	:	:	c	c	c	c	c	c	c
OTHERS		121	123	149	147	127	136	124	120	130	98	126	10
TOTAL		121	123	149	147	127	171	160	154	225	163	183	106

Table 4.23.12: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
TOLYLFLUANID	F	c	c	c	c	c	c	c	c	c	c	c	c
SULPHUR	F	:	:	:	:	:	1	0	1	9	7	5	5
IPRODIONE	F	:	:	:	:	:	:	:	:	2	3	2	4
FENHEXAMID	F	:	:	:	:	:	:	:	:	c	c	c	c
DITHIANON	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		6	3	4	5	6	8	3	7	15	34	10	3
TOTAL		10	7	9	12	13	16	8	13	43	62	30	27

Table 4.23.13: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BENTAZONE	H	:	:	:	:	:	21	26	22	17	16	20	6
FOSETYL	F	:	:	:	:	:	:	:	:	c	c	c	c
DIMETHOATE	I	:	:	:	:	:	:	:	:	3	2	5	4
PENDIMETHALIN	H	13	:	14	3	:	1	1	1	3	2	4	3
CLOPYRALID	H	:	:	:	:	:	:	:	:	1	1	1	1
OTHERS		47	72	78	78	99	5	21	16	c	c	c	c
TOTAL		60	72	91	81	99	27	48	39	40	34	38	22

4.24 United Kingdom

Table 4.24.1: Areas cultivated with the different crops (in 1000 ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	3489	3033	3043	3181	3359	3515	3420	3140	3348	3014	3245	3059
MAIZE	51	73	94	106	111	109	103	107	104	129	121	117
OIL SEEDS	567	580	565	501	469	549	632	631	476	484	446	493
POTATOES	181	170	164	172	178	166	164	178	165	165	158	145
SUGAR BEET	197	197	195	196	199	196	189	183	173	177	169	162
OTHER ARABLE CROPS	2074	2085	1840	1750	1721	1687	1597	1665	1437	1330	355	1508
ARABLE CROPS Total	6557	6138	5900	5906	6037	6222	6105	5904	5703	5300	4495	5484
FRUIT TREES	27	30	25	23	22	22	22	21	22	22	20	20
VEGETABLES	151	142	141	148	147	137	136	131	120	116	121	119
FRUIT & VEGETABLES Total	178	172	166	171	169	159	157	152	142	138	141	139
Grand Total	6735	6310	6066	6077	6206	6381	6262	6055	5845	5438	4636	5623

Table 4.24.2: Quantity of PPP used by crop (in tonnes of AS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	6219	5786	6312	6689	6741	7768	7731	7295	10692	10438	11797	10009
MAIZE	72	82	126	152	173	134	101	89	83	143	143	177
OIL SEEDS	318	383	416	455	489	491	725	458	615	697	666	767
POTATOES	760	786	927	910	871	919	1465	1816	2131	2475	2405	2359
SUGAR BEET	527	760	774	843	842	880	818	822	674	671	713	533
OTHER ARABLE CROPS	:	:	:	:	:	:	:	:	57	35	44	14
ARABLE CROPS Total	7896	7798	8555	9050	9116	10191	10840	10479	14250	14460	15769	13858
FRUIT TREES	128	131	174	159	149	176	157	137	46	87	72	58
VEGETABLES	433	754	611	694	603	645	596	724	677	611	690	766
FRUIT & VEGETABLES Total	561	885	785	853	752	821	753	861	723	699	763	824
Grand Total	8457	8683	9340	9903	9868	11012	11592	11340	14973	15159	16532	14682

Table 4.24.3: Dosage of PPP used by crop (in kg AS/ha)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	1.8	1.9	2.1	2.1	2.0	2.2	2.3	2.3	3.2	3.5	3.6	3.3
MAIZE	1.4	1.1	1.3	1.4	1.6	1.2	1.0	0.8	0.8	1.1	1.2	1.5
OIL SEEDS	0.6	0.7	0.7	0.9	1.0	0.9	1.1	0.7	1.3	1.4	1.5	1.6
POTATOES	4.2	4.6	5.7	5.3	4.9	5.5	8.9	10.2	12.9	15.0	15.2	16.2
SUGAR BEET	2.7	3.9	4.0	4.3	4.2	4.5	4.3	4.5	3.9	3.8	4.2	3.3
ARABLE CROPS Total	1.2	1.3	1.5	1.5	1.5	1.6	1.8	1.8	2.5	2.7	3.5	2.5
FRUIT TREES	4.7	4.4	7.0	6.9	6.7	7.9	7.2	6.6	2.1	3.9	3.6	2.9
VEGETABLES	2.9	5.3	4.3	4.7	4.1	4.7	4.4	5.5	5.6	5.3	5.7	6.4
FRUIT & VEGETABLES Total	3.2	5.2	4.7	5.0	4.4	5.2	4.8	5.7	5.1	5.1	5.4	5.9
Grand Total	1.3	1.4	1.5	1.6	1.6	1.7	1.9	1.9	2.6	2.8	3.6	2.6

Table 4.24.4: Index of quantity of PPP used by crop (2000=100)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	58	54	59	63	63	73	72	68	100	98	110	94
MAIZE	87	100	153	184	209	162	122	108	100	173	173	214
OIL SEEDS	52	62	68	74	80	80	118	75	100	113	108	125
POTATOES	36	37	43	43	41	43	69	85	100	116	113	111
SUGAR BEET	78	113	115	125	125	131	121	122	100	100	106	79
ARABLE CROPS Total	55	55	60	64	64	72	76	74	100	101	111	97
FRUIT TREES	282	288	382	350	327	387	344	301	100	191	159	128
VEGETABLES	64	111	90	102	89	95	88	107	100	90	102	113
FRUIT & VEGETABLES Total	78	123	109	118	104	114	104	119	100	97	106	114
Grand Total	56	58	62	66	66	74	77	76	100	101	110	98

Table 4.24.5: Proportion of PPP quantity used by crop (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CEREALS	74	67	68	68	68	71	67	64	71	69	71	68
MAIZE	1	1	1	2	2	1	1	1	1	1	1	1
OIL SEEDS	4	4	4	5	5	4	6	4	4	5	4	5
POTATOES	9	9	10	9	9	8	13	16	14	16	15	16
SUGAR BEET	6	9	8	9	9	8	7	7	4	4	4	4
ARABLE CROPS Total	93	90	92	91	92	93	94	92	95	95	95	94
FRUIT TREES	2	2	2	2	2	2	1	1	0	1	0	0
VEGETABLES	5	9	7	7	6	6	5	6	5	4	4	5
FRUIT & VEGETABLES Total	7	10	8	9	8	7	6	8	5	5	5	6
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4.24.6: Top-5 chemical classes used with the highest dosage on arable crops in 2003 (in kg AS/ha)

CEREALS		OIL SEEDS		POTATOES		SUGAR BEET	
UREA HERBICIDES	0.8	ANILIDE HERBICIDES	0.3	DITHIO-CARBAMATE FUNGICIDES	9.5	INORGANIC SULPHUR	0.9
DINITROANILINE HERBICIDES	0.5	DINITROANILINE HERBICIDES	0.3	SOIL STERILANTS	3.1	BIS-CARBAMATE HERBICIDES	0.5
ORGANOPHOSPHORUS HERBICIDES	0.5	AMIDE HERBICIDES	0.2	BIPYRIDYLIUM HERBICIDES	0.7	ORGANO-PHOSPHORUS HERBICIDES	0.5
PHYSIOLOGICAL PLANT GROWTH REGULATORS	0.4	ORGANO-PHOSPHORUS HERBICIDES	0.1	ALIPHATIC NITROGEN FUNGICIDES	0.5	OXIME-CARBAMATE INSECTICIDES	0.4
PHENOXY HERBICIDES	0.3	BENZIMIDAZOLE FUNGICIDES	0.1	DINITROANILINE FUNGICIDES	0.4	PYRIDAZINONE HERBICIDES	0.0

Table 4.24.7: Top-5 chemical classes used with the highest dosage on speciality crops in 2003 (in kg AS/ha)

FRUIT TREES		VEGETABLES	
QUINONE FUNGICIDES	1.1	TRIAZINE HERBICIDES	1.2
ORGANO-PHOSPHORUS INSECTICIDES	0.8	AROMATIC FUNGICIDES	1.1
INORGANIC SULPHUR	0.5	CHLORO-ACETANILIDE HERBICIDES	0.5
CONAZOLE FUNGICIDES	0.2	THIADIAZINE HERBICIDES	0.4
DINITROPHENOL FUNGICIDES	0.1	PHENOXY HERBICIDES	0.4

Table 4.24.8: Quantities of the top-5 active substances applied to cereal crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ISOPROTURON	H	1224	1111	1219	1085	979	1603	1625	1117	3709	2636	3545	2576
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
CHLORMEQUAT	PGR	c	c	c	c	c	c	c	c	c	c	c	c
PENDIMETHALIN	H	:	177	285	456	523	485	364	708	941	862	824	952
TRIFLURALIN	H	229	120	132	174	141	164	376	376	425	730	647	623
OTHERS		4196	3653	3878	4188	4214	3991	3901	3798	3139	3307	3183	3323
TOTAL		6219	5786	6312	6689	6741	7768	7731	7295	10692	10438	11797	10009

Table 4.24.9: Quantities of the top-5 active substances applied to oilseed crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
METAZACHLOR	H	63	88	98	135	156	141	170	115	125	153	140	173
TRIFLURALIN	H	7	7	24	25	13		39	25	160	153	159	173
PROPYZAMIDE	H	:	:	:	:	:	4	3	2	0	64	84	92
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
CARBENDAZIM	F	24	28	40	39	46	40	55	50	39	39	33	46
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		318	383	416	455	489	491	725	458	615	697	666	767

Table 4.24.10: Quantities of the top-5 active substances applied to potato crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MANCOZEB	F	402	417	559	563	549	521	607	893	1171	1339	1457	1375
1,3-DICHLORO-PROPENE	ZR	:	:	:	:	:	:	:	:	420	489	371	446
CYMOXANIL	F	24	25	25	28	20	24	30	37	58	62	72	67
DIQUAT	H	c	c	c	c	c	c	c	c	c	c	c	c
FLUAZINAM	F	c	c	c	c	c	c	c	c	c	c	c	c
OTHERS		295	300	310	290	276	374	828	886	407	436	378	347
TOTAL		760	786	927	910	871	919	1465	1816	2131	2475	2405	2359

Table 4.24.11: Quantities of the top-5 active substances applied to sugar-beet crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SULPHUR	F	125	231	269	275	192	245	320	392	140	161	146	147
GLYPHOSATE	H	c	c	c	c	c	c	c	c	c	c	c	c
PHENMEDIPHAM	H	32	59	52	51	44	48	34	31	103	82	101	78
OXAMYL	I	c	c	c	c	c	c	c	c	c	c	c	c
CHLORIDAZON	H	44	55	20	66	72	105	91	73	63	57	61	54
OTHERS		297	378	391	407	485	423	298	256	213	210	232	117
TOTAL		527	760	774	843	842	880	818	822	674	671	713	533

Table 4.24.12: Quantities of the top-5 active substances applied to fruit-tree crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DITHIANON	F	c	c	c	c	c	c	c	c	c	c	c	c
CHLORPYRIFOS	I	16	16	38	24	20		19	19	4	5	6	15
SULPHUR	F	3	6	:	:	:	119	72	57	:	11	9	9
MYCLOBUTANIL	F	:	:	:	:	:	:	:	:	:	0	4	4
DINOCAP	F	:	:	:	:	:	:	:	:	:	2	1	2
OTHERS		c	c	c	c	c	c	c	c	c	c	c	c
TOTAL		128	131	174	159	149	176	157	137	46	87	72	58

Table 4.24.13: Quantities of the top-5 active substances applied to vegetable crops (in tonnes of AS)

Active substances	Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CHLOROTHALONIL	F	18	142	98	87	84	18	15	38	108	102	124	136
SIMAZINE	H	:	:	:	:	:	:	:	:	:	:	:	135
PROPACHLOR	H	:	:	:	:	:	c	c	c	c	c	c	c
BENTAZONE	H	72	192	72	73	60	67	58	57	54	57	51	52
MCPB	H	28	37	43	50	52	62	54	51	43	40	40	45
OTHERS		315	383	397	483	408	c	c	c	c	c	c	c
TOTAL		433	754	611	694	603	645	596	724	677	611	690	766

Chapter 5

Detailed tables by crop

5.1 Cereals

Table 5.1.1: Chemical classes of fungicides applied to cereal crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CONAZOLE FUNGICIDES	3073	2621	2728	3303	3104	2713	2738	2751	2515	3096	3003	2716
STROBILURINE FUNGICIDES	-	-	-	-	54	281	572	561	1531	1930	2277	1925
MORPHOLINE FUNGICIDES	3309	2390	2247	2687	2717	2488	2266	2103	1907	2059	1969	1488
INORGANIC SULPHUR	1398	988	600	571	555	1282	2044	1205	802	1315	1322	973
UNCLASSIFIED FUNGICIDES	1528	1297	1200	1118	1082	962	1013	940	833	703	1209	720
PYRIMIDINE FUNGICIDES	139	41	131	555	596	919	1243	1138	763	792	795	561
BENZIMIDAZOLE FUNGICIDES	979	784	674	559	511	398	320	257	518	493	543	453
AMIDE FUNGICIDES	1496	1063	962	855	663	639	705	590	709	742	580	404
AROMATIC FUNGICIDES	763	967	537	521	636	451	506	470	215	204	261	359
DITHIOCARBAMATE FUNGICIDES	346	177	142	153	134	172	129	62	240	99	98	137
ANILIDE FUNGICIDES	-	-	-	-	-	166	93	92	43	97	32	63
PHENYLPYRROLE FUNGICIDES	-	-	2	6	19	-	-	-	25	50	53	55
QUINOLINE FUNGICIDES	-	-	-	-	-	-	-	-	56	63	61	53
OXAZOLE FUNGICIDES			0	0	3	13	8	6	12	26	26	22
ALIPHATIC NITROGEN FUNGICIDES					1	28	36	120	137	129	62	14
IMIDAZOLE FUNGICIDES	25	12	35	85	36	74	41	33	29	23	17	12
COPPER COMPOUNDS	2	-	-	-	-	20	6	1	7	22	7	7
ORGANOPHOSPHORUS FUNGICIDES	108	101	139	161	84	111	77	50	12	5	0	4
PHTHALIC ACID FUNGICIDES	-	-	-	-	-	-	0	-	-	-	-	1
CARBAMATE FUNGICIDES	2	2	0	-	-	2	1	2	-	-	-	0
QUINONE FUNGICIDES	-	-	0	-	-	0	0	-	-	-	-	-
ANTIBIOTIC FUNGICIDES-BACTERICIDES	-	-	-	-	-	0	-	-	-	-	-	-
DICARBOXIMIDE FUNGICIDES	-	-	-	-	-	-	-	-	0	-	-	-
DINITROPHENOL FUNGICIDES	1	0	-	-	-	-	-	-	-	-	-	-
Grand Total	13170	10443	9398	10575	10196	10718	11798	10379	10355	11848	12317	9969

Table 5.1.2: Top-5 fungicide chemical classes applied to cereal crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
STROBILURINE FUNGICIDES	0.16	**CONAZOLE FUNGICIDES**	0.07	*STROBILURINE FUNGICIDES*	0.05
CONAZOLE FUNGICIDES	0.13	**MORPHOLINE FUNGICIDES**	0.04	**CONAZOLE FUNGICIDES**	0.04
MORPHOLINE FUNGICIDES	0.06	BENZIMIDAZOLE FUNGICIDES	0.03	**MORPHOLINE FUNGICIDES**	0.04
INORGANIC SULPHUR	0.02	UNCLASSIFIED FUNGICIDES	0.02	PYRIMIDINE FUNGICIDES	0.01
AMIDE FUNGICIDES	0.02	*STROBILURINE FUNGICIDES*	0.01	UNCLASSIFIED FUNGICIDES	0.01
DE		**EE**		**ES**	
CONAZOLE FUNGICIDES	0.12	**MORPHOLINE FUNGICIDES**	0.02	DITHIOCARBAMATE FUNGICIDES	0.01
STROBILURINE FUNGICIDES	0.07	**CONAZOLE FUNGICIDES**	0.01	**CONAZOLE FUNGICIDES**	0.01
UNCLASSIFIED FUNGICIDES	0.06	*STROBILURINE FUNGICIDES*	0.01		
MORPHOLINE FUNGICIDES	0.06				
AROMATIC FUNGICIDES	0.02				
FR		**IE**		**IT**	
STROBILURINE FUNGICIDES	0.11	AROMATIC FUNGICIDES	0.22	**CONAZOLE FUNGICIDES**	0.01
CONAZOLE FUNGICIDES	0.10	**CONAZOLE FUNGICIDES**	0.21	AMIDE FUNGICIDES	0.01
INORGANIC SULPHUR	0.10	**MORPHOLINE FUNGICIDES**	0.15	BENZIMIDAZOLE FUNGICIDES	0.01
MORPHOLINE FUNGICIDES	0.05	*STROBILURINE FUNGICIDES*	0.12		
PYRIMIDINE FUNGICIDES	0.05	PYRIMIDINE FUNGICIDES	0.04		
LV		**LT**		**HU**	
MORPHOLINE FUNGICIDES	0.01	**CONAZOLE FUNGICIDES**	0.01	INORGANIC SULPHUR	0.07
CONAZOLE FUNGICIDES	0.01	**MORPHOLINE FUNGICIDES**	0.01	**CONAZOLE FUNGICIDES**	0.04
		STROBILURINE FUNGICIDES	0.01	**MORPHOLINE FUNGICIDES**	0.02
				BENZIMIDAZOLE FUNGICIDES	0.02
				UNCLASSIFIED FUNGICIDES	0.01
NL		**AT**		**PL**	
CONAZOLE FUNGICIDES	0.20	**CONAZOLE FUNGICIDES**	0.03	**CONAZOLE FUNGICIDES**	0.03
MORPHOLINE FUNGICIDES	0.19	*STROBILURINE FUNGICIDES*	0.01	**MORPHOLINE FUNGICIDES**	0.02
STROBILURINE FUNGICIDES	0.12	UNCLASSIFIED FUNGICIDES	0.01	BENZIMIDAZOLE FUNGICIDES	0.02
PHENYLPYRROLE FUNGICIDES	0.01	**MORPHOLINE FUNGICIDES**	0.01	INORGANIC SULPHUR	0.02
UNCLASSIFIED FUNGICIDES	0.01	BENZIMIDAZOLE FUNGICIDES	0.01	UNCLASSIFIED FUNGICIDES	0.01
PT		**SI**		**SK**	
DITHIOCARBAMATE FUNGICIDES	0.03	**CONAZOLE FUNGICIDES**	0.04	**CONAZOLE FUNGICIDES**	0.06
		UNCLASSIFIED FUNGICIDES	0.04	BENZIMIDAZOLE FUNGICIDES	0.03
		DITHIOCARBAMATE FUNGICIDES	0.01	**MORPHOLINE FUNGICIDES**	0.01
				UNCLASSIFIED FUNGICIDES	0.01
FI		**SE**		**UK**	
CONAZOLE FUNGICIDES	0.02	*STROBILURINE FUNGICIDES*	0.03	**CONAZOLE FUNGICIDES**	0.14
AMIDE FUNGICIDES	0.02	**CONAZOLE FUNGICIDES**	0.02	*STROBILURINE FUNGICIDES*	0.12
UNCLASSIFIED FUNGICIDES	0.01	PYRIMIDINE FUNGICIDES	0.01	**MORPHOLINE FUNGICIDES**	0.07
STROBILURINE FUNGICIDES	0.01	ALIPHATIC NITROGEN FUNGICIDES	0.01	AROMATIC FUNGICIDES	0.04
		MORPHOLINE FUNGICIDES	0.01	PYRIMIDINE FUNGICIDES	0.04

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.1.3: Chemical classes of herbicides applied to cereal crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
UREA HERBICIDES	8375	6911	6780	7509	7001	8505	9814	7618	18552	14656	15165	12634
PHENOXY HERBICIDES	4887	4977	4588	4388	4575	5870	5915	6087	12229	11946	11226	11259
ORGANOPHOSPHORUS HERBICIDES	3501	4274	4664	5473	6226	4464	5366	5047	8442	10362	11236	10267
DINITROANILINE HERBICIDES	843	1046	1480	2283	2402	1799	1750	1888	2712	2977	2669	2749
THIOCARBAMATE HERBICIDES	1034	943	955	1293	1538	193	199	195	1100	1033	1080	1233
ANILIDE HERBICIDES	172	154	181	233	163	445	469	405	1060	969	967	775
NITRILE HERBICIDES	528	496	720	755	745	774	841	865	761	755	712	611
ARYLOXYPHENOXYPROPIONIC HERBICIDES	300	298	340	416	456	509	575	533	632	667	605	589
PYRIDYLOXYACETIC-ACID HERBICIDES	428	448	493	531	558	418	761	708	588	511	489	445
THIADIAZINE HERBICIDES	245	324	372	381	363	475	458	438	351	304	296	295
IMIDAZOLINONE HERBICIDES	147	136	204	151	172	234	275	272	289	308	235	243
SULFONYLUREA HERBICIDES	64	72	156	117	130	298	171	182	182	203	203	221
BENZOIC-ACID HERBICIDES	181	25	38	38	27	36	32	36	263	239	213	219
PYRIDAZINONE HERBICIDES	-	-	-	-	-	-	11	22	179	202	207	160
CYCLOHEXANEDIONE HERBICIDES	10	30	59	122	150	4	126	85	93	130	127	159
DIPHENYL ETHER HERBICIDES	289	408	383	370	184	1181	797	664	257	204	154	66
PYRIDINECARBOXYLIC-ACID HERBICIDES	15	16	15	18	17	52	58	70	71	68	63	60
UNCLASSIFIED HERBICIDES	24	19	8	11	5	14	7	9	120	132	206	45
CHLOROACETANILIDE HERBICIDES	45	37	85	81	75	461	543	516	48	51	74	26
TRIAZOLONE HERBICIDES	-	-	-	-	-	-	-	-	-	0	12	25
AMIDE HERBICIDES	34	34	30	35	31	26	30	28	29	28	30	22
BIPYRIDYLIUM HERBICIDES	180	215	150	200	217	92	74	57	43	40	36	14
PYRIDINECARBOXAMIDE HERBICIDES	-	-	-	-	-	-	-	-	0	5	5	8
TRIAZOLINONE HERBICIDES	-	-	-	-	-	1	9	10	8	10	7	7
DICARBOXIMIDE HERBICIDES	-	-	-	-	-	-	-	24	18	12	7	7
TRIAZINE HERBICIDES	36	31	36	65	68	74	53	56	47	15	12	6
TRIAZINONE HERBICIDES	4	4	5	5	4	2	3	5	10	11	5	6
METHYLTHIOTRIAZINE HERBICIDES	182	148	163	169	167	166	153	163	34	31	10	4
TRIAZOLE HERBICIDES	-	-	-	-	-	3	2	1	0	1	0	2
BENZOFURANE HERBICIDES	-	-	0	-	-	0	1	1	-	-	-	1
PHENYLPYRAZOLE HERBICIDES	-	-	-	-	-	-		c	c	c	c	c
BIS-CARBAMATE HERBICIDES	0	0	0	0	0	0	0	-	0	-	-	1
QUINOLINE HERBICIDES	-	-	-	-	-	-	-	-	0	0	0	-
URACIL HERBICIDES	-	-	-	-	-	-	-	-	0	0	-	-
TRIKETONE HERBICIDES	-	-	-	-	-	-	-	-	-	0	-	-
CARBAMATE HERBICIDES	-	-	-	-	-	11	12	8	-	-	-	-
MORPHACTIN HERBICIDES	16	4	2	0	-	0	-	-	-	-	-	-
DIAZINE HERBICIDES	20	23	23	20	11	11	10	7	-	-	-	-
Grand Total	21561	21070	21931	24665	25288	26118	28516	26002	48119	45869	46051	42160

Table 5.1.4: Top-5 herbicide chemical classes applied to cereal crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
UREA HERBICIDES	1.10	**PHENOXY HERBICIDES**	0.22	**ORGANOPHOSPHORUS HERBICIDES**	0.40
PHENOXY HERBICIDES	0.45	**ORGANOPHOSPHORUS HERBICIDES**	0.17	THIOCARBAMATE HERBICIDES	0.30
THIOCARBAMATE HERBICIDES	0.12	*UREA HERBICIDES*	**0.11**	**PHENOXY HERBICIDES**	0.08
ORGANOPHOSPHORUS HERBICIDES	0.09	DINITROANILINE HERBICIDES	0.07	DINITROANILINE HERBICIDES	0.07
PYRIDYLOXYACETIC-ACID HERBICIDES	0.08	THIADIAZINE HERBICIDES	0.01	NITRILE HERBICIDES	0.06
DE		**EE**		**EL**	
UREA HERBICIDES	0.50	**ORGANOPHOSPHORUS HERBICIDES**	0.20	**PHENOXY HERBICIDES**	0.12
ORGANOPHOSPHORUS HERBICIDES	0.25	**PHENOXY HERBICIDES**	0.18	**ORGANOPHOSPHORUS HERBICIDES**	0.06
PHENOXY HERBICIDES	0.24	BENZOIC-ACID HERBICIDES	0.02	IMIDAZOLINONE HERBICIDES	0.01
DINITROANILINE HERBICIDES	0.06			ARYLOXYPHENOXYPROPIONIC HERBICIDES	0.01
NITRILE HERBICIDES	0.04			CYCLOHEXANEDIONE HERBICIDES	0.01
ES		**FR**		**IE**	
PHENOXY HERBICIDES	0.22	*UREA HERBICIDES*	0.53	**ORGANOPHOSPHORUS HERBICIDES**	1.00
ORGANOPHOSPHORUS HERBICIDES	0.17	**PHENOXY HERBICIDES**	0.28	**PHENOXY HERBICIDES**	0.63
UREA HERBICIDES	0.08	**ORGANOPHOSPHORUS HERBICIDES**	0.20	DINITROANILINE HERBICIDES	0.05
ARYLOXYPHENOXYPROPIONIC HERBICIDES	0.03	ARYLOXYPHENOXYPROPIONIC H	0.03	CYCLOHEXANEDIONE HERBICIDES	0.02
THIOCARBAMATE HERBICIDES	0.01	ANILIDE HERBICIDES	0.03	CHLOROACETANILIDE HERBICIDES	0.01
IT		**LV**		**LT**	
ORGANOPHOSPHORUS HERBICIDES	0.22	**ORGANOPHOSPHORUS HERBICIDES**	0.16	**ORGANOPHOSPHORUS HERBICIDES**	0.22
PHENOXY HERBICIDES	0.16	**PHENOXY HERBICIDES**	0.13	**PHENOXY HERBICIDES**	0.14
UREA HERBICIDES	0.02	DINITROANILINE HERBICIDES	0.03	BENZOIC-ACID HERBICIDES	0.01
ARYLOXYPHENOXYPROPIONIC H	0.01	*UREA HERBICIDES*	0.02		
NITRILE HERBICIDES	0.01	BENZOIC-ACID HERBICIDES	0.01		
HU		**NL**		**AT**	
PHENOXY HERBICIDES	0.22	**PHENOXY HERBICIDES**	2.44	**PHENOXY HERBICIDES**	0.35
ORGANOPHOSPHORUS HERBICIDES	0.06	**ORGANOPHOSPHORUS HERBICIDES**	1.52	*UREA HERBICIDES*	0.05
UREA HERBICIDES	0.01	*UREA HERBICIDES*	1.27	NITRILE HERBICIDES	0.03
BENZOIC-ACID HERBICIDES	0.01	PYRIDYLOXYACETIC-ACID HERBICIDES	0.08	CHLOROACETANILIDE HERBICIDES	0.01
PYRIDYLOXYACETIC-ACID HERBICIDES	0.01	ANILIDE HERBICIDES	0.03	ARYLOXYPHENOXYPROPIONIC H	0.01
PL		**PT**		**SI**	
PHENOXY HERBICIDES	0.26	*UREA HERBICIDES*	0.18	*UREA HERBICIDES*	0.47
UREA HERBICIDES	0.18	**ORGANOPHOSPHORUS HERBICIDES**	0.14	ARYLOXYPHENOXYPROPIONIC H	0.08
ORGANOPHOSPHORUS HERBICIDES	0.12	ANILIDE HERBICIDES	0.13	**ORGANOPHOSPHORUS HERBICIDES**	0.07
DINITROANILINE HERBICIDES	0.03	**PHENOXY HERBICIDES**	0.12	ANILIDE HERBICIDES	0.02
BENZOIC-ACID HERBICIDES	0.02	NITRILE HERBICIDES	0.04	PYRIDINECARBOXYLIC-ACID HERBICIDES	0.01
SK		**FI**		**SE**	
THIOCARBAMATE HERBICIDES	0.48	**ORGANOPHOSPHORUS HERBICIDES**	0.34	**ORGANOPHOSPHORUS HERBICIDES**	0.62
PHENOXY HERBICIDES	0.28	**PHENOXY HERBICIDES**	0.13	**PHENOXY HERBICIDES**	0.39
ARYLOXYPHENOXYPROPIONIC H	0.10	CYCLOHEXANEDIONE HERBICIDES	0.01	*UREA HERBICIDES*	0.17
CYCLOHEXANEDIONE HERBICIDES	0.09	CHLOROACETANILIDE HERBICIDES	0.01	PYRIDYLOXYACETIC-ACID HERBICIDES	0.02
ORGANOPHOSPHORUS HERBICIDES	0.08			ANILIDE HERBICIDES	0.02
UK					
UREA HERBICIDES	0.85				
DINITROANILINE HERBICIDES	0.51				
ORGANOPHOSPHORUS HERBICIDES	0.48				
PHENOXY HERBICIDES	0.26				
ANILIDE HERBICIDES	0.04				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.1.5: Chemical classes of insecticides applied to cereal crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ORGANOPHOSPHORUS INSECTICIDES	289	308	523	453	323	226	369	248	265	247	275	415
PYRIDYLMETHYLAMINE INSECTICIDES	-	-	-	31	97	-	-	204	121	5	108	117
PYRETHROID INSECTICIDES	108	84	111	190	108	60	64	49	67	80	90	81
CARBAMATE INSECTICIDES	162	84	79	97	82	22	31	24	67	61	122	78
ORGANOCHLORINE INSECTICIDES	51	42	35	45	22	54	40	27	41	43	31	3
AMIDINE INSECTICIDES	-	-	-	-	-	0	0	0	-	-	-	2
NITROGUANIDINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
PYRAZOLE (PHENYL-) INSECTICIDES	-	-	-	-	-	-	0	26	30	0	4	0
(CARBAMOYL-) TRIAZOLE INSECTICIDES	-	-	-	-	-	c	c	c	c	c	c	c
BIOLOGICAL INSECTICIDES	-	-	-	-	-	-	-	-	-	-	0	-
ORGANOTIN INSECTICIDES	-	-	1	2	2	-	0	-	0	0	0	-
DIAZYLHYDRAZINE INSECTICIDES	-	-	-	-	-	-	-	1	10	4	-	-
OXIME-CARBAMATE INSECTICIDES	-	-	-	-	-	0	0	0	-	-	-	-
ANTIBIOTIC INSECTICIDES	-	-	-	-	-	-	0	1	-	-	-	-
UNCLASSIFIED INSECTICIDES	-	-	-	-	-	-	-	-	0	-	-	-
Grand Total	610	518	749	818	636	362	505	580	601	441	631	697

Table 5.1.6: Top-5 insecticide chemical classes applied to cereal crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
ORGANOPHOSPHORUS INSECTICIDES	0.01	**ORGANOPHOSPHORUS INSECTICIDES**	0.01	**ORGANOPHOSPHORUS INSECTICIDES**	0.01
CARBAMATE INSECTICIDES	0.01				
DE		**EL**		**FR**	
ORGANOPHOSPHORUS INSECTICIDES	0.03	**ORGANOPHOSPHORUS INSECTICIDES**	0.01	PYRIDYLMETHYLAMINE INSECTICIDES	0.02
				CARBAMATE INSECTICIDES	0.01
				PYRETHROID INSECTICIDES	0.01
HU		**NL**		**SK**	
ORGANOPHOSPHORUS INSECTICIDES	0.01	**ORGANOPHOSPHORUS INSECTICIDES**	0.03	**ORGANOPHOSPHORUS INSECTICIDES**	0.01
FI		**UK**			
ORGANOPHOSPHORUS INSECTICIDES	0.01	**ORGANOPHOSPHORUS INSECTICIDES**	0.04		

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.1.7: Chemical classes of plant growth regulators applied to cereal crops (in tonnes of AS)

CHEMICAL CLASSES	1997	1998	1999	2000	2001	2002	2003
PHYSIOLOGICAL PLANT GROWTH REGULATORS	6447	7387	6913	7355	8608	8565	6416

5.2 Maize

Table 5.2.1: Chemical classes of fungicides applied to maize crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DITHIOCARBAMATE FUNGICIDES	7	7	7	-	-	-	0	-	29	33	6	89
PHENYLPYRROLE FUNGICIDES	-	-	-	-	-	-	-	-	3	5	4	4
CONAZOLE FUNGICIDES	3	3	3	2	3	2	2	2	4	2	1	2
AMIDE FUNGICIDES	-	-	0	-	-	-	-	-	2	3	2	1
BENZIMIDAZOLE FUNGICIDES	-	-	0	-	0	1	1	1	0	0	0	1
UNCLASSIFIED FUNGICIDES	-	-	-	-	-	-	-	-	-		0	0
ANILIDE FUNGICIDES	-	-	-	-	-	-	-	-	0	0	0	0
COPPER COMPOUNDS	-	-	-	-	-	-	-	-	0	-	-	-
INORGANIC SULPHUR	-	-	-	26	27	14	-	-	-	-	-	-
MORPHOLINE FUNGICIDES	-	-	-	-	-	-	0	-	-	-	-	-
PHTHALIC ACID FUNGICIDES	3	2	3	7	5	-	-	-	-	-	-	-
QUINONE FUNGICIDES	-	-	-	-	0	-	-	-	-	-	-	-
DICARBOXIMIDE FUNGICIDES	-	-	-	-	-	-	-	-	0	-	-	-
Grand Total	13	12	13	36	34	17	4	3	40	43	13	97

Table 5.2.2: Chemical classes of herbicides applied to maize crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CHLOROACETANILIDE HERBICIDES	2477	2291	2525	2610	2922	4370	6245	7506	7114	6323	6887	5741
TRIAZINE HERBICIDES	5230	4820	4695	5534	5278	4729	4294	3675	4147	3893	2881	2845
ORGANOPHOSPHORUS HERBICIDES	125	171	210	245	276	894	1150	1171	1331	1551	1607	1192
AMIDE HERBICIDES	-	-	121	252	296	420	414	523	482	548	660	674
TRIKETONE HERBICIDES	242	67	78	138	338	337	256	115	378	453	501	528
DINITROANILINE HERBICIDES	282	243	321	395	406	980	812	634	585	449	473	394
BENZOIC-ACID HERBICIDES	59	40	52	74	115	149	177	153	173	198	211	275
PHENOXY HERBICIDES	20	24	45	31	26	53	55	68	305	280	271	268
THIADIAZINE HERBICIDES	600	499	445	479	438	422	531	461	268	192	213	248
DIPHENYL ETHER HERBICIDES	38	228	322	375	211	25	57	97	157	167	184	191
ANILIDE HERBICIDES	-	-	-	-	-	2000	917	97	121	163	150	186
DIAZINE HERBICIDES	455	352	396	581	818	780	733	630	456	410	262	145
SULFONYLUREA HERBICIDES	2	12	19	165	30	17	27	104	71	83	97	135
ISOXAZOLE HERBICIDES	-	-	-	-	-	-	c	c	c	c	c	c
NITRILE HERBICIDES	232	185	212	255	266	229	301	233	151	101	81	89
PYRIDAZINONE HERBICIDES	4	3	2	2	-	-	-	-	4	11	51	48
THIOCARBAMATE HERBICIDES	1660	824	749	508	213	21	28	53	51	64	60	23
METHYLTHIOTRIAZINE HERBICIDES	1	0	0	1	1	0		163	49	15	8	18
PYRIDYLOXYACETIC-ACID HERBICIDES	1	1	1	3	6	30	36	28	20	20	19	16
PYRIDINECARBOXYLIC-ACID HERBICIDES	1	1	1	1	1	6	10	10	15	14	15	12
BIPYRIDYLIUM HERBICIDES	21	25	25	26	23				4	4	4	6
UREA HERBICIDES	39	30	31	20	14	17	27	1	6	44	12	6
TRIAZOLE HERBICIDES	-	-	-	-	-	-	-	-	-	15	-	3
IMIDAZOLINONE HERBICIDES	-	-	-	-	-	-	-	-	1	1	1	1
UNCLASSIFIED HERBICIDES	-	-	-	-	-	146	3	-	-	2	17	1
ARYLOXYPHENOXYPROPIONIC HERBICIDES	-	-	-	-	-	0	-	-	-	-	0	1
BENZOFURANE HERBICIDES	-	-	-	-	0	0	-	-	0	0	0	0
TRIAZOLINONE HERBICIDES	-	-	-	-	-	-	-	-	0	0	0	0
BIS-CARBAMATE HERBICIDES	-	-	-	1	-	-	-	-	-	0	-	-
Grand Total	11489	9815	10251	11694	11679	15626	16098	15742	15937	15064	14740	13139

Table 5.2.3: Top-5 herbicide chemical classes applied to maize crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
AMIDE HERBICIDES	0.57	**CHLOROACETANILIDE HERBICIDES**	0.86	**TRIAZINE HERBICIDES**	0.43
TRIAZINE HERBICIDES	0.49	**TRIAZINE HERBICIDES**	0.44	DIAZINE HERBICIDES	0.20
TRIKETONE HERBICIDES	0.15	ORGANOPHOSPHORUS HERBICIDES	0.09	THIADIAZINE HERBICIDES	0.14
THIADIAZINE HERBICIDES	0.11	PHENOXY HERBICIDES	0.03	ORGANOPHOSPHORUS HERBICIDES	0.09
CHLOROACETANILIDE HERBICIDES	0.09	SULFONYLUREA HERBICIDES	0.01	SULFONYLUREA HERBICIDES	0.01
DE		**EL**		**ES**	
CHLOROACETANILIDE HERBICIDES	0.26	**CHLOROACETANILIDE HERBICIDES**	0.44	**CHLOROACETANILIDE HERBICIDES**	1.10
TRIAZINE HERBICIDES	0.22	**TRIAZINE HERBICIDES**	0.38	**TRIAZINE HERBICIDES**	0.44
ORGANOPHOSPHORUS HERBICIDES	0.11	TRIKETONE HERBICIDES	0.03	ORGANOPHOSPHORUS HERBICIDES	0.06
TRIKETONE HERBICIDES	0.07	NITRILE HERBICIDES	0.02	PHENOXY HERBICIDES	0.05
ANILIDE HERBICIDES	0.04	BENZOIC-ACID HERBICIDES	0.02	DINITROANILINE HERBICIDES	0.02
FR		**IT**		**HU**	
CHLOROACETANILIDE HERBICIDES	0.67	**CHLOROACETANILIDE HERBICIDES**	0.54	**CHLOROACETANILIDE HERBICIDES**	0.49
ORGANOPHOSPHORUS HERBICIDES	0.25	**TRIAZINE HERBICIDES**	0.31	**TRIAZINE HERBICIDES**	0.35
AMIDE HERBICIDES	0.10	DINITROANILINE HERBICIDES	0.07	PHENOXY HERBICIDES	0.12
TRIKETONE HERBICIDES	0.08	AMIDE HERBICIDES	0.06	THIADIAZINE HERBICIDES	0.05
DIPHENYL ETHER HERBICIDES	0.05	BENZOIC-ACID HERBICIDES	0.06	DINITROANILINE HERBICIDES	0.04
NL		**AT**		**PL**	
AMIDE HERBICIDES	0.22	**CHLOROACETANILIDE HERBICIDES**	0.25	**TRIAZINE HERBICIDES**	0.39
PYRIDAZINONE HERBICIDES	0.20	**TRIAZINE HERBICIDES**	0.18	ORGANOPHOSPHORUS HERBICIDES	0.17
TRIAZINE HERBICIDES	0.19	AMIDE HERBICIDES	0.12	**CHLOROACETANILIDE HERBICIDES**	0.16
TRIKETONE HERBICIDES	0.17	DIAZINE HERBICIDES	0.08	DINITROANILINE HERBICIDES	0.02
DIAZINE HERBICIDES	0.10	DINITROANILINE HERBICIDES	0.06	SULFONYLUREA HERBICIDES	0.01
PT		**SI**		**SK**	
TRIAZINE HERBICIDES	0.77	**CHLOROACETANILIDE HERBICIDES**	0.77	**CHLOROACETANILIDE HERBICIDES**	1.19
CHLOROACETANILIDE HERBICIDES	0.59	**TRIAZINE HERBICIDES**	0.30	**TRIAZINE HERBICIDES**	0.31
THIOCARBAMATE HERBICIDES	0.09	BENZOIC-ACID HERBICIDES	0.04	PHENOXY HERBICIDES	0.03
THIADIAZINE HERBICIDES	0.05	ISOXAZOLE HERBICIDES	c	ORGANOPHOSPHORUS HERBICIDES	0.02
TRIKETONE HERBICIDES	0.03	TRIKETONE HERBICIDES	0.01	DINITROANILINE HERBICIDES	0.02
UK					
TRIAZINE HERBICIDES	1.44				
DIAZINE HERBICIDES	0.06				
NITRILE HERBICIDES	0.02				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.2.4: Chemical classes of insecticides applied to maize crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CARBAMATE INSECTICIDES	141	151	141	133	121	131	137	148	228	204	197	270
ORGANOPHOSPHORUS INSECTICIDES	314	372	395	213	222	368	354	246	156	147	141	137
PYRIDYLMETHYLAMINE INSECTICIDES	1	8	16	29	53	-	-	103	112	51	134	128
PYRETHROID INSECTICIDES	9	17	17	17	20	10	8	10	17	18	16	17
PYRAZOLE (PHENYL-) INSECTICIDES	-	-	-	-	-	-	-	2	22	14	30	8
OXIME-CARBAMATE INSECTICIDES	24	20	31	27	17	13	8	5	8	8	6	6
NITROGUANIDINE INSECTICIDES	-	-	-	-	-	-	-	-	c	c	c	c
ORGANOCHLORINE INSECTICIDES	14	7	7	8	8	57	32	40	28	22	19	5
OXADIAZINE INSECTICIDES	-	-	-	-	-	-	-	-	c	c	c	c
BENZOYLUREA INSECTICIDES	-	-	-	0	1	1	2	1	0	0	0	0
BIOLOGICAL INSECTICIDES	-	-	-	-	-	-	-	-	-	-	-	0
SULFITE ESTER INSECTICIDES	-	-	-	-	-	2	2	1	-	0	0	-
UNCLASSIFIED INSECTICIDES	-	-	-	-	-	-	-	-	1	-	-	-
DIAZYLHYDRAZINE INSECTICIDES	-	-	-	-	-	-	-	-	0	-	-	-
Grand Total	503	574	607	429	442	582	544	556	571	465	543	576

Table 5.2.5: Top-5 insecticides chemical classes applied to maize crops in the different countries (in kg AS/ha)

DE		EL		ES	
CARBAMATE INSECTICIDES	0.06	ORGANOPHOSPHORUS I	0.02	ORGANOPHOSPHORUS I	0.05
		CARBAMATE INSECTICIDES	0.01	PYRIDYLMETHYLAMINE I	0.02
				CARBAMATE INSECTICIDES	0.01
FR		**IT**		**HU**	
CARBAMATE INSECTICIDES	0.05	ORGANOPHOSPHORUS I	0.04	ORGANOPHOSPHORUS I	0.03
PYRIDYLMETHYLAMINE I	0.02	PYRIDYLMETHYLAMINE I	0.03		
PL		**PT**			
CARBAMATE INSECTICIDES	0.01	ORGANOPHOSPHORUS I	0.01		

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

5.3 Oilseed

Table 5.3.1: Chemical classes of fungicides applied to oilseed crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CONAZOLE FUNGICIDES	66	42	55	57	116	86	106	302	338	344	406	397
BENZIMIDAZOLE FUNGICIDES	151	113	135	169	192	248	362	339	342	334	487	221
AMIDE FUNGICIDES	63	29	22	33	28	16	22	20	30	26	22	119
INORGANIC SULPHUR	167	129	85	103	140	139	160	96	90	139	134	101
OXAZOLE FUNGICIDES	109	80	51	134	51	66	75	83	118	147	308	77
MORPHOLINE FUNGICIDES	4	6	39	49	71	95	56	57	35	25	18	60
DITHIOCARBAMATE FUNGICIDES	65	40	79	95	100	74	59	75	44	29	38	43
IMIDAZOLE FUNGICIDES	-	-	-	-	14	97	157	41	40	79	91	24
STROBILURINE FUNGICIDES	-	-	-	-	-	-	-	-	0	1	1	3
ORGANOPHOSPHORUS FUNGICIDES	-	-	-	-	-	-	-	0	-	-	-	1
PHTHALIC ACID FUNGICIDES	39	30	35	68	27	-	-	-	-	-	-	0
PHENYLPYRROLE FUNGICIDES	-	-	-	-	-	-	-	-	0	0	0	0
PYRIMIDINE FUNGICIDES	-	-	-	-	-	-	-	-	-	-	-	0
COPPER COMPOUNDS	-	-	-	-	-	-	-	78	2	1	5	0
DICARBOXIMIDE FUNGICIDES	4	2	0	2	1	-	-	-	66	0	0	0
UNCLASSIFIED FUNGICIDES	-	-	-	-	-	-	-	19	-	-	0	-
AROMATIC FUNGICIDES	1	3	4	2	2	-	-	2	-	0	-	-
ALIPHATIC NITROGEN FUNGICIDES	-	-	1	1	0	2	2	0	-	-	-	-
DINITROPHENOL FUNGICIDES	-	-	-	-	-	-	-	0	-	-	-	-
Grand Total	670	472	508	712	743	822	999	1113	1105	1125	1510	1047

Table 5.3.2: Top-5 fungicides chemical classes applied to oilseed crops in the different countries (in kg AS/ha)

CZ		DE		FR	
INORGANIC SULPHUR	0.13	**CONAZOLE FUNGICIDES**	0.14	**CONAZOLE FUNGICIDES**	0.05
CONAZOLE FUNGICIDES	0.06	AMIDE FUNGICIDES	0.06	**BENZIMIDAZOLE FUNGICIDES**	0.03
BENZIMIDAZOLE FUNGICIDES	0.04	DITHIOCARBAMATE FUNGICIDES	0.02	MORPHOLINE FUNGICIDES	0.03
AMIDE FUNGICIDES	0.03	**BENZIMIDAZOLE FUNGICIDES**	0.01	*OXAZOLE FUNGICIDES*	0.02
IMIDAZOLE FUNGICIDES	0.01				
IE		**LV**		**HU**	
AMIDE FUNGICIDES	0.69	*OXAZOLE FUNGICIDES*	0.01	**BENZIMIDAZOLE FUNGICIDES**	0.04
IMIDAZOLE FUNGICIDES	0.44	**CONAZOLE FUNGICIDES**	0.01	**CONAZOLE FUNGICIDES**	0.01
BENZIMIDAZOLE FUNGICIDES	0.43			*OXAZOLE FUNGICIDES*	0.01
CONAZOLE FUNGICIDES	0.19				
INORGANIC SULPHUR	0.17				
PL		**SK**		**UK**	
CONAZOLE FUNGICIDES	0.07	**BENZIMIDAZOLE FUNGICIDES**	0.09	**BENZIMIDAZOLE FUNGICIDES**	0.12
BENZIMIDAZOLE FUNGICIDES	0.06	AMIDE FUNGICIDES	0.08	**CONAZOLE FUNGICIDES**	0.10
OXAZOLE FUNGICIDES	0.03	**CONAZOLE FUNGICIDES**	0.04	INORGANIC SULPHUR	0.08
IMIDAZOLE FUNGICIDES	0.01	*OXAZOLE FUNGICIDES*	0.01	IMIDAZOLE FUNGICIDES	0.02
				OXAZOLE FUNGICIDES	0.02

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.3.3: Chemical classes of herbicides applied to oilseed crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ANILIDE HERBICIDES	779	800	839	1096	1167	1273	1391	1278	1684	2236	2021	2113
DINITROANILINE HERBICIDES	44	170	270	221	161	750	3175	1752	1953	1744	1800	1953
AMIDE HERBICIDES	1002	441	791	1188	1223	1354	1531	1878	1855	1389	1024	678
DIPHENYL ETHER HERBICIDES	-	-	-	-	-	572	506	512	510	487	437	439
CHLOROACETANILIDE HERBICIDES	381	153	164	181	160	338	510	466	433	447	383	367
QUINOLINE HERBICIDES	-	-	32	70	80	163	191	202	234	272	308	310
METHYLTHIOTRIAZINE HERBICIDES	125	135	127	86	103	104	104	91	150	122	125	171
UNCLASSIFIED HERBICIDES	362	252	270	205	281	290	258	223	289	320	304	170
ORGANOPHOSPHORUS HERBICIDES	-	2	9	7	7	10	51	5	119	97	86	124
BIPYRIDYLIUM HERBICIDES	51	61	39	38	28	18	21	4	63	68	86	90
ARYLOXYPHENOXYPROPIONIC HERBICIDES	35	101	103	127	128	56	68	70	117	99	89	89
PYRIDINECARBOXYLIC-ACID HERBICIDES	14	20	24	34	34	10	27	24	53	48	58	54
CYCLOHEXANEDIONE HERBICIDES	15	19	20	23	30	33	41	42	48	59	53	50
THIADIAZINE HERBICIDES	9	10	8	3	1	10	5	8	13	14	21	26
UREA HERBICIDES	12	15	31	39	30	116	88	97	83	37	20	7
DIAZINE HERBICIDES	9	3	6	4	3	3	3	8	9	6	6	6
TRIAZINE HERBICIDES	14	16	54	51	36	12	23	24	23	20	0	5
PYRIDAZINONE HERBICIDES	-	-	0	0	0	-	3	4	5	3	3	4
TRIAZINONE HERBICIDES	-	-	-	-	-	-	-	2	1	4	2	3
PHENOXY HERBICIDES	2	3	2	1	2	0	-	-	3	3	2	3
PYRIDYLOXYACETIC-ACID HERBICIDES	0	0	0	0	0	1	-	0	0	4	3	2
IMIDAZOLINONE HERBICIDES	-	-	-	-	-	2	2	-	1	2	3	2
NITRILE HERBICIDES	-	-	-	-	-	-	-	-	-	-	-	0
TRIAZOLE HERBICIDES	-	-	-	-	-	-	-	-	-	-	-	0
ISOXAZOLE HERBICIDES	-	-	-	-	-	-	-	-	-	-	-	c
SULFONYLUREA HERBICIDES	-	-	-	-	-	-	-	-	-	0	-	0
TRIKETONE HERBICIDES	-	-	-	-	-	-	-	-	-	0	0	0
CARBAMATE HERBICIDES	-	-	-	-	-	174	126	122	86	12	-	-
TRIAZOLONE HERBICIDES	-	-	-	-	-	-	-	-	-	0	-	-
BENZOFURANE HERBICIDES	-	-	-	-	-	-	-	-	-	0	-	-
THIOCARBAMATE HERBICIDES	3	5	11	-	-	-	-	0	-	-	-	-
BENZOIC-ACID HERBICIDES	-	-	-	-	0	0	-	-	-	-	-	-
Grand Total	2859	2207	2798	3376	3476	5286	8127	6813	7730	7492	6836	6669

Table 5.3.4: Top-5 herbicide chemical classes applied to oilseed crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
ANILIDE HERBICIDES	0.20	**ANILIDE HERBICIDES**	0.31	AMIDE HERBICIDES	0.13
DINITROANILINE HERBICIDES	0.10	**DINITROANILINE HERBICIDES**	0.12	PYRIDINECARBOXYLIC-ACID H	0.03
AMIDE HERBICIDES	0.10	QUINOLINE HERBICIDES	0.04	UNCLASSIFIED HERBICIDES	0.02
QUINOLINE HERBICIDES	0.04	CHLOROACETANILIDE HERBICIDES	0.04	ARYLOXYPHENOXYPROPIONIC HERBICIDES	0.02
ARYLOXYPHENOXYPROPIONIC H	0.01	ARYLOXYPHENOXYPROPIONIC H	0.04		
DE		**EE**		**ES**	
ANILIDE HERBICIDES	0.66	**DINITROANILINE HERBICIDES**	0.31	**DINITROANILINE HERBICIDES**	0.11
QUINOLINE HERBICIDES	0.13	**ANILIDE HERBICIDES**	0.16	ORGANOPHOSPHORUS H	0.04
DINITROANILINE HERBICIDES	0.04	ARYLOXYPHENOXYPROPIONIC H	0.02	CHLOROACETANILIDE HERBICIDES	0.02
UNCLASSIFIED HERBICIDES	0.03	CYCLOHEXANEDIONE HERBICIDES	0.01	METHYLTHIOTRIAZINE HERBICIDES	0.02
ARYLOXYPHENOXYPROPIONIC H	0.02	PYRIDINECARBOXYLIC-ACID H	0.01	DIPHENYL ETHER HERBICIDES	0.01
FR		**IE**		**IT**	
DINITROANILINE HERBICIDES	0.65	**ANILIDE HERBICIDES**	1.43	THIADIAZINE HERBICIDES	0.07
ANILIDE HERBICIDES	0.35	AMIDE HERBICIDES	0.73	DIPHENYL ETHER HERBICIDES	0.07
DIPHENYL ETHER HERBICIDES	0.21	**DINITROANILINE HERBICIDES**	0.26	**DINITROANILINE HERBICIDES**	0.05
AMIDE HERBICIDES	0.17	ARYLOXYPHENOXYPROPIONIC H	0.09	**ANILIDE HERBICIDES**	0.04
CHLOROACETANILIDE HERBICIDES	0.07	CYCLOHEXANEDIONE HERBICIDES	0.08	CYCLOHEXANEDIONE HERBICIDES	0.03
LT		**LV**		**HU**	
ANILIDE HERBICIDES	0.27	**ANILIDE HERBICIDES**	0.30	AMIDE HERBICIDES	0.32
DINITROANILINE HERBICIDES	0.10	ARYLOXYPHENOXYPROPIONIC H	0.03	CHLOROACETANILIDE HERBICIDES	0.26
ARYLOXYPHENOXYPROPIONIC H	0.01	PYRIDINECARBOXYLIC-ACID H	0.02	METHYLTHIOTRIAZINE HERBICIDES	0.15
PYRIDINECARBOXYLIC-ACID H	0.01	CYCLOHEXANEDIONE HERBICIDES	0.01	**DINITROANILINE HERBICIDES**	0.14
CYCLOHEXANEDIONE HERBICIDES	0.01			BIPYRIDYLIUM HERBICIDES	0.07
NL		**AT**		**PL**	
ANILIDE HERBICIDES	2.12	**DINITROANILINE HERBICIDES**	0.46	**ANILIDE HERBICIDES**	0.19
		ANILIDE HERBICIDES	0.27	**DINITROANILINE HERBICIDES**	0.19
		QUINOLINE HERBICIDES	0.06	AMIDE HERBICIDES	0.03
		THIADIAZINE HERBICIDES	0.03	QUINOLINE HERBICIDES	0.03
				PYRIDINECARBOXYLIC-ACID H	0.03
PT		**SI**		**SK**	
DINITROANILINE HERBICIDES	0.03	**DINITROANILINE HERBICIDES**	0.11	METHYLTHIOTRIAZINE HERBICIDES	0.25
		ARYLOXYPHENOXYPROPIONIC H	0.01	**DINITROANILINE HERBICIDES**	0.20
				ANILIDE HERBICIDES	0.19
				CHLOROACETANILIDE HERBICIDES	0.12
				BIPYRIDYLIUM HERBICIDES	0.05
FI		**SE**		**UK**	
DINITROANILINE HERBICIDES	0.60	**ANILIDE HERBICIDES**	0.28	**ANILIDE HERBICIDES**	0.35
ANILIDE HERBICIDES	0.05	PYRIDINECARBOXYLIC-ACID H	0.04	**DINITROANILINE HERBICIDES**	0.35
PYRIDINECARBOXYLIC-ACID H	0.02	AMIDE HERBICIDES	0.02	AMIDE HERBICIDES	0.19
ARYLOXYPHENOXYPROPIONIC H	0.01			ORGANOPHOSPHORUS HERBICIDES	0.14
				QUINOLINE HERBICIDES	0.08

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.3.5: Chemical classes of insecticides applied to oilseed crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ORGANOPHOSPHORUS INSECTICIDES	115	88	151	125	91	40	13	154	183	190	222	244
PYRETHROID INSECTICIDES	29	29	38	40	51	37	44	36	73	67	73	73
CARBAMATE INSECTICIDES	56	30	33	32	36	6	23	38	128	80	67	54
PYRIDYLMETHYLAMINE INSECTICIDES	-	-	6	24	23	-	-	0	-	7	10	14
NITROGUANIDINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
(CARBAMOYL-) TRIAZOLE INSECTICIDES	-	-	c	c	c	c	c	c	c	c	c	c
AMIDINE INSECTICIDES	-	-	-	-	-	-	-	-	0	0	0	1
ORGANOCHLORINE INSECTICIDES	9	8	2	5	4	12	3	0	0	0		0
OXIME-CARBAMATE INSECTICIDES	-	-	-	-	-	6	4	0	2	1	0	0
PYRAZOLE (PHENYL-) INSECTICIDES	-	-	-	-	-	-	-	-	9	2	9	0
ORGANOTIN INSECTICIDES	-	-	-	-	-	-	-	-	0	0	0	0
BIOLOGICAL INSECTICIDES	-	-	-	-	-	-	-	-	-	0	0	-
SULFITE ESTER INSECTICIDES	-	-	-	-	-	-	-	-	0	0	0	-
UNCLASSIFIED INSECTICIDES	-	-	-	-	-	-	-	-	0	-	-	-
Grand Total	209	155	230	226	205	102	92	233	399	351	392	398

Table 5.3.6: Chemical classes of plant growth regulators applied to oilseed crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	2000	2001	2002	2003
PHYSIOLOGICAL PLANT GROWTH REGULATORS	7	4	6	5	255	192	202	204

5.4 Potatoes

Table 5.4.1: Chemical classes of fungicides applied to potato crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DITHIOCARBAMATE FUNGICIDES	4758	4442	4841	4619	4349	5360	5406	5739	8811	8194	8140	8156
DINITROANILINE FUNGICIDES	-	-	2	8	14	29	50	27	539	523	645	533
CARBAMATE FUNGICIDES	-	-	25	25	184	314	522	327	482	387	526	408
AROMATIC FUNGICIDES	31	49	30	44	108	130	346	156	154	286	463	334
ALIPHATIC NITROGEN FUNGICIDES	120	140	116	216	163	164	175	188	270	290	269	274
PHTHALIC ACID FUNGICIDES	7	8	6	10	7	8	21	17	159	255	306	264
MORPHOLINE FUNGICIDES	-	5	39	53	81	159	192	191	170	141	186	183
COPPER COMPOUNDS	309	300	301	314	334	306	282	255	136	127	128	124
UREA FUNGICIDES	c	c	c	c	c	c	c	c	c	c	c	c
AMIDE FUNGICIDES	123	103	83	93	80	103	113	87	109	106	104	110
OXAZOLE FUNGICIDES	57	49	49	50	44	49	52	48	63	79	96	71
ORGANOPHOSPHORUS FUNGICIDES	7	6	7	5	3	27	36	36	45	45	43	43
STROBILURINE FUNGICIDES	-	-	-	-	-	-	-	-	1	2	3	27
INORGANIC SULPHUR	-	-	-	-	1	1	2	0	7	9	19	20
BENZIMIDAZOLE FUNGICIDES	1	7	6	5	1	2	5	9	27	19	17	17
UNCLASSIFIED FUNGICIDES	219	211	197	198	301	207	125	129	88	51	40	13
IMIDAZOLE FUNGICIDES	-	-	-	-	-	0	0	1	0	9	12	12
CONAZOLE FUNGICIDES	37	20	10	22	13	2	1	3	9	9	7	10
PHENYLPYRROLE FUNGICIDES		0	0	0	0	0	-	-	0	0	0	0
ANTIBIOTIC FUNGICIDES-BACTERICIDES	-	-	-	-	-	0	0	0	1	0	0	-
PYRIMIDINE FUNGICIDES	-	-	-	-	-	11	11	12	-	-	-	-
QUINOLINE FUNGICIDES	0	0	0	0	0	-	-	-	-	-	-	-
QUINONE FUNGICIDES	-	-	0	-	-	-	-	-	-	-	-	-
DICARBOXIMIDE FUNGICIDES	-	-	-	-	-	-	-	-	0	-	-	-
DINITROPHENOL FUNGICIDES	5	13	9	8	-	-	-	1	-	-	-	-
Grand Total	5836	5503	5866	5823	5813	6959	7427	7314	11214	10661	11135	10719

Table 5.4.2: Top-5 fungicide chemical classes applied to potato crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
DITHIOCARBAMATE FUNGICIDES	15.32	**DITHIOCARBAMATE FUNGICIDES**	3.23	**DITHIOCARBAMATE FUNGICIDES**	8.61
DINITROANILINE FUNGICIDES	0.70	*CARBAMATE FUNGICIDES*	0.35	**DINITROANILINE FUNGICIDES**	0.41
ALIPHATIC NITROGEN FUNGICIDES	0.43	AROMATIC FUNGICIDES	0.35	*CARBAMATE FUNGICIDES*	0.09
AROMATIC FUNGICIDES	0.35	**DINITROANILINE FUNGICIDES**	0.18	ORGANOPHOSPHORUS F	0.08
CARBAMATE FUNGICIDES	0.23	MORPHOLINE FUNGICIDES	0.16	UREA FUNGICIDES	c
DE		**EE**		**EL**	
DITHIOCARBAMATE FUNGICIDES	2.97	**DITHIOCARBAMATE FUNGICIDES**	0.48	**DITHIOCARBAMATE FUNGICIDES**	2.81
DINITROANILINE FUNGICIDES	0.41	MORPHOLINE FUNGICIDES	0.02	COPPER COMPOUNDS	0.24
CARBAMATE FUNGICIDES	0.31	**DINITROANILINE FUNGICIDES**	0.01	ORGANOPHOSPHORUS F	0.22
MORPHOLINE FUNGICIDES	0.21	AMIDE FUNGICIDES	0.01	ALIPHATIC NITROGEN FUNGICIDES	0.13
ALIPHATIC NITROGEN FUNGICIDES	0.11	*CARBAMATE FUNGICIDES*	0.00	AROMATIC FUNGICIDES	0.08
ES		**FR**		**IE**	
DITHIOCARBAMATE FUNGICIDES	2.25	**DITHIOCARBAMATE FUNGICIDES**	11.51	**DITHIOCARBAMATE FUNGICIDES**	18.52
COPPER COMPOUNDS	0.23	PHTHALIC ACID FUNGICIDES	1.58	**DINITROANILINE FUNGICIDES**	0.81
ORGANOPHOSPHORUS FUNGICIDES	0.22	**DINITROANILINE FUNGICIDES**	0.31	MORPHOLINE FUNGICIDES	0.27
ALIPHATIC NITROGEN FUNGICIDES	0.14	MORPHOLINE FUNGICIDES	0.30	AMIDE FUNGICIDES	0.23
PHTHALIC ACID FUNGICIDES	0.11	UREA FUNGICIDES	c	ALIPHATIC NITROGEN FUNGICIDES	0.22
IT		**LV**		**LT**	
DITHIOCARBAMATE FUNGICIDES	1.07	**DITHIOCARBAMATE FUNGICIDES**	0.30	**DITHIOCARBAMATE FUNGICIDES**	0.46
COPPER COMPOUNDS	0.94	AMIDE FUNGICIDES	0.01	MORPHOLINE FUNGICIDES	0.01
INORGANIC SULPHUR	0.14	ALIPHATIC NITROGEN FUNGICIDES	0.01		
ORGANOPHOSPHORUS FUNGICIDES	0.12	OXAZOLE FUNGICIDES	0.01		
ALIPHATIC NITROGEN FUNGICIDES	0.09	MORPHOLINE FUNGICIDES	0.01		
HU		**NL**		**AT**	
DITHIOCARBAMATE FUNGICIDES	0.69	**DITHIOCARBAMATE FUNGICIDES**	7.14	**DITHIOCARBAMATE FUNGICIDES**	2.80
COPPER COMPOUNDS	0.43	**DINITROANILINE FUNGICIDES**	1.04	ALIPHATIC NITROGEN FUNGICIDES	0.11
MORPHOLINE FUNGICIDES	0.12	AROMATIC FUNGICIDES	0.65	AMIDE FUNGICIDES	0.09
DINITROANILINE FUNGICIDES	0.02	*CARBAMATE FUNGICIDES*	0.65	MORPHOLINE FUNGICIDES	0.08
AMIDE FUNGICIDES	0.02	ALIPHATIC NITROGEN FUNGICIDES	0.55	OXAZOLE FUNGICIDES	0.07
PL		**PT**		**SI**	
DITHIOCARBAMATE FUNGICIDES	0.51	**DITHIOCARBAMATE FUNGICIDES**	4.90	**DITHIOCARBAMATE FUNGICIDES**	1.09
AROMATIC FUNGICIDES	0.16	ALIPHATIC NITROGEN FUNGICIDES	0.22	*CARBAMATE FUNGICIDES*	0.13
CARBAMATE FUNGICIDES	0.07	COPPER COMPOUNDS	0.11	AMIDE FUNGICIDES	0.06
AMIDE FUNGICIDES	0.01	AMIDE FUNGICIDES	0.08	**DINITROANILINE FUNGICIDES**	0.03
DINITROANILINE FUNGICIDES	0.01	**DINITROANILINE FUNGICIDES**	0.07		
SK		**FI**		**SE**	
DITHIOCARBAMATE FUNGICIDES	1.58	**DITHIOCARBAMATE FUNGICIDES**	2.79	**DINITROANILINE FUNGICIDES**	1.08
AROMATIC FUNGICIDES	0.42	**DINITROANILINE FUNGICIDES**	0.47	**DITHIOCARBAMATE FUNGICIDES**	0.87
CARBAMATE FUNGICIDES	0.39	*CARBAMATE FUNGICIDES*	0.15	*CARBAMATE FUNGICIDES*	0.47
MORPHOLINE FUNGICIDES	0.09	MORPHOLINE FUNGICIDES	0.06	AMIDE FUNGICIDES	0.32
DINITROANILINE FUNGICIDES	0.03	AMIDE FUNGICIDES	0.05	UREA FUNGICIDES	c
UK					
DITHIOCARBAMATE FUNGICIDES	9.46				
ALIPHATIC NITROGEN FUNGICIDES	0.46				
DINITROANILINE FUNGICIDES	0.42				
CARBAMATE FUNGICIDES	0.34				
MORPHOLINE FUNGICIDES	0.17				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.4.3: Chemical classes of herbicides applied to potato crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
THIOCARBAMATE HERBICIDES	911	649	697	885	1068	204	196	189	894	839	844	887
BIPYRIDYLIUM HERBICIDES	509	508	440	498	472	189	172	132	382	489	460	410
TRIAZINONE HERBICIDES	251	214	212	223	249	243	238	168	282	265	230	240
UREA HERBICIDES	209	168	199	227	225	281	266	297	231	212	163	131
DIPHENYL ETHER HERBICIDES	0	0	-	-	-	51	54	89	76	72	106	113
ORGANOPHOSPHORUS HERBICIDES	31	66	71	75	76	43	28	60	81	70	68	62
METHYLTHIOTRIAZINE HERBICIDES	71	72	76	73	63	58	43	52	71	71	66	56
ANILIDE HERBICIDES	31	27	38	25	27	14	22	21	18	13	31	33
DINITROANILINE HERBICIDES	2	3	5	5	3	27	13	33	40	40	39	29
PHENOXY HERBICIDES	4	4	4	4	2		1	0	64	51	39	22
THIADIAZINE HERBICIDES	27	42	18	13	9	8	6	1	13	17	23	21
CHLOROACETANILIDE HERBICIDES	3	3	6	7	5	4	3	2	26	25	18	16
ARYLOXYPHENOXYPROPIONIC HERBICIDES	7	8	6	7	6	10	9	54	13	13	11	16
TRIAZINE HERBICIDES	26	27	30	24	16	29	26	24	23	19	19	13
UNCLASSIFIED HERBICIDES	183	283	283	213	223	6	3	1	30	3	44	4
SULFONYLUREA HERBICIDES	-	0	1	1	2	2	2	1	2	3	3	2
CYCLOHEXANEDIONE HERBICIDES	1	2	2	2	1	3	2	4	1	1	1	2
BIS-CARBAMATE HERBICIDES	6	6	13	13	16	2	2	2	1	1	1	1
NITRILE HERBICIDES	-	-	-	-	-	0	-	103	0	0	0	0
TRIAZOLINONE HERBICIDES	-	-	-	-	-	-	-	-	0	0	0	0
AMIDE HERBICIDES	-	-	-	-	-	-	-	0	0	0	-	-
BENZOIC-ACID HERBICIDES	-	-	-	-	-	-	-	-	-	0	-	-
URACIL HERBICIDES	0	0	0	0	0	-	-	-	-	-	-	-
PYRIDYLOXYACETIC-ACID HERBICIDES	-	-	-	-	-	0	-	0	-	-	-	-
BENZOFURANE HERBICIDES	-	-	-	-	-	-	-	0	-	-	-	-
IMIDAZOLINONE HERBICIDES	-	-	2	1	0	-	-	-	-	-	-	-
Grand Total	2273	2080	2102	2295	2466	1173	1085	1232	2247	2205	2165	2057

Table 5.4.4: Top-5 herbicide chemical classes applied to potato crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
THIOCARBAMATE HERBICIDES	2.25	TRIAZINONE HERBICIDES	0.28	THIOCARBAMATE HERBICIDES	0.39
BIPYRIDYLIUM HERBICIDES	0.77	**BIPYRIDYLIUM HERBICIDES**	0.23	DIPHENYL ETHER HERBICIDES	0.32
DIPHENYL ETHER HERBICIDES	0.44	METHYLTHIOTRIAZINE HERBICIDES	0.15	**BIPYRIDYLIUM HERBICIDES**	0.22
UREA HERBICIDES	0.18	TRIAZINE HERBICIDES	0.06	**TRIAZINONE HERBICIDES**	0.15
TRIAZINONE HERBICIDES	0.11	ARYLOXYPHENOXYPROPIONIC H	0.06	ORGANOPHOSPHORUS H	0.05
DE		**EL**		**ES**	
THIOCARBAMATE HERBICIDES	1.07	**BIPYRIDYLIUM HERBICIDES**	0.64	**BIPYRIDYLIUM HERBICIDES**	0.17
BIPYRIDYLIUM HERBICIDES	0.23	**TRIAZINONE HERBICIDES**	0.09	METHYLTHIOTRIAZINE HERBICIDES	0.15
TRIAZINONE HERBICIDES	0.22	ARYLOXYPHENOXYPROPIONIC H	0.03	**TRIAZINONE HERBICIDES**	0.10
DIPHENYL ETHER HERBICIDES	0.11			TRIAZINE HERBICIDES	0.05
ANILIDE HERBICIDES	0.04			THIOCARBAMATE HERBICIDES	0.03
FR		**IE**		**IT**	
THIOCARBAMATE HERBICIDES	1.87	**BIPYRIDYLIUM HERBICIDES**	0.86	DINITROANILINE HERBICIDES	0.18
TRIAZINONE HERBICIDES	0.22	TRIAZINE HERBICIDES	0.16	DIPHENYL ETHER HERBICIDES	0.05
BIPYRIDYLIUM HERBICIDES	0.22	CYCLOHEXANEDIONE HERBICIDES	0.01	**TRIAZINONE HERBICIDES**	0.03
DIPHENYL ETHER HERBICIDES	0.19			ORGANOPHOSPHORUS H	0.02
ORGANOPHOSPHORUS H	0.17			UREA HERBICIDES	0.02
HU		**NL**		**AT**	
CHLOROACETANILIDE HERBICIDES	0.49	THIOCARBAMATE HERBICIDES	0.69	THIADIAZINE HERBICIDES	0.10
METHYLTHIOTRIAZINE HERBICIDES	0.43	**BIPYRIDYLIUM HERBICIDES**	0.34	DINITROANILINE HERBICIDES	0.04
BIPYRIDYLIUM HERBICIDES	0.10	UREA HERBICIDES	0.32		
ARYLOXYPHENOXYPROPIONIC H	0.02	**TRIAZINONE HERBICIDES**	0.15		
		ORGANOPHOSPHORUS H	0.07		
PL		**PT**		**SI**	
UREA HERBICIDES	0.08	THIOCARBAMATE HERBICIDES	0.31	METHYLTHIOTRIAZINE HERBICIDES	0.44
TRIAZINONE HERBICIDES	0.03	**TRIAZINONE HERBICIDES**	0.06	**BIPYRIDYLIUM HERBICIDES**	0.10
PHENOXY HERBICIDES	0.02	ORGANOPHOSPHORUS H	0.05	ORGANOPHOSPHORUS H	0.01
METHYLTHIOTRIAZINE HERBICIDES	0.02	ANILIDE HERBICIDES	0.03		
BIPYRIDYLIUM HERBICIDES	0.01	THIADIAZINE HERBICIDES	0.01		
SK		**FI**		**SE**	
TRIAZINONE HERBICIDES	0.31	UREA HERBICIDES	0.16	**BIPYRIDYLIUM HERBICIDES**	0.34
METHYLTHIOTRIAZINE HERBICIDES	0.19	**BIPYRIDYLIUM HERBICIDES**	0.14	THIOCARBAMATE HERBICIDES	0.29
TRIAZINE HERBICIDES	0.08	**TRIAZINONE HERBICIDES**	0.11	**TRIAZINONE HERBICIDES**	0.22
BIPYRIDYLIUM HERBICIDES	0.06	DIPHENYL ETHER HERBICIDES	0.02	SULFONYLUREA HERBICIDES	0.01
THIADIAZINE HERBICIDES	0.05	ARYLOXYPHENOXYPROPIONIC H	0.02		
UK					
BIPYRIDYLIUM HERBICIDES	0.73				
TRIAZINONE HERBICIDES	0.17				
DINITROANILINE HERBICIDES	0.07				
ORGANOPHOSPHORUS H	0.06				
ANILIDE HERBICIDES	0.02				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.4.5: Chemical classes of insecticides applied to potato crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ORGANOPHOSPHORUS INSECTICIDES	251	216	221	224	193	316	334	428	392	323	284	276
OXIME-CARBAMATE INSECTICIDES	4	3	2	3		111	98	94	96	83	87	103
CARBAMATE INSECTICIDES	103	79	61	83	74	42	40	32	34	48	36	34
PYRETHROID INSECTICIDES	17	18	21	25	31	18	15	18	24	23	20	19
PYRIDYLMETHYLAMINE INSECTICIDES	-	2	3	5	6	3	4	8	8	11	12	18
PYRIDINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
PYRAZOLE (PHENYL-) INSECTICIDES	-	-	-	-	-	-	-	0	9	11	13	11
NITROGUANIDINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
ORGANOCHLORINE INSECTICIDES	6	13	11	12	12	8	29	14	26	31	11	2
(CARBAMOYL-) TRIAZOLE INSECTICIDES	-	-	-	c	c	c	c	c	c	c	c	c
BIOLOGICAL INSECTICIDES	-	-	-	-	-	-	-	-	-	0	1	1
BENZOYLUREA INSECTICIDES	-	-	0	0	0	1	0	0	0	0	0	0
UNCLASSIFIED INSECTICIDES	-	-	-	-	-	-	-	-	0	0	0	0
INSECT GROWTH REGULATORS	-	-	-	-	-	-	-	-	-	0	0	0
TETRAZINE INSECTICIDES	c	c	c	c	c	-	-	-	-	-	-	-
AMIDINE INSECTICIDES	-	-	-	-	-	-	0	-	-	-	-	-
Grand Total	383	333	320	353	317	499	521	596	602	542	483	487

Table 5.4.6: Top-5 insecticide chemical classes applied to potato crops in the different countries (in kg AS/ha)

BE+LU		CZ		DE	
ORGANOPHOSPHORUS I	0.14	**ORGANOPHOSPHORUS I**	0.29	**ORGANOPHOSPHORUS I**	0.13
OXIME-CARBAMATE INSECTICIDES	0.02	PYRIDYLMETHYLAMINE I	0.01	PYRIDINE INSECTICIDES	0.01
CARBAMATE INSECTICIDES	0.01	(CARBAMOYL-) TRIAZOLE I	c	**PYRETHROID INSECTICIDES**	0.01
		PYRETHROID INSECTICIDES	0.01	CARBAMATE INSECTICIDES	0.01
EL		**ES**		**FR**	
ORGANOPHOSPHORUS I	1.44	**ORGANOPHOSPHORUS I**	0.28	**ORGANOPHOSPHORUS I**	0.03
OXIME-CARBAMATE INSECTICIDES	0.33	PYRIDYLMETHYLAMINE I	0.05	CARBAMATE INSECTICIDES	0.02
CARBAMATE INSECTICIDES	0.29	**PYRETHROID INSECTICIDES**	0.04	PYRIDINE INSECTICIDES	c
PYRIDYLMETHYLAMINE I	0.02	OXIME-CARBAMATE INSECTICIDES	0.02	**PYRETHROID INSECTICIDES**	0.01
ORGANOCHLORINE INSECTICIDES	0.01	CARBAMATE INSECTICIDES	0.01		
IT		**HU**		**NL**	
ORGANOPHOSPHORUS I	0.28	**ORGANOPHOSPHORUS I**	0.39	OXIME-CARBAMATE INSECTICIDES	0.17
OXIME-CARBAMATE INSECTICIDES	0.04	NITROGUANIDINE INSECTICIDES	c	**ORGANOPHOSPHORUS I**	0.14
PYRAZOLE (PHENYL-) IN	0.04	**PYRETHROID INSECTICIDES**	0.01	CARBAMATE INSECTICIDES	0.04
CARBAMATE INSECTICIDES	0.04			**PYRETHROID INSECTICIDES**	0.02
PYRIDYLMETHYLAMINE I	0.03			PYRIDINE INSECTICIDES	c
AT		**PL**		**PT**	
ORGANOPHOSPHORUS IN	0.77	PYRAZOLE (PHENYL-) I	0.01	**ORGANOPHOSPHORUS I**	0.32
PYRETHROID INSECTICIDES	0.17	NITROGUANIDINE INSECTICIDES	c	**PYRETHROID INSECTICIDES**	0.02
OXIME-CARBAMATE INSECTICIDES	0.01			PYRIDYLMETHYLAMINE I	0.01
SI		**SK**		**SE**	
ORGANOPHOSPHORUS I	0.14	**ORGANOPHOSPHORUS I**	0.17	**ORGANOPHOSPHORUS I**	0.14
NITROGUANIDINE INSECTICIDES	c	PYRIDYLMETHYLAMINE I	0.02	**PYRETHROID INSECTICIDES**	0.02
CARBAMATE INSECTICIDES	0.01	NITROGUANIDINE INSECTICIDES	c	PYRIDYLMETHYLAMINE I	0.01
		(CARBAMOYL-) TRIAZOLE I	c		
		PYRETHROID INSECTICIDES	0.01		
UK					
OXIME-CARBAMATE INSECTICIDES	0.40				
ORGANOPHOSPHORUS I	0.24				
CARBAMATE INSECTICIDES	0.05				
PYRIDINE INSECTICIDES	0.02				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

5.5 Sugar beet

Table 5.5.1: Chemical classes of fungicides applied to sugar-beet crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
INORGANIC SULPHUR	926	1036	1019	1547	1708	2125	2480	1751	753	776	801	768
CONAZOLE FUNGICIDES	85	84	90	105	101	136	120	122	165	177	194	214
UNCLASSIFIED FUNGICIDES	82	86	82	78	78	105	139	122	177	219	226	192
BENZIMIDAZOLE FUNGICIDES	24	22	17	17	22	31	29	25	56	64	78	92
DITHIOCARBAMATE FUNGICIDES	47	35	28	18	14	26	5	8	44	42	67	52
MORPHOLINE FUNGICIDES	13	9	-	-	0	1	2	0	8	16	26	29
STROBILURINE FUNGICIDES	-	-	-	-	-	-	-	-	-	3	15	25
DINITROPHENOL FUNGICIDES	0	0	-	-	-	-	-	-	0	0	13	12
DINITROANILINE FUNGICIDES	-	-	-	0	0	0	-	-	-	0	0	10
AROMATIC FUNGICIDES	-	1	3	5	54	1	6	8	79	22	28	9
PHTHALIC ACID FUNGICIDES	-	-	-	-	-	-	-	-	-	0	1	1
COPPER COMPOUNDS	255	186	187	198	188	116	42	16	14	11	7	0
QUINOLINE FUNGICIDES	-	-	-	-	-	-	-	-	0	0	0	0
PYRIMIDINE FUNGICIDES	2	2	2	2	3	1	2	1	0	0	0	0
ALIPHATIC NITROGEN FUNGICIDES	-	-	1	-	-	0	-	-	-	0	0	0
AMIDE FUNGICIDES	-	0	0	-	-	-	-	-	2	2	2	0
IMIDAZOLE FUNGICIDES	-	-	-	-	-	-	-	-	-	0	0	-
QUINONE FUNGICIDES	-	-	0	0	0	3	3	3	-	-	-	-
DICARBOXIMIDE FUNGICIDES	-	-	-	-	-	-	-	-	0	-	-	-
Grand Total	1433	1461	1429	1972	2168	2545	2828	2057	1299	1332	1459	1404

Table 5.5.2: Top-5 fungicide chemical classes applied to sugar-beet crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
MORPHOLINE FUNGICIDES	0.12	BENZIMIDAZOLE FUNGICIDES	0.14	**CONAZOLE FUNGICIDES**	0.09
CONAZOLE FUNGICIDES	0.10	**CONAZOLE FUNGICIDES**	0.07	DITHIOCARBAMATE FUNGICIDES	0.08
UNCLASSIFIED FUNGICIDES	0.07	STROBILURINE FUNGICIDES	0.01	MORPHOLINE FUNGICIDES	0.06
				INORGANIC SULPHUR	0.02
DE		**EL**		**ES**	
UNCLASSIFIED FUNGICIDES	0.18	**INORGANIC SULPHUR**	0.95	**INORGANIC SULPHUR**	4.34
CONAZOLE FUNGICIDES	0.08	DITHIOCARBAMATE FUNGICIDES	0.82	UNCLASSIFIED FUNGICIDES	0.17
STROBILURINE FUNGICIDES	0.01	MORPHOLINE FUNGICIDES	0.22	DITHIOCARBAMATE FUNGICIDES	0.16
		CONAZOLE FUNGICIDES	0.13	**CONAZOLE FUNGICIDES**	0.10
		AROMATIC FUNGICIDES	0.07	DINITROANILINE FUNGICIDES	0.10
FR		**IE**		**IT**	
INORGANIC SULPHUR	0.32	**CONAZOLE FUNGICIDES**	0.03	UNCLASSIFIED FUNGICIDES	0.13
CONAZOLE FUNGICIDES	0.20	BENZIMIDAZOLE FUNGICIDES	0.01	STROBILURINE FUNGICIDES	0.07
UNCLASSIFIED FUNGICIDES	0.15			**CONAZOLE FUNGICIDES**	0.07
BENZIMIDAZOLE FUNGICIDES	0.06			**INORGANIC SULPHUR**	0.01
MORPHOLINE FUNGICIDES	0.01				
HU		**NL**		**AT**	
STROBILURINE FUNGICIDES	0.04	MORPHOLINE FUNGICIDES	0.02	INORGANIC SULPHUR	0.18
MORPHOLINE FUNGICIDES	0.04	**CONAZOLE FUNGICIDES**	0.01	**CONAZOLE FUNGICIDES**	0.07
CONAZOLE FUNGICIDES	0.02	STROBILURINE FUNGICIDES	0.01	BENZIMIDAZOLE FUNGICIDES	0.01
BENZIMIDAZOLE FUNGICIDES	0.01			STROBILURINE FUNGICIDES	0.01
PL		**PT**		**SI**	
BENZIMIDAZOLE FUNGICIDES	0.14	DINITROPHENOL FUNGICIDES	1.63	**CONAZOLE FUNGICIDES**	0.02
CONAZOLE FUNGICIDES	0.09	**INORGANIC SULPHUR**	0.88		
AROMATIC FUNGICIDES	0.02	**CONAZOLE FUNGICIDES**	0.46		
		UNCLASSIFIED FUNGICIDES	0.36		
		BENZIMIDAZOLE FUNGICIDES	0.09		
SK		**SE**		**UK**	
BENZIMIDAZOLE FUNGICIDES	0.15	**CONAZOLE FUNGICIDES**	0.03	**INORGANIC SULPHUR**	0.91
INORGANIC SULPHUR	0.10	**INORGANIC SULPHUR**	0.02	**CONAZOLE FUNGICIDES**	0.07
CONAZOLE FUNGICIDES	0.09			BENZIMIDAZOLE FUNGICIDES	0.03
AROMATIC FUNGICIDES	0.04				
STROBILURINE FUNGICIDES	0.01				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.5.3: Chemical classes of herbicides applied to sugar-beet crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BIS-CARBAMATE HERBICIDES	317	345	327	340	291	394	407	339	1281	1213	1214	1294
BENZOFURANE HERBICIDES	415	460	500	460	419	520	481	363	823	792	972	979
PYRIDAZINONE HERBICIDES	1044	938	917	925	952	1175	946	934	915	976	1060	911
ORGANOPHOSPHORUS HERBICIDES	175	214	261	298	330	491	585	495	731	896	951	811
TRIAZINONE HERBICIDES	3383	3157	2830	2951	3002	2995	2799	2288	2122	1978	2058	319
URACIL HERBICIDES	134	129	107	127	133	179	161	149	209	193	201	212
CHLOROACETANILIDE HERBICIDES	53	68	64	83	75	77	82	87	166	99	142	162
ARYLOXYPHENOXYPROPIONIC HERBICIDES	32	72	63	72	71	102	76	75	100	86	75	76
QUINOLINE HERBICIDES	3	4	18	25	21	58	55	53	62	65	63	64
AMIDE HERBICIDES				3	5	8	10	14	25	37	42	50
PYRIDINECARBOXYLIC-ACID HERBICIDES	19	42	49	51	50	33	55	55	50	44	53	48
CYCLOHEXANEDIONE HERBICIDES	18	20	25	24	23	31	27	28	27	30	24	22
SULFONYLUREA HERBICIDES	-	-	11	6	10	22	24	23	16	16	19	18
ANILIDE HERBICIDES	-	-	-	-	-	-	-	-	7	24	26	17
UREA HERBICIDES	1	0	1	0			0	0	1	1	0	5
PHENOXY HERBICIDES	36	25	1	1	0	0			0	0		2
DINITROANILINE HERBICIDES	-	-	-	-	-	-	-	-	3	1	2	2
BIPYRIDYLIUM HERBICIDES	47	39	36	42	39	-	1	1	2	3	1	1
THIOCARBAMATE HERBICIDES	338	334	360	358	351	171	158	101	4	1	1	0
NITRILE HERBICIDES	-	-	-	-	-	-	-	-	-	-	-	0
UNCLASSIFIED HERBICIDES	-	-	-	-	-	0	-	-	1	2	13	0
DIPHENYL ETHER HERBICIDES	-	-	-	-	-	0	-	-	-	-	0	-
TRIAZINE HERBICIDES	7	7	-	-	-	-	-	0	-	-	-	-
CARBAMATE HERBICIDES	-	-	-	-	-	-	0	-	-	-	-	-
PYRIDYLOXYACETIC-ACID HERBICIDES	-	-	-	-	-	-	-	-	0	-	-	-
THIADIAZINE HERBICIDES	1	1	-	-	1	-	-	-	-	-	-	-
Grand Total	6024	5856	5570	5768	5774	6255	5867	5005	6544	6457	6917	4993

Table 5.5.4: Top-5 herbicide chemical classes applied to sugar-beet crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
PYRIDAZINONE HERBICIDES	0.82	**BIS-CARBAMATE HERBICIDES**	1.20	**BIS-CARBAMATE HERBICIDES**	0.66
BIS-CARBAMATE HERBICIDES	0.47	**PYRIDAZINONE HERBICIDES**	0.70	*BENZOFURANE HERBICIDES*	0.27
CHLOROACETANILIDE H	0.32	*BENZOFURANE HERBICIDES*	0.45	ORGANOPHOSPHORUS HERBICIDES	0.21
BENZOFURANE HERBICIDES	0.31	TRIAZINONE HERBICIDES	0.35	ARYLOXYPHENOXYPROPIONIC H	0.07
URACIL HERBICIDES	0.17	ORGANOPHOSPHORUS HERBICIDES	0.28	PYRIDINECARBOXYLIC-ACID HE	0.03
DE		**EL**		**ES**	
BENZOFURANE HERBICIDES	0.65	CHLOROACETANILIDE H	0.96	**BIS-CARBAMATE HERBICIDES**	0.51
BIS-CARBAMATE HERBICIDES	0.50	TRIAZINONE HERBICIDES	0.24	*BENZOFURANE HERBICIDES*	0.40
ORGANOPHOSPHORUS H	0.36	**BIS-CARBAMATE HERBICIDES**	0.22	URACIL HERBICIDES	0.24
PYRIDAZINONE HERBICIDES	0.35	*BENZOFURANE HERBICIDES*	0.17	**PYRIDAZINONE HERBICIDES**	0.19
QUINOLINE HERBICIDES	0.04	**PYRIDAZINONE HERBICIDES**	0.05	CHLOROACETANILIDE HERBICIDES	0.09
FR		**IE**		**IT**	
BIS-CARBAMATE HERBICIDES	0.47	ORGANOPHOSPHORUS H	1.21	ORGANOPHOSPHORUS HERBICIDES	0.77
BENZOFURANE HERBICIDES	0.46	URACIL HERBICIDES	0.29	**PYRIDAZINONE HERBICIDES**	0.41
ORGANOPHOSPHORUS H	0.44	PYRIDINECARBOXYLIC-ACID H	0.07	*BENZOFURANE HERBICIDES*	0.33
PYRIDAZINONE HERBICIDES	0.40	**PYRIDAZINONE HERBICIDES**	0.03	TRIAZINONE HERBICIDES	0.29
URACIL HERBICIDES	0.22	SULFONYLUREA HERBICIDES	0.02	**BIS-CARBAMATE HERBICIDES**	0.28
LV		**LT**		**HU**	
PYRIDAZINONE HERBICIDES	0.58	**PYRIDAZINONE HERBICIDES**	0.65	**PYRIDAZINONE HERBICIDES**	1.16
ORGANOPHOSPHORUS H	0.16	ORGANOPHOSPHORUS H	0.23	CHLOROACETANILIDE HERBICIDES	0.84
ARYLOXYPHENOXYPROPIONIC H	0.13	**BIS-CARBAMATE HERBICIDES**	0.08	ORGANOPHOSPHORUS HERBICIDES	0.49
BIS-CARBAMATE HERBICIDES	0.07	ARYLOXYPHENOXYPROPIONIC H	0.04	AMIDE HERBICIDES	0.49
PYRIDINECARBOXYLIC-ACID H	0.04	PYRIDINECARBOXYLIC-ACID H	0.03	PYRIDINECARBOXYLIC-ACID H	0.06
NL		**AT**		**PL**	
TRIAZINONE HERBICIDES	1.15	BENZOFURANE HERBICIDES	0.56	**BIS-CARBAMATE HERBICIDES**	0.84
PYRIDAZINONE HERBICIDES	0.57	**BIS-CARBAMATE HERBICIDES**	0.43	*BENZOFURANE HERBICIDES*	0.42
BIS-CARBAMATE HERBICIDES	**0.54**	**PYRIDAZINONE HERBICIDES**	**0.16**	**PYRIDAZINONE HERBICIDES**	**0.39**
BENZOFURANE HERBICIDES	0.40	CYCLOHEXANEDIONE H	0.04	ORGANOPHOSPHORUS HERBICIDES	0.32
CHLOROACETANILIDE H	0.25	ORGANOPHOSPHORUS H	0.03	TRIAZINONE HERBICIDES	0.27
PT		**SI**		**SK**	
BENZOFURANE HERBICIDES	1.13	**BIS-CARBAMATE HERBICIDES**	0.63	**PYRIDAZINONE HERBICIDES**	0.78
BIS-CARBAMATE HERBICIDES	0.61	CHLOROACETANILIDE H	0.54	**BIS-CARBAMATE HERBICIDES**	0.74
URACIL HERBICIDES	0.30	**BENZOFURANE HERBICIDES**	0.40	*BENZOFURANE HERBICIDES*	0.40
ARYLOXYPHENOXYPROPIONIC H	0.06	PYRIDINECARBOXYLIC-ACID H	0.02	ORGANOPHOSPHORUS HERBICIDES	0.16
PYRIDINECARBOXYLIC-ACID H	0.05	ARYLOXYPHENOXYPROPIONIC H	0.02	CHLOROACETANILIDE HERBICIDES	0.15
FI		**SE**		**UK**	
BIS-CARBAMATE HERBICIDES	1.64	**BIS-CARBAMATE HERBICIDES**	1.02	**BIS-CARBAMATE HERBICIDES**	0.54
BENZOFURANE HERBICIDES	0.97	ORGANOPHOSPHORUS H	0.30	ORGANOPHOSPHORUS HERBICIDES	0.49
PYRIDINECARBOXYLIC-ACID H	0.07	**PYRIDAZINONE HERBICIDES**	0.22	PYRIDAZINONE HERBICIDES	0.33
ARYLOXYPHENOXYPROPIONIC H	0.03	CYCLOHEXANEDIONE H	0.05	*BENZOFURANE HERBICIDES*	0.32
SULFONYLUREA HERBICIDES	0.02	PYRIDINECARBOXYLIC-ACID H	0.05	URACIL HERBICIDES	0.10

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.5.5: Chemical classes of insecticides applied to cereal crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BIOLOGICAL INSECTICIDES	-	-	-	-	-	-	-	-	-	-	0	0
PHENYL-ETHER INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
NITROGUANIDINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
ORGANOTIN INSECTICIDES	-	-	-	-	-	-	-	-	4	2	2	2
ORGANOCHLORINE INSECTICIDES	3	23	23	22	20	37	31	5	28	9	6	3
PYRAZOLE (PHENYL-) INSECTICIDES	-	-	-	-	-	-	0	0	2	2	4	5
(CARBAMOYL-) TRIAZOLE INSECTICIDES	-	-	c	c	c	c	c	c	c	c	c	c
PYRETHROID INSECTICIDES	15	10	30	20	27	8	7	7	11	11	11	12
CARBAMATE INSECTICIDES	158	112	115	99	92	79	71	91	66	85	86	42
OXIME-CARBAMATE INSECTICIDES	77	83	76	80	70	50	41	39	102	90	92	91
PYRIDYLMETHYLAMINE INSECTICIDES	15	35	49	81	91	36	38	111	112	56	82	142
ORGANOPHOSPHORUS INSECTICIDES	355	246	232	170	142	146	157	81	182	199	205	161
UNCLASSIFIED INSECTICIDES	-	-	-	-	-	-	-	-	1	-	-	-
Grand Total	623	509	526	475	446	360	351	339	511	458	492	464

Table 5.5.6: Top-5 insecticide chemical classes applied to cereal crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
PYRIDYLMETHYLAMINE I	0.62	**ORGANOPHOSPHORUS I**	0.25	**ORGANOPHOSPHORUS I**	0.03
				PYRIDYLMETHYLAMINE I	0.01
				PYRETHROID INSECTICIDES	0.01
DE		**EL**		**ES**	
PYRIDYLMETHYLAMINE I	0.07	**ORGANOPHOSPHORUS I**	0.14	**ORGANOPHOSPHORUS I**	0.31
PYRETHROID INSECTICIDES	0.01	**PYRIDYLMETHYLAMINE I**	0.06	**PYRIDYLMETHYLAMINE I**	0.06
				CARBAMATE INSECTICIDES	0.04
				OXIME-CARBAMATE INSECTICIDES	0.04
				PYRETHROID INSECTICIDES	0.02
FR		**IT**		**HU**	
PYRIDYLMETHYLAMINE I	0.08	CARBAMATE INSECTICIDES	0.06	**ORGANOPHOSPHORUS I**	0.56
OXIME-CARBAMATE INSECTICIDES	0.05	**ORGANOPHOSPHORUS I**	0.05	PYRETHROID INSECTICIDES	0.01
CARBAMATE INSECTICIDES	0.05	OXIME-CARBAMATE INSECTICIDES	0.03	CARBAMATE INSECTICIDES	0.01
ORGANOPHOSPHORUS I	0.02	PYRAZOLE (PHENYL-) I	0.01		
(CARBAMOYL-) TRIAZOLE I	c	ORGANOCHLORINE INSECTICIDES	0.01		
NL		**AT**		**PL**	
PYRIDYLMETHYLAMINE I	0.08	**ORGANOPHOSPHORUS I**	0.03	**ORGANOPHOSPHORUS I**	0.13
ORGANOPHOSPHORUS I	0.03			**PYRIDYLMETHYLAMINE I**	0.01
				CARBAMATE INSECTICIDES	0.01
PT		**SK**		**FI**	
ORGANOPHOSPHORUS I	0.14	**ORGANOPHOSPHORUS I**	0.27	NITROGUANIDINE INSECTICIDES	c
PYRIDYLMETHYLAMINE I	0.04			PYRETHROID INSECTICIDES	0.01
ORGANOCHLORINE INSECTICIDES	0.03				
PYRETHROID INSECTICIDES	0.01				
SE		**UK**			
ORGANOTIN INSECTICIDES	0.03	OXIME-CARBAMATE INSECTICIDES	0.36		
CARBAMATE INSECTICIDES	0.02	(CARBAMOYL-) TRIAZOLE I	c		
PYRIDYLMETHYLAMINE I	0.01				
PYRETHROID INSECTICIDES	0.01				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

5.6 Citrus

Table 5.6.1: Chemical classes of fungicides applied to citrus crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ORGANOPHOSPHORUS FUNGICIDES	199	145	139	200	231	307	163	174	34	264	254	230
DITHIOCARBAMATE FUNGICIDES	251	172	181	104	121	56	57	52	148	174	197	228
COPPER COMPOUNDS	120	117	148	122	197	153	180	198	61	90	54	54
BENZIMIDAZOLE FUNGICIDES	-	-	-	-	2	6	9	7	29	27	24	18
AMIDE FUNGICIDES	3	2	4	5	7	7	8	7	6	6	4	5
INORGANIC SULPHUR	-	-	-	-	-	0	0	0	-	0	-	1
PHTHALIC ACID FUNGICIDES	1	1	11	6	4	-	0	-	0	3	1	1
UNCLASSIFIED FUNGICIDES	-	-	-	-	-	-	-	-	12	0	0	0
CARBAMATE FUNGICIDES	-	-	-	-	-	-	-	-	-	0	0	0
CONAZOLE FUNGICIDES	-	-	-	-	-	-	-	-	-	-	0	0
IMIDAZOLE FUNGICIDES	-	-	-	-	-	-	-	-	-	-	0	-
ALIPHATIC NITROGEN FUNGICIDES	-	-	-	-	-	0	0	0	-	-	0	-
OXAZOLE FUNGICIDES	10	11	3	2	1	1	0	0	-	-	-	-
QUINOLINE FUNGICIDES	0	0	0	0	0	-	-	-	-	-	-	-
DICARBOXIMIDE FUNGICIDES	-	-	-	-	-	-	-	-	0	-	-	-
Grand Total	583	447	486	438	563	529	416	438	290	564	535	538

Table 5.6.2: Top-5 fungicide chemical classes applied to citrus crops in the different countries (in kg AS/ha)

EL		ES	
COPPER COMPOUNDS	0.09	*DITHIOCARBAMATE FUNGICIDES*	0.72
DITHIOCARBAMATE FUNGICIDES	0.05	**ORGANOPHOSPHORUS FUNGICIDES**	0.70
ORGANOPHOSPHORUS FUNGICIDES	0.03	**COPPER COMPOUNDS**	0.08
		BENZIMIDAZOLE FUNGICIDES	0.05
		AMIDE FUNGICIDES	0.02
IT		**PT**	
COPPER COMPOUNDS	0.09	**COPPER COMPOUNDS**	0.29
ORGANOPHOSPHORUS FUNGICIDES	0.06	**ORGANOPHOSPHORUS FUNGICIDES**	0.17
DITHIOCARBAMATE FUNGICIDES	0.03		
BENZIMIDAZOLE FUNGICIDES	0.03		

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.6.3: Chemical classes of herbicides applied to citrus crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ORGANOPHOSPHORUS HERBICIDES	519	628	685	728	852	1405	1163	845	974	1456	1729	2031
BIPYRIDYLIUM HERBICIDES	91	88	94	99	125	-	-	-	41	56	78	74
UNCLASSIFIED HERBICIDES	-	-	-	-	-	-	-	-	0	45	150	43
URACIL HERBICIDES	35	34	36	26	36	35	42	42	38	36	39	39
UREA HERBICIDES	23	24	26	22	27	22	24	21	20	29	38	31
TRIAZINE HERBICIDES	110	104	99	82	103	117	132	131	76	76	48	24
METHYLTHIOTRIAZINE HERBICIDES	23	36	28	22	30	36	42	53	14	25	32	24
PYRIDYLOXYACETIC-ACID HERBICIDES	-	-	-	-	-	1	3	3	7	7	8	8
DIPHENYL ETHER HERBICIDES	1	1	2	2	2	9	9	2	1	9	6	6
TRIAZOLE HERBICIDES	0	0	0	1	0	0			2	2	2	3
DINITROANILINE HERBICIDES	-	-	-	-	-	1	2	1	3	3	3	3
ANILIDE HERBICIDES	-	-	-	-	-	0	0	0	1	1	1	1
PHENOXY HERBICIDES	29	28	26	28	2	0	15		1	1	1	1
AMIDE HERBICIDES	-	-	-	-	-	-	-	-	0	0	0	0
PYRIDINECARBOXYLIC-ACID HERBICIDES	-	-	-	-	-	1	1	4	-	0	-	0
PYRIDAZINONE HERBICIDES	-	-	5	2	4	5	7	6	4	5	3	0
QUINOLINE HERBICIDES	-	-	-	-	-	0	1	2		0	0	-
ARYLOXYPHENOXYPROPIONIC HERBICIDES	-	-	-	-	-	-	-	-	0	0	-	-
BENZOIC-ACID HERBICIDES	-	-	-	-	0	0	-	-	-	-	-	-
Grand Total	832	942	1001	1012	1179	1633	1440	1109	1183	1751	2138	2289

Table 5.6.4: Top-5 herbicide chemical classes applied to citrus crops in the different countries (in kg AS/ha)

EL		ES		IT	
ORGANOPHOSPHORUS H	1.08	**ORGANOPHOSPHORUS H**	5.63	**ORGANOPHOSPHORUS H**	1.05
BIPYRIDYLIUM HERBICIDES	0.12	**BIPYRIDYLIUM HERBICIDES**	0.15	**BIPYRIDYLIUM HERBICIDES**	0.09
TRIAZINE HERBICIDES	0.04	UNCLASSIFIED HERBICIDES	0.14		
TRIAZOLE HERBICIDES	0.02	URACIL HERBICIDES	0.13		
		UREA HERBICIDES	0.10		
CY		**PT**			
ORGANOPHOSPHORUS H	0.25	**ORGANOPHOSPHORUS H**	1.27		
		BIPYRIDYLIUM HERBICIDES	0.16		
		TRIAZINE HERBICIDES	0.11		
		UREA HERBICIDES	0.04		
		URACIL HERBICIDES	0.03		

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.6.5: Chemical classes of insecticides applied to citrus crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ORGANOPHOSPHORUS INSECTICIDES	512	479	576	580	421	362	388	784	581	599	597	496
ORGANOCHLORINE INSECTICIDES	31	31	40	20	42	5	6	8	57	94	115	105
ORGANOTIN INSECTICIDES	9	9	8	6	5	67	69	67	68	76	58	54
OXIME-CARBAMATE INSECTICIDES	27	24	30	30	25	12	14	16	23	18	18	14
INSECT GROWTH REGULATORS	55	36	31	17	14	10	10	9	4	8	10	11
CARBAMATE INSECTICIDES	26	20	31	28	28	2	1	3	16	18	11	10
PYRIDYLMETHYLAMINE INSECTICIDES	7	5	2	7	9	-	-	11	12	11	11	9
PYRAZOLE (PHENYL-) INSECTICIDES	-	-	0	0	0	1	2	3	2	2	4	5
AMIDINE INSECTICIDES	7	4	9	4	4	1	1	0	3	7	5	3
UNCLASSIFIED INSECTICIDES	8	10	11	11	8	7	6	9	7	7	8	2
BENZOYLUREA INSECTICIDES	0	0	1	17	6	4	3	2	3	2	2	2
ANTIBIOTIC INSECTICIDES	-	-	0	0	0	0	1	1	1	0	2	1
PYRETHROID INSECTICIDES	5	5	5	4	2	1	1	1	0	1	1	0
NITROGUANIDINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
PYRIDINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
SULFITE ESTER INSECTICIDES	32	3	10	5	4	-	-	-	0	2	1	0
TETRAZINE INSECTICIDES	c	c	c	c	c	c	c	c	c	c	c	c
DIAZYLHYDRAZINE INSECTICIDES	-	-	-	-	0	0	0	-	0	0	0	0
UREA INSECTICIDES	c	c	c	c	c	c	c	c	c	c	c	c
Grand Total	720	628	755	731	569	475	501	915	779	847	844	712

Table 5.6.6: Top-5 insecticide chemical classes applied to citrus crops in the different countries (in kg AS/ha)

EL		ES		FR	
ORGANOPHOSPHORUS I	0.79	**ORGANOPHOSPHORUS I**	1.26	**ORGANOPHOSPHORUS I**	0.77
ORGANOTIN INSECTICIDES	0.02	ORGANOCHLORINE INSECTICIDES	0.33	CARBAMATE INSECTICIDES	0.19
UNCLASSIFIED INSECTICIDES	0.02	**ORGANOTIN INSECTICIDES**	0.17	PYRETHROID INSECTICIDES	0.03
PYRIDYLMETHYLAMINE I	0.01	INSECT GROWTH REGULATORS	0.03		
AMIDINE INSECTICIDES	0.01	OXIME-CARBAMATE INSECTICIDES	0.03		
IT		**CY**		**PT**	
ORGANOPHOSPHORUS I	0.25	**ORGANOPHOSPHORUS I**	1.89	**ORGANOPHOSPHORUS I**	0.32
ORGANOCHLORINE INSECTICIDES	0.02			OXIME-CARBAMATE INSECTICIDES	0.10
CARBAMATE INSECTICIDES	0.01			CARBAMATE INSECTICIDES	0.08
OXIME-CARBAMATE INSECTICIDES	0.01			PYRIDYLMETHYLAMINE I	0.02
PYRIDYLMETHYLAMINE I	0.01			**ORGANOTIN INSECTICIDES**	0.01

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

5.7 Grapes and vines

Table 5.7.1: Chemical classes of fungicides applied to grape and vine crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
INORGANIC SULPHUR	78032	93246	84877	93516	96788	97684	87354	84726	74316	72579	69902	52337
DITHIOCARBAMATE FUNGICIDES	4619	5707	4415	5494	4964	5144	5021	4696	7843	7917	7426	7131
ORGANOPHOSPHORUS FUNGICIDES	1677	2789	2775	2972	2688	2569	2516	2373	3081	2863	2547	2698
PHTHALIC ACID FUNGICIDES	2138	2598	2574	2191	2199	2714	2496	2638	2545	2282	2074	2265
COPPER COMPOUNDS	5148	4400	4080	4227	4530	5802	6796	6842	2326	1883	2223	1984
ALIPHATIC NITROGEN FUNGICIDES	471	523	453	436	437	503	435	442	614	518	433	370
DINITROPHENOL FUNGICIDES	60	64	59	62	72	61	78	90	82	123	242	290
CONAZOLE FUNGICIDES	195	175	251	265	227	183	184	279	271	264	249	265
AMIDE FUNGICIDES	384	419	370	383	416	398	387	322	292	295	294	265
MORPHOLINE FUNGICIDES	-	49	38	57	80	74	88	174	102	211	218	196
PYRIMIDINE FUNGICIDES	7	8	39	56	78	152	167	168	218	209	217	165
STROBILURINE FUNGICIDES	-	-	-	-	-	5	24	33	220	230	193	140
ANILIDE FUNGICIDES	-	-	-	-	-	-	-	-	63	79	112	134
UNCLASSIFIED FUNGICIDES	-	-	-	-	-	-	-	67	184	76	111	106
IMIDAZOLE FUNGICIDES	95	88	76	87	86	83	86	47	60	49	62	88
PHENYLPYRROLE FUNGICIDES	-	-	-	8	13	20	27	40	44	47	59	63
OXAZOLE FUNGICIDES	106	205	201	179	128	116	106	151	129	111	98	61
QUINOLINE FUNGICIDES	2	2	1	1	1	1	1	0	48	55	53	55
CARBAMATE FUNGICIDES	-	-	-	-	-	-	-	-	0	2	20	50
QUINONE FUNGICIDES	106	137	63	118	130	105	93	75	53	65	91	33
DINITROANILINE FUNGICIDES	14	15	12	13	17	17	18	16	31	25	24	32
DICARBOXIMIDE FUNGICIDES	29	29	31	37	42	21	18	11	11	12	28	23
AROMATIC FUNGICIDES	0	1	2	12	1	36	-	18	20	15	15	15
BENZIMIDAZOLE FUNGICIDES	47	72	68	65	73	53	40	34	17	13	11	6
CARBANILATE FUNGICIDES	-	-	-	-	-	11	0	6	5	4	2	0
Grand Total	93130	110527	100386	110178	112970	115752	105937	103249	92574	89929	86703	68773

Table 5.7.2: Top-5 fungicide chemical classes applied to grape and vine crops in the different countries (in kg AS/ha)

BE+LU		CZ		DE	
ALIPHATIC NITROGEN FUNGICIDES	0.06	**INORGANIC SULPHUR**	2.60	**INORGANIC SULPHUR**	19.70
OXAZOLE FUNGICIDES	0.04	**DITHIOCARBAMATE FUNGICIDES**	0.83	**DITHIOCARBAMATE FUNGICIDES**	4.66
		COPPER COMPOUNDS	0.37	PHTHALIC ACID FUNGICIDES	2.83
		AMIDE FUNGICIDES	0.24	AMIDE FUNGICIDES	0.93
		ORGANOPHOSPHORUS F	0.19	MORPHOLINE FUNGICIDES	0.23
EL		**ES**		**FR**	
INORGANIC SULPHUR	17.02	**INORGANIC SULPHUR**	9.62	**INORGANIC SULPHUR**	20.96
DITHIOCARBAMATE FUNGICIDES	0.90	**DITHIOCARBAMATE FUNGICIDES**	0.31	**DITHIOCARBAMATE FUNGICIDES**	2.63
ORGANOPHOSPHORUS F	0.14	COPPER COMPOUNDS	0.14	ORGANOPHOSPHORUS F	2.51
DINITROPHENOL FUNGICIDES	0.08	PHTHALIC ACID FUNGICIDES	0.07	PHTHALIC ACID FUNGICIDES	1.89
COPPER COMPOUNDS	0.08	ORGANOPHOSPHORUS F	0.05	COPPER COMPOUNDS	0.60
IT		**CY**		**HU**	
INORGANIC SULPHUR	10.16	**DITHIOCARBAMATE FUNGICIDES**	1.19	**INORGANIC SULPHUR**	5.02
DITHIOCARBAMATE FUNGICIDES	3.63	DINITROPHENOL FUNGICIDES	0.03	**DITHIOCARBAMATE FUNGICIDES**	1.49
COPPER COMPOUNDS	1.38	CONAZOLE FUNGICIDES	0.01	COPPER COMPOUNDS	0.31
ORGANOPHOSPHORUS F	0.36			STROBILURINE FUNGICIDES	0.12
DINITROPHENOL FUNGICIDES	0.18			PHTHALIC ACID FUNGICIDES	0.09
AT		**PT**		**SI**	
INORGANIC SULPHUR	8.12	**INORGANIC SULPHUR**	42.08	**DITHIOCARBAMATE FUNGICIDES**	5.21
PHTHALIC ACID FUNGICIDES	0.97	**DITHIOCARBAMATE FUNGICIDES**	2.30	**INORGANIC SULPHUR**	5.04
DITHIOCARBAMATE FUNGICIDES	0.61	ORGANOPHOSPHORUS F	0.48	ORGANOPHOSPHORUS F	1.10
STROBILURINE FUNGICIDES	0.34	PHTHALIC ACID FUNGICIDES	0.40	PHTHALIC ACID FUNGICIDES	0.39
AROMATIC FUNGICIDES	0.33	COPPER COMPOUNDS	0.30	DINITROPHENOL FUNGICIDES	0.22
SK					
INORGANIC SULPHUR	4.66				
DITHIOCARBAMATE FUNGICIDES	1.26				
PHTHALIC ACID FUNGICIDES	0.39				
COPPER COMPOUNDS	0.35				
STROBILURINE FUNGICIDES	0.30				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.7.3: Chemical classes of herbicides applied to grape and vine crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ORGANOPHOSPHORUS HERBICIDES	991	1212	1427	1652	1729	1687	2004	1959	2210	2771	3076	2844
TRIAZINE HERBICIDES	1389	1150	1403	1429	1374	1312	1106	889	767	795	456	474
TRIAZOLE HERBICIDES	407	383	383	436	428	461	466	397	814	818	524	454
UREA HERBICIDES	185	307	345	452	567	789	677	392	286	249	166	216
BIPYRIDYLIUM HERBICIDES	264	243	153	261	263	62	67	57	188	187	202	197
DINITROANILINE HERBICIDES	100	0	2	1	2	191	226	288	61	55	134	179
PYRIDAZINONE HERBICIDES	79	89	82	101	77	83	89	88	71	122	69	59
NITRILE HERBICIDES	304	442	297	253	12	36	38	50	30	35	35	32
AMIDE HERBICIDES	14	14	12	13	12	16	13	14	14	14	29	22
DIPHENYL ETHER HERBICIDES	0	0	0	0	0	1	1	2	1	3	10	9
UNCLASSIFIED HERBICIDES	61	68	35	36	52	259	326	367	191	20	396	9
PHENOXY HERBICIDES	41	32	5	2	4	6	6	8	37	32	6	6
ANILIDE HERBICIDES	-	-	-	-	-	-	-	-	-	-	4	4
CYCLOHEXANEDIONE HERBICIDES	0	0	-	-	-	68	44	33	2	2	1	1
ARYLOXYPHENOXYPROPIONIC HERBICIDES	0	0	0	0	0	0	0	0	0	0	0	1
ISOXAZOLE HERBICIDES	-	-	-	-	-	-	-	c	c	c	c	c
IMIDAZOLINONE HERBICIDES	-	-	-	-	-	-	-	-	-	0	0	0
BENZOIC-ACID HERBICIDES	-	-	-	-	-	-	-	-	0	0	0	0
SULFONYLUREA HERBICIDES	-	-	-	-	-	-	-	-	0	0	0	0
BIS-CARBAMATE HERBICIDES	-	-	-	-	-	-	-	-	-	-	0	-
METHYLTHIOTRIAZINE HERBICIDES	-	-	-	-	-	-	-	-	-	2	-	-
URACIL HERBICIDES	0	0	0	0	0	0	-	-	-	-	-	-
PYRIDYLOXYACETIC-ACID HERBICIDES	-	-	-	-	-	0	1	1	-	-	-	-
THIADIAZINE HERBICIDES	-	-	0	0	-	-	-	-	-	-	-	-
DICARBOXIMIDE HERBICIDES	-	-	-	-	-	-	17	7	-	-	-	-
Grand Total	3837	3940	4144	4637	4520	4971	5080	4553	4673	5105	5110	4507

Table 5.7.4: Top-5 herbicide chemical classes applied to grape and vine crops in the different countries (in kg AS/ha)

CZ		DE		EL	
ORGANOPHOSPHORUS H	1.67	**ORGANOPHOSPHORUS H**	1.20	**ORGANOPHOSPHORUS H**	0.65
TRIAZINE HERBICIDES	0.17	BIPYRIDYLIUM HERBICIDES	0.03	TRIAZINE HERBICIDES	0.25
BIPYRIDYLIUM HERBICIDES	0.14			BIPYRIDYLIUM HERBICIDES	0.21
				TRIAZOLE HERBICIDES	0.20
ES		**FR**		**IT**	
ORGANOPHOSPHORUS H	0.44	**ORGANOPHOSPHORUS H**	1.04	**ORGANOPHOSPHORUS H**	0.59
TRIAZINE HERBICIDES	0.06	TRIAZOLE HERBICIDES	0.41	BIPYRIDYLIUM HERBICIDES	0.04
BIPYRIDYLIUM HERBICIDES	0.04	TRIAZINE HERBICIDES	0.28	TRIAZINE HERBICIDES	0.01
UREA HERBICIDES	0.02	DINITROANILINE HERBICIDES	0.20	DIPHENYL ETHER HERBICIDES	0.01
TRIAZOLE HERBICIDES	0.01	UREA HERBICIDES	0.17		
CY		**HU**		**AT**	
ORGANOPHOSPHORUS H	0.11	**ORGANOPHOSPHORUS H**	1.06	**ORGANOPHOSPHORUS H**	0.34
		TRIAZINE HERBICIDES	0.10	UREA HERBICIDES	0.10
		DINITROANILINE HERBICIDES	0.02	TRIAZOLE HERBICIDES	0.10
PT		**SI**		**SK**	
ORGANOPHOSPHORUS H	2.35	**ORGANOPHOSPHORUS H**	0.01	**ORGANOPHOSPHORUS H**	0.36
TRIAZINE HERBICIDES	0.53			BIPYRIDYLIUM HERBICIDES	0.19
TRIAZOLE HERBICIDES	0.26				
UREA HERBICIDES	0.16				
BIPYRIDYLIUM HERBICIDES	0.15				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.7.5: Chemical classes of insecticides applied to grape and vine crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ORGANOPHOSPHORUS INSECTICIDES	541	578	586	560	486	776	724	591	1181	1160	1033	803
OXIME-CARBAMATE INSECTICIDES	123	126	110	98	110	63	56	66	65	64	47	64
CARBAMATE INSECTICIDES	60	29	50	136	114	32	42	37	67	73	61	56
UNCLASSIFIED INSECTICIDES	32	31	27	32	29	39	44	37	48	40	45	34
BENZOYLUREA INSECTICIDES	2	4	6	9	12	21	21	18	19	22	26	29
ORGANOCHLORINE INSECTICIDES	61	58	38	38	49	51	33	28	18	18	27	18
PYRETHROID INSECTICIDES	20	24	24	25	22	20	21	18	27	20	18	13
OXADIAZINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
DIAZYLHYDRAZINE INSECTICIDES	-	-	1	3	3	4	3	4	9	7	7	7
ORGANOTIN INSECTICIDES	13	6	10	6	7	31	23	27	15	6	6	7
PYRAZOLE (PHENYL-) INSECTICIDES	-	-	-	0	0	0	4	2	3	2	2	3
PYRIDYLMETHYLAMINE INSECTICIDES	-	-	-	-	0	0	0	0	0	0	1	2
AMIDINE INSECTICIDES	0	0	0	0	0	1	0		1	1	1	2
SULFITE ESTER INSECTICIDES	41	40	38	29	30	34	28	25	14	10	9	1
INSECT GROWTH REGULATORS	0	0	1	1	1	1	1	1	0	0	0	0
TETRAZINE INSECTICIDES	C	c	c	c	c	c	c	c	c	c	c	c
ANTIBIOTIC INSECTICIDES	-	-	-	-	-	-	-	-	0	0	0	0
Grand Total	907	909	904	947	870	1079	1001	856	1467	1430	1291	1046

Table 5.7.6: Top-5 insecticide chemical classes applied to grape and vine crops in the different countries (in kg AS/ha)

BE+LU		CZ		DE	
OXADIAZINE INSECTICIDES	c	**ORGANOPHOSPHORUS I**	0.41	**ORGANOPHOSPHORUS I**	0.20
		PYRETHROID INSECTICIDES	0.02	DIAZYLHYDRAZINE INSECTICIDES	0.03
				OXADIAZINE INSECTICIDES	c
				PYRAZOLE (PHENYL-) I	0.01
EL		**ES**		**FR**	
ORGANOPHOSPHORUS I	0.33	**ORGANOPHOSPHORUS I**	0.10	**ORGANOPHOSPHORUS I**	0.21
CARBAMATE INSECTICIDES	0.03	UNCLASSIFIED INSECTICIDES	0.01	OXIME-CARBAMATE INSECTICIDES	0.06
OXIME-CARBAMATE INSECTICIDES	0.02	ORGANOCHLORINE INSECTICIDES	0.01	BENZOYLUREA INSECTICIDES	0.02
UNCLASSIFIED INSECTICIDES	0.01			PYRETHROID INSECTICIDES	0.01
BENZOYLUREA INSECTICIDES	0.01			CARBAMATE INSECTICIDES	0.01
IT		**CY**		**HU**	
ORGANOPHOSPHORUS I	0.41	**ORGANOPHOSPHORUS I**	1.61	**ORGANOPHOSPHORUS I**	0.49
CARBAMATE INSECTICIDES	0.05			OXIME-CARBAMATE INSECTICIDES	0.03
UNCLASSIFIED INSECTICIDES	0.02			UNCLASSIFIED INSECTICIDES	0.02
OXIME-CARBAMATE INSECTICIDES	0.01			ORGANOCHLORINE INSECTICIDES	0.01
BENZOYLUREA INSECTICIDES	0.01			PYRETHROID INSECTICIDES	0.01
AT		**PT**		**SI**	
ORGANOCHLORINE INSECTICIDES	0.03	**ORGANOPHOSPHORUS I**	0.04	**ORGANOPHOSPHORUS I**	0.34
OXADIAZINE INSECTICIDES	c			UNCLASSIFIED INSECTICIDES	0.07
DIAZYLHYDRAZINE INSECTICIDES	0.01			ORGANOCHLORINE INSECTICIDES	0.05
				DIAZYLHYDRAZINE INSECTICIDES	0.02
				BENZOYLUREA INSECTICIDES	0.01
SK					
ORGANOPHOSPHORUS I	0.12				
BENZOYLUREA INSECTICIDES	0.01				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

5.8 Fruit trees

Table 5.8.1: Chemical classes of fungicides applied to fruit tree crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
INORGANIC SULPHUR	5388	5733	5948	6256	5049	6161	5647	4873	3262	4192	3566	3406
DITHIOCARBAMATE FUNGICIDES	3078	3713	3355	3609	2918	2735	2715	2475	3225	3254	3315	3305
COPPER COMPOUNDS	1276	1045	1096	1076	1195	1247	1390	1455	476	765	786	835
PHTHALIC ACID FUNGICIDES	1631	1658	1582	2051	1806	1204	874	704	410	435	521	424
AMIDE FUNGICIDES	206	236	259	358	376	323	349	317	344	296	406	366
QUINONE FUNGICIDES	218	222	250	271	273	331	327	296	243	367	471	299
ORGANOPHOSPHORUS FUNGICIDES	53	38	51	58	75	57	72	103	84	132	131	161
PYRIMIDINE FUNGICIDES	27	31	32	37	36	48	81	84	158	176	158	147
CONAZOLE FUNGICIDES	96	86	94	101	126	90	88	91	113	125	148	142
IMIDAZOLE FUNGICIDES	7	9	7	6	8	42	36	20	29	33	33	103
STROBILURINE FUNGICIDES	-	-	-	-	2	13	30	40	81	67	80	80
BENZIMIDAZOLE FUNGICIDES	129	157	153	139	189	197	165	131	59	66	70	76
ALIPHATIC NITROGEN FUNGICIDES	100	100	97	101	91	74	98	86	122	119	104	74
UNCLASSIFIED FUNGICIDES	44	36	30	22	27	125	96	86	155	77	70	54
AROMATIC FUNGICIDES	3	2	1	1	9	3	4	1	42	14	24	34
ANILIDE FUNGICIDES	-	-	-	-	-	-	-	-	15	17	29	31
DINITROPHENOL FUNGICIDES	102	106	94	93	73	43	43	34	1	13	19	19
MORPHOLINE FUNGICIDES	-	-	1	1	1	1	3	5	4	3	11	12
DINITROANILINE FUNGICIDES	6	11	9	9	8	5	3	4	4	4	12	10
OXAZOLE FUNGICIDES	-	6	9	21	3	35	24	23	30	20	10	10
DICARBOXIMIDE FUNGICIDES	12	13	14	17	20	15		3	3	4	8	6
PHENYLPYRROLE FUNGICIDES	-	-	-	-	-	0	0	1	1	4	5	6
CARBANILATE FUNGICIDES	-	-	-	-	-	-	-	-	3	2	0	4
CARBAMATE FUNGICIDES	-	-	-	-	-	2	-	-	0	1	1	2
UREA FUNGICIDES	-	-	-	-	-	-	-	c	c	c	c	c
QUINOLINE FUNGICIDES	3	1	2	1	2	1	1	0	-	-	-	-
Grand Total	12380	13203	13083	14227	12288	12751	12045	10833	8864	10185	9975	9606

Table 5.8.2: Top-5 fungicide chemical classes applied to fruit tree crops in the different countries (in kg AS/ha)

BE+LU		DK		DE	
DITHIOCARBAMATE FUNGICIDES	4.93	**DITHIOCARBAMATE FUNGICIDES**	7.10	**INORGANIC SULPHUR**	9.47
AMIDE FUNGICIDES	1.98	**INORGANIC SULPHUR**	1.46	**DITHIOCARBAMATE FUNGICIDES**	4.95
INORGANIC SULPHUR	1.14	AMIDE FUNGICIDES	0.74	AMIDE FUNGICIDES	1.85
QUINONE FUNGICIDES	1.03	*QUINONE FUNGICIDES*	0.48	ORGANOPHOSPHORUS F	0.62
MORPHOLINE FUNGICIDES	0.65	ANILIDE FUNGICIDES	0.48	ANILIDE FUNGICIDES	0.27
EE		**EL**		**ES**	
DITHIOCARBAMATE FUNGICIDES	0.54	**INORGANIC SULPHUR**	4.20	COPPER COMPOUNDS	0.50
QUINONE FUNGICIDES	0.25	**DITHIOCARBAMATE FUNGICIDES**	0.54	**INORGANIC SULPHUR**	0.38
OXAZOLE FUNGICIDES	0.05	COPPER COMPOUNDS	0.41	**DITHIOCARBAMATE FUNGICIDES**	0.30
		ORGANOPHOSPHORUS F	0.10	ORGANOPHOSPHORUS F	0.04
		PHTHALIC ACID FUNGICIDES	0.06	AROMATIC FUNGICIDES	0.03
FI		**FR**		**IE**	
AMIDE FUNGICIDES	7.88	**INORGANIC SULPHUR**	6.33	STROBILURINE FUNGICIDES	0.85
ANILIDE FUNGICIDES	1.92	**DITHIOCARBAMATE FUNGICIDES**	2.89	CONAZOLE FUNGICIDES	0.10
QUINONE FUNGICIDES	1.82	PHTHALIC ACID FUNGICIDES	1.15		
IMIDAZOLE FUNGICIDES	1.04	IMIDAZOLE FUNGICIDES	0.45		
COPPER COMPOUNDS	0.70	COPPER COMPOUNDS	0.39		
IT		**LV**		**LT**	
DITHIOCARBAMATE FUNGICIDES	3.05	**DITHIOCARBAMATE FUNGICIDES**	0.04	**DITHIOCARBAMATE FUNGICIDES**	0.22
INORGANIC SULPHUR	1.33	*QUINONE FUNGICIDES*	0.02	*QUINONE FUNGICIDES*	0.02
PHTHALIC ACID FUNGICIDES	0.32	CONAZOLE FUNGICIDES	0.01	PYRIMIDINE FUNGICIDES	0.01
COPPER COMPOUNDS	0.31				
QUINONE FUNGICIDES	0.23				
HU		**NL**		**AT**	
INORGANIC SULPHUR	1.75	**DITHIOCARBAMATE FUNGICIDES**	4.09	**DITHIOCARBAMATE FUNGICIDES**	7.05
DITHIOCARBAMATE FUNGICIDES	1.27	PHTHALIC ACID FUNGICIDES	3.49	**INORGANIC SULPHUR**	2.39
DINITROPHENOL FUNGICIDES	0.09	**INORGANIC SULPHUR**	3.46	*QUINONE FUNGICIDES*	1.09
STROBILURINE FUNGICIDES	0.07	AMIDE FUNGICIDES	2.48	PYRIMIDINE FUNGICIDES	0.07
CONAZOLE FUNGICIDES	0.05	ORGANOPHOSPHORUS F	1.10	CONAZOLE FUNGICIDES	0.06
PL		**PT**		**SI**	
DITHIOCARBAMATE FUNGICIDES	1.24	**DITHIOCARBAMATE FUNGICIDES**	0.89	**INORGANIC SULPHUR**	0.36
AMIDE FUNGICIDES	0.33	COPPER COMPOUNDS	0.62	PYRIMIDINE FUNGICIDES	0.23
PYRIMIDINE FUNGICIDES	0.21	**INORGANIC SULPHUR**	0.28	DINITROPHENOL FUNGICIDES	0.17
QUINONE FUNGICIDES	0.21	PYRIMIDINE FUNGICIDES	0.05	CONAZOLE FUNGICIDES	0.10
ALIPHATIC NITROGEN FUNGICIDES	0.20	CONAZOLE FUNGICIDES	0.03		
SK		**SE**		**UK**	
DITHIOCARBAMATE FUNGICIDES	1.86	AMIDE FUNGICIDES	6.23	*QUINONE FUNGICIDES*	1.11
INORGANIC SULPHUR	1.85	**INORGANIC SULPHUR**	2.56	**INORGANIC SULPHUR**	0.46
QUINONE FUNGICIDES	0.12	IMIDAZOLE FUNGICIDES	1.90	CONAZOLE FUNGICIDES	0.18
STROBILURINE FUNGICIDES	0.11	ANILIDE FUNGICIDES	1.01	DINITROPHENOL FUNGICIDES	0.11
DINITROPHENOL FUNGICIDES	0.07	*QUINONE FUNGICIDES*	0.95	PYRIMIDINE FUNGICIDES	0.11

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.8.3: Chemical classes of herbicides applied fruit tree crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ORGANOPHOSPHORUS HERBICIDES	147	223	296	335	379	450	506	432	547	930	944	913
PHENOXY HERBICIDES	605	500	626	614	313	13	13	13	123	157	198	176
BIPYRIDYLIUM HERBICIDES	298	270	284	304	313	230	193	223	74	101	153	162
TRIAZOLE HERBICIDES	91	53	99	53	41	19	4	3	171	152	134	138
TRIAZINE HERBICIDES	131	108	129	115	112	117	117	119	121	119	93	101
UREA HERBICIDES	58	60	43	100	98	86	72	35	90	87	64	80
UNCLASSIFIED HERBICIDES	0	0	1	0	1	-	-	0	14	94	632	63
DINITROANILINE HERBICIDES	17	21	20	21	20	65	62	85	23	22	33	37
DIPHENYL ETHER HERBICIDES	0	0	1	1	1	4	5	5	6	23	20	21
ANILIDE HERBICIDES	-	-	-	0	2	0	0	1	3	10	16	20
PYRIDAZINONE HERBICIDES	20	23	27	26	33	16	-	12	16	13	14	10
AMIDE HERBICIDES	3	3	1	2	3	3	4	3	5	7	8	9
BIS-CARBAMATE HERBICIDES	-	-	-	-	-	-	-	-	3	5	8	7
PYRIDYLOXYACETIC-ACID HERBICIDES	-	-	-	-	0	-	-	1	1	1	1	7
URACIL HERBICIDES	6	6	6	5	6	9	10	8	3	3	2	2
NITRILE HERBICIDES	0	0	0	0	0	-	0	-		2	2	1
ARYLOXYPHENOXYPROPIONIC HERBICIDES	-	-	-	0	0	0	0	-	0	0	1	1
CYCLOHEXANEDIONE HERBICIDES	0	3	4	6	0	0	0	0	0	1	1	1
THIADIAZINE HERBICIDES	-	-	-	-	-	-	-	-	1	1	1	0
BENZOIC-ACID HERBICIDES	1	0	0	0	1	2	1	1	0	0	1	0
QUINOLINE HERBICIDES	-	-	-	-	-	-	-	-	0	0	-	0
TRIAZINONE HERBICIDES	-	-	-	-	-	-	-	-	11	9	11	0
PYRIDINECARBOXYLIC-ACID HERBICIDES	-	-	-	-	-	-	-	-	-	0	0	0
CHLOROACETANILIDE HERBICIDES	-	-	-	-	-	-	-	-	1	0	0	0
IMIDAZOLINONE HERBICIDES	-	-	-	-	-	-	-	-	-	-	0	-
METHYLTHIOTRIAZINE HERBICIDES	2	2	2	2	2	1	-	-	-	0	-	-
CARBAMATE HERBICIDES	-	-	-	-	-	-	-	-	-	0	-	-
BENZOFURANE HERBICIDES	-	-	-	-	-	-	-	-	-	0	-	-
TRIAZOLONE HERBICIDES	-	-	-	-	-	-	-	-	-	0	-	-
Grand Total	1381	1272	1540	1583	1325	1016	987	941	1215	1738	2335	1748

Table 5.8.4: Top-5 herbicide chemical classes applied to fruit tree crops in the different countries (in kg AS/ha)

BE+LU		DK		DE	
TRIAZINE HERBICIDES	0.49	**ORGANOPHOSPHORUS H**	0.06	**ORGANOPHOSPHORUS H**	1.57
AMIDE HERBICIDES	0.17	ARYLOXYPHENOXYPROPIONIC HERBICIDES	0.01	BIS-CARBAMATE HERBICIDES	0.12
NITRILE HERBICIDES	0.08			UREA HERBICIDES	0.07
ORGANOPHOSPHORUS H	0.03			*PHENOXY HERBICIDES*	0.06
BIS-CARBAMATE HERBICIDES	0.03			AMIDE HERBICIDES	0.02
EL		**ES**		**FR**	
ORGANOPHOSPHORUS H	0.64	**ORGANOPHOSPHORUS H**	0.23	**ORGANOPHOSPHORUS H**	0.46
TRIAZINE HERBICIDES	0.26	*PHENOXY HERBICIDES*	0.09	TRIAZOLE HERBICIDES	0.12
TRIAZOLE HERBICIDES	0.22	BIPYRIDYLIUM HERBICIDES	0.08	DINITROANILINE HERBICIDES	0.09
BIPYRIDYLIUM HERBICIDES	0.09	UREA HERBICIDES	0.08	BIPYRIDYLIUM HERBICIDES	0.06
		TRIAZOLE HERBICIDES	0.07	PYRIDAZINONE HERBICIDES	0.05
IT		**CY**		**HU**	
ORGANOPHOSPHORUS HE	0.56	**ORGANOPHOSPHORUS H**	0.23	**ORGANOPHOSPHORUS H**	0.57
BIPYRIDYLIUM HERBICIDES	0.09			**TRIAZINE HERBICIDES**	0.11
PHENOXY HERBICIDES	0.04			*PHENOXY HERBICIDES*	0.02
				DINITROANILINE HERBICIDES	0.01
NL		**PL**		**PT**	
TRIAZOLE HERBICIDES	1.11	*PHENOXY HERBICIDES*	0.20	**ORGANOPHOSPHORUS H**	0.53
PHENOXY HERBICIDES	0.84	**ORGANOPHOSPHORUS HE**	0.18	**TRIAZINE HERBICIDES**	0.12
BIPYRIDYLIUM HERBICIDES	0.11	TRIAZINE HERBICIDES	0.06	BIPYRIDYLIUM HERBICIDES	0.09
UREA HERBICIDES	0.01	ANILIDE HERBICIDES	0.02	PYRIDYLOXYACETIC-ACID HERBICIDES	0.05
DIPHENYL ETHER HERBICIDES	0.01			TRIAZOLE HERBICIDES	0.04
SI		**SK**		**FI**	
ORGANOPHOSPHORUS H	1.57	**ORGANOPHOSPHORUS HE**	0.63	**ORGANOPHOSPHORUS H**	2.72
TRIAZINE HERBICIDES	0.84	BIPYRIDYLIUM HERBICIDES	0.06	BIS-CARBAMATE HERBICIDES	0.58
				UNCLASSIFIED HERBICIDES	0.06
SE					
THIADIAZINE HERBICIDES	0.20				
ORGANOPHOSPHORUS H	0.09				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.8.5: Chemical classes of insecticides applied to fruit tree crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ORGANOPHOSPHORUS INSECTICIDES	907	920	996	940	858	1029	1043	998	2587	1938	1813	1428
CARBAMATE INSECTICIDES	120	101	116	112	98	98	113	110	201	197	177	141
AMIDINE INSECTICIDES	77	82	81	79	96	70	69	33	82	90	89	62
PYRIDYLMETHYLAMINE INSECTICIDES	0	6	10	15	16	31	33	34	35	36	38	52
OXIME-CARBAMATE INSECTICIDES	43	40	45	48	50	42	41	39	32	31	30	34
BENZOYLUREA INSECTICIDES	16	23	18	21	22	22	19	27	32	33	27	25
DIAZYLHYDRAZINE INSECTICIDES	-	-	0	2	4	6	7	9	12	14	21	22
ORGANOTIN INSECTICIDES	37	30	27	19	17	16	19	19	17	18	15	19
ORGANOCHLORINE INSECTICIDES	25	21	37	33	48	32	32	22	45	48	57	19
UNCLASSIFIED INSECTICIDES	40	34	33	34	32	21	21	23	41	42	30	14
PYRETHROID INSECTICIDES	25	22	21	17	15	39	35	21	16	43	18	13
NITROGUANIDINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
PYRAZOLE (PHENYL-) INSECTICIDES	-	1	4	7	8	9	8	9	7	5	7	4
OXADIAZINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
TETRAZINE INSECTICIDES	c	c	c	c	c	c	c	c	c	c	c	c
PYRIDINE INSECTICIDES	-	-	-	-	-	-	-	-	5	3	3	2
ANTIBIOTIC INSECTICIDES	-	-	0	0	0	0	1	1	1	1	4	1
(CARBAMOYL-) TRIAZOLE INSECTICIDES	-	-	-	-	c	c	c	c	c	c	c	c
SULFITE ESTER INSECTICIDES	100	115	89	76	73	69	84	77	39	35	29	1
INSECT GROWTH REGULATORS	2	2	1	1	1	1	0	0	1	1	1	1
BIOLOGICAL INSECTICIDES	-	-	-	-	-	-	-	-	-	-	0	-
UREA INSECTICIDES	c	c	c	c	c	-	-	-	-	-	-	-
Grand Total	1400	1405	1485	1410	1339	1490	1526	1423	3159	2541	2365	1855

Table 5.8.6: Top-5 insecticide chemical classes applied to fruit tree crops in the different countries (in kg AS/ha)

BE+LU		DE		EL	
ORGANOPHOSPHORUS I	0.33	**ORGANOPHOSPHORUS IN**	0.28	**ORGANOPHOSPHORUS I**	2.32
ORGANOTIN INSECTICIDES	0.16	**CARBAMATE INSECTICIDES**	0.24	**CARBAMATE INSECTICIDES**	0.05
CARBAMATE INSECTICIDES	0.15	DIAZYLHYDRAZINE INSECTICIDES	0.18	ORGANOCHLORINE INSECTICIDES	0.03
DIAZYLHYDRAZINE INSECTICIDES	0.05	PYRIDYLMETHYLAMINE I	0.10	AMIDINE INSECTICIDES	0.03
BENZOYLUREA INSECTICIDES	0.03	PYRAZOLE (PHENYL-) I	0.01	OXIME-CARBAMATE INSECTICIDES	0.02
ES		**FR**		**IE**	
ORGANOPHOSPHORUS IN	0.40	**ORGANOPHOSPHORUS I**	0.63	PYRAZOLE (PHENYL-) I	0.01
CARBAMATE INSECTICIDES	0.05	**CARBAMATE INSECTICIDES**	0.05		
AMIDINE INSECTICIDES	0.02	OXIME-CARBAMATE INSECTICIDES	0.04		
PYRIDYLMETHYLAMINE I	0.01	AMIDINE INSECTICIDES	0.03		
OXIME-CARBAMATE INSECTICIDES	0.01	PYRIDYLMETHYLAMINE I	0.03		
IT		**HU**		**NL**	
ORGANOPHOSPHORUS I	0.90	**ORGANOPHOSPHORUS I**	0.61	**CARBAMATE INSECTICIDES**	0.44
CARBAMATE INSECTICIDES	0.11	DIAZYLHYDRAZINE INSECTICIDES	0.02	AMIDINE INSECTICIDES	0.13
PYRIDYLMETHYLAMINE I	0.05	**CARBAMATE INSECTICIDES**	0.02	OXADIAZINE INSECTICIDES	c
BENZOYLUREA INSECTICIDES	0.04	PYRETHROID INSECTICIDES	0.02	**ORGANOPHOSPHORUS I**	0.05
AMIDINE INSECTICIDES	0.03	BENZOYLUREA INSECTICIDES	0.02	ORGANOTIN INSECTICIDES	0.05
AT		**PL**		**PT**	
ORGANOPHOSPHORUS I	2.24	**ORGANOPHOSPHORUS I**	0.15	**ORGANOPHOSPHORUS I**	0.31
BENZOYLUREA INSECTICIDES	0.03	AMIDINE INSECTICIDES	0.06	AMIDINE INSECTICIDES	0.02
OXADIAZINE INSECTICIDES	c	**CARBAMATE INSECTICIDES**	0.02	ORGANOTIN INSECTICIDES	0.01
PYRAZOLE (PHENYL-) I	0.01	TETRAZINE INSECTICIDES	c	**CARBAMATE INSECTICIDES**	0.01
		PYRIDYLMETHYLAMINE INSECTICIDES	0.01	PYRIDYLMETHYLAMINE INSECTICIDES	0.01
SI		**SK**		**FI**	
ORGANOPHOSPHORUS I	2.00	**ORGANOPHOSPHORUS I**	0.80	**CARBAMATE INSECTICIDES**	2.97
ORGANOCHLORINE INSECTICIDES	0.17	**CARBAMATE INSECTICIDES**	0.06	ORGANOPHOSPHORUS I	1.09
UNCLASSIFIED INSECTICIDES	0.03	BENZOYLUREA INSECTICIDES	0.05	PYRETHROID INSECTICIDES	0.03
BENZOYLUREA INSECTICIDES	0.03	NITROGUANIDINE INSECTICIDES	c		
SE		**UK**			
ORGANOPHOSPHORUS I	0.93	**ORGANOPHOSPHORUS I**	0.78		
CARBAMATE INSECTICIDES	0.27	PYRAZOLE (PHENYL-) I	0.02		

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

5.9 Vegetables

Table 5.9.1: Chemical classes of fungicides applied to vegetable crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DITHIOCARBAMATE FUNGICIDES	1017	800	762	792	835	1297	1764	1371	1933	2137	2149	1952
INORGANIC SULPHUR	3663	3765	2899	3049	3153	1616	1310	1702	1236	1104	1006	1443
COPPER COMPOUNDS	534	520	544	617	707	735	721	698	333	279	371	391
AROMATIC FUNGICIDES	221	399	411	486	549	200	214	316	270	303	410	373
ORGANOPHOSPHORUS FUNGICIDES	87	110	122	148	128	183	292	145	125	188	221	226
IMIDAZOLE FUNGICIDES	12	12	11	15	18	59	97	56	56	85	77	150
CARBAMATE FUNGICIDES	7	7	6	46	87	61	101	38	74	89	110	140
AMIDE FUNGICIDES	73	65	84	106	108	133	199	165	99	114	133	120
CONAZOLE FUNGICIDES	45	45	47	47	52	46	53	70	37	45	66	102
OXAZOLE FUNGICIDES	325	226	154	118	168	147	134	124	110	103	99	88
ALIPHATIC NITROGEN FUNGICIDES	20	23	40	37	39	46	42	48	77	80	83	75
STROBILURINE FUNGICIDES	-	-	-	-	-	2	6	5	17	28	46	52
PHTHALIC ACID FUNGICIDES	43	41	48	53	62	82	91	61	26	50	44	44
BENZIMIDAZOLE FUNGICIDES	117	117	104	86	102	90	107	105	39	57	45	41
MORPHOLINE FUNGICIDES	127	65	28	128	111	54	43	26	15	44	44	38
PYRIMIDINE FUNGICIDES	32	20	21	26	17	37	28	43	20	31	31	34
DICARBOXIMIDE FUNGICIDES	13	14	16	18	26	2	5	5	10	6	15	16
UREA FUNGICIDES	C	c	c	c	c	c	c	c	c	c	c	c
DINITROPHENOL FUNGICIDES	6	8	8	9	10	6	8	7	3	8	12	9
PHENYLPYRROLE FUNGICIDES	-	-	-	-	-	2	4	5	3	5	7	9
UNCLASSIFIED FUNGICIDES	21	20	15	17	14	14	7	1	80	4	4	8
ANILIDE FUNGICIDES	-	-	-	-	-	0	-	-	2	2	4	7
QUINONE FUNGICIDES	-	-	0	2	2	-	-	-	3	5	5	3
CARBANILATE FUNGICIDES	-	-	-	-	-	0	3	1	3	3	1	2
DINITROANILINE FUNGICIDES	1	1	2	2	3	3	4	4	1	1	1	1
QUINOLINE FUNGICIDES	6	5	8	7	8	8	7	7	0	1	0	0
Grand Total	6370	6265	5333	5813	6199	4826	5241	5009	4575	4775	4987	5339

Table 5.9.2: Top-5 fungicide chemical classes applied to vegetable crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
DITHIOCARBAMATE FUNGICIDES	1.85	**DITHIOCARBAMATE FUNGICIDES**	0.55	*ORGANOPHOSPHORUS F*	0.54
OXAZOLE FUNGICIDES	0.24	COPPER COMPOUNDS	0.05	AMIDE FUNGICIDES	0.28
INORGANIC SULPHUR	0.15	**AROMATIC FUNGICIDES**	0.05	CARBAMATE FUNGICIDES	0.11
AROMATIC FUNGICIDES	0.08	*ORGANOPHOSPHORUS F*	0.04	INORGANIC SULPHUR	0.11
CONAZOLE FUNGICIDES	0.05	AMIDE FUNGICIDES	0.04	**DITHIOCARBAMATE FUNGICIDES**	0.02
DE		**EL**		**ES**	
INORGANIC SULPHUR	0.99	**DITHIOCARBAMATE FUNGICIDES**	1.30	INORGANIC SULPHUR	2.08
DITHIOCARBAMATE FUNGICIDES	0.39	*ORGANOPHOSPHORUS F*	0.25	**DITHIOCARBAMATE FUNGICIDES**	1.82
CONAZOLE FUNGICIDES	0.14	**AROMATIC FUNGICIDES**	0.15	*ORGANOPHOSPHORUS F*	0.18
ORGANOPHOSPHORUS F	0.14	COPPER COMPOUNDS	0.08	**AROMATIC FUNGICIDES**	0.16
STROBILURINE FUNGICIDES	0.04	CARBAMATE FUNGICIDES	0.06	COPPER COMPOUNDS	0.15
FR		**IE**		**IT**	
DITHIOCARBAMATE FUNGICIDES	0.41	INORGANIC SULPHUR	0.34	**DITHIOCARBAMATE FUNGICIDES**	0.59
INORGANIC SULPHUR	0.21	IMIDAZOLE FUNGICIDES	0.05	COPPER COMPOUNDS	0.58
IMIDAZOLE FUNGICIDES	0.17			INORGANIC SULPHUR	0.37
AROMATIC FUNGICIDES	0.14			**AROMATIC FUNGICIDES**	0.13
OXAZOLE FUNGICIDES	0.10			*ORGANOPHOSPHORUS F*	0.08
CY		**HU**		**NL**	
DITHIOCARBAMATE FUNGICIDES	2.06	INORGANIC SULPHUR	0.15	**AROMATIC FUNGICIDES**	0.37
		DITHIOCARBAMATE FUNGICIDES	0.14	IMIDAZOLE FUNGICIDES	0.35
		COPPER COMPOUNDS	0.07	AMIDE FUNGICIDES	0.26
		AROMATIC FUNGICIDES	0.05	**DITHIOCARBAMATE FUNGICIDES**	0.25
		STROBILURINE FUNGICIDES	0.03	CARBAMATE FUNGICIDES	0.24
AT		**PL**		**PT**	
DITHIOCARBAMATE FUNGICIDES	0.67	**DITHIOCARBAMATE FUNGICIDES**	1.63	INORGANIC SULPHUR	3.36
IMIDAZOLE FUNGICIDES	0.02	CARBAMATE FUNGICIDES	0.11	**DITHIOCARBAMATE FUNGICIDES**	2.33
ALIPHATIC NITROGEN FUNGICIDES	0.02	*ORGANOPHOSPHORUS F*	0.06	COPPER COMPOUNDS	0.18
		MORPHOLINE FUNGICIDES	0.06	AMIDE FUNGICIDES	0.11
		AMIDE FUNGICIDES	0.05	BENZIMIDAZOLE FUNGICIDES	0.08
SI		**SK**		**FI**	
DITHIOCARBAMATE FUNGICIDES	1.15	**DITHIOCARBAMATE FUNGICIDES**	0.17	CARBAMATE FUNGICIDES	0.11
CARBAMATE FUNGICIDES	0.41	COPPER COMPOUNDS	0.15	*ORGANOPHOSPHORUS F*	0.10
INORGANIC SULPHUR	0.34	**AROMATIC FUNGICIDES**	0.06	COPPER COMPOUNDS	0.04
ORGANOPHOSPHORUS F	0.21	MORPHOLINE FUNGICIDES	0.02	IMIDAZOLE FUNGICIDES	0.01
PYRIMIDINE FUNGICIDES	0.10	AMIDE FUNGICIDES	0.01		
SE		**UK**			
ORGANOPHOSPHORUS F	0.85	**AROMATIC FUNGICIDES**	1.14		
CARBAMATE FUNGICIDES	0.19	INORGANIC SULPHUR	0.37		
DITHIOCARBAMATE FUNGICIDES	0.15	CONAZOLE FUNGICIDES	0.26		
		IMIDAZOLE FUNGICIDES	0.14		
		STROBILURINE FUNGICIDES	0.13		

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.9.3: Chemical classes of herbicides applied to vegetable crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DINITROANILINE HERBICIDES	206	283	254	319	293	317	771	745	857	796	874	839
THIADIAZINE HERBICIDES	332	444	202	223	380	363	379	427	394	286	379	328
CHLOROACETANILIDE HERBICIDES	293	311	357	394	420	258	272	329	312	298	340	304
TRIAZINE HERBICIDES	39	52	110	133	104	134	126	117	32	24	14	150
AMIDE HERBICIDES	1	1	2	7	6	106	85	54	63	135	168	144
DIPHENYL ETHER HERBICIDES	4	4	4	2	2	14	18	57	29	57	75	122
METHYLTHIOTRIAZINE HERBICIDES	64	93	106	88	82	65	60	56	97	74	88	73
UREA HERBICIDES	106	100	126	130	121	215	162	137	80	81	73	66
PHENOXY HERBICIDES	94	118	65	81	96	94	101	93	72	57	145	64
TRIAZINONE HERBICIDES	32	30	35	43	40	45	43	42	32	31	49	62
ORGANOPHOSPHORUS HERBICIDES	21	76	83	143	119	16	43	55	28	47	53	47
BIPYRIDYLIUM HERBICIDES	326	307	258	300	326	118	193	166	25	26	34	42
ANILIDE HERBICIDES	2	2	3	3	3	20	32	29	21	26	31	36
ARYLOXYPHENOXYPROPIONIC HERBICIDES	2	42	38	46	43	45	46	37	19	22	23	27
NITRILE HERBICIDES	-	-	-	-	-	12	11	8	3	8	15	25
BIS-CARBAMATE HERBICIDES	2	2	2	2	-	3	4	1	6	9	16	19
CYCLOHEXANEDIONE HERBICIDES	12	17	21	22	22	30	28	24	22	22	18	17
UNCLASSIFIED HERBICIDES	-	-	-	-	-	14	9	8	13	14	631	17
DIAZINE HERBICIDES	-	-	-	2	18	16	14	15	10	16	19	16
URACIL HERBICIDES	1	1	3	3	3	2	2	0	12	13	13	13
PYRIDAZINONE HERBICIDES	-	-	-	-	-	-	-	-	5	16	11	11
BENZOFURANE HERBICIDES	-	-	-	-	-	0	0	0	2	2	7	8
IMIDAZOLINONE HERBICIDES	-	-	0	-	-	-	-	-	2	4	5	5
PYRIDINECARBOXYLIC-ACID HERBICIDES	1	1	1	1	1	1	1	1	2	2	2	2
SULFONYLUREA HERBICIDES	-	0	0	0	0	0	0	0	1	1	1	1
CARBAMATE HERBICIDES	7	-	-	-	-	25	23	18	36	34	0	0
ISOXAZOLE HERBICIDES	-	-	-	-	-	-	-	c	c	c	c	c
TRIKETONE HERBICIDES	-	-	-	-	-	36	32	36	-	0	-	0
THIOCARBAMATE HERBICIDES	29	14	43	19	23	326	306	342	-	76	1	0
BENZOIC-ACID HERBICIDES	-	-	-	-	-	51	60	1	7	4	3	-
TRIAZOLE HERBICIDES	-	-	-	-	-	-	-	-	-	-	0	-
PYRIDYLOXYACETIC-ACID HERBICIDES	-	-	-	-	-	-	4	4	-	-	-	-
QUINOLINE HERBICIDES	-	9	30	44	58	-	-	-	-	-	-	-
Grand Total	1574	1907	1742	2005	2159	2326	2823	2804	2183	2181	3085	2439

Table 5.9.4: Top-5 herbicide chemical classes applied to vegetable crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
DINITROANILINE HERBICIDES	0.29	PHENOXY HERBICIDES	0.41	**DINITROANILINE HERBICIDES**	2.63
CHLOROACETANILIDE HERBICIDES	0.25	**DINITROANILINE HERBICIDES**	0.27	**THIADIAZINE HERBICIDES**	2.18
THIADIAZINE HERBICIDES	0.24	*CHLOROACETANILIDE HERBICIDES*	0.19	PHENOXY HERBICIDES	0.36
UREA HERBICIDES	0.15	**THIADIAZINE HERBICIDES**	0.06	NITRILE HERBICIDES	0.01
PHENOXY HERBICIDES	0.11	DIAZINE HERBICIDES	0.04		
DE		**EE**		**EL**	
DINITROANILINE HERBICIDES	0.58	METHYLTHIOTRIAZINE HERBICIDES	0.19	**DINITROANILINE HERBICIDES**	0.11
THIADIAZINE HERBICIDES	0.25	**THIADIAZINE HERBICIDES**	0.11	BIPYRIDYLIUM HERBICIDES	0.06
DIPHENYL ETHER HERBICIDES	0.16	**DINITROANILINE HERBICIDES**	0.06	AMIDE HERBICIDES	0.03
TRIAZINONE HERBICIDES	0.07	PYRIDINECARBOXYLIC-ACID H	0.05	*CHLOROACETANILIDE HERBICIDES*	0.02
DIAZINE HERBICIDES	0.06			URACIL HERBICIDES	0.02
ES		**FR**		**IE**	
DINITROANILINE HERBICIDES	0.31	**DINITROANILINE HERBICIDES**	0.65	*CHLOROACETANILIDE HERBICIDES*	2.27
AMIDE HERBICIDES	0.12	**THIADIAZINE HERBICIDES**	0.58	**DINITROANILINE HERBICIDES**	0.08
DIPHENYL ETHER HERBICIDES	0.09	*CHLOROACETANILIDE HERBICIDES*	0.26	ANILIDE HERBICIDES	0.06
BIPYRIDYLIUM HERBICIDES	0.08	DIPHENYL ETHER HERBICIDES	0.15	CYCLOHEXANEDIONE HERBICIDES	0.04
TRIAZINONE HERBICIDES	0.05	AMIDE HERBICIDES	0.15		
IT		**LV**		**LT**	
DINITROANILINE HERBICIDES	0.60	METHYLTHIOTRIAZINE HERBICIDES	0.20	METHYLTHIOTRIAZINE HERBICIDES	0.30
AMIDE HERBICIDES	0.08	**THIADIAZINE HERBICIDES**	0.03	**THIADIAZINE HERBICIDES**	0.03
TRIAZINONE HERBICIDES	0.03	PYRIDINECARBOXYLIC-ACID H	0.02	**DINITROANILINE HERBICIDES**	0.02
CHLOROACETANILIDE HERBICIDES	0.03	**DINITROANILINE HERBICIDES**	0.02	PYRIDINECARBOXYLIC-ACID HERBICIDES	0.02
UNCLASSIFIED HERBICIDES	0.02	ARYLOXYPHENOXYPROPIONIC HERBICIDES	0.01		
HU		**NL**		**AT**	
CHLOROACETANILIDE HERBICIDES	0.42	**DINITROANILINE HERBICIDES**	0.24	**THIADIAZINE HERBICIDES**	0.67
METHYLTHIOTRIAZINE HERBICIDES	0.18	UREA HERBICIDES	0.15	**DINITROANILINE HERBICIDES**	0.28
DINITROANILINE HERBICIDES	0.09	ANILIDE HERBICIDES	0.11	PHENOXY HERBICIDES	0.25
ARYLOXYPHENOXYPROPIONIC H	0.01	**THIADIAZINE HERBICIDES**	0.08	ANILIDE HERBICIDES	0.16
		BIPYRIDYLIUM HERBICIDES	0.05		
PL		**PT**		**SI**	
CHLOROACETANILIDE HERBICIDES	0.26	**DINITROANILINE HERBICIDES**	0.11	METHYLTHIOTRIAZINE HERBICIDES	0.64
UREA HERBICIDES	0.14	TRIAZINONE HERBICIDES	0.04	DIAZINE HERBICIDES	0.13
DINITROANILINE HERBICIDES	0.12	**THIADIAZINE HERBICIDES**	0.03	DIPHENYL ETHER HERBICIDES	0.10
BIS-CARBAMATE HERBICIDES	0.04	ARYLOXYPHENOXYPROPIONIC HERBICIDES	0.02	BIPYRIDYLIUM HERBICIDES	0.03
PYRIDAZINONE HERBICIDES	0.04	DIPHENYL ETHER HERBICIDES	0.01	ARYLOXYPHENOXYPROPIONIC H	0.03
SK		**FI**		**SE**	
METHYLTHIOTRIAZINE HERBICIDES	0.20	DIPHENYL ETHER HERBICIDES	0.71	**THIADIAZINE HERBICIDES**	1.07
DINITROANILINE HERBICIDES	0.13	UREA HERBICIDES	0.31	**DINITROANILINE HERBICIDES**	0.63
THIADIAZINE HERBICIDES	0.13	**THIADIAZINE HERBICIDES**	0.29	PYRIDINECARBOXYLIC-ACID H	0.26
CHLOROACETANILIDE HERBICIDES	0.10	**DINITROANILINE HERBICIDES**	0.14	NITRILE HERBICIDES	0.04
DIAZINE HERBICIDES	0.07	TRIAZINONE HERBICIDES	0.09	ORGANOPHOSPHORUS HERBICIDES	0.03
UK					
TRIAZINE HERBICIDES	1.25				
CHLOROACETANILIDE HERBICIDES	0.55				
THIADIAZINE HERBICIDES	0.43				
PHENOXY HERBICIDES	0.38				
DINITROANILINE HERBICIDES	0.31				

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Table 5.9.5: Chemical classes of insecticides applied to vegetable crops (in tonnes of AS)

CHEMICAL CLASSES	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
ORGANOPHOSPHORUS INSECTICIDES	347	423	480	448	461	578	637	549	543	635	615	556
OXIME-CARBAMATE INSECTICIDES	78	75	82	86	90	96	106	138	288	260	268	341
CARBAMATE INSECTICIDES	138	107	105	128	109	74	92	124	172	170	150	123
PYRIDYLMETHYLAMINE INSECTICIDES	0	8	10	14	16	37	36	47	38	43	39	46
ORGANOCHLORINE INSECTICIDES	22	26	46	49	69	59	90	95	65	86	132	43
PYRETHROID INSECTICIDES	29	31	32	91	106	33	32	53	34	44	41	35
UNCLASSIFIED INSECTICIDES	10	10	13	14	17	12	16	18	23	17	18	21
ORGANOTIN INSECTICIDES	16	16	16	17	13	12	10	14	22	18	16	19
ANTIBIOTIC INSECTICIDES	0	0	1	1	1	1	1	1	1	1	13	14
PYRIDINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
NITROGUANIDINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
SULFITE ESTER INSECTICIDES	36	37	49	22	21	15	20	27	25	26	25	7
DIAZYLHYDRAZINE INSECTICIDES	-	-	-	-	-	0	9	10	6	7	9	6
BENZOYLUREA INSECTICIDES	2	2	2	8	8	8	11	11	7	7	7	6
INSECT GROWTH REGULATORS	6	6	8	10	7	8	9	8	8	8	7	6
OXADIAZINE INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
PYRAZOLE (PHENYL-) INSECTICIDES	-	0	0	0	1	1	1	2	2	3	5	5
AMIDINE INSECTICIDES	-	-	2	3		2	6	7	1	6	5	3
(CARBAMOYL-) TRIAZOLE INSECTICIDES	-	-	-	c	c	c	c	c	c	c	c	c
TETRAZINE INSECTICIDES	c	c	c	c	c	c	c	c	c	c	c	c
UREA INSECTICIDES	-	-	-	-	-	-	-	c	c	c	c	c
PHENYL-ETHER INSECTICIDES	-	-	-	-	-	c	c	c	c	c	c	c
BIOLOGICAL INSECTICIDES	-	-	-	-	1	0	-	-	-	-	-	-
Grand Total	685	742	846	889	919	939	1078	1105	1247	1344	1371	1256

Table 5.9.6: Top-5 insecticide chemical classes applied to vegetables crops in the different countries (in kg AS/ha)

BE+LU		CZ		DK	
ORGANOPHOSPHORUS I	0.36	PYRETHROID INSECTICIDES	0.03	**CARBAMATE INSECTICIDES**	0.65
CARBAMATE INSECTICIDES	0.10			PYRETHROID INSECTICIDES	0.25
OXIME-CARBAMATE INSECTICIDES	0.05			PYRIDYLMETHYLAMINE I	0.06
ANTIBIOTIC INSECTICIDES	0.01			**ORGANOPHOSPHORUS I**	0.03
ORGANOTIN INSECTICIDES	0.01				
DE		**EL**		**ES**	
CARBAMATE INSECTICIDES	0.04	**ORGANOPHOSPHORUS I**	0.30	*OXIME-CARBAMATE INSECTICIDES*	0.71
ORGANOPHOSPHORUS INSECTICIDES	0.03	*OXIME-CARBAMATE INSECTICIDES*	0.11	**ORGANOPHOSPHORUS I**	0.48
		CARBAMATE INSECTICIDES	0.04	PYRIDYLMETHYLAMINE INSECTICIDES	0.07
		PYRIDYLMETHYLAMINE I	0.02	**CARBAMATE INSECTICIDES**	0.06
		UNCLASSIFIED INSECTICIDES	0.02	ORGANOCHLORINE INSECTICIDES	0.04
FR		**IE**		**IT**	
ORGANOPHOSPHORUS IN	0.29	**ORGANOPHOSPHORUS I**	0.37	**ORGANOPHOSPHORUS I**	0.21
CARBAMATE INSECTICIDES	0.03	(CARBAMOYL-) TRIAZOLE I	c	OXIME-CARBAMATE INSECTICIDES	0.07
OXIME-CARBAMATE INSECTICIDES	0.03			**CARBAMATE INSECTICIDES**	0.05
PYRETHROID INSECTICIDES	0.01			ORGANOCHLORINE INSECTICIDES	0.05
PYRIDINE INSECTICIDES	c			ORGANOTIN INSECTICIDES	0.03
LT		**LT**		**HU**	
UREA INSECTICIDES	c	**ORGANOPHOSPHORUS I**	0.07	**ORGANOPHOSPHORUS I**	0.16
NITROGUANIDINE INSECTICIDES	c	NITROGUANIDINE INSECTICIDES	c	*OXIME-CARBAMATE INSECTICIDES*	0.02
				PYRETHROID INSECTICIDES	0.01
				NITROGUANIDINE INSECTICIDES	c
				CARBAMATE INSECTICIDES	0.01
NL		**AT**		**PL**	
CARBAMATE INSECTICIDES	0.25	**ORGANOPHOSPHORUS I**	0.21	**ORGANOPHOSPHORUS I**	0.35
ORGANOPHOSPHORUS I	0.18	*OXIME-CARBAMATE INSECTICIDES*	0.02	**CARBAMATE INSECTICIDES**	0.02
OXIME-CARBAMATE INSECTICIDES	0.03	PYRETHROID INSECTICIDES	0.02	PYRETHROID INSECTICIDES	0.01
PYRIDINE INSECTICIDES	c			NITROGUANIDINE INSECTICIDES	c
PYRETHROID INSECTICIDES	0.02				
PT		**SI**		**SK**	
ORGANOPHOSPHORUS IN	0.20	**ORGANOPHOSPHORUS I**	0.90	**ORGANOPHOSPHORUS I**	0.27
OXIME-CARBAMATE INSECTICIDES	0.14	NITROGUANIDINE INSECTICIDES	c	NITROGUANIDINE INSECTICIDES	c
CARBAMATE INSECTICIDES	0.08	**CARBAMATE INSECTICIDES**	0.04		
PYRIDYLMETHYLAMINE I	0.01	ANTIBIOTIC INSECTICIDES	0.02		
ORGANOCHLORINE INSECTICIDES	0.01	PYRIDINE INSECTICIDES	c		
FI		**SE**		**UK**	
CARBAMATE INSECTICIDES	0.32	**ORGANOPHOSPHORUS IN**	0.77	**CARBAMATE INSECTICIDES**	0.13
ORGANOPHOSPHORUS I	0.03	PYRIDYLMETHYLAMINE I	0.02	*OXIME-CARBAMATE INSECTICIDES*	0.10
PYRIDYLMETHYLAMINE INSECTICIDES	0.01			PYRETHROID INSECTICIDES	0.03
				PYRIDINE INSECTICIDES	c

First chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Second chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.
Third chemical class appearing the most frequently in the 5 classes used with the highest dosages in the different Member States.

Chapter 6

Methodological notes

6.1 Data source

Introduction

The data presented in this publication has been prepared for Eurostat by the European Crop Protection Association (ECPA) which is the pan-European voice of the crop protection industry. Its membership includes both national associations and companies throughout Europe, including Central and Eastern Europe.

In 2005 ECPA performed its third data collection project on behalf of Eurostat, submitting detailed pesticide use data from across the European Union. The 2005 project covered the period of 2000-2003. ECPA's data collection work for Eurostat started in the '90s, first covering a five-year time frame from 1992 to 1996 and then submitting data for 1997-1999. After the publication of the 1997-1999 report the data was reviewed and compared with other sources and a number of differences and concerns about the accuracy of the data were highlighted.

Following these concerns about the data, ECPA adapted its methodology for the 2000-2003 survey.

Sources of information collected by ECPA

Data was submitted in July 2005 by ECPA's full member companies: BASF, Bayer Cropscience, Dow AgroSciences, Du Pont de Nemours, Monsanto and Syngenta. Together these companies represent about 80 to 90% of the total crop protection market in Europe. In addition to the information on their own company products, estimations are also made on sales of relevant substances by competitors.

Data came from the existing 15 member states as well as 8 of the 10 new Member States including; Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia. No data, or no reliable data, was available for Cyprus and Malta. From the new Member States, Hungary, Czech Republic and Poland held the most comprehensive information.

Eurostat defined the main crop classes that should be covered as: beets, cereals, citrus, crops unspecified, fodder, grapes, horticulture, industrial, maize, non crop, oilseeds, potatoes, top fruit and vegetables.

As a side note, some members reported for the first time in 2000-2003 PPP usage on olives, soya beans, tobacco and cotton. While these crops were not specifically asked for, ECPA decided to include the data.

It is important to note that the data collected by ECPA is on the use of plant protection products, and not their sale. Information about the use of the product is very important to ECPA member companies themselves, in their efforts to understand usage trends in order to respond to market changes. The information collected by the companies is of commercial value and is used to assist companies when making key business decisions. It should be noted that the sources of information mentioned are also used by the companies when responding to EU-questionnaires, particularly in response to Commission investigations into mergers and consolidations in the PPP industry.

Sales and use data is collected by the market research departments or agricultural branches of the companies. Methods of collecting data vary between the companies; however there are four main methods of data collection, which are often used in combination. These methods are:

1. **Farmer panels** - Companies work with market research institutes to interview panels of farmers. These panels attempt to profile a statistically significant number of farmers in order to give companies data about the use of products in the country where the survey was carried out. This data is then used to extrapolate the likely total uses of these products on different crops. This is a 'bottom up' approach, in contrast to the expert analysis approach outlined below. It should be noted that panels are very expensive and companies need to make commercial decisions on which markets they require such extensive information. Panel work is therefore concentrated on the major crops and the largest countries.

Table 6.1.1: Farmer panels carried out to collect data.

Country	Crops where panels were performed									
	cereal	citrus	fruit tree	maize	oilseed	potato	sugar beet	vegetables	vineyard	other
Austria	■		▒	■	▒	▒	■		■	▒
Belgium	■		■	▒		■	■	▒	▒	
Czech Republic	■		▒	■	■	▒	▒	▒	▒	▒
Denmark	■			▒			▒	▒		
Finland										
France	■		■	■	■	■	■	■	■	■
Germany	■		■	■	■	■	■	■	■	▒
Greece			▒			▒	▒	▒	▒	▒
Hungary	■		■	■	■	■	■	▒	■	■
Ireland										
Italy	▒		▒	▒	▒	▒	▒	▒	▒	▒
Latvia										
Lithuania										
Poland	■		■	▒	■	■	■	■		▒
Portugal	▒		▒	▒		▒	▒	▒	▒	▒
Slovakia	▒			▒	▒	▒	▒		▒	▒
Slovenia				▒						
Spain	■	■	■	■	▒	■	■	■	■	▒
Sweden										
The Netherlands	▒		▒	▒		▒	▒	▒		▒
United Kingdom	■		▒	▒	■	■	■	▒		▒

■ Farmer panels were performed by more than 50% of companies during 2000 – 2003

▒ Farmer panels were performed by less than 50% of companies during 2000 – 2003

No farmer panels were carried during 2000 – 2003

2. **External industry research** – sales data, trade statistics, quantitative analyses, product studies, contact with suppliers and other industry experts. External experts are contracted to analyse the sales situation and to estimate to what extent the product has been used. For example, SIGMA is a form of expert analysis offered by an external provider, and collects 'top down' information from a number of industry experts in each country.

3. **Internal company analysis** – Companies use their own expertise within countries to determine the usage of their products, and that of competitors. This data is collected and coordinated at both European and global levels.

Table 6.1.2: data collection methods used in the different Member states

Country	Research undertaken during 2000 – 2003
Austria	Farmer panels External industry research Internal company analysis
Belgium	Farmer panels Internal company analysis
Czech Republic	Farmer panels External industry research Internal company analysis
Denmark	Farmer panels External industry research
Estonia	Internal company analysis
Finland	Internal company analysis
France	Farmer panels External industry research
Germany	Farmer panels External industry research
Greece	Farmer panels External industry research Internal company analysis
Hungary	Farmer panels External industry research
Ireland	Internal company analysis
Italy	External industry research Internal company analysis
Latvia	Internal company analysis
Lithuania	Internal company analysis
Poland	Farmer panels External industry research Internal company analysis
Portugal	Farmer panels Internal company analysis External industry research
Slovakia	Farmer panels Internal company analysis
Slovenia	Internal company analysis
Spain	Farmer panels External industry research
Sweden	Internal company analysis External industry research
The Netherlands	Farmer panels External industry research
United Kingdom	Farmer panels External industry research

Sales by other manufacturers

It is important to note that whenever important active ingredients were marketed in substantial amounts by distributors other than the ECPA member companies, the original manufacturer of the compound estimated the full amount used in the market, apart from his own sales, to give a representative view of the total volume. Volumes of active substances were extracted from commercially formulated products according to their active substance content in % (w/w) or g/l (w/v). Original product trade names or companies' names are deleted in the final database.

Limitations of the data provided by ECPA

While the companies involved invest a large amount of money, there are clear limitations to the data collected. When considering these limitations, it should be remembered that:

Panels are not carried out for all crops, neither are they carried out in all countries. Panel information is considered to be the most accurate but, given the high cost involved, this data is not always available. It should also be noted that panels can only be 'representative' (they are not a census), and the result will clearly deviate from the actual usage by farmers in a particular country. Accuracy of data can also be limited due to lack of clarity by farmers regarding actual formulations used and therefore the volume of active substance in the product.

Where panels are not possible, the data collected is based on the views of both internal and external experts. While a lot of this information is based on informal contact with farmers, growers and their advisers, there will clearly be differences between these knowledgeable views and the actual use by farmers.

ECPA member companies only represent 80-90% of total usage. Whilst knowledge regarding usage of members' own products is good, information about the usage of products from other manufacturers is less well known. However, rather than leave gaps ECPA members do provide best available information on usage of other products.

ECPA's data has been compared with data collected in the Member States with fairly large variations. While there are limitations in the ECPA data, it should be pointed out that there are also limitations in the use data collected by other sources. For example, sales data submitted by national organisations comprise all uses and chemical classes of crop protection products as calendar year sales. Some chemicals may represent substantial volumes, e.g. (soil) sterilants/disinfectants, which are not always included in ECPA's data categorized as 'Other PPP'. Large differences may also result between ECPA data and industry association data in countries with substantial PPP use on minor crops, which is not included in ECPA's report.

The same is true for some crops. While data for sugar beets, maize, potatoes, citrus and vineyards are generally allocated directly to the target crops due to their crop-specific action, some compounds with broad use spectrums, where the final target crop was not identifiable, were reported for groups of crops only: cereals, fruits and vines, oilseeds, and vegetables containing any of the specified crops in varying ratios. Therefore for comparisons of use, the crop group level is the more reliable data basis. Wherever possible, PPP use was allocated pro rata to individual crops (wheat and barley; fruit trees and vineyards) according to suggestions by the company reporting.

Care also needs to be taken when comparing data from these surveys and the data provided by ECPA, as the scope and coverage of the surveys varies. One major difference was the exclusion of molluscicides, soil sterilants, nematicides and growth regulators by ECPA in the 1997 – 1999 project, which were included in the national usage surveys. However for the 2000-2003 molluscicides, soil sterilants, nematicides and growth regulators have been reported, as far as they were used in the key crops.

In summary, it should not however be assumed that one source is better than another – as both data sets are based on extrapolated estimates.

6.2 Crop coverage and calculation methods

The crops covered represent the majority of the significant applications of PPP in the EU. Although data was provided for most crops at a very detailed level, it was decided for the purpose of this presentation to regroup them by categories of crops like cereals, fruit trees or vegetables. This simplification allows better comparisons between the three successive sets of data. The main categories of crops with the different specific crops they include are presented in table 6.2.3. The area cultivated for the different categories of crops in the different Member States were extracted from Eurostat data base on crop products (agriculture statistics). The figures for the total area of arable crops and for the total usable agricultural area (UAA) were extracted from the Land Use database. The figures for the area cultivated with non specified crops, regrouped under 'other arable crops, were obtained as the difference between the total area of arable crops and the area cultivated with the different specific categories of crops.

Dosages of PPP are theoretical dosages calculated dividing the quantity of active substance used in each crop by the area occupied by this crop. These are not the real dosages applied by the farmers on the crops.

Table 6.1.3: Breakdown of crops

Crop types	Crop groups	Crops
Arable crops	Cereals	▪ All cereals excluding grain maize
	Maize	▪ Grain maize
		▪ Green silage maize
	Oilseeds	▪ Rape (winter- and spring rape)
		▪ Sunflower seed
		▪ Oil flax
		▪ Soya beans
	Potatoes	▪ Ware- and seed potatoes including 'starch potatoes'
	Sugar beet	▪ Sugar beet
		▪ Chicorey for inuline production
	Other arable crops	▪ All other arable crops: area calculated as the difference between the total area for arable crops and the sum of the areas for the specific crops listed above.
Speciality crops	Citrus	▪ All types of citrus
	Grapes and vines	▪ Grapes
		▪ Vines
	Fruit trees	▪ Pome fruits
		▪ Stone fruits
		▪ Orchards
		▪ Non specified fruits
		▪ Olive trees are excluded from the area cultivated.
	Vegetables	▪ The area is the total area cultivated with vegetables including kitchen gardens; it covers:
		▪ Brassicas
		▪ Cucurbits
		▪ Tomatoes
		▪ Root and tuber vegetables
		▪ Pulses
		▪ Other vegetables

6.3 Links for further reading

European Commission

DG Eurostat: This CIRCA website contains most of the working documents from the Eurostat expert group on pesticide statistics concerning, legislative aspects, harmonised classification, national pilot projects, etc.
http://forum.europa.eu.int/Public/irc/dsis/pip/library (Section Pesticide Statistics)

DG Environment: Sustainable Use of Pesticides
http://ec.europa.eu/environment/ppps/home.htm

DG Health & Consumer Protection
http://ec.europa.eu/dgs/health_consumer/index_en.htm
Existing PPP active substances
http://ec.europa.eu/food/plant/protection/evaluation
Results from pesticide residues monitoring programme from the Food and Veterinary Office
http://ec.europa.eu/food/fvo/index_en.htm

International Organisations

FAO: http://www.fao.org/ag/agp/agpp/pesticid/Body.htm
OECD: http://www.oecd.org/home
World Health Organisation, WHO: http://www.who.int/topics/pesticides/en
European and Mediterranean Plant protection Organization - EPPO:
http://www.eppo.org/PPPRODUCTS/products.htm

National Institutions and Organisations

Belgium
Pesticide Evaluation Committee: http://www.phytoweb.fgov.be
Belgian Association of PPP Industry, Phytophar Recover: http://www.phytofar.be
Czech Republic
State Phytosanitary Administration: http://www.srs.cz
Denmark
Danish Environmental Protection Agency: http://glwww.mst.dk/homepage
Danish Plant Protection Association: http://www.plantevaern.dk
Germany
Biologischen Bundesanstalt für Land- und Forstwirtschaft, BBA: http://www.bba.bund.de
Industrieverband Agrar (IVA): http://www.iva.de
Estonia
Plant Production Inspectorate: http://saku.plant.agri.ee
Greece
Ministry of Agriculture: http://www.minagric.gr
Hellenic Crop Protection Association: http://www.esyf.gr
Spain
Ministry of Agriculture, Fisheries and Food, MAPYA: http://www.mapya.es
National Association of PPP Industry, AEPLA: http://www.aepla.es
France
Ministry of Agriculture and Fishery, Register of authorised PPP: http://e-phy.agriculture.gouv.fr
Institut Français de l'Environnement: http://www.ifen.fr
French Plant Protection Association, UIPP: http://www.uipp.org
Ireland
Department of Agriculture and Food: http://www.agriculture.gov.ie
Pesticide Control Service: http://www.pcs.agriculture.gov.ie
Animal and Plant Health Association: http://www.apha.ie
Italy
Ministry of Health: http://www.ministerosalute.it
National Institute for Agricultural Economy: http://www.inea.it

Italian Association of PPP Industry: **http://agrofarma.federchimica.it**
Cyprus
Ministry of Agriculture, Natural Resources and Environment: **http://www.moa.gov.cy**
Latvia
State Plant Protection Service: **http://www.vaad.gov.lv**
Lithuania
State Plant Protection Service: **http://www.vaat.lt**
Luxembourg
Administration des services techniques de l'agriculture: **http://www.securite-alimentaire.public.lu**
Hungary
Central service for Plant Protection and Soil Conservation: **http://www.ontsz.hu/registration**
Malta
Plant Health Department, Ministry for Rural Affairs and the Environment**:** **http://www.planthealth.gov.mt**
Netherlands
Pesticide Evaluation Committee: **http://www.ctb-wageningen.nl**
Dutch Plant Protection Association: **http://www.nefyto.nl**
Austria
Minsitry of Environment - Umweltbundesamt: **http://www.umweltbundesamt.at**
Austrian Chemical Association – FCIO: **http://www.fcio.at**
Poland
Plant Protection Institute: **http://www.ior.gliwice.pl**
Portugal
Ministry of Agriculture: **http://www.dgpc.min-agricultura.pt**
National Association of PPP Industry, ANIPLA: **http://www.anipla.com**
Slovenia
Phytosanitary Administration of the Republic of Slovenia (PARS): **http://www.furs.si/en/Index.asp**
Slovakia
Central Controlling and Testing Institute in Agriculture (ÚKSÚP): **http://www.uksup.sk**
Finland
Finnish Food Safety Authority, Evira: **http://www.evira.fi/portal/en**
Finnish Crop Protection Association: **http://www.kaste.net**
Sweden
Swedish Chemicals Agency: **http://www.kemi.se**
Swedish Crop Protection Association: **http://www.svensktvaxtskydd.info**
United Kingdom
Pesticide Safety Directorate: **http://www.pesticides.gov.uk**
Central Science Laboratory, CSL: **http://www.csl.gov.uk**
Department for Environment Food and Rural Affairs: **http://www.defra.gov.uk**
Crop Protection Association, CPA: **http://www.cropprotection.org.uk**

Non Governmental Organisations

European Environmental Bureau, EEB: **http://www.eeb.org**
Pesticide Action Network, PAN: **http://www.pan-europe.info**

European Industry Associations:

European Crop Protection Association, ECPA: **http://www.ecpa.be/website/index.asp**
International Biocontrol Manufacturers Organisation, IBMA: **http://www.ibma.ch**
Croplife International: **http://www.croplife.org**

Specialised Information on Pesticides:

Compendium of Pesticide Common Names: **http://www.alanwood.net/pesticides**
Collaborative International Pesticides Analytical Council, CIPAC: **http://www.cipac.org**

Annexes

Classification of active substances

Active substances by chemical class and category of products

MAJOR GROUPS & *Categories of products*	CHEMICAL CLASSES	ACTIVE SUBSTANCES
Fungicides and Bactericides		
Inorganic fungicides	COPPER COMPOUNDS	COPPER
		COPPER CARBONATE
		COPPER CHELATE
		COPPER HYDROXIDE
		COPPER OXIDE
		COPPER OXYCHLORIDE
		COPPER SALT
		COPPER SULPHATE
		OXINE-COPPER
		TETRACOPPER-TRICALCIUMSULFATE
	INORGANIC SULPHUR	SULPHUR
Fungicides based on carbamates and dithiocarbamates	CARBANILATE FUNGICIDES	DIETHOFENCARB
	CARBAMATE FUNGICIDES	IPROVALICARB
		PROPAMOCARB
		PROTHIOCARB
	DITHIOCARBAMATE FUNGICIDES	MANCOZEB
		MANEB
		METIRAM
		PROPINEB
		THIRAM
		ZINEB
		ZIRAM
Fungicides based on benzimidazoles	BENZIMIDAZOLE FUNGICIDES	BENOMYL
		CARBENDAZIM
		FUBERIDAZOLE
		THIABENDAZOLE
		THIOPHANATE-METHYL
Fungicides based on imidazoles and triazoles	CONAZOLE FUNGICIDES	BITERTANOL
		BROMUCONAZOLE
		CYPROCONAZOLE
		DIFENOCONAZOLE
		DINICONAZOLE
		EPOXICONAZOLE
		EPOXYCONAZOLE
		ETRIDIAZOLE
		FENBUCONAZOLE
		FLUQUINCONAZOLE
		FLUSILAZOLE
		FLUTRIAFOL
		HEXACONAZOLE
		IMAZALIL
		METCONAZOLE
		MYCLOBUTANIL
		PENCONAZOLE
		PROPICONAZOLE
		TEBUCONAZOLE
		TETRACONAZOLE
		TRIADIMEFON
		TRIADIMENOL
		TRIFLUMIZOLE

		TRITICONAZOLE
	IMIDAZOLE FUNGICIDES	CHLOZOLINATE
		FENAMIDONE
		IPRODIONE
		TRIAZOXIDE
Fungicides based on morpholines	MORPHOLINE FUNGICIDES	ALDIMORPH
		DIMETHOMORPH
		FENPROPIMORPH
		TRIDEMORPH
Other fungicides	ALIPHATIC NITROGEN FUNGICIDES	CYMOXANIL
		DODINE
		GUAZATINE
	AMIDE FUNGICIDES	BENALAXYL
		BOSCALID
		DICHLOFLUANID
		FENFURAM
		FLUTOLANIL
		FURALAXYL
		MEPRONIL
		METALAXYL
		METALAXYL-M
		OFURACE
		PROCHLORAZ
		TOLYLFLUANID
		TRIFORINE
		ZOXAMIDE
	ANILIDE FUNGICIDES	CARBOXIN
		FENHEXAMID
	ANTIBIOTIC FUNGICIDES-BACTERICIDES	VALIDAMYCIN
	AROMATIC FUNGICIDES	CHLOROTHALONIL
		DICLORAN
		QUINTOZENE
	DICARBOXIMIDE FUNGICIDES	PROCYMIDONE
	DINITROANILINE FUNGICIDES	FLUAZINAM
		PYRIFENOX
	DINITROPHENOL FUNGICIDES	DINOCAP
		DNOC
	ORGANOPHOSPHORUS FUNGICIDES	FOSETYL
		PYRAZOPHOS
		TOLCLOFOS
		TOLCLOFOS-METHYL
	OXAZOLE FUNGICIDES	FAMOXADONE
		HYMEXAZOL
		OXADIXYL
		VINCLOZOLIN
	PHENYLPYRROLE FUNGICIDES	FENPICLONIL
		FLUDIOXONIL
	PHTHALIC ACID FUNGICIDES	CAPTAN
		FOLPET
	PYRIMIDINE FUNGICIDES	BUPIRIMATE
		CYPRODINIL
		ETHIRIMOL
		FENARIMOL
		NUARIMOL
		PYRIMETHANIL
	QUINOLINE FUNGICIDES	8-HYDROXYQUINOLINE SULFATE
		9-HYDROXYQUINOLINE SULFATE
		QUINOXYFEN
	QUINONE FUNGICIDES	DITHIANON

	STROBILURINE FUNGICIDES	AZOXYSTROBIN
		DIMOXYSTROBIN
		KRESOXIM-METHYL
		PICOXYSTROBINE
		PYRACLOSTROBIN
		TRIFLOXYSTROBINE
	UREA FUNGICIDES	PENCYCURON
	UNCLASSIFIED FUNGICIDES	ACIBENZOLAR
		ANILAZINE
		BARIUM POLYSULFIDE
		FENPROPIDIN
		FENTIN
		FENTIN ACETATE
		FENTIN HYDROXIDE
		NITROTHAL-ISOPROPYL
		OTHER FUNGICIDES
		QUINOMETHIONATE
		SPIROXAMINE
Herbicides, Haulm Destructors and Moss Killers		
Herbicides based on phenoxy-phytohormones	PHENOXY HERBICIDES	2,4-D
		2,4-DB
		BROMOFENOXIM
		DICHLORPROP
		DICHLORPROP-P
		MCPA
		MCPB
		MECOPROP
		MECOPROP-P
Herbicides based on triazines and triazinones	METHYLTHIOTRIAZINE HERBICIDES	AMETRYN
		ATRAZINE
		AZIPROTRYN
		DESMETRYN
		METHOPROTRYNE
		PROMETRYN
		TERBUTRYN
	TRIAZINE HERBICIDES	ATRAZINE
		CYANAZINE
		PROPAZINE
		SIMAZINE
		TERBUMETON
		TERBUTHYLAZINE
		TRIETAZINE
	TRIAZINONE HERBICIDES	METAMITRON
		METRIBUZIN
Herbicides based on amides and anilides	AMIDE HERBICIDES	DIMETHENAMID
		DIMETHENAMID-P
		FLUPOXAM
		FOMESAFEN
		ISOXABEN
		NAPROPAMIDE
		NAPTALAM
		PROPYZAMIDE
		TEBUTAM
	ANILIDE HERBICIDES	DIFLUFENICAN
		FLORASULAM
		FLUFENACET
		FLUMETSULAM
		MEFENACET
		METOSULAM

		MONALIDE
		PROPANIL
	CHLOROACETANILIDE HERBICIDES	ACETOCHLOR
		ALACHLOR
		DIMETHACHLOR
		FLAMPROP
		FLAMPROP-M
		METAZACHLOR
		METOLACHLOR
		PROPACHLOR
		S-METOLACHLOR
Herbicides based on carbamates and bis-carbamates	BIS-CARBAMATE HERBICIDES	CHLORBUFAM
		CHLORPROPHAM
		DESMEDIPHAM
		PHENMEDIPHAM
		PROPHAM
	CARBAMATE HERBICIDES	ASULAM
		CARBETAMIDE
Herbicides based on dinitroaniline derivatives	DINITROANILINE HERBICIDES	BENFLURALIN
		BUTRALIN
		DINITRAMINE
		ETHALFLURALIN
		ISOPROPALIN
		ORYZALIN
		PENDIMETHALIN
		TRIFLURALIN
Herbicides based on derivatives of urea, of uracil or of sulphonylurea	SULFONYLUREA HERBICIDES	AMIDOSULFURON
		AZIMSULFURON
		BENSULFURON
		CHLORSULFURON
		CHORSULFURON
		ETHOXYSULFURON
		FLAZASULFURON
		FLUPYRSULFURON
		FORAMSULFURON
		IODOSULFURON
		MESOSULFURON
		METSULFURON
		NICOSULFURON
		PRIMISULFURON
		PROSULFURON
		RIMSULFURON
		SULFUROSULFURON
		THIFENSULFURON
		TRIASULFURON
		TRIBENURON
		TRIFLUSULFURON
	URACIL HERBICIDES	BROMACIL
		LENACIL
		TERBACIL
	UREA HERBICIDES	BENZTHIAZURON
		CHLORBROMURON
		CHLOROTOLURON
		CHLORTOLURON
		CYCLURON
		DIFENOXURON
		DIMEFURON
		DIURON
		FENURON

		FLUOMETURON
		ISOPROTURON
		LINURON
		METHABENZTHIAZURON
		METOBROMURON
		METOXURON
		MONOLINURON
		MONURON
		NEBURON
		TEBUTHIURON
		THIDIAZURON
Other herbicides	ARYLOXYPHENOXYPROPIONIC HERBICIDES	CLODINAFOP
		DICLOFOP
		FENOXAPROP
		FENOXAPROP-P
		FLUAZIFOP
		FLUAZIFOP-P-BUTYL
		HALOXYFOP
		HALOXYFOP-R
		PROPAQUIZAFOP
		QUIZALOFOP
		QUIZALOFOP-P
	BENZOFURANE HERBICIDES	BENFURESATE
		ETHOFUMESATE
	BENZOIC-ACID HERBICIDES	CHLORTHAL
		DICAMBA
	BIPYRIDYLIUM HERBICIDES	DIFENZOQUAT
		DIFENZOQUAT-M
		DIQUAT
		PARAQUAT
	CYCLOHEXANEDIONE HERBICIDES	ALLOXYDIM
		CLETHODIM
		CYCLOXYDIM
		SETHOXYDIM
		TEPRALOXYDIM
		TRALKOXYDIM
	DIAZINE HERBICIDES	PYRIDATE
	DICARBOXIMIDE HERBICIDES	CINIDON-ETHYL
		FLUMIOXAZIN
	DIPHENYL ETHER HERBICIDES	ACIFLUORFEN
		ACLONIFEN
		BIFENOX
		FLUORODIFEN
		FLUOROGLYCOFEN
		OXYFLUORFEN
	IMIDAZOLINONE HERBICIDES	IMAZAMETHABENZ
		IMAZAMOX
		IMAZAPYR
		IMAZETHAPYR
	INORGANIC HERBICIDES	SODIUM-CHLORATE
	ISOXAZOLE HERBICIDES	ISOXAFLUTOLE
	MORPHACTIN HERBICIDES	FLURENOL
	NITRILE HERBICIDES	BROMOXYNIL
		DICHLOBENIL
		IOXYNIL
	ORGANOPHOSPHORUS HERBICIDES	GLUFOSINATE
		GLYPHOSATE
	PHENYLPYRAZOLE HERBICIDES	PYRAFLUFEN
	PYRIDAZINONE HERBICIDES	CHLORIDAZON

		FLURTAMONE
		NORFLURAZON
	PYRIDINECARBOXAMIDE HERBICIDES	PICOLINAFEN
		CLOPYRALID
		PICLORAM
	PYRIDYLOXYACETIC-ACID HERBICIDES	FLUROXYPYR
		TRICLOPYR
	QUINOLINE HERBICIDES	QUINCLORAC
		QUINMERAC
	THIADIAZINE HERBICIDES	BENTAZONE
	THIOCARBAMATE HERBICIDES	CYCLOATE
		EPTC
		MOLINATE
		PROSULFOCARB
		THIOBENCARB
		TRI-ALLATE
		VERNOLATE
	TRIAZOLE HERBICIDES	AMITROL
	TRIAZOLINONE HERBICIDES	CARFENTRAZONE
		PROPOXYCARBAZONE
	TRIKETONE HERBICIDES	MESOTRIONE
		SULCOTRIONE
	UNCLASSIFIED HERBICIDES	AZAFENIDIN
		BENAZOLIN
		CLOMAZONE
		DALAPON
		DINOTERB
		FLUROCHLORIDONE
		OTHER HERBICIDES
		OXADIARGYL
		OXADIAZON
		QUINOCLAMINE
		SODIUM-ARSENITE
		TCA
		TRIDIPHANE
Insecticides and Acaricides		
Insecticides based on pyrethroids	PYRETHROID INSECTICIDES	ACRINATHRIN
		ALPHA-CYPERMETHRIN
		BETA-CYFLUTHRIN
		BIFENTHRIN
		BIORESMETHRIN
		CYFLUTHRIN
		CYPERMETHRIN
		DELTAMETHRIN
		ESFENVALERATE
		FENPROPATHRIN
		FENVALERATE
		FLUCYTHRINATE
		LAMBDA-CYHALOTHRIN
		PERMETHRIN
		RESMETHRIN
		TAU-FLUVALINATE
		TEFLUTHRIN
		TRALOMETHRIN
		ZETA-CYPERMETHRIN
Insecticides based on chlorinated hydrocarbons	ORGANOCHLORINE INSECTICIDES	DICOFOL
		ENDOSULFAN
		LINDANE
		TETRADIFON

Insecticides based on carbamates and oxime-carbamate	OXIME-CARBAMATE INSECTICIDES	ALDICARB
		METHOMYL
		OXAMYL
		THIOFANOX
	CARBAMATE INSECTICIDES	BENDIOCARB
		BENFURACARB
		BUTOCARBOXIM
		CARBAMATE INSECTICIDES
		CARBARYL
		CARBOFURAN
		CARBOSULFAN
		ETHIOFENCARB
		FENOTHIOCARB
		FENOXYCARB
		FORMETANATE
		FURATHIOCARB
		METHIOCARB
		PIRIMICARB
		PROPOXUR
Insecticides based on organophosphates	ORGANOPHOSPHORUS INSECTICIDES	ACEPHATE
		AZINPHOS-ETHYL
		AZINPHOS-METHYL
		CADUSAFOS
		CARBOPHENOTHION
		CHLORFENVINPHOS
		CHLORMEPHOS
		CHLORPYRIFOS
		CHLORPYRIFOS-METHYL
		DEMETON-S-METHYL
		DIALIFOS
		DIAZINON
		DICHLORVOS
		DIMETHOATE
		DISULFOTON
		ETHION
		ETHOPROPHOS
		FENAMIPHOS
		FENITROTHION
		FENTHION
		FONOFOS
		FORMOTHION
		HEPTENOPHOS
		ISOFENPHOS
		MALATHION
		METHAMIDOPHOS
		METHIDATHION
		MEVINPHOS
		MONOCROTOPHOS
		NALED
		OMETHOATE
		OXYDEMETON-METHYL
		PARATHION
		PARATHION-METHYL
		PHORATE
		PHOSALONE
		PHOSMET
		PHOSPHAMIDON
		PHOSTHIAZATE
		PHOXIM
		PIRIMIPHOS

		PIRIMIPHOS-METHYL
		PROFENOFOS
		PROFENOFOS Q
		PROTHIOFOS
		QUINALPHOS
		SULFOTEP
		TEMEPHOS
		TERBUFOS
		THIOMETON
		TRIAZOPHOS
		TRICHLORFON
		VAMIDOTHION
Biological and botanical product based Insecticides	BIOLOGICAL INSECTICIDES	BIOLOGICAL
		PYRETHRINS
Other insecticides	ANTIBIOTIC INSECTICIDES	ABAMECTIN
		PROHEXADIONE
		SPINOSAD
	AMIDINE INSECTICIDES	AMITRAZ
	BENZOYLUREA INSECTICIDES	DIFLUBENZURON
		FLUFENOXURON
		HEXAFLUMURON
		LUFENURON
		TEFLUBENZURON
		TRIFLUMURON
	DIAZYLHYDRAZINE INSECTICIDES	METHOXYFENOZIDE
		TEBUFENOZIDE
	INSECT GROWTH REGULATORS	BUPROFEZIN
		CYROMAZINE
		FLUBENZIMINE
		FLUCYCLOXURON
		HEXYTHIAZOX
	NITROGUANIDINE INSECTICIDES	THIAMETHOXAM
	ORGANOTIN INSECTICIDES	AZOCYCLOTIN
		CYHEXATIN
		FENBUTATIN OXIDE
		FENBUTATIN-OXIDE
	OXADIAZINE INSECTICIDES	INDOXACARB
	PHENYL-ETHER INSECTICIDES	PYRIPROXYFEN
	PYRAZOLE (PHENYL-) INSECTICIDES	FENPYROXIMATE
		FIPRONIL
		TEBUFENPYRAD
	PYRIDINE INSECTICIDES	PYMETROZINE
	PYRIDYLMETHYLAMINE INSECTICIDES	IMIDACLOPRID
		THIACLOPRID
	SULFITE ESTER INSECTICIDES	PROPARGITE
	TETRAZINE INSECTICIDES	CLOFENTEZINE
	(CARBAMOYL-) TRIAZOLE INSECTICIDES	TRIAZAMATE
	UREA INSECTICIDES	DIAFENTHIURON
	UNCLASSIFIED INSECTICIDES	BENZOXIMATE
		BROMOPROPYLATE
		CALCIUM-POLYSULFIDE
		CHLORFENAPYR
		CHLORFENSON
		DNOC
		FENAZAQUIN
		OTHER INSECTICIDES
		PYRIDABEN

Molluscicides		
Molluscicides	CARBAMATE MOLLUSCICIDE	THIODICARB
	OTHER MOLLUSCICIDES	METALDEHYDE
		OTHER MOLLUSCICIDES
Plant Growth Regulators, total:		
Physiological Plant growth regulators	PHYSIOLOGICAL PLANT GROWTH REGULATORS	4-CPA
		CALCIUM COMPOUNDS
		CHLORMEQUAT
		CYANAMIDE
		CYCLANILIDE
		ETHEPHON
		IMAZAQUIN
		MALEIC HYDRAZIDE
		MEPIQUAT
		PACLOBUTRAZOL
		PROHEXADIONE-CALCIUM
		SODIUM 5-NITROGUAIACOLATE
		SODIUM ORTHONITROPHENOLATE
		SODIUM PARANITROPHENOLATE
		TRIAPENTHENOL
		TRINEXAPAC-ETHYL
Other plant growth regulators	OTHER PLANT GROWTH REGULATORS	OTHER PGR
Other Plant Protection Products		
Mineral oils	MINERAL OIL	PETROLEUM OILS
Soil sterilants (incl. Nematicides)	OTHER SOIL STERILANTS	1,3-DICHLOROPROPENE
		1.3-DICHLOROPROPENE
		DAZOMET
		OTHER NEMATICIDES
Rodenticides	RODENTICIDES	CHOLINE CHLORIDE
All other plant protection products	OTHER PLANT PROTECTION PRODUCTS	

From active substances to chemical classes

Active substances in italics are covered by confidentiality.

Action: F = fungicide; H = herbicide; I = insecticide; PGR = plant growth regulator; ZR = Other PPP.

ACTIVE SUBSTANCES	CHEMICAL CLASSES	ACTION
A		
ABAMECTIN	ANTIBIOTIC INSECTICIDES	I
ACEPHATE	ORGANOPHOSPHORUS INSECTICIDES	I
ACETOCHLOR	CHLOROACETANILIDE HERBICIDES	H
ACIBENZOLAR	UNCLASSIFIED FUNGICIDES	F
ACIFLUORFEN	DIPHENYL ETHER HERBICIDES	H
ACLONIFEN	DIPHENYL ETHER HERBICIDES	H
ACRINATHRIN	PYRETHROID INSECTICIDES	I
ALACHLOR	CHLOROACETANILIDE HERBICIDES	H
ALDICARB	OXIME-CARBAMATE INSECTICIDES	I
ALDIMORPH	MORPHOLINE FUNGICIDES	F
ALLOXYDIM	CYCLOHEXANEDIONE HERBICIDES	H
ALPHA-CYPERMETHRIN	PYRETHROID INSECTICIDES	I
AMETRYN	METHYLTHIOTRIAZINE HERBICIDES	H
AMIDOSULFURON	SULFONYLUREA HERBICIDES	H
AMITRAZ	AMIDINE INSECTICIDES	I
AMITROL	TRIAZOLE HERBICIDES	H
ANILAZINE	UNCLASSIFIED FUNGICIDES	F
ASULAM	CARBAMATE HERBICIDES	H
ATRAZINE	METHYLTHIOTRIAZINE HERBICIDES	H
ATRAZINE	TRIAZINE HERBICIDES	H
AZAFENIDIN	UNCLASSIFIED HERBICIDES	H
AZIMSULFURON	SULFONYLUREA HERBICIDES	H
AZINPHOS-ETHYL	ORGANOPHOSPHORUS INSECTICIDES	I
AZINPHOS-METHYL	ORGANOPHOSPHORUS INSECTICIDES	I
AZIPROTRYN	METHYLTHIOTRIAZINE HERBICIDES	H
AZOCYCLOTIN	ORGANOTIN INSECTICIDES	I
AZOXYSTROBIN	STROBILURINE FUNGICIDES	F
B		
BARIUM POLYSULFIDE	UNCLASSIFIED FUNGICIDES	F
BENALAXYL	AMIDE FUNGICIDES	F
BENAZOLIN	UNCLASSIFIED HERBICIDES	H
BENDIOCARB	CARBAMATE INSECTICIDES	I
BENFLURALIN	DINITROANILINE HERBICIDES	H
BENFURACARB	CARBAMATE INSECTICIDES	I
BENFURESATE	BENZOFURANE HERBICIDES	H
BENOMYL	BENZIMIDAZOLE FUNGICIDES	F
BENSULFURON	SULFONYLUREA HERBICIDES	H
BENTAZONE	THIADIAZINE HERBICIDES	H
BENZOXIMATE	UNCLASSIFIED INSECTICIDES	I
BENZTHIAZURON	UREA HERBICIDES	H
BETA-CYFLUTHRIN	PYRETHROID INSECTICIDES	I
BIFENOX	DIPHENYL ETHER HERBICIDES	H
BIFENTHRIN	PYRETHROID INSECTICIDES	I
BIOLOGICAL	BIOLOGICAL INSECTICIDES	I
BIORESMETHRIN	PYRETHROID INSECTICIDES	I
BITERTANOL	CONAZOLE FUNGICIDES	F
BOSCALID	AMIDE FUNGICIDES	F
BROMACIL	URACIL HERBICIDES	H
BROMOFENOXIM	PHENOXY HERBICIDES	H
BROMOPROPYLATE	UNCLASSIFIED INSECTICIDES	I

BROMOXYNIL	NITRILE HERBICIDES	H
BROMUCONAZOLE	CONAZOLE FUNGICIDES	F
BUPIRIMATE	PYRIMIDINE FUNGICIDES	F
BUPROFEZIN	INSECT GROWTH REGULATORS	I
BUTOCARBOXIM	*CARBAMATE INSECTICIDES*	*I*
BUTRALIN	*DINITROANILINE HERBICIDES*	*H*
C		
4-CPA	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
CADUSAFOS	ORGANOPHOSPHORUS INSECTICIDES	I
CALCIUM COMPOUNDS	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
CALCIUM-POLYSULFIDE	UNCLASSIFIED INSECTICIDES	I
CAPTAN	PHTHALIC ACID FUNGICIDES	F
CARBAMATE INSECTICIDES	CARBAMATE INSECTICIDES	I
CARBARYL	CARBAMATE INSECTICIDES	I
CARBENDAZIM	BENZIMIDAZOLE FUNGICIDES	F
CARBETAMIDE	CARBAMATE HERBICIDES	H
CARBOFURAN	CARBAMATE INSECTICIDES	I
CARBOPHENOTHION	ORGANOPHOSPHORUS INSECTICIDES	I
CARBOSULFAN	CARBAMATE INSECTICIDES	I
CARBOXIN	ANILIDE FUNGICIDES	F
CARFENTRAZONE	TRIAZOLINONE HERBICIDES	H
CHLORBROMURON	UREA HERBICIDES	H
CHLORBUFAM	BIS-CARBAMATE HERBICIDES	H
CHLORFENAPYR	UNCLASSIFIED INSECTICIDES	I
CHLORFENSON	UNCLASSIFIED INSECTICIDES	I
CHLORFENVINPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
CHLORIDAZON	PYRIDAZINONE HERBICIDES	H
CHLORMEPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
CHLORMEQUAT	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
CHLOROTHALONIL	AROMATIC FUNGICIDES	F
CHLOROTOLURON	UREA HERBICIDES	H
CHLORPROPHAM	BIS-CARBAMATE HERBICIDES	H
CHLORPYRIFOS	ORGANOPHOSPHORUS INSECTICIDES	I
CHLORPYRIFOS-METHYL	ORGANOPHOSPHORUS INSECTICIDES	I
CHLORSULFURON	SULFONYLUREA HERBICIDES	H
CHLORTHAL	BENZOIC-ACID HERBICIDES	H
CHLORTOLURON	UREA HERBICIDES	H
CHLOZOLINATE	IMIDAZOLE FUNGICIDES	F
CHOLINE CHLORIDE	RODENTICIDES	ZR
CHORSULFURON	SULFONYLUREA HERBICIDES	H
CINIDON-ETHYL	DICARBOXIMIDE HERBICIDES	H
CLETHODIM	CYCLOHEXANEDIONE HERBICIDES	H
CLODINAFOP	ARYLOXYPHENOXYPROPIONIC HERBICIDES	H
CLOFENTEZINE	TETRAZINE INSECTICIDES	I
CLOMAZONE	UNCLASSIFIED HERBICIDES	H
CLOPYRALID	PYRIDINECARBOXYLIC-ACID HERBICIDES	H
COPPER	COPPER COMPOUNDS	F
COPPER CARBONATE	COPPER COMPOUNDS	F
COPPER CHELATE	COPPER COMPOUNDS	F
COPPER HYDROXIDE	COPPER COMPOUNDS	F
COPPER OXIDE	COPPER COMPOUNDS	F
COPPER OXYCHLORIDE	COPPER COMPOUNDS	F
COPPER SALT	COPPER COMPOUNDS	F
COPPER SULPHATE	COPPER COMPOUNDS	F
CYANAMIDE	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
CYANAZINE	TRIAZINE HERBICIDES	H
CYCLANILIDE	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
CYCLOATE	THIOCARBAMATE HERBICIDES	H
CYCLOXYDIM	CYCLOHEXANEDIONE HERBICIDES	H
CYCLURON	UREA HERBICIDES	H
CYFLUTHRIN	PYRETHROID INSECTICIDES	I
CYHEXATIN	ORGANOTIN INSECTICIDES	I

CYMOXANIL	ALIPHATIC NITROGEN FUNGICIDES	F
CYPERMETHRIN	PYRETHROID INSECTICIDES	I
CYPROCONAZOLE	CONAZOLE FUNGICIDES	F
CYPRODINIL	PYRIMIDINE FUNGICIDES	F
CYROMAZINE	INSECT GROWTH REGULATORS	I
D		
1,3-DICHLOROPROPENE	OTHER SOIL STERILANTS	ZR
1.3-DICHLOROPROPENE	OTHER SOIL STERILANTS	ZR
2,4-D	PHENOXY HERBICIDES	H
2,4-DB	PHENOXY HERBICIDES	H
DALAPON	UNCLASSIFIED HERBICIDES	H
DAZOMET	OTHER SOIL STERILANTS	ZR
DELTAMETHRIN	PYRETHROID INSECTICIDES	I
DEMETON-S-METHYL	ORGANOPHOSPHORUS INSECTICIDES	I
DESMEDIPHAM	BIS-CARBAMATE HERBICIDES	H
DESMETRYN	METHYLTHIOTRIAZINE HERBICIDES	H
DIAFENTHIURON	UREA INSECTICIDES	I
DIALIFOS	ORGANOPHOSPHORUS INSECTICIDES	I
DIAZINON	ORGANOPHOSPHORUS INSECTICIDES	I
DICAMBA	BENZOIC-ACID HERBICIDES	H
DICHLOBENIL	NITRILE HERBICIDES	H
DICHLOFLUANID	AMIDE FUNGICIDES	F
DICHLORPROP	PHENOXY HERBICIDES	H
DICHLORPROP-P	PHENOXY HERBICIDES	H
DICHLORVOS	ORGANOPHOSPHORUS INSECTICIDES	I
DICLOFOP	ARYLOXYPHENOXYPROPIONIC HERBICIDES	H
DICLORAN	AROMATIC FUNGICIDES	F
DICOFOL	ORGANOCHLORINE INSECTICIDES	I
DIETHOFENCARB	CARBANILATE FUNGICIDES	F
DIFENOCONAZOLE	CONAZOLE FUNGICIDES	F
DIFENOXURON	UREA HERBICIDES	H
DIFENZOQUAT	BIPYRIDYLIUM HERBICIDES	H
DIFENZOQUAT-M	BIPYRIDYLIUM HERBICIDES	H
DIFLUBENZURON	BENZOYLUREA INSECTICIDES	I
DIFLUFENICAN	ANILIDE HERBICIDES	H
DIMEFURON	UREA HERBICIDES	H
DIMETHACHLOR	ANILIDE HERBICIDES	H
DIMETHACHLOR	CHLOROACETANILIDE HERBICIDES	H
DIMETHENAMID	AMIDE HERBICIDES	H
DIMETHENAMID-P	AMIDE HERBICIDES	H
DIMETHOATE	ORGANOPHOSPHORUS INSECTICIDES	I
DIMETHOMORPH	MORPHOLINE FUNGICIDES	F
DIMOXYSTROBIN	STROBILURINE FUNGICIDES	F
DINICONAZOLE	CONAZOLE FUNGICIDES	F
DINITRAMINE	DINITROANILINE HERBICIDES	H
DINOCAP	DINITROPHENOL FUNGICIDES	F
DINOTERB	UNCLASSIFIED HERBICIDES	H
DIQUAT	BIPYRIDYLIUM HERBICIDES	H
DISULFOTON	ORGANOPHOSPHORUS INSECTICIDES	I
DITHIANON	QUINONE FUNGICIDES	F
DIURON	UREA HERBICIDES	H
DNOC	DINITROPHENOL FUNGICIDES	F
DNOC	UNCLASSIFIED INSECTICIDES	I
DODINE	ALIPHATIC NITROGEN FUNGICIDES	F
E		
ENDOSULFAN	ORGANOCHLORINE INSECTICIDES	I
EPOXICONAZOLE	CONAZOLE FUNGICIDES	F
EPOXYCONAZOLE	CONAZOLE FUNGICIDES	F
EPTC	THIOCARBAMATE HERBICIDES	H
ESFENVALERATE	PYRETHROID INSECTICIDES	I
ETHALFLURALIN	DINITROANILINE HERBICIDES	H
ETHEPHON	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR

ETHIOFENCARB	CARBAMATE INSECTICIDES	I
ETHION	ORGANOPHOSPHORUS INSECTICIDES	I
ETHIRIMOL	PYRIMIDINE FUNGICIDES	F
ETHOFUMESATE	BENZOFURANE HERBICIDES	H
ETHOPROPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
ETHOXYSULFURON	SULFONYLUREA HERBICIDES	H
ETRIDIAZOLE	CONAZOLE FUNGICIDES	F
F		
FAMOXADONE	OXAZOLE FUNGICIDES	F
FENAMIDONE	IMIDAZOLE FUNGICIDES	F
FENAMIPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
FENARIMOL	PYRIMIDINE FUNGICIDES	F
FENAZAQUIN	UNCLASSIFIED INSECTICIDES	I
FENBUCONAZOLE	CONAZOLE FUNGICIDES	F
FENBUTATIN OXIDE	ORGANOTIN INSECTICIDES	I
FENBUTATIN-OXIDE	ORGANOTIN INSECTICIDES	I
FENFURAM	AMIDE FUNGICIDES	F
FENHEXAMID	ANILIDE FUNGICIDES	F
FENITROTHION	ORGANOPHOSPHORUS INSECTICIDES	I
FENOTHIOCARB	CARBAMATE INSECTICIDES	I
FENOXAPROP	ARYLOXYPHENOXYPROPIONIC HERBICIDES	H
FENOXAPROP-P	ARYLOXYPHENOXYPROPIONIC HERBICIDES	H
FENOXYCARB	CARBAMATE INSECTICIDES	I
FENPICLONIL	PHENYLPYRROLE FUNGICIDES	F
FENPROPATHRIN	PYRETHROID INSECTICIDES	I
FENPROPIDIN	UNCLASSIFIED FUNGICIDES	F
FENPROPIMORPH	MORPHOLINE FUNGICIDES	F
FENPYROXIMATE	PYRAZOLE (PHENYL-) INSECTICIDES	I
FENTHION	ORGANOPHOSPHORUS INSECTICIDES	I
FENTIN	UNCLASSIFIED FUNGICIDES	F
FENTIN ACETATE	UNCLASSIFIED FUNGICIDES	F
FENTIN HYDROXIDE	UNCLASSIFIED FUNGICIDES	F
FENURON	UREA HERBICIDES	H
FENVALERATE	PYRETHROID INSECTICIDES	I
FIPRONIL	PYRAZOLE (PHENYL-) INSECTICIDES	I
FLAMPROP	CHLOROACETANILIDE HERBICIDES	H
FLAMPROP-M	CHLOROACETANILIDE HERBICIDES	H
FLAZASULFURON	SULFONYLUREA HERBICIDES	H
FLORASULAM	ANILIDE HERBICIDES	H
FLUAZIFOP	ARYLOXYPHENOXYPROPIONIC HERBICIDES	H
FLUAZIFOP-P-BUTYL	ARYLOXYPHENOXYPROPIONIC HERBICIDES	H
FLUAZINAM	DINITROANILINE FUNGICIDES	F
FLUBENZIMINE	INSECT GROWTH REGULATORS	I
FLUCYCLOXURON	INSECT GROWTH REGULATORS	I
FLUCYTHRINATE	PYRETHROID INSECTICIDES	I
FLUDIOXONIL	PHENYLPYRROLE FUNGICIDES	F
FLUFENACET	ANILIDE HERBICIDES	H
FLUFENOXURON	BENZOYLUREA INSECTICIDES	I
FLUMETSULAM	ANILIDE HERBICIDES	H
FLUMIOXAZIN	DICARBOXIMIDE HERBICIDES	H
FLUOMETURON	UREA HERBICIDES	H
FLUORODIFEN	DIPHENYL ETHER HERBICIDES	H
FLUOROGLYCOFEN	DIPHENYL ETHER HERBICIDES	H
FLUPOXAM	AMIDE HERBICIDES	H
FLUPYRSULFURON	SULFONYLUREA HERBICIDES	H
FLUQUINCONAZOLE	CONAZOLE FUNGICIDES	F
FLURENOL	MORPHACTIN HERBICIDES	H
FLUROCHLORIDONE	UNCLASSIFIED HERBICIDES	H
FLUROXYPYR	PYRIDYLOXYACETIC-ACID HERBICIDES	H
FLURTAMONE	PYRIDAZINONE HERBICIDES	H
FLUSILAZOLE	CONAZOLE FUNGICIDES	F
FLUTOLANIL	AMIDE FUNGICIDES	F

FLUTRIAFOL	CONAZOLE FUNGICIDES	F
FOLPET	PHTHALIC ACID FUNGICIDES	F
FOMESAFEN	AMIDE HERBICIDES	H
FONOFOS	ORGANOPHOSPHORUS INSECTICIDES	I
FORAMSULFURON	SULFONYLUREA HERBICIDES	H
FORMETANATE	CARBAMATE INSECTICIDES	I
FORMOTHION	ORGANOPHOSPHORUS INSECTICIDES	I
FOSETYL	ORGANOPHOSPHORUS FUNGICIDES	F
FUBERIDAZOLE	BENZIMIDAZOLE FUNGICIDES	F
FURALAXYL	AMIDE FUNGICIDES	F
FURATHIOCARB	CARBAMATE INSECTICIDES	I
G		
GLUFOSINATE	ORGANOPHOSPHORUS HERBICIDES	H
GLYPHOSATE	ORGANOPHOSPHORUS HERBICIDES	H
GUAZATINE	ALIPHATIC NITROGEN FUNGICIDES	F
H		
8-HYDROXYQUINOLINE SULFATE	QUINOLINE FUNGICIDES	F
9-HYDROXYQUINOLINE SULFATE	QUINOLINE FUNGICIDES	F
HALOXYFOP	ARYLOXYPHENOXYPROPIONIC HERBICIDES	H
HALOXYFOP-R	ARYLOXYPHENOXYPROPIONIC HERBICIDES	H
HEPTENOPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
HEXACONAZOLE	CONAZOLE FUNGICIDES	F
HEXAFLUMURON	BENZOYLUREA INSECTICIDES	I
HEXYTHIAZOX	INSECT GROWTH REGULATORS	I
HYMEXAZOL	OXAZOLE FUNGICIDES	F
I		
IMAZALIL	CONAZOLE FUNGICIDES	F
IMAZAMETHABENZ	IMIDAZOLINONE HERBICIDES	H
IMAZAMOX	IMIDAZOLINONE HERBICIDES	H
IMAZAPYR	IMIDAZOLINONE HERBICIDES	H
IMAZAQUIN	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
IMAZETHAPYR	IMIDAZOLINONE HERBICIDES	H
IMIDACLOPRID	PYRIDYLMETHYLAMINE INSECTICIDES	I
INDOXACARB	OXADIAZINE INSECTICIDES	I
IODOSULFURON	SULFONYLUREA HERBICIDES	H
IOXYNIL	NITRILE HERBICIDES	H
IPRODIONE	IMIDAZOLE FUNGICIDES	F
IPROVALICARB	CARBAMATE FUNGICIDES	F
ISOFENPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
ISOPROPALIN	DINITROANILINE HERBICIDES	H
ISOPROTURON	UREA HERBICIDES	H
ISOXABEN	AMIDE HERBICIDES	H
ISOXAFLUTOLE	ISOXAZOLE HERBICIDES	H
K		
KRESOXIM-METHYL	STROBILURINE FUNGICIDES	F
L		
LAMBDA-CYHALOTHRIN	PYRETHROID INSECTICIDES	I
LENACIL	URACIL HERBICIDES	H
LINDANE	ORGANOCHLORINE INSECTICIDES	I
LINURON	UREA HERBICIDES	H
LUFENURON	BENZOYLUREA INSECTICIDES	I
M		
MALATHION	ORGANOPHOSPHORUS INSECTICIDES	I
MALEIC HYDRAZIDE	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
MANCOZEB	DITHIOCARBAMATE FUNGICIDES	F
MANEB	DITHIOCARBAMATE FUNGICIDES	F
MCPA	PHENOXY HERBICIDES	H
MCPB	PHENOXY HERBICIDES	H
MECOPROP	PHENOXY HERBICIDES	H
MECOPROP-P	PHENOXY HERBICIDES	H
MEFENACET	ANILIDE HERBICIDES	H
MEPIQUAT	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR

MEPRONIL	AMIDE FUNGICIDES	F
MESOSULFURON	SULFONYLUREA HERBICIDES	H
MESOTRIONE	TRIKETONE HERBICIDES	H
METALAXYL	AMIDE FUNGICIDES	F
METALAXYL-M	AMIDE FUNGICIDES	F
METALDEHYDE	OTHER MOLLUSCICIDES	M
METAMITRON	TRIAZINONE HERBICIDES	H
METAZACHLOR	ANILIDE HERBICIDES	H
METCONAZOLE	CONAZOLE FUNGICIDES	F
METHABENZTHIAZURON	UREA HERBICIDES	H
METHAMIDOPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
METHIDATHION	ORGANOPHOSPHORUS INSECTICIDES	I
METHIOCARB	CARBAMATE INSECTICIDES	I
METHOMYL	OXIME-CARBAMATE INSECTICIDES	I
METHOPROTRYNE	METHYLTHIOTRIAZINE HERBICIDES	H
METHOXYFENOZIDE	DIAZYLHYDRAZINE INSECTICIDES	I
METIRAM	DITHIOCARBAMATE FUNGICIDES	F
METOBROMURON	UREA HERBICIDES	H
METOLACHLOR	ANILIDE HERBICIDES	H
METOLACHLOR	CHLOROACETANILIDE HERBICIDES	H
METOSULAM	ANILIDE HERBICIDES	H
METOXURON	UREA HERBICIDES	H
METRIBUZIN	TRIAZINONE HERBICIDES	H
METSULFURON	SULFONYLUREA HERBICIDES	H
MEVINPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
MOLINATE	THIOCARBAMATE HERBICIDES	H
MONALIDE	ANILIDE HERBICIDES	H
MONOCROTOPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
MONOLINURON	UREA HERBICIDES	H
MONURON	UREA HERBICIDES	H
MYCLOBUTANIL	CONAZOLE FUNGICIDES	F
N		
NALED	ORGANOPHOSPHORUS INSECTICIDES	I
NAPROPAMIDE	AMIDE HERBICIDES	H
NAPTALAM	AMIDE HERBICIDES	H
NEBURON	UREA HERBICIDES	H
NICOSULFURON	SULFONYLUREA HERBICIDES	H
NITROTHAL-ISOPROPYL	UNCLASSIFIED FUNGICIDES	F
NORFLURAZON	PYRIDAZINONE HERBICIDES	H
NUARIMOL	PYRIMIDINE FUNGICIDES	F
O		
OFURACE	AMIDE FUNGICIDES	F
OMETHOATE	ORGANOPHOSPHORUS INSECTICIDES	I
ORYZALIN	DINITROANILINE HERBICIDES	H
OTHER FUNGICIDES	UNCLASSIFIED FUNGICIDES	F
OTHER HERBICIDES	UNCLASSIFIED HERBICIDES	H
OTHER INSECTICIDES	UNCLASSIFIED INSECTICIDES	I
OTHER MOLLUSCICIDES	OTHER MOLLUSCICIDES	M
OTHER NEMATICIDES	OTHER SOIL STERILANTS	ZR
OTHER PGR	OTHER PLANT GROWTH REGULATORS	PGR
OXADIARGYL	UNCLASSIFIED HERBICIDES	H
OXADIAZON	UNCLASSIFIED HERBICIDES	H
OXADIXYL	OXAZOLE FUNGICIDES	F
OXAMYL	OXIME-CARBAMATE INSECTICIDES	I
OXINE-COPPER	COPPER COMPOUNDS	F
OXYDEMETON-METHYL	ORGANOPHOSPHORUS INSECTICIDES	I
OXYFLUORFEN	DIPHENYL ETHER HERBICIDES	H
P		
PACLOBUTRAZOL	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
PARAQUAT	BIPYRIDYLIUM HERBICIDES	H
PARATHION	ORGANOPHOSPHORUS INSECTICIDES	I
PARATHION-METHYL	ORGANOPHOSPHORUS INSECTICIDES	I

PENCONAZOLE	CONAZOLE FUNGICIDES	F
PENCYCURON	UREA FUNGICIDES	F
PENDIMETHALIN	DINITROANILINE HERBICIDES	H
PERMETHRIN	PYRETHROID INSECTICIDES	I
PETROLEUM OILS	MINERAL OIL	ZR
PHENMEDIPHAM	BIS-CARBAMATE HERBICIDES	H
PHORATE	ORGANOPHOSPHORUS INSECTICIDES	I
PHOSALONE	ORGANOPHOSPHORUS INSECTICIDES	I
PHOSMET	ORGANOPHOSPHORUS INSECTICIDES	I
PHOSPHAMIDON	ORGANOPHOSPHORUS INSECTICIDES	I
PHOSTHIAZATE	ORGANOPHOSPHORUS INSECTICIDES	I
PHOXIM	ORGANOPHOSPHORUS INSECTICIDES	I
PICLORAM	PYRIDINECARBOXYLIC-ACID HERBICIDES	H
PICOLINAFEN	PYRIDINECARBOXAMIDE HERBICIDES	H
PICOXYSTROBINE	STROBILURINE FUNGICIDES	F
PIRIMICARB	CARBAMATE INSECTICIDES	I
PIRIMIPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
PIRIMIPHOS-METHYL	ORGANOPHOSPHORUS INSECTICIDES	I
PRIMISULFURON	SULFONYLUREA HERBICIDES	H
PROCHLORAZ	AMIDE FUNGICIDES	F
PROCYMIDONE	DICARBOXIMIDE FUNGICIDES	F
PROFENOFOS	ORGANOPHOSPHORUS INSECTICIDES	I
PROFENOFOS Q	ORGANOPHOSPHORUS INSECTICIDES	I
PROHEXADIONE	ANTIBIOTIC INSECTICIDES	I
PROHEXADIONE-CALCIUM	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
PROMETRYN	METHYLTHIOTRIAZINE HERBICIDES	H
PROPACHLOR	CHLOROACETANILIDE HERBICIDES	H
PROPAMOCARB	CARBAMATE FUNGICIDES	F
PROPANIL	ANILIDE HERBICIDES	H
PROPAQUIZAFOP	ARYLOXYPHENOXYPROPIONIC HERBICIDES	H
PROPARGITE	SULFITE ESTER INSECTICIDES	I
PROPAZINE	TRIAZINE HERBICIDES	H
PROPHAM	BIS-CARBAMATE HERBICIDES	H
PROPICONAZOLE	CONAZOLE FUNGICIDES	F
PROPINEB	DITHIOCARBAMATE FUNGICIDES	F
PROPOXUR	CARBAMATE INSECTICIDES	I
PROPOXYCARBAZONE	TRIAZOLONE HERBICIDES	H
PROPYZAMIDE	AMIDE HERBICIDES	H
PROSULFOCARB	THIOCARBAMATE HERBICIDES	H
PROSULFURON	SULFONYLUREA HERBICIDES	H
PROTHIOCARB	CARBAMATE FUNGICIDES	F
PROTHIOFOS	ORGANOPHOSPHORUS INSECTICIDES	I
PYMETROZINE	PYRIDINE INSECTICIDES	I
PYRACLOSTROBIN	STROBILURINE FUNGICIDES	F
PYRAFLUFEN	PHENYLPYRAZOLE HERBICIDES	H
PYRAZOPHOS	ORGANOPHOSPHORUS FUNGICIDES	F
PYRETHRINS	BIOLOGICAL INSECTICIDES	I
PYRIDABEN	UNCLASSIFIED INSECTICIDES	I
PYRIDATE	DIAZINE HERBICIDES	H
PYRIFENOX	DINITROANILINE FUNGICIDES	F
PYRIMETHANIL	PYRIMIDINE FUNGICIDES	F
PYRIPROXYFEN	PHENYL-ETHER INSECTICIDES	I
Q		
QUINALPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
QUINCLORAC	QUINOLINE HERBICIDES	H
QUINMERAC	QUINOLINE HERBICIDES	H
QUINOCLAMINE	UNCLASSIFIED HERBICIDES	H
QUINOMETHIONATE	UNCLASSIFIED FUNGICIDES	F
QUINOXYFEN	QUINOLINE FUNGICIDES	F
QUINTOZENE	AROMATIC FUNGICIDES	F
QUIZALOFOP	ARYLOXYPHENOXYPROPIONIC HERBICIDES	H
QUIZALOFOP-P	ARYLOXYPHENOXYPROPIONIC HERBICIDES	H

R		
RESMETHRIN	PYRETHROID INSECTICIDES	I
RIMSULFURON	SULFONYLUREA HERBICIDES	H
S		
SETHOXYDIM	CYCLOHEXANEDIONE HERBICIDES	H
SIMAZINE	TRIAZINE HERBICIDES	H
S-METOLACHLOR	CHLOROACETANILIDE HERBICIDES	H
SODIUM 5-NITROGUAIACOLATE	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
SODIUM ORTHONITROPHENOLATE	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
SODIUM PARANITROPHENOLATE	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
SODIUM-ARSENITE	UNCLASSIFIED HERBICIDES	H
SODIUM-CHLORATE	INORGANIC HERBICIDES	H
SPINOSAD	ANTIBIOTIC INSECTICIDES	I
SPIROXAMINE	UNCLASSIFIED FUNGICIDES	F
SULCOTRIONE	TRIKETONE HERBICIDES	H
SULFOTEP	ORGANOPHOSPHORUS INSECTICIDES	I
SULFUR	INORGANIC SULPHUR	F
SULFUROSULFURON	SULFONYLUREA HERBICIDES	H
T		
TAU-FLUVALINATE	PYRETHROID INSECTICIDES	I
TCA	UNCLASSIFIED HERBICIDES	H
TEBUCONAZOLE	CONAZOLE FUNGICIDES	F
TEBUFENOZIDE	DIAZYLHYDRAZINE INSECTICIDES	I
TEBUFENPYRAD	PYRAZOLE (PHENYL-) INSECTICIDES	I
TEBUTAM	AMIDE HERBICIDES	H
TEBUTHIURON	UREA HERBICIDES	H
TEFLUBENZURON	BENZOYLUREA INSECTICIDES	I
TEFLUTHRIN	PYRETHROID INSECTICIDES	I
TEMEPHOS	ORGANOPHOSPHORUS INSECTICIDES	I
TEPRALOXYDIM	CYCLOHEXANEDIONE HERBICIDES	H
TERBACIL	URACIL HERBICIDES	H
TERBUFOS	ORGANOPHOSPHORUS INSECTICIDES	I
TERBUMETON	TRIAZINE HERBICIDES	H
TERBUTHYLAZINE	TRIAZINE HERBICIDES	H
TERBUTRYN	METHYLTHIOTRIAZINE HERBICIDES	H
TETRACONAZOLE	CONAZOLE FUNGICIDES	F
TETRACOPPER-TRICALCIUMSULFATE	COPPER COMPOUNDS	F
TETRADIFON	ORGANOCHLORINE INSECTICIDES	I
THIABENDAZOLE	BENZIMIDAZOLE FUNGICIDES	F
THIACLOPRID	PYRIDYLMETHYLAMINE INSECTICIDES	I
THIAMETHOXAM	NITROGUANIDINE INSECTICIDES	I
THIDIAZURON	UREA HERBICIDES	H
THIFENSULFURON	SULFONYLUREA HERBICIDES	H
THIOBENCARB	THIOCARBAMATE HERBICIDES	H
THIODICARB	CARBAMATE MOLLUSCICIDE	M
THIOFANOX	OXIME-CARBAMATE INSECTICIDES	I
THIOMETON	ORGANOPHOSPHORUS INSECTICIDES	I
THIOPHANATE-METHYL	BENZIMIDAZOLE FUNGICIDES	F
THIRAM	DITHIOCARBAMATE FUNGICIDES	F
TOLCLOFOS	ORGANOPHOSPHORUS FUNGICIDES	F
TOLCLOFOS-METHYL	ORGANOPHOSPHORUS FUNGICIDES	F
TOLYLFLUANID	AMIDE FUNGICIDES	F
TRALKOXYDIM	CYCLOHEXANEDIONE HERBICIDES	H
TRALOMETHRIN	PYRETHROID INSECTICIDES	I
TRIADIMEFON	CONAZOLE FUNGICIDES	F
TRIADIMENOL	CONAZOLE FUNGICIDES	F
TRI-ALLATE	THIOCARBAMATE HERBICIDES	H
TRIAPENTHENOL	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
TRIASULFURON	SULFONYLUREA HERBICIDES	H
TRIAZAMATE	(CARBAMOYL-) TRIAZOLE INSECTICIDES	I
TRIAZOPHOS	ORGANOPHOSPHORUS INSECTICIDES	I

TRIAZOXIDE	IMIDAZOLE FUNGICIDES	F
TRIBENURON	SULFONYLUREA HERBICIDES	H
TRICHLORFON	ORGANOPHOSPHORUS INSECTICIDES	I
TRICLOPYR	PYRIDYLOXYACETIC-ACID HERBICIDES	H
TRIDEMORPH	MORPHOLINE FUNGICIDES	F
TRIDIPHANE	UNCLASSIFIED HERBICIDES	H
TRIETAZINE	TRIAZINE HERBICIDES	H
TRIFLOXYSTROBINE	STROBILURINE FUNGICIDES	F
TRIFLUMIZOLE	CONAZOLE FUNGICIDES	F
TRIFLUMURON	BENZOYLUREA INSECTICIDES	I
TRIFLURALIN	DINITROANILINE HERBICIDES	H
TRIFLUSULFURON	SULFONYLUREA HERBICIDES	H
TRIFORINE	AMIDE FUNGICIDES	F
TRINEXAPAC-ETHYL	PHYSIOLOGICAL PLANT GROWTH REGULATORS	PGR
TRITICONAZOLE	CONAZOLE FUNGICIDES	F
V		
VALIDAMYCIN	ANTIBIOTIC FUNGICIDES-BACTERICIDES	F
VAMIDOTHION	ORGANOPHOSPHORUS INSECTICIDES	I
VERNOLATE	THIOCARBAMATE HERBICIDES	H
VINCLOZOLIN	OXAZOLE FUNGICIDES	F
Z		
ZETA-CYPERMETHRIN	PYRETHROID INSECTICIDES	I
ZINEB	DITHIOCARBAMATE FUNGICIDES	F
ZIRAM	DITHIOCARBAMATE FUNGICIDES	F
ZOXAMIDE	*AMIDE FUNGICIDES*	*F*