



Pesticide Usage in Scotland

Arable Crops 2008

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Certificate No. FM 59966

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SUMMARY

This report presents information from a survey of pesticide usage on arable crops in Scotland during the growing season commencing autumn 2007 through to harvest 2008. Data were collected from a total of 327 holdings, representing 7% of the total arable crops grown. The sample data have been raised to give estimates of national pesticide usage.

The total area of arable crops, excluding land for set aside, was 525,473 hectares, an increase of 13% when compared with the previous survey in 2006. This was primarily due to the EU abolition of compulsory set aside, allowing farmers to plant on previously un-cropped land. Barley comprised 61% of the area of all arable crops (excluding set aside), wheat 22%, oilseed rape 6% and potatoes 6%.

Fungicides accounted for 48% of the total pesticide treated area of arable crops (including set aside); herbicides accounted for 24%, seed treatments 15%, growth regulators 7%, insecticides 4% and molluscicides for only 1%. In contrast, by weight, herbicides accounted for 56% of the pesticide active ingredients applied, fungicides 31%, growth regulators 9%, seed treatments 2% and insecticides and molluscicides 1% each.

Overall insecticide usage, when measured by area of active ingredients, increased by 34% when compared with the previous survey. The pyrethroid lambda-cyhalothrin, applied to over 121,000 hectares, remained the most commonly used insecticide.

Molluscicides usage increased significantly, with the area treated by active ingredient more than double that in 2006 at just over 100,000 hectares. Metaldehyde remained the most popular active ingredient, applied to almost 68,000 hectares.

There was a 30% increase in fungicide use compared with the previous survey when measured by area of active ingredient. Prothioconazole, applied to over 586,000 hectares as both a spray and a seed treatment, replaced chlorothalonil as most popular fungicide and overall most widely used active ingredient. However, chlorothalonil remains the most popular fungicide when measured by weight of active ingredient.

Total herbicide use increased by 15% compared with the previous survey, when measured by area treated with active ingredient. Mecoprop-P remained the principal active ingredient, applied to over 233,000 hectares.

INTRODUCTION

This is the fourteenth survey of pesticide usage on arable crops in Scotland since 1974¹⁻¹⁴ and is part of a continuing program of post registration surveillance of pesticides. The survey covered cereals, oilseeds, potatoes, legumes and set aside land.

DEFINITION AND NOTES

Basic area is the planted area of crop which was treated with a given pesticide or pesticide group, irrespective of the number of times it was applied to that area. Basic areas are not presented anywhere in the report, but their values are used to calculate the percentage of crop treated with a given pesticide or pesticide group.

Area treated (or hectares treated) is the basic area of a crop treated with a given pesticide multiplied by the number of treatments that area received. These terms are synonymous with "spray area" and "spray hectare" which have appeared in previous reports. The new terms are believed to more appropriate where pelleted or granular treatments are applied.

In this report the term 'formulation(s)' is used to describe the pesticide active ingredient or mixture of active ingredients in a product(s).

The reasons for the uses of pesticides reported in the text are those given by growers and may sometimes be inappropriate.

It should be borne in mind that some of the herbicides may not have been applied directly to the crop itself but either as land preparation treatments prior to sowing/planting the crop or to control weeds at the field margins.

Usage of sulphur on oilseed rape has been recorded as though it were a pesticide. However, the predominant reason for its use is as a nutrient rather than to control disease.

Due to rounding, there may be slight differences in totals both within and between tables.

Data from the 2006 survey are provided for comparison purposes in some of the tables, although it should be borne in mind that there may be minor differences in the range of crops surveyed, together with changes in areas of each of the crops grown.

METHOD

Using the June 2008 Agricultural Census¹⁵ a sample was drawn representing the whole of Scotland and was selected from holdings growing any of the combinable crops and/or potatoes.

As in previous surveys of this type, the country was divided into 11 land-use regions¹⁵ (Fig 1). Holdings were stratified by land-use region and by size group (based on the total area of arable crops grown, excluding set aside land). Sampling fractions within both regions and size groups were based on the areas of the relevant crops grown rather than number of holdings, so that smaller size groups would not dominate the sample.

The survey period was from the end of the 2007 harvest to the end of the 2008 harvest. As well as recording treatments applied directly to the crop, data were also collected on land preparation treatments prior to sowing/planting the crop.

With a few exceptions, each grower was visited by a surveyor, following an introductory letter and telephone call. A small number of growers in remote areas had to be interviewed by telephone, again by prior arrangement. When necessary, data were also collected from consultant agronomists, contractors and seed merchants. In all, information was obtained from 327 holdings. Details of the numbers of holdings visited and their distribution are given in Table 2 and the areas of crops surveyed are shown in Table 41.

For all crops, sample data were raised to give estimates of national pesticide usage using raising factors (Table 43). These were based on the areas growing arable crops in the 2008 Agricultural Census¹⁵ within regions and size groups (Table 42). Adjustments (Table 44) were made for each crop, including those grown on set aside land, within each region by applying the raising factors to the sample area of each crop grown and comparing this with the area from the 2008 Agricultural Census. A second adjustment was made for crops where no holdings were sampled in one or more regions.

WINTER BARLEY

There were 57,612 hectares of winter barley grown in Scotland in 2008, compared with 53,697 hectares in 2006. The most popular variety encountered was Sequel accounting for 31% of the sample area surveyed.

Seed treatments (Tables 5,21)

Seed treatments were applied to 97% of the winter barley crop. As in the previous survey prothioconazole/tebuconazole/triazoxide was the most commonly used treatment, applied to 49% of the crop. Prochloraz/triticonazole, applied to 28%, was also very popular.

Insecticides and molluscicides (Tables 6, 22)

Insecticide usage continued to increase, applied to 44% of the crop area primarily for the control of aphids, compared with 32% in 2006 and 26% in 2004. Lambda-cyhalothrin was the most popular insecticide, applied to 13% of the crop, followed by tau-flavallinate (8%), which had been the most commonly used insecticide in the previous survey.

Molluscicides were recorded on 7% of the crop area, compared with 4% in 2006 and only 1% in 2004. Metaldehyde was the principal molluscicide, applied to 6% of the winter barley crop.

Fungicides (Tables 7, 23)

Fungicides were applied to the entire winter barley crop in 2008, as was the case in the previous survey. Chlorothalonil remained the most popular active ingredient, applied to 91% of the crop area, either as a single active formulation or mixed with other active ingredients. Prothioconazole and fenpropimorph, applied to 89% and 49% respectively were also widely recorded.

Herbicides and growth regulators (Tables 8, 24)

Ninety-eight percent of the crop area was treated with a herbicide, slightly higher than in the last survey (96%). Isoproturon, under a phased revocation during the growing period, remained the principal active ingredient, applied to 69% of the crop area compared with 74% in 2006. Diflufenican and Glyphosate were also extensively used (54%).

Ninety-two percent of the winter barley crop was treated with a growth regulator. Chlormequat remained the most frequently recorded active ingredient, applied to 87% of the crop area (73% in 2006).

SPRING BARLEY

There were 262,322 hectares of spring barley grown in Scotland, a 19% increase compared with the previous survey. Oxbridge was the most popular variety encountered, accounting for 37% of the sample area surveyed.

Seed treatments (Tables 5,21)

Pesticides were applied to 92% of the seed, similar to that recorded in 2006. As with winter barley, prothiconazole/tebuconazole/triazoxime was the most frequently encountered formulation applied to 47% of the crop area. Prochloraz/triticonazole and carboxin/thiram were also widely recorded, applied to 16% and 14% respectively. Tebuconazole/triazoxime, which was the principal formulation in the previous survey (40%) was used on only 9% of the crop area in the current survey.

Insecticides and molluscicides (Tables 6, 22)

Insecticide usage increased from only 7% of the crop area receiving a treatment in 2006 to 12% in the current survey. Lambda-cyhalothrin, applied to 5% of the crop area, was the principal active ingredient. Chlorpyrifos which had been the main active recorded in the previous six surveys was only encountered on 1% of the crop area in 2008.

No molluscicide usage was encountered.

Fungicides (Tables 7,23)

Eighty-five percent of the crop area was treated with a fungicide, compared with 89% in the last survey.

Chlorothalonil remained the most popular active ingredient, with 64% of the crop treated compared with 67% in 2006. The use of prothioconazole also continued to increase, with 55% of the crop area treated (41% in 2006).

Herbicides and growth regulators (Tables 8,24)

The proportion of crop area treated with a herbicide was 93%, similar to that recorded in the previous survey (95%).

Thifensulfuron-methyl, applied to 68% of the crop area, replaced mecoprop-P (64%) as the most commonly used herbicide. Metsulfuron-methyl (55%) was also widely used.

The use of growth regulators increased again to similar levels recorded in 2004, with 12% of the crop area treated. The proportion of the crop area treated with growth regulators had fallen in 2006 to only 7%. Chlormequat was the main active encountered, applied to 7% of the crop area.

WINTER WHEAT

The estimated area of winter wheat grown in 2008 was 111,886 hectares, a 19% increase compared with the previous survey. The most popular varieties were Robigus and Alchemy, accounting for 31% and 25% of the sample area surveyed respectively.

Seed treatments (Tables 5,21)

The proportion of seed treated with a pesticide remained unchanged since 2006, with 93% of winter wheat seed treated. Prochloraz/triticonazole continued to be the most popular formulation used with 24% of the crop area treated. Prothioconazole (16%) and carboxim/thiram (14%) were also widely used.

Insecticides and molluscicides (Tables 6,22)

The proportion of crop area treated with an insecticide continued to increase with just over half the crop area (51%) treated, compared with 41% in 2006 and 35% in 2004.

Lambda-cyhalothrin, applied to 19% (26,249 ha) of the crop area for the control of aphids, replaced cypermethrin as the principal active ingredient, 15% (13,698 ha) in the previous survey.

Molluscicide usage had trebled from only 8% of the crop area treated in 2006 to 24% in 2008. The main active ingredient encountered was metaldehyde applied to 20% of the crop area.

Fungicides (Tables 7,23)

Ninety-seven percent of the winter wheat area received a fungicide (99% in 2006).

The most popular active encountered was chlorothalonil, applied to 94% of the crop area, unchanged since the last survey. Epoxiconazole and prothioconazole were also widely used, applied to 85% and 58% of the crop area respectively.

Herbicides and growth regulators (Tables 8,24)

The proportion of winter wheat treated with a herbicide remained very similar to previous surveys with 96% of the crop area treated.

Isoproturon remained the most commonly used herbicide, with 64% of the crop area treated compared with 70% in 2006. Pendimethalin was also popular, being applied to 46% of the crop area and the use of diflufenican increased to 41% (32% in 2006).

Growth regulators were applied to 95% of winter wheat, a similar proportion recorded in previous surveys. Chlormequat, applied to 89% of the crop area remained the main growth regulator.

SPRING WHEAT

This crop is not recorded in the Agricultural Census, but it was estimated that only 1,911 hectares were grown in Scotland in 2006 compared with 5,384 hectares in 2006 and 2,535 hectares in 2004. Estimates of pesticide usage are presented in Tables 5-8 and 21-24.

WINTER OATS

The area of winter oats grown in 2008 was 6,529 hectares, compared with 6,609 hectares in the previous survey.

Seed treatments (Tables 5,21)

Ninety-four percent of winter oats received a seed treatment, whereas only 81% was treated in 2006. Bitertanol/fuberidazole, applied to 41% of the crop area replaced fludioxonil (17%) as the most popular formulation.

Insecticides and molluscicides (Table 6, 22)

Insecticide usage more than doubled with 59% of the crop area treated in 2008 compared with only 28% in 2006. Cypermethrin, which was not encountered in the last survey was the most popular insecticide recorded in the current survey, applied to 37% of the crop area. Usage of lamda-cyhalothrin fell, with only 7% of the crop area treated in 2008 compared with 21% in 2006.

Metaldehyde, applied to 4% of the crop area was the only molluscicide recorded.

Fungicides (Tables 7, 23)

The entire winter oat crop was treated with a fungicide (99%) in 2008, a similar finding to previous surveys.

As in previous surveys, fenpropimorph applied to 69% of the crop area was the most popular fungicide. Metrafenone (54%) and epoxiconazole (48%) were also commonly used.

Herbicides and growth regulators (Tables 8, 24)

Herbicide usage remained the same since the previous survey with 99% of the crop area treated.

Flupyrsulfuron-methyl and mecoprop-P were the most commonly used herbicides, applied to 66% and 45% of the crop area respectively. Metsulfuron-methyl which had been the principal active in 2006 (72%) was only applied to 39% of the crop in 2008.

Growth regulators were recorded on 77% of the crop, compared with 81% in 2006 and 88% in 2004. As in previous surveys, chlormequat (71%) and trinexapac-ethyl (45%) were the main active ingredients.

SPRING OATS

The area of spring oats grown in Scotland in 2008 was 15,191 hectares, compared with 16,049 hectares in the previous survey.

Seed treatments (Tables 5,21)

Seventy-one percent of the seed was treated, compared with eighty-three percent in 2006. Carboxim/thiram, applied to 39% of the crop area replaced fludioxonil (12%) as the most commonly used formulation.

Insecticides and molluscicides (Tables 6,22)

As in the previous survey, only 11% of the spring oat crop received an insecticide treatment. Lambda-cyhalothrin remained the principal active ingredient, applied to 10% of the crop area.

No molluscicide usage was recorded, as was the case in 2006 and 2004.

Fungicides (Tables 7,23)

Fungicides were applied to 71% of the crop area compared with 94% in 2006. Fenpropimorph and epoxiconazole were the most commonly encountered active ingredients, both applied to 44% of the crop area. Metrafenone (32%) was also widely used.

Herbicides and growth regulators (Tables 8,24)

Only 68% of spring oats received a herbicide treatment, compared with 94% in 2006 and 91% in 2004. Metsulfuron-methyl (63%) and mecoprop-P (60%) remained the two most common actives.

Sixty percent of the crop area was treated with a growth regulator (83% in 2006). Chloromequat (60%) and trinexapac-ethyl (36%) were the only actives recorded.

WINTER OILSEED RAPE

The area of winter oilseed rape grown in 2008 was 31,623 hectares, a 2% increase compared with the last survey. The most popular varieties encountered were Lioness, Mendel and NK Bravour, each accounting for 14% of the sample area surveyed.

Seed treatments (Tables 9,25)

Ninety-seven percent of the seed was treated, very similar to that recorded in the previous two surveys.

Beta-cyfluthrin/imidacloprid, applied to 86% of the crop, remained the most popular formulation (71% in 2006). The use of prochloraz/thiram increased, with 41% of the crop area treated, compared with less than 0.5% in 2006. The use of thiram and iprodione had declined with only 28% and 16% of the crop area treated in the current survey, compared with 66% and 69% in 2006.

Insecticides and molluscicides (Tables 10,26)

Insecticides were applied to 71% of the crop area. All insecticides recorded were pyrethroids.

Tau-fluvalinate and lambda-cyhalothrin, applied to 30% and 24% of the crop area respectively, were the most popular active ingredients used.

Molluscicides were recorded on 34% the winter oilseed rape area, compared with only 19% in 2006 and 12% in 2004. Metaldehyde was the main active ingredient recorded (27%).

Fungicides (Tables 11,27)

The entire winter oilseed rape crop was treated with a fungicide (99% in 2006).

The use of prothioconazole had greatly increased from only 11% of the crop area in the previous survey to 65% in the current survey. In contrast, tebuconazole which was the principal active ingredient in 2006 (66%) was only recorded on 46% of the 2008 crop area.

Herbicides and growth regulators (Tables 12,28)

Ninety-seven percent of the crop area received a herbicide treatment, very similar to that recorded in the last survey.

Metazachlor, applied to 89% of the crop, remained by far the most commonly used herbicide, accounting for 33% of the total area treated with herbicide active ingredients. Glyphosate was also commonly used, applied to 54% of the crop area as a pre-harvest desiccant.

As in 2006, no growth regulators were encountered.

SPRING OILSEED RAPE

The area of spring oilseed rape grown in Scotland declined by 28% from 2,760 hectares in 2006, to only 2,000 hectares in 2008. As no spring oilseed rape crops were encountered during the 2008 survey, the crop has been excluded from the tables.

SEED POTATOES

The area of seed potatoes grown in Scotland was 11,720 hectares, a 2% increase compared with the last survey.

Seed treatments (Tables 13, 29)

The proportion of seed treated with a pesticide increased from 87% in 2006 to 99% in 2008.

As in the previous two surveys, pencycuron and imazalil, both alone and together in formulation, were the most commonly used treatments.

Insecticides and molluscicides (Tables 14, 30)

Ninety-four percent of the crop area received an insecticide treatment, mainly for the control of aphids.

Lambda-cyhalothrin, applied to 88% of the crop area and pirimicarb, applied to 75% remained the most popular insecticides. Neonicotinoid insecticide usage increased with the use of thiacloprid increasing from only 16% in 2006 to 66% in 2008, and other actives were recorded for the first time (acetamiprid 3% and thiamethoxam 14%).

Molluscicides were recorded on 38% of the seed potato crop area, compared with 26% in 2006. Methiocarb, applied to 27% of the crop area was the most widely used active ingredient.

Fungicides (Tables 15,31)

The entire crop was treated with a fungicide (99% in 2006), mainly for blight control.

Mancozeb, applied to 92% of the crop area and cymoxanil to 91% remained the most commonly used active ingredients. However, the use of fluazinam declined from 94% in 2006 to 73% in 2008, similarly metalaxyl-M dropped from 59% to only 8%.

Herbicides (Tables 16,32)

All of the seed potato crop was treated with a herbicide (96% in 2006, 100% in 2004).

Diquat, applied to 93% of the crop area, for both pre-emergence weed control and as a pre-harvest dessicant, was the most popular active ingredient. Use of paraquat and linuron, which were the main actives in 2006, fell from 96% and 76% of the crop area respectively to only 39% and 44% in 2008.

The application of sulphuric acid as a dessicant, currently in a period of phased revocation, continued to fall from 90% of the crop area in 2004, 33% in 2006 to only 27% in 2008.

EARLY POTATOES

The area of early potatoes grown in 2008 was 837 hectares, very similar to that recorded in 2006. Only a few crops were encountered in this survey, and detailed pesticide usage data is presented in all the relevant tables.

WARE POTATOES

There were 17,279 hectares of ware potatoes grown in Scotland in 2008, a 9% increase compared with the last survey.

Seed treatments (Tables 13, 29)

The proportion of seed treated with a pesticide declined from 89% in 2006 to 84% in 2008.

As in previous surveys, imazalil and pencycuron, both alone and together in formulation, were the most commonly used treatments.

Insecticides and molluscicides (Tables 14, 30)

Sixty-seven percent of the crop area was treated with an insecticide mainly for aphid control, very similar to that recorded previously (65%).

Lambda-cyhalothrin remained the most popular active ingredient applied to 41% of the crop area. Pirimicarb was also widely used (34%).

Approximately half (51%) of the ware crop received a molluscicide. Methiocarb, applied to 36% of the crop area and metaldehyde applied to 31% were the principal active ingredients.

Fungicides (Tables 15, 31)

Fungicides were applied to 98% of the ware potato crop (99% in 2006).

As in the previous survey, the three main active ingredients were cymoxanil (88%), mancozeb (87%) and fluazinam (84%) for the control of blight.

Herbicides and growth regulators (Tables 16, 32)

Herbicide usage decreased slightly, with 93% of the crop treated in 2008, compared with 98% in 2006.

Diquat was the most popular active ingredient, applied to 92% of the crop area. Usage of paraquat in the current survey (26%) was less than a third of that in the previous survey. The use of sulphuric acid continued to decline from 79% of the crop area in 2004, 39% in 2006 to only 9% in 2008.

A small area (2%) was treated with the growth regulator, maleic hydrazide.

LEGUMES

Peas for combining (Tables 17-20, 33-36)

There were 1,480 hectares of peas for combining grown in Scotland in 2008, very similar to the previous survey.

Thiram, applied to 98% of the crop area was the only seed treatment recorded.

Sixteen percent of the crop received an insecticide. Lambda-cyhalothrin, used for the control of aphids, was the only active ingredient encountered.

Fungicides were applied to 30% of the crop area, compared with 50% in 2006. Azoxystrobin and chlorothalonil were the only active ingredients encountered.

The entire crop was treated with a herbicide, double that recorded in the last survey. Pendimethalin and imazamox, applied in formulation to 68% of the crop area, were the principle active ingredients.

Field Beans (Tables 17-20, 33-36)

The area of field beans grown in 2008 was 3,172 hectares, a decrease of 30% since 2006.

No seed treatments were encountered during the current survey.

Forty-six percent of the crop was treated with an insecticide. Lambda-cyhalothrin, was the most popular active ingredient, accounting for almost half of the total area of insecticide active ingredients.

Fungicides were used on 89% of the field bean area. Chlorothalonil was by far the most popular active ingredient, applied to 88% of the crop area.

Herbicides were applied to 85% of the crop. The principal active ingredient used was pendimethalin, applied to 80% of the crop compared with only 4% in 2006.

Lupins

The area of Lupins grown in 2008 was 398 hectares, a 32% decline since 2006.

Only one crop of lupins was encountered during the survey, therefore this crop has been excluded from the tables.

SET ASIDE LAND

The total area of set-aside in 2008 was 14,792 hectares, a 78% decline since the previous survey in 2006. This significant reduction was due to the EU reducing the compulsory rate of set-aside to 0%.

The pesticide usage data for set-aside oilseed rape are presented in tables 9-12 and 25-28. The majority of the remaining set-aside comprised of grassland and natural regeneration. The only active ingredient encountered was glyphosate.

MINOR CROPS

The areas of these crops are recorded in the Agricultural Census, but the areas grown are considered too small to warrant inclusion of data in the tables. Estimates of pesticide usage of all the active ingredients applied are used to calculate the survey's principal active ingredients (Tables 37 & 38).

Triticale

There was 1,096 hectares of triticale grown in 2008, a 15% decline since 2006.

The key active ingredients in each pesticide category are listed below:

Fungicides	: epoxiconazole, fenpropimorph, tebuconazole
Herbicides	: metsulfuron-methyl, fluroxypr, pendimethalin, tribenuron-methyl
Growth regulators	: 2-chloroethylphosphonic acid, chlormequat, trinexapac-ethyl
Insecticides	: none recorded
Molluscicides	: metaldehyde

Linseed

The total area of Linseed grown in Scotland in 2008 was 179 hectares, compared with 314 hectares in 2006.

No linseed was encountered during the 2008 survey.

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ACKNOWLEDGEMENTS

The author wishes to thank all the farmers, agronomists, contractors and seed merchants who provided the information for this report. Thanks are also given to Mr L Thomas and Mr A Walker who collected some of the data and to Dr C J Griffiths for providing editorial assistance. In addition, the author is particularly grateful for support from Mr D Garthwaite and colleagues at the Food & Environment Research Agency, York, and to Mr A Roberts of Biomathematics & Statistics Scotland.

FIGURE 1 Land-Use Regions of Scotland

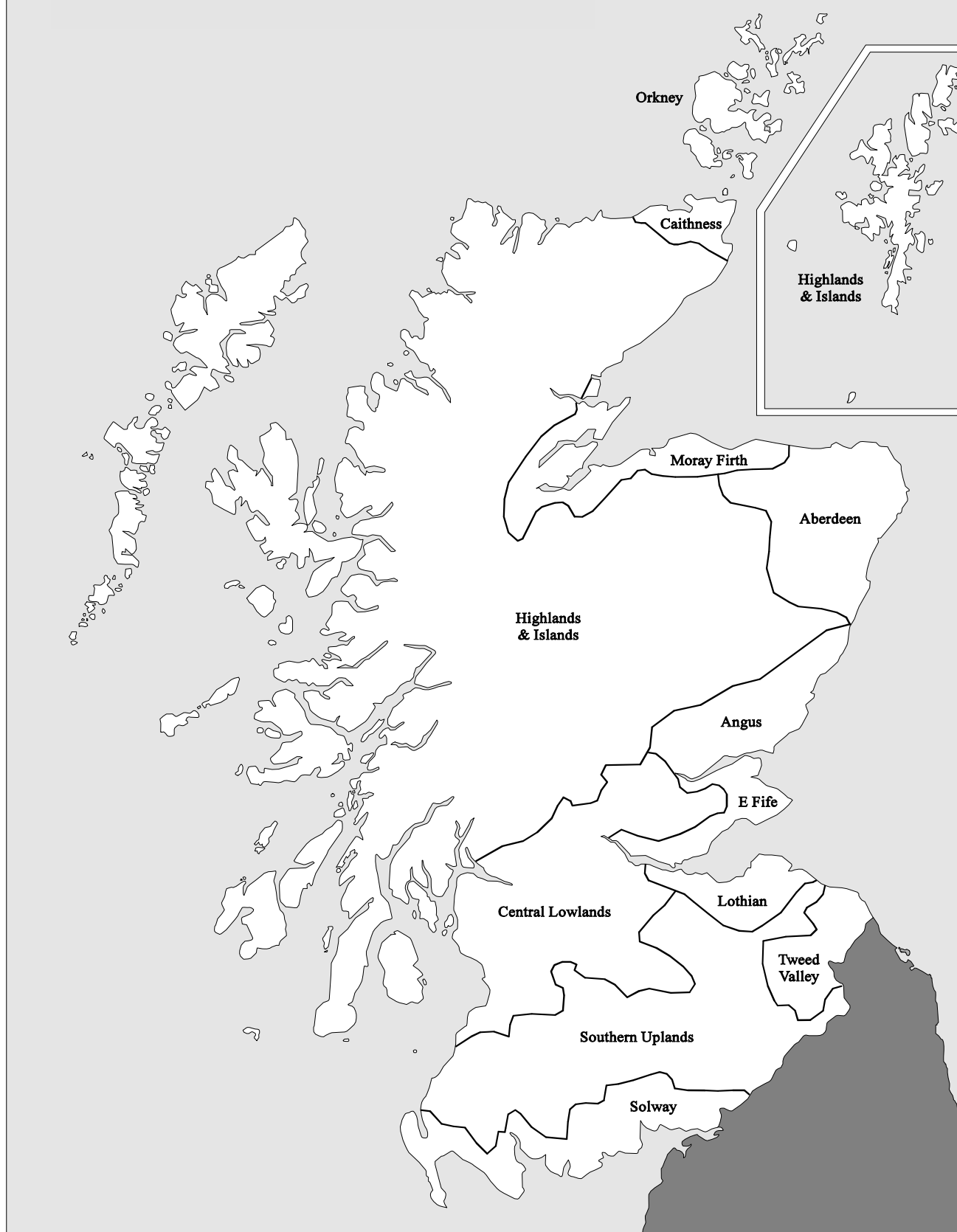
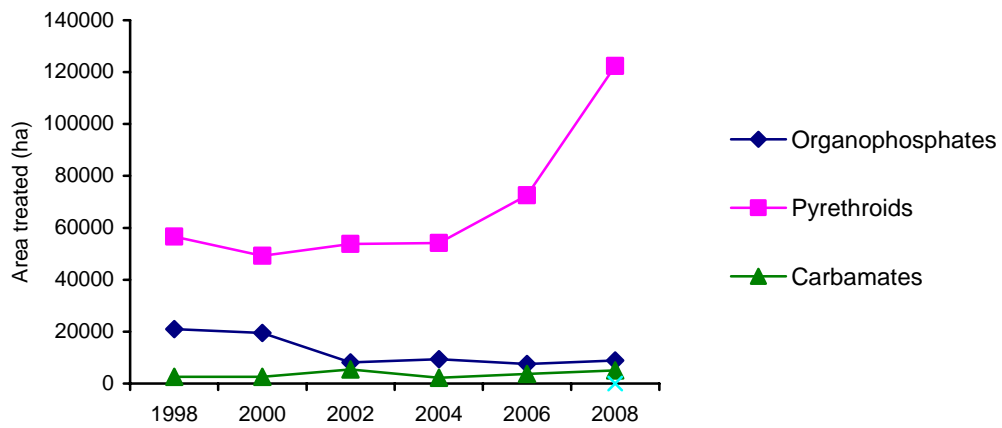


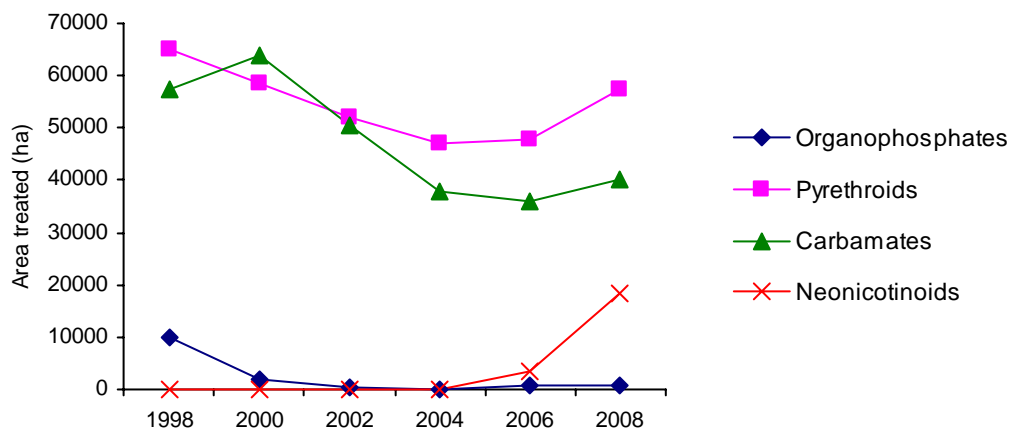
FIGURE 2 Trends in main insecticide types 1998-2008

Area treated with active ingredients

Cereals



Potatoes



Oilseed rape

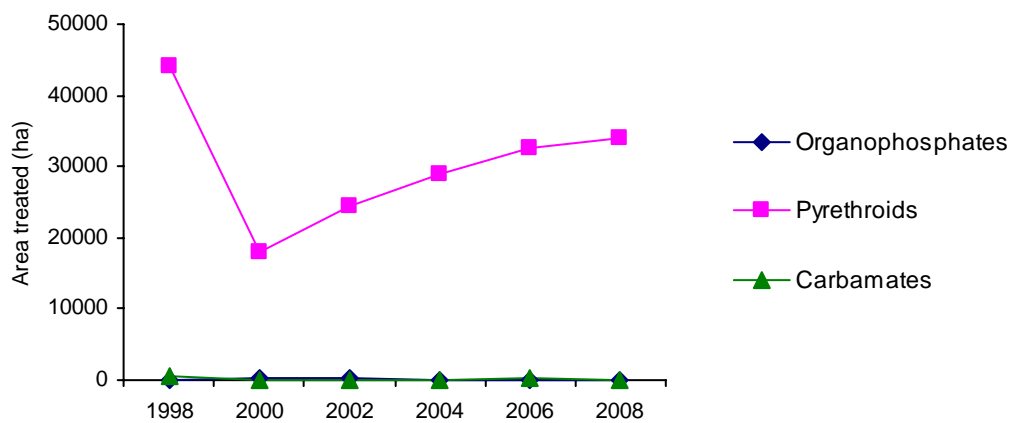


TABLE 1 Regional distribution of arable crops in 2008 (hectares)

	<i>Highlands & Islands and Caithness & Orkney</i>	<i>Moray Firth</i>	<i>Aberdeen</i>	<i>Angus</i>	<i>East Fife</i>	<i>Lothian</i>	<i>Central Lowlands</i>	<i>Tweed Valley</i>	<i>S. Uplands & Solway</i>	<i>Scotland 2008</i>	<i>Scotland 2006</i>	<i>% change</i>
Winter barley	604	2,790	19,223	9,439	4,846	4,204	5,214	7,286	4,005	57,612	53,697	7
Spring barley	13,612	36,884	71,635	45,465	14,192	15,987	32,519	17,349	14,679	262,322	220,408	19
Wheat	339	6,625	11,119	25,046	15,889	18,233	10,139	22,839	3,568	113,797	99,615	14
Winter oats	103	398	417	927	1,140	133	1,188	1,982	240	6,529	6,609	-1
Spring oats	1,997	1,969	3,278	2,080	803	135	2,846	1,242	840	15,191	16,049	-5
Triticale	*	98	91	115	*	53	59	361	282	1,096	1,286	-15
Winter oilseed rape	10	2,132	8,159	8,190	2,280	2,917	1,526	6,002	408	31,623	30,931	2
Spring oilseed rape	53	45	800	328	166	160	184	208	*	2,000	2,760	-28
Seed potatoes	134	1,410	2,051	5,723	622	205	1,133	410	32	11,720	11,440	2
Early potatoes	21	55	83	223	29	159	146	47	74	837	831	1
Ware potatoes	235	724	786	7,467	2,489	1,831	1,799	1,717	230	17,279	15,853	9
Combining peas	0	269	44	422	109	169	233	193	*	1,480	1,490	-1
Field beans	*	*	*	355	526	485	338	1,291	146	3,172	4,523	-30
Linseed	0	*	*	*	*	*		*	0	179	314	-43
Lupins	12	27	47	*	*	*	84	99	50	398	581	-32
Set-aside	385	2,010	3,674	2,323	1,212	1,145	1,827	1,386	830	14,792	67,549	-78

To prevent disclosure of information about individual holdings, entries relating to fewer than 5 holdings have been replaced by a *

TABLE 2 Distribution of sample

Number of holdings surveyed in each region and size group

Size (ha)	Highlands & Islands and Caithness	Moray Firth	Aberdeen	Angus	East Fife	Lothian	Central Lowlands	Tweed Valley	S.Uplands & Solway	Scotland 2008
0.1-19.9	9	2	3	2	1	0	4	1	3	25
20-49.9	3	7	15	9	2	2	9	3	5	55
50-99.9	2	9	20	18	7	6	10	6	3	81
100-149.9	0	7	8	14	5	7	7	9	2	59
150+	0	10	19	25	10	16	8	17	2	107
All sizes	14	35	65	68	25	31	38	36	15	327

TABLE 3 Proportion (%) of each crop treated with pesticides (cereals)

	<i>Winter barley</i>	<i>Spring barley</i>	<i>Winter wheat</i>	<i>Spring wheat</i>	<i>Winter oats</i>	<i>Spring oats</i>	<i>Triticale</i>
Insecticides	44	12	51	13	59	11	0
Molluscicides	7	0	24	0	4	0	10
Fungicides	100	85	97	87	100	71	81
Herbicides	98	93	96	70	99	68	71
Growth regulators	92	12	95	29	77	60	69
Any pesticide	100	93	97	87	100	71	81

TABLE 4 Proportion (%) of each crop treated with pesticides (other crops)

	<i>Winter oilseed rape</i>	<i>Seed potatoes</i>	<i>Early potatoes</i>	<i>Ware potatoes</i>	<i>Combine peas</i>	<i>Field beans</i>	<i>Set aside</i>
Insecticides	71	94	55	67	16	46	1
Molluscicides	34	38	56	51	0	0	1
Fungicides	100	100	100	98	30	89	1
Herbicides	97	100	100	93	100	85	2
Growth regulators	0	0	0	2	0	0	0
Any pesticide	100	100	100	99	100	89	2

TABLE 5 Cereals seed treatment formulations

Area treated (ha) and percentage of crop treated

Seed treatments	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Bitertanol/fuberidazole	0	0	0	0	3,676	3	173	9	2,658	41	0	0	6,507	17468
Carboxin/thiram	1,939	3	36,200	14	15,449	14	130	7	57	1	5,872	39	59,645	8221
Clothianidin	0	0	0	0	262	+	0	0	0	0	0	0	262	0
Clothianidin/prothioconazole	1,900	3	0	0	1,828	2	0	0	0	0	0	0	3,728	330
Fludioxonil	330	1	4,777	2	13,245	12	0	0	1,082	17	1,866	12	21,300	36889
Fludioxonil/flutriafol	0	0	1,114	+	0	0	0	0	0	0	0	0	1,114	0
Fludioxonil/tefluthrin	0	0	0	0	1,300	1	0	0	0	0	0	0	1,300	0
Fluoxastrobin/prothioconazole	0	0	0	0	6,401	6	0	0	769	12	850	6	8,020	5201
Fluquinconazole/prochloraz	324	1	0	0	10,045	9	0	0	0	0	0	0	10,369	3828
Fuberidazole/imidacloprid/triadimenol	0	0	0	0	429	+	0	0	0	0	0	0	429	329
Fuberidazole/triadimenol	1,074	2	3,396	1	6,638	6	0	0	0	0	0	0	11,107	21017
Imazalil/triticonazole	429	1	2,905	1	0	0	0	0	0	0	0	0	3,334	19909
Prochloraz/triticonazole	16,144	28	43,032	16	26,373	24	800	42	345	5	478	3	87,324	27530
Prothioconazole	1,213	2	0	0	17,416	16	0	0	1,180	18	1,657	11	21,466	10339
Prothioconazole/tebuconazole/ triazoxide	28,037	49	123,750	47	0	0	0	0	0	0	0	0	151,787	80682
Silthiofam	0	0	0	0	1,608	1	0	0	0	0	0	0	1,608	4461
Tebuconazole	0	0	1,621	1	0	0	0	0	0	0	0	0	1,621	4117
Tebuconazole/triazoxide	4,206	7	22,899	9	0	0	0	0	0	0	0	0	27,105	104094
Tefluthrin	0	0	0	0	1,945	2	0	0	0	0	0	0	1,945	941
Unspecified seed treatment	555	1	2,058	1	1,564	1	0	0	73	1	0	0	4,250	24
Area grown	57,612	97	262,322	92	111,886	93	1,911	58	6,529	94	15,191	71	456,547	397,664

** includes triticale, '+' = <0.5%

TABLE 6 Cereals insecticide and molluscicide formulations

Area treated (ha) and percentage of crop treated

Insecticides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Alpha-cypermethrin	2,426	4	4,210	2	4,457	4	0	0	0	0	0	0	11,092	6,036
Bifenthrin	733	1	0	0	1,610	1	0	0	0	0	0	0	2,342	0
Chlorpyrifos	138	+	2,338	1	4,381	4	0	0	0	0	0	0	6,857	5,897
Cypermethrin	3,988	7	814	+	8,479	7	0	0	2,401	37	206	1	15,888	20,066
Deltamethrin	1,802	3	0	0	4,547	4	0	0	0	0	0	0	6,349	4,798
Dimethoate	0	0	0	0	2,083	2	0	0	0	0	0	0	2,083	1,678
Esfenvalerate	538	1	0	0	75	+	0	0	0	0	0	0	613	0
Lambda-cyhalothrin	7,990	13	14,357	5	26,249	19	0	0	466	7	1,196	8	50,257	19,199
Lambda-cyhalothrin/pirimicarb	0	0	0	0	0	0	0	0	0	0	336	2	336	0
Pirimicarb	0	0	1,460	1	3,316	3	0	0	0	0	0	0	4,776	3,749
Tau-fluvalinate	4,374	8	3,644	1	8,892	7	0	0	42	1	0	0	16,953	13,785
Zeta-cypermethrin	4,077	7	5,016	2	8,303	7	244	13	949	15	0	0	18,589	8,698
All insecticides	26,067	44	31,837	12	72,391	51	244	13	3,858	59	1,738	11	136,135	83,905
Molluscicides														
Metaldehyde	7,950	6	0	0	29,322	20	0	0	253	4	0	0	37,638	8,215
Methiocarb	152	+	0	0	4,697	4	0	0	0	0	0	0	4,849	3,470
Thiodicarb	96	+	0	0	951	1	0	0	0	0	0	0	1,047	0
All molluscicides	8,199	7	0	0	34,970	24	0	0	253	4	0	0	43,534	11,685
Area grown	57,612		262,322		111,886		1,911		6,529		15,191		456,547	397,664

** includes triticale, '+' = <0.5%

TABLE 7 Cereals fungicide formulations
Area treated (ha) and percentage of crop treated

<i>Fungicides</i>	<i>Winter barley</i>		<i>Spring barley</i>		<i>Winter wheat</i>		<i>Spring wheat</i>		<i>Winter oats</i>		<i>Spring oats</i>		<i>*All cereals</i>	<i>*2006</i>
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Azoxystrobin	4,680	8	1,102	+	4,831	4	244	13	194	3	0	0	11,051	24,812
Azoxystrobin/chlorothalonil	2,760	5	4,808	2	20,766	16	0	0	0	0	0	0	28,334	21,530
Azoxystrobin/cyproconazole	516	1	1,017	+	3,015	2	0	0	1,294	20	3,351	22	9,191	5,219
Azoxystrobin/fenpropimorph	1,491	3	10,646	4	5,139	5	0	0	0	0	0	0	17,276	9,274
Boscalid/epoxiconazole	0	0	3,038	1	36,565	30	0	0	0	0	1,289	8	40,892	31,971
Carbendazim	707	1	3,324	1	264	+	0	0	0	0	0	0	4,296	13,456
Chlorothalonil	52,162	77	164,557	54	170,865	82	791	29	842	13	0	0	389,216	374,911
Chlorothalonil/cyproconazole	1,821	3	4,371	2	19,309	16	0	0	0	0	0	0	25,502	9,366
Chlorothalonil/cyproconazole/ propiconazole	136	+	789	+	12,901	10	0	0	0	0	0	0	13,825	6,783
Chlorothalonil/flusilazole	1,768	3	6,092	2	4,591	4	0	0	0	0	0	0	12,450	2,183
Chlorothalonil/flutriafol	0	0	0	0	4,122	4	0	0	0	0	0	0	4,122	11,965
Chlorothalonil/mancozeb	0	0	0	0	4,018	2	0	0	0	0	0	0	4,018	420
Chlorothalonil/picoxystrobin	3,608	6	16,802	6	4,431	4	0	0	0	0	0	0	24,841	16,276
Chlorothalonil/propiconazole	4,005	6	3,316	1	7,945	6	0	0	0	0	0	0	15,266	0
Copper oxychloride	249	+	2,345	1	1,016	1	309	16	0	0	385	3	4,304	286
Cyflufenamid	4,155	7	13,085	5	9,439	7	0	0	42	1	402	3	27,123	9,110
Cyproconazole	0	0	0	0	4,216	3	0	0	0	0	0	0	4,216	10,348

** includes triticale, '+' = <0.5%

Cont

TABLE 7 Cereals fungicide formulations continued

Area treated (ha) and percentage of crop treated

Fungicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Cyproconazole/cyprodinil	417	1	1,980	1	5,873	5	0	0	0	0	0	0	8,270	11,912
Cyproconazole/picoxystrobin	0	0	0	0	708	1	0	0	73	1	0	0	782	0
Cyproconazole/propiconazole	1,327	2	0	0	1,967	2	0	0	0	0	0	0	3,294	10,068
Cyproconazole/trifloxystrobin	0	0	1,253	+	640	1	0	0	0	0	0	0	1,893	2,492
Cyprodinil	25,738	33	11,681	4	2,300	2	0	0	0	0	0	0	39,735	25,453
Cyprodinil/picoxystrobin	2,826	5	14,862	6	0	0	0	0	0	0	0	0	17,688	15,206
Dimoxystrobin/epoxiconazole	0	0	0	0	21,053	19	0	0	0	0	0	0	21,053	8,589
Epoxiconazole	9,113	10	4,389	1	46,468	31	374	20	2,050	31	2,706	14	65,861	54,102
Epoxiconazole/fenpropimorph	1,893	3	13,184	4	15,714	12	288	15	0	0	188	1	31,266	27,645
Epoxiconazole/fenpropimorph/ kresoxim-methyl	2,516	4	2,703	1	11,966	9	0	0	0	0	998	7	18,184	14,553
Epoxiconazole/fenpropimorph/ metrafenone	1,133	2	13,708	5	17,945	15	0	0	420	6	786	4	33,993	0
Epoxiconazole/fenpropimorph/ pyraclostrobin	217	+	2,927	1	2,544	2	346	9	0	0	1,193	8	7,226	8,653
Epoxiconazole/kresoxim-methyl	0	0	0	0	2,437	2	0	0	0	0	0	0	2,437	19,911
Epoxiconazole/metrafenone	0	0	4,804	2	10,149	8	512	27	0	0	1,329	9	16,794	0
Epoxiconazole/pyraclostrobin	490	1	1,655	1	17,288	15	130	7	893	14	49	+	20,505	6,649
Famoxadone/flusilazole	2,422	4	19,026	7	10,576	9	0	0	0	0	0	0	32,024	52,327

** includes triticale, '+' = <0.5%

Cont

TABLE 7 Cereals fungicide formulations continued

Area treated (ha) and percentage of crop treated

Fungicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Fenpropidin	4,247	7	17,888	6	3,767	3	0	0	0	0	0	0	25,919	5,633
Fenpropimorph	11,011	17	29,076	10	4,296	3	0	0	4,015	52	1,833	12	50,992	75,507
Fenpropimorph/flusilazole	9,823	15	51,333	19	0	0	0	0	0	0	323	2	61,479	63,194
Fenpropimorph/kresoxim-methyl	0	0	1,423	1	436	+	288	15	787	12	0	0	2,934	8,062
Fenpropimorph/pyraclostrobin	8,409	12	43,257	16	16,824	10	0	0	75	1	1,289	8	69,855	57,696
Fenpropimorph/quinoxifen	0	0	5,246	2	1,633	1	0	0	838	13	459	3	8,176	2,964
Fluoxastrobin/prothioconazole	13,569	21	28,119	9	4,655	4	0	0	0	0	170	1	46,512	43,424
Fluoxastrobin/prothioconazole/ trifloxystrobin	12,426	14	38,988	12	367	+	0	0	0	0	0	0	51,782	27,875
Fluquinconazole	0	0	0	0	4,054	4	0	0	0	0	0	0	4,054	10,353
Flusilazole	4,263	7	11,735	4	1,419	1	0	0	0	0	0	0	17,418	15,420
Flutriafol	0	0	0	0	168	+	0	0	0	0	0	0	168	403
Mancozeb	1,511	3	1,309	+	27,237	18	0	0	0	0	0	0	30,057	9,773
Metconazole	503	1	1,722	1	5,100	5	0	0	0	0	0	0	7,325	2,756
Metrafenone	3,214	6	16,562	6	22,401	19	173	9	4,346	49	4,593	26	51,289	37,076
Picoxystrobin	2,140	3	1,056	+	574	1	0	0	0	0	0	0	3,771	13,443
Prochloraz	565	1	5,531	2	19,386	14	0	0	0	0	0	0	25,481	4,484
Prochloraz/tebuconazole	0	0	0	0	5,385	4	0	0	0	0	0	0	5,385	2,816
Propiconazole	0	0	1,253	+	0	0	0	0	0	0	0	0	1,253	0

** includes triticale, '+' = <0.5%

Cont

TABLE 7 Cereals fungicide formulations continued

Area treated (ha) and percentage of crop treated

Fungicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Propiconazole/tebuconazole	0	0	3,261	1	12,375	9	0	0	0	0	0	0	15,636	2,813
Proquinazid	8,227	10	19,008	7	13,395	11	346	9	259	4	4,339	29	45,574	29,427
Prothioconazole	22,956	27	30,568	9	36,285	23	0	0	0	0	0	0	89,809	80,676
Prothioconazole/spiroxamine	9,443	11	11,755	4	11,418	7	0	0	43	1	0	0	32,657	22,401
Prothioconazole/spiroxamine/ tebuconazole	7,362	10	17,264	6	6,818	5	0	0	0	0	0	0	31,444	0
Prothioconazole/tebuconazole	6,958	10	17,359	6	30,332	15	0	0	0	0	0	0	54,649	34,186
Prothioconazole/trifloxystrobin	12,151	20	42,486	15	12,809	10	0	0	0	0	0	0	67,446	36,083
Pyraclostrobin	1,672	3	3,289	1	7,051	6	0	0	0	0	459	3	12,471	13,488
Quinoxifen	0	0	189	+	1,548	1	0	0	0	0	0	0	1,737	3,804
Spiroxamine	8,957	14	16,927	6	4,466	4	0	0	0	0	0	0	30,350	25,083
Spiroxamine/tebuconazole	952	2	1,992	1	958	1	0	0	0	0	0	0	3,902	2,225
Sulphur	3,821	7	4,182	2	8,860	7	309	16	0	0	385	3	17,669	19,959
Tebuconazole	599	1	720	+	18,653	16	0	0	194	3	0	0	20,927	39,451
Tebuconazole/triadimenol	0	0	0	0	1,654	1	0	0	0	0	0	0	1,654	4,487
Tebuconazole/trifloxystrobin	0	0	0	0	384	+	0	0	0	0	0	0	384	0
Tetraconazole	0	0	0	0	632	1	0	0	0	0	0	0	632	320
Trifloxystrobin	2,451	3	3,781	1	0	0	0	0	0	0	0	0	6,232	6,869
All fungicides	283,383	100	754,742	85	766,401	97	4,108	87	16,365	100	26,524	71	1,853,950	1,519,871
Area grown	57,612		262,322		111,886		1,911		6,529		15,191		456,547	397,664

** includes triticale, '+' = <0.5%

TABLE 8 Cereals herbicide formulations
Area treated (ha) and percentage of crop treated

Herbicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
2,4-D/MCPA	0	0	1,036	+	0	0	0	0	0	0	0	0	1,036	0
2,4-DB/linuron/MCPA	0	0	3,982	2	0	0	0	0	0	0	0	0	3,982	753
2,4-DB/MCPA	0	0	918	+	0	0	0	0	0	0	0	0	918	141
Amidosulfuron	146	+	0	0	492	+	0	0	0	0	0	0	638	0
Amidosulfuron/iodosulfuron-methyl-sodium	0	0	133	+	504	+	0	0	0	0	0	0	637	4,897
Bentazone/MCPA/MCPB	0	0	1,031	+	0	0	0	0	0	0	0	0	1,031	5,806
Bromoxynil	0	0	12,664	5	1,058	1	0	0	0	0	323	2	14,045	8,349
Bromoxynil/diflufenican/ioxynil	0	0	1,190	+	0	0	0	0	0	0	0	0	1,190	1,470
Bromoxynil/ioxynil	393	1	43,814	17	1,239	1	130	7	133	2	170	1	45,878	29,281
Bromoxynil/ioxynil/mecoprop-P	0	0	1,518	1	0	0	0	0	0	0	3,147	21	4,665	14,533
Carfentrazone-ethyl	0	0	0	0	0	0	0	0	75	1	0	0	75	0
Carfentrazone-ethyl/ flupyr-sulfuron-methyl	0	0	0	0	0	0	0	0	1,675	26	0	0	1,675	2,288
Chlorotoluron	3,186	6	0	0	2,043	2	0	0	0	0	0	0	5,229	1,921
Clodinafop-propargyl	0	0	0	0	1,735	1	0	0	0	0	0	0	1,735	1,137
Clodinafop-propargyl/pinoxaden	0	0	0	0	1,377	1	0	0	0	0	0	0	1,377	0
Clopyralid/florasulam/fluroxypyr	0	0	351	+	590	1	0	0	652	10	0	0	1,593	0
Dicamba/MCPA/mecoprop-P	0	0	1,115	+	0	0	0	0	0	0	126	1	1,241	13,484
Dicamba/mecoprop-P	314	1	35,668	14	1,889	2	173	9	0	0	2,342	15	40,386	35,951

** includes triticale, '+' = <0.5%

Cont.....

TABLE 8 Cereal herbicide formulations continued

Area treated (ha) and percentage of crop treated

Herbicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Dichlorprop-P	0	0	5,114	2	0	0	0	0	0	0	0	0	5,114	3,335
Diflufenican	8,222	14	0	0	14,569	13	0	0	0	0	0	0	22,791	945
Diflufenican/flufenacet	7,117	12	0	0	7,578	7	0	0	0	0	0	0	14,694	4,536
Diflufenican/flupyr-sulfuron-methyl	0	0	0	0	723	1	0	0	0	0	0	0	723	0
Diflufenican/flurtamone	3,120	5	0	0	2,836	3	0	0	0	0	0	0	5,955	2,942
Diflufenican/flurtamone/isoproturon	1,293	2	0	0	5,907	5	0	0	0	0	0	0	7,200	8,278
Diflufenican/iodosulfuron-methyl-sodium/mesosulfuron-methyl	0	0	0	0	1,836	2	0	0	0	0	0	0	1,836	0
Diflufenican/isoproturon	11,132	19	0	0	12,777	11	0	0	0	0	0	0	23,909	35,374
Diflufenican/trifluralin	256	+	0	0	439	+	0	0	0	0	0	0	695	637
Fenoxaprop-P-ethyl	73	+	0	0	2,462	2	0	0	0	0	0	0	2,535	1,943
Florasulam	122	+	0	0	778	1	0	0	0	0	0	0	901	256
Florasulam/fluroxypyr	1,111	2	0	0	1,868	2	0	0	0	0	459	3	3,438	9,458
Flufenacet/pendimethalin	530	1	0	0	3,883	3	0	0	0	0	0	0	4,414	2,679
Flupyr-sulfuron-methyl	0	0	0	0	2,065	2	0	0	0	0	0	0	2,065	0
Flupyr-sulfuron-methyl/picolinafen	0	0	0	0	359	+	0	0	0	0	0	0	359	3,241
Flupyr-sulfuron-methyl/thifensulfuron-methyl	0	0	0	0	0	0	0	0	228	3	0	0	228	1,947
Flupyr-sulfuron-methyl/tribenuron-methyl	0	0	0	0	4,046	4	0	0	2,389	37	0	0	6,435	0
Fluroxypyr	1,837	3	5,389	2	11,711	10	0	0	763	12	482	3	20,943	9,538

** includes triticale, '+' = <0.5%

Cont...

TABLE 8 Cereal herbicide formulations continued

Area treated (ha) and percentage of crop treated

Herbicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Fluroxypyr/thifensulfuron-methyl/ tribenuron-methyl	174	+	1,800	1	1,135	1	0	0	0	0	0	0	3,109	0
Glyphosate**	32,197	54	62,248	23	28,848	25	800	42	763	12	204	1	**125,060	71,303
Iodosulfuron-methyl-sodium	0	0	25	+	0	0	0	0	0	0	0	0	25	0
Iodosulfuron-methyl-sodium/ mesosulfuron-methyl	0	0	0	0	762	1	0	0	0	0	0	0	762	1,062
Isoproturon	33,880	59	5,059	2	60,046	53	0	0	0	0	0	0	98,984	85,926
Isoproturon/pendimethalin	544	1	0	0	1,785	2	0	0	0	0	0	0	2,330	3,542
MCPA	0	0	10,722	4	372	+	0	0	0	0	0	0	11,094	16,278
MCPA/MCPB	0	0	2,046	1	0	0	0	0	0	0	0	0	2,046	4,384
Mecoprop-P	10,704	18	131,617	49	36,627	31	1,174	61	3,206	45	3,473	23	186,818	154,835
Mesosulfuron-methyl/thifensulfuron- methyl	0	0	8,947	3	216	+	130	7	0	0	0	0	9,292	0
Metsulfuron-methyl	84	+	17,027	6	2,905	3	0	0	2,202	34	5,104	34	27,339	21,351
Metsulfuron-methyl/thifensulfuron- methyl	487	1	101,004	39	5,864	5	800	42	0	0	0	0	108,155	87,542
Metsulfuron-methyl/tribenuron-methyl	3,523	6	31,643	12	4,230	4	173	9	333	5	4,415	29	45,078	45,957
Pendimethalin	5,848	10	0	0	10,291	9	0	0	0	0	0	0	16,900	22,258
Pendimethalin/picolinafen	18,309	32	0	0	34,442	31	0	0	0	0	0	0	52,751	40,730
Pendimethalin/trifluralin	2,689	5	0	0	2,927	3	0	0	0	0	0	0	5,616	0
Pinoxaden	967	2	18,303	7	4,877	4	0	0	0	0	0	0	24,147	13,016
Propoxycarbazone-sodium	0	0	0	0	94	+	0	0	0	0	0	0	94	0

** includes triticale, '+' = <0.5%

*** pre-harvest treatments accounted for 80% of the total area treated with glyphosate

Cont...

TABLE 8 Cereal herbicide formulations continued

Area treated (ha) and percentage of crop treated

Herbicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Prosulfocarb	1,289	2	41	+	2,029	2	0	0	0	0	0	0	3,359	0
Sulfosulfuron	0	0	0	0	3,422	3	0	0	0	0	0	0	3,422	1,150
Thifensulfuron-methyl	0	0	11,288	4	115	+	244	13	0	0	0	0	11,647	23,766
Thifensulfuron-methyl/tribenuron-methyl	1,613	3	55,377	21	4,793	4	0	0	0	0	0	0	61,783	37,055
Tralkoxydim	3,092	5	12,747	5	1,591	1	0	0	0	0	0	0	17,431	18,027
Tribenuron-methyl	2,262	4	6,748	3	4,287	4	0	0	0	0	605	4	13,902	29,240
Trifluralin	1,636	3	0	0	3,086	3	0	0	0	0	0	0	4,722	7,213
All herbicides	158,148	98	590,566	93	299,506	96	3,624	70	12,418	99	20,851	68	1,087,430	903,767
Growth regulators														
2-chloroethylphosphonic acid	16,718	29	7,360	3	17,859	16	0	0	652	10	0	0	43,349	19,440
2-chloroethylphosphonic acid/ chlormequat	16,214	28	30	+	6,343	6	0	0	0	0	0	0	22,587	31,516
2-chloroethylphosphonic acid/ chlormequat/mepiquat chloride	2,904	5	0	0	3,382	3	0	0	0	0	0	0	6,286	2,477
2-chloroethylphosphonic acid/ mepiquat chloride	5,616	10	1,384	1	4,904	4	0	0	0	0	0	0	11,904	8,715
Chlormequat	50,557	65	20,152	7	122,043	84	547	29	5,320	71	9,168	60	208,547	156,362
Chlormequat/imazaquin	0	0	0	0	15,665	12	0	0	0	0	0	0	15,665	15,364
Mepiquat chloride/prohexadione- calcium	8,856	15	0	0	22,796	19	0	0	0	0	0	0	31,652	87
Trinexapac-ethyl	28,532	49	5,761	2	60,789	47	244	13	2,960	45	5,478	36	104,525	98,003
All growth regulators	129,396	92	34,687	12	253,781	95	791	29	8,931	77	14,646	60	444,515	331,963
Area grown	57,612		262,322		111,886		1,911		6,529		15,191		456,547	397,664

TABLE 9 Oilseed rape seed treatment formulations

Area treated (ha) and percentage of crop treated

Seed treatments	Winter oilseed rape		Set aside oilseed rape		All oilseed rape	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Beta-cyfluthrin/imidacloprid	27,225	86	36	37	27,262	25,984
Fludioxonil/metalaxyl-M/thiamethoxam	1,672	5	62	63	1,734	0
Iprodione	5,101	16	0	0	5,101	25,187
Prochloraz/thiram	12,875	41	0	0	12,875	133
Thiram	8,928	28	0	0	8,928	23,309
Unspecified seed treatment	125	+	0	0	125	206
Area grown	31,623	97	99	100	31,722	35,932

Note: No spring oilseed rape was encountered during the 2008 survey

* excludes spring oilseed rape

TABLE 10 Oilseed rape insecticide and molluscicide formulations

Area treated (ha) and percentage of crop treated

<i>Insecticides</i>	<i>Winter oilseed rape</i>		<i>Set aside oilseed rape</i>		<i>*All oilseed rape</i>	<i>*2006</i>
	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Alpha-cypermethrin	1,565	5	0	0	1,565	1,895
Bifenthrin	547	2	0	0	547	0
Cypermethrin	4,536	13	0	0	4,536	6,629
Deltamethrin	648	2	0	0	648	1,559
Lambda-cyhalothrin	13,042	24	0	0	13,042	12,507
Tau-fluvalinate	10,516	30	99	100	10,615	9,087
Zeta-cypermethrin	3,034	9	99	100	3,133	2,963
<i>All insecticides</i>	33,890	71	197	100	34,087	34,909
<i>Molluscicides</i>						
Metaldehyde	9,824	27	99	100	9,923	6,811
Methiocarb	2,548	7	0	0	2,548	1,117
<i>All molluscicides</i>	12,372	34	99	100	12,471	7,927
Area grown	31,623		99		31,722	35,932

Note: No spring oilseed rape was encountered during the 2008 survey

* excludes spring oilseed rape

TABLE 11 Oilseed rape fungicide formulations

Area treated (ha) and percentage of crop treated

Fungicides	Winter oilseed rape		Set aside oilseed rape		All oilseed rape	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Azoxystrobin	788	2	0	0	788	4,326
Azoxystrobin/cyproconazole	3,837	12	0	0	3,837	1,017
Boscalid	13,179	42	0	0	13,179	19,244
Carbendazim	24,076	66	99	100	24,175	13,623
Carbendazim/flusilazole	6,748	19	0	0	6,748	9,081
Famoxadone/flusilazole	6,401	20	99	100	6,499	9,117
Flusilazole	19,861	45	197	100	20,059	13,025
Iprodione/thiophanate-methyl	1,994	6	0	0	1,994	0
Mancozeb	154	+	0	0	154	0
Metconazole	5,237	14	0	0	5,237	12,116
Prochloraz	1,172	4	0	0	1,172	1,236
Prochloraz/tebuconazole	3,083	10	0	0	3,083	2,962
Prothioconazole	20,980	51	0	0	20,980	4,078
Prothioconazole/tebuconazole	7,526	14	0	0	7,526	864
Sulphur	3,797	10	0	0	3,797	11,431
Tebuconazole	10,953	32	0	0	10,953	25,289
All fungicides	129,786	100	395	100	130,181	133,904
Area grown	31,623		99		31,722	35,932

Note: No spring oilseed rape was encountered during the 2008 survey

* excludes spring oilseed rape

'+' = <0.5%

TABLE 12 Oilseed rape herbicide formulations

Area treated (ha) and percentage of crop treated

Herbicides	Winter oilseed rape		Set aside oilseed rape		*All oilseed rape	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Bifenox	263	1	0	0	263	0
Clomazone	6,694	21	0	0	6,694	6,631
Clopyralid	852	3	0	0	852	48
Clopyralid/picloram	1,403	4	99	100	1,502	476
Dimethenamid-P/metazachlor	6,081	19	0	0	6,081	0
Diquat	520	2	0	0	520	91
Fluazifop-P-butyl	866	3	0	0	866	1,570
Glyphosate	17,315	54	99	100	17,413	18,952
Metazachlor	19,210	61	62	63	19,273	23,522
Metazachlor/quinmerac	3,429	11	0	0	3,429	6,778
Propaquizafop	7,404	23	0	0	7,404	17,786
Propyzamide	3,012	10	36	37	3,048	3,610
Quizalofop-P-ethyl	3,884	12	0	0	3,884	885
Quizalofop-P-tefuryl	174	1	0	0	174	0
Trifluralin	3,613	11	36	37	3,650	1,089
All herbicides	74,722	97	332	100	75,054	83,241
Area grown	31,623		99		31,722	35,932

Note: No spring oilseed rape was encountered during the 2008 survey

* excludes spring oilseed rape

TABLE 13 Potato seed treatment formulations

Area treated (ha) and percentage of crop treated

Seed treatments	Seed potatoes		Ware potatoes		Early potatoes		All potatoes	2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Flutolanil	792	7	2,830	16	0	0	3,622	3,604
Imazalil	3,767	32	3,643	21	0	0	7,411	9,515
Imazalil/pencycuron	2,674	23	2,670	15	0	0	5,343	5,079
Imazalil/thiabendazole	216	2	8	+	0	0	224	0
Pencycuron	6,410	55	7,473	43	607	72	14,490	10,759
Unspecified seed treatment	165	1	0	0	0	0	165	62
Area grown	11,720	99	17,279	84	837	72	29,836	28,124

+' = <0.5%

TABLE 14 Potato insecticide and molluscicide formulations

Area treated (ha) and percentage of crop treated

<i>Insecticides</i>	<i>Seed potatoes</i>		<i>Ware potatoes</i>		<i>Early potatoes</i>		<i>All potatoes</i>	<i>2006</i>
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Acetamiprid	335	3	502	3	0	0	837	0
Cypermethrin	1,430	6	0	0	0	0	1,430	140
Flonicamid	2,201	11	224	1	0	0	2,425	132
Fosthiazate	96	1	675	4	155	18	926	821
Lambda-cyhalothrin	24,173	79	9,196	25	244	29	33,613	33,499
Lambda-cyhalothrin/pirimicarb	15,545	49	6,292	23	656	36	22,493	9,282
Oxamyl	550	5	3,187	18	0	0	3,738	2,237
Pirimicarb	9,687	44	4,268	16	155	18	14,110	23,072
Pymetrozine	3,561	25	1,080	4	0	0	4,641	8,079
Thiacloprid	11,833	66	3,167	13	89	11	15,089	3,401
Thiamethoxam	1,667	14	678	4	0	0	2,345	0
<i>All insecticides</i>	71,077	94	29,270	67	1,298	55	101,645	86,669
<i>Molluscicides</i>								
Ferric phosphate	276	2	1,496	2	0	0	1,772	309
Metaldehyde	2,781	12	16,407	31	872	30	20,060	11,726
Methiocarb	7,844	27	14,324	36	585	44	22,753	13,625
<i>All molluscicides</i>	10,901	38	32,227	51	1,457	56	44,586	25,660
Area grown	11,720		17,279		837		29,836	28,124

TABLE 15 Potato fungicide formulations
Area treated (ha) and percentage of crop treated

<i>Fungicides</i>	<i>Seed potatoes</i>		<i>Ware potatoes</i>		<i>Early potatoes</i>		<i>All potatoes</i>	<i>2006</i>
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Amisulbrom	1,379	7	2,568	10	0	0	3,947	0
Azoxystrobin	584	5	1,346	8	155	18	2,085	2,997
Benalaxyl/mancozeb	767	3	0	0	0	0	767	14,472
Benthiavali carb isopropyl/mancozeb	4,672	29	5,952	21	0	0	10,624	3,594
Chlorothalonil	1,156	10	0	0	0	0	1,156	10
Chlorothalonil/mancozeb	107	1	2,768	10	0	0	2,875	619
Chlorothalonil/propamocarb hydrochloride	642	5	1,268	5	189	17	2,098	1,318
Copper oxychloride	0	0	9,665	5	0	0	9,665	569
Cyazofamid	29,934	82	35,813	81	901	61	66,649	19,807
Cymoxanil	22,197	66	36,066	61	1,252	72	59,514	26,533
Cymoxanil/famoxadone	436	2	4,465	15	324	18	5,225	2,059
Cymoxanil/mancozeb	22,032	70	29,584	64	0	0	51,617	53,808
Cymoxanil/propamocarb hydrochloride	62	+	0	0	0	0	62	0
Dimethomorph/mancozeb	3,657	23	7,605	30	431	26	11,692	6,919
Fenamidone/propamocarb hydrochloride	6,815	37	9,136	31	448	30	16,399	3,864
Fluazinam	17,823	73	47,411	84	1,629	88	66,862	55,187
Fluazinam/metalaxyl-M	1,762	8	1,195	4	462	28	3,419	11,614
Fluopicolide/propamocarb hydrochloride	12,083	56	14,735	46	559	47	27,377	9,550

'+' = <0.5%

Cont ...

TABLE 15 Potato fungicide formulations continued

Area treated (ha) and percentage of crop treated

Fungicides	Seed potatoes		Ware potatoes		Early potatoes		All potatoes	2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Mancozeb	1,816	15	2,217	13	196	12	4,229	6,162
Mancozeb/metalaxyl-M	0	0	42	+	0	0	42	13,193
Mancozeb/propamocarb hydrochloride	121	1	461	3	0	0	583	0
Mancozeb/zoxamide	776	3	2,802	10	0	0	3,579	10,541
Mandipropamid	7,942	33	12,854	40	654	60	21,450	0
Maneb	0	0	828	1	0	0	828	343
Propamocarb hydrochloride	309	3	103	+	0	0	412	0
Sulphur	0	0	4,376	6	0	0	4,376	433
All fungicides	137,072	100	233,260	98	7,198	100	377,530	243,848
Area grown	11,720		17,279		837		29,836	28,124

+' = <0.5%

TABLE 16 Potato herbicide formulations
Area treated (ha) and percentage of crop treated

Herbicides	Seed potatoes		Ware potatoes		Early potatoes		All potatoes	2006
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Carfentrazone-ethyl	2,727	21	1,685	10	64	8	4,475	6,222
Clomazone	0	0	403	2	0	0	403	224
Cycloxydim	61	1	14	+	50	6	125	0
Diquat	20,809	87	37,343	91	1,450	72	59,603	17,848
Diquat/paraquat	3,537	30	2,835	16	0	0	6,372	17,499
Linuron	5,155	44	7,791	45	566	68	13,512	17,208
Metribuzin	5,967	51	8,939	50	699	83	15,605	9,517
Paraquat	1,022	9	1,711	10	0	0	2,733	7,333
Prosulfocarb	931	8	3,033	18	98	12	4,062	0
Rimsulfuron	0	0	766	4	0	0	766	1,263
Sulphuric acid	3,634	27	1,917	9	0	0	5,551	13,509
All herbicides	43,844	100	66,437	93	2,925	100	113,206	91,477
Growth regulators								
Maleic hydrazide	0	0	403	2	0	0	403	730
All growth regulators	0	0	403	2	0	0	403	730
Area grown	11,720		17,279		837		29,836	28,124

'+' = <0.5%

TABLE 17 Legume seed treatment formulations

Area treated (ha) and percentage of crop treated

Seed treatments	Combine peas		Field beans		All crops	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Thiram	1,451	98	0	0	1,451	981
Area grown	1,480	98	3,172	0	4,652	6,013

* excludes lupins

TABLE 18 Legume insecticide formulations

Area treated (ha) and percentage of crop treated

Insecticides	Combine peas		Field beans		All crops	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Alpha-cypermethrin	0	0	543	17	543	400
Cypermethrin	0	0	184	6	184	533
Deltamethrin	0	0	182	6	182	463
Lambda-cyhalothrin	235	16	1,111	27	1,346	1,377
Pirimicarb	0	0	40	1	40	214
Zeta-cypermethrin	0	0	235	7	235	98
All insecticides	235	16	2,294	46	2,530	3,085
Area grown	1,480		3,172		4,652	6,013

* excludes lupins

TABLE 19 Legume fungicide formulations

Area treated (ha) and percentage of crop treated

Fungicides	Combine peas		Field beans		All crops	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Azoxystrobin	657	30	1,640	50	2,296	361
Boscalid/pyraclostrobin	0	0	301	9	301	0
Chlorothalonil	657	30	2,250	65	2,906	3,951
Chlorothalonil/cyproconazole	0	0	1,108	35	1,108	1,009
Chlorothalonil/metalaxyl-M	0	0	682	21	682	1,603
Copper oxychloride	0	0	261	7	261	0
Iprodione	0	0	239	8	239	0
Iprodione/thiophanate-methyl	0	0	57	2	57	0
Metconazole	0	0	106	3	106	367
Sulphur	0	0	261	7	261	2,517
Tebuconazole	0	0	904	29	904	0
All fungicides	1,313	30	7,809	89	9,122	11,031
Area grown	1,480		3,172		4,652	6,013

* excludes lupins

TABLE 20 Legume herbicide formulations

Area treated (ha) and percentage of crop treated

Herbicides	Combine peas		Field beans		All crops	*2006
	(ha)	(%)	(ha)	(%)	(ha)	(ha)
Bentazone	150	10	0	0	150	0
Carbetamide	0	0	103	3	103	0
Clomazone	0	0	1,482	47	1,482	576
Cyanazine	235	16	0	0	235	121
Diquat	568	38	478	15	1,046	1,012
Fluazifop-P-butyl	0	0	107	3	107	0
Glyphosate	886	60	1,061	33	1,947	2,397
Imazamox/pendimethalin	1,005	68	782	25	1,786	0
Isoxaben/terbutylazine	211	14	583	18	793	0
MCPA/MCPB	29	2	0	0	29	0
MCPB	150	10	0	0	150	0
Pendimethalin	0	0	1,210	38	1,210	241
Pendimethalin/trifluralin	0	0	543	17	543	0
Simazine	0	0	103	3	103	2,781
Terbutylazine/terbutryn	0	0	27	1	27	993
All herbicides	3,233	100	6,478	85	9,712	9,306
Area grown	1,480		3,172		4,652	6,013

* excludes lupins

TABLE 21 Cereals seed treatment active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Seed treatments	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*All cereals
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Bitertanol	0	0	0	0	3,676	3	173	9	2,658	41	0	0	6,507	593
Carboxin	1,939	3	36,200	14	15,449	14	130	7	57	1	5,872	39	59,645	7,122
Clothianidin	1,900	3	0	0	2,090	2	0	0	0	0	0	0	3,990	380
Fludioxonil	330	1	5,890	2	14,545	13	0	0	1,082	17	1,866	12	23,714	200
Fluoxastrobin	0	0	0	0	6,401	6	0	0	769	12	850	6	8,020	93
Fluquinconazole	324	1	0	0	10,045	9	0	0	0	0	0	0	10,369	1,441
Flutriafol	0	0	1,114	+	0	0	0	0	0	0	0	0	1,114	1
Fuberidazole	1,074	2	3,396	1	10,743	10	173	9	2,658	41	0	0	18,043	114
Imazail	429	1	2,905	1	0	0	0	0	0	0	0	0	3,334	29
Imidacloprid	0	0	0	0	429	+	0	0	0	0	0	0	429	38
Prochloraz	16,468	29	43,032	16	36,418	33	800	42	345	5	478	3	97,693	2,266
Prothioconazole	31,150	54	123,750	47	25,644	23	0	0	1,949	30	2,507	17	185,001	2,015
Silthiofam	0	0	0	0	1,608	1	0	0	0	0	0	0	1,608	71
Tebuconazole	32,243	56	148,270	57	0	0	0	0	0	0	0	0	180,513	990
Tefluthrin	0	0	0	0	3,245	3	0	0	0	0	0	0	3,245	128
Thiram	1,939	3	36,200	14	15,449	14	130	7	57	1	5,872	39	59,645	7,122
Triadimenol	1,074	2	3,396	1	7,066	6	0	0	0	0	0	0	11,536	660
Triazoxide	32,243	56	146,649	56	0	0	0	0	0	0	0	0	178,892	695
Triticonazole	16,572	29	45,936	18	26,373	24	800	42	345	5	478	3	90,657	695
Unspecified seed treatment	555	1	2,058	1	1,564	1	0	0	73	1	0	0	4,250	0
Area grown	57,612	97	262,322	92	111,886	93	1,911	58	6,529	94	15,191	71	456,547	0

** includes triticale, '+' = <0.5%

TABLE 22 Cereals insecticide and molluscicide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

<i>Insecticides</i>	<i>Winter barley</i>		<i>Spring barley</i>		<i>Winter wheat</i>		<i>Spring wheat</i>		<i>Winter oats</i>		<i>Spring oats</i>		<i>*All cereals</i>	<i>*All cereals</i>
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
<i>Pyrethroids</i>														
Alpha-cypermethrin	2,426	4	4,210	2	4,457	4	0	0	0	0	0	0	11,092	126
Bifenthrin	733	1	0	0	1,610	1	0	0	0	0	0	0	2,342	10
Cypermethrin	3,988	7	814	+	8,479	7	0	0	2,401	37	206	1	15,888	350
Deltamethrin	1,802	3	0	0	4,547	4	0	0	0	0	0	0	6,349	24
Esfenvalerate	538	1	0	0	75	+	0	0	0	0	0	0	613	3
Lambda-cyhalothrin	7,990	13	14,357	5	26,249	19	0	0	466	7	1,532	10	50,593	172
Tau-fluvalinate	4,374	8	3,644	1	8,892	7	0	0	42	1	0	0	16,953	435
Zeta-cypermethrin	4,077	7	5,016	2	8,303	7	244	13	949	15	0	0	18,589	179
<i>All pyrethroids</i>	25,929		28,039		62,611		244		3,858		1,738		122,419	1,299
<i>Carbamates</i>														
Pirimicarb	0	0	1,460	1	3,316	3	0	0	0	0	336	2	5,112	233
<i>All carbamates</i>	0		1,460		3,316		0		0		336		5,112	233
<i>Organophosphates</i>														
Chlorpyrifos	138	+	2,338	1	4,381	4	0	0	0	0	0	0	6,857	4,595
Dimethoate	0	0	0	0	2,083	2	0	0	0	0	0	0	2,083	1,263
<i>All organophosphates</i>	138		2,338		6,464		0		0		0		8,940	5,858
<i>All insecticides</i>	26,067	44	31,837	12	72,391	51	244	13	3,858	59	2,074	11	136,471	7,389

** includes triticale, '+' = <0.5%

Cont

TABLE 22 Cereals insecticide and molluscicide active ingredients continued

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Molluscicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*All cereals
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Metaldehyde	7,950	6	0	0	29,322	20	0	0	253	4	0	0	37,638	7,149
Methiocarb	152	+	0	0	4,697	4	0	0	0	0	0	0	4,849	442
Thiodicarb	96	+	0	0	951	1	0	0	0	0	0	0	1,047	112
All molluscicides	8,199	7	0	0	34,970	24	0	0	253	4	0	0	43,534	7,702
Area grown	57,612		262,322		111,886		1,911		6,529		15,191		456,547	

** includes triticale, '+' = <0.5%

TABLE 23 Cereals fungicide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Fungicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*All cereals
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Azoxystrobin	9,447	16	17,572	6	33,750	26	244	13	1,488	23	3,351	22	65,852	5,285
Boscalid	0	0	3,038	1	36,565	30	0	0	0	0	1,289	8	40,892	9,240
Carbendazim	707	1	3,324	1	264	+	0	0	0	0	0	0	4,296	1,033
Chlorothalonil	66,001	91	194,533	64	247,166	94	791	29	842	13	0	0	509,333	219,040
Copper oxychloride	249	+	2,345	1	1,016	1	309	16	0	0	385	3	4,304	1,374
Cyflufenamid	4,155	7	13,085	5	9,439	7	0	0	42	1	402	3	27,123	154
Cyproconazole	4,217	5	9,410	3	46,204	32	0	0	1,367	21	3,351	22	64,549	2,454
Cyprodinil	28,981	38	28,522	11	8,173	7	0	0	0	0	0	0	65,693	14,817
Dimoxystrobin	0	0	0	0	21,053	19	0	0	0	0	0	0	21,053	2,072
Epoxiconazole	15,363	20	46,026	15	170,271	85	1,649	70	3,363	48	8,537	44	245,970	14,013
Famoxadone	2,422	4	19,026	7	10,576	9	0	0	0	0	0	0	32,024	1,466
Fenpropidin	4,247	7	17,888	6	3,767	3	0	0	0	0	0	0	25,919	6,842
Fenpropimorph	36,493	49	168,976	48	72,608	44	634	24	5,937	69	7,069	44	292,478	52,923
Fluoxastrobin	25,529	34	67,107	21	5,022	4	0	0	0	0	170	1	97,828	4,662
Fluquinconazole	0	0	0	0	4,054	4	0	0	0	0	0	0	4,054	266
Flusilazole	17,484	26	88,186	28	16,586	11	0	0	0	0	323	2	122,579	7,705
Flutriafol	0	0	0	0	4,290	4	0	0	0	0	0	0	4,290	209
Kresoxim-methyl	2,516	4	4,126	1	14,839	11	288	15	787	12	998	7	23,555	1,578

** includes triticale, '+' = <0.5%

Cont

TABLE 23 Cereals fungicide active ingredients continued

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Fungicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*All cereals
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Mancozeb	1,511	3	1,309	+	31,256	20	0	0	0	0	0	0	34,075	18,565
Metconazole	503	1	1,722	1	5,100	5	0	0	0	0	0	0	7,325	221
Metrafenone	4,347	7	35,074	12	49,700	40	685	36	4,767	54	6,707	32	101,281	5,628
Picoxystrobin	8,574	12	32,720	11	5,714	5	0	0	73	1	0	0	47,081	3,399
Prochloraz	565	1	5,531	2	24,770	17	0	0	0	0	0	0	30,866	6,560
Propiconazole	5,468	9	8,619	3	35,188	24	0	0	0	0	0	0	49,275	3,671
Proquinazid	8,227	10	19,008	7	13,395	11	346	9	259	4	4,339	29	45,574	1,131
Prothioconazole	84,400	89	186,034	55	102,289	58	0	0	43	1	170	1	372,935	29,139
Pyraclostrobin	10,789	16	51,128	19	43,707	33	475	16	968	15	2,989	20	110,056	7,362
Quinoxifen	0	0	5,435	2	3,181	3	0	0	838	13	459	3	9,912	379
Spiroxamine	26,714	35	47,937	16	23,659	16	0	0	43	1	0	0	98,353	17,223
Sulphur	3,821	7	4,182	2	8,860	7	309	16	0	0	385	3	17,669	55,770
Tebuconazole	15,871	22	40,595	14	76,267	47	0	0	194	3	0	0	133,688	10,084
Tetraconazole	0	0	0	0	632	1	0	0	0	0	0	0	632	26
Triadimenol	0	0	0	0	1,654	1	0	0	0	0	0	0	1,654	124
Trifloxystrobin	27,028	36	85,240	29	14,200	11	0	0	0	0	0	0	126,467	5,900
All fungicides	415,631	100	1,207,699	85	1,145,217	97	5,729	87	21,009	100	40,923	71	2,838,637	510,315
Area grown	57,612		262,322		111,886		1,911		6,529		15,191		456,547	

** includes triticale, '+' = <0.5%

TABLE 24 Cereals herbicide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Herbicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*All cereals
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
2,4-D	0	0	1,036	+	0	0	0	0	0	0	0	0	1,036	162
2,4-DB	0	0	4,900	2	0	0	0	0	0	0	0	0	4,900	3,346
Amidosulfuron	146	+	133	+	995	1	0	0	0	0	0	0	1,274	28
Bentazone	0	0	1,031	+	0	0	0	0	0	0	0	0	1,031	989
Bromoxynil	393	1	59,186	23	2,297	2	130	7	133	2	3,640	24	65,778	9,604
Carfentrazone-ethyl	0	0	0	0	0	0	0	0	1,750	27	0	0	1,750	33
Chlorotoluron	3,186	6	0	0	2,043	2	0	0	0	0	0	0	5,229	3,948
Clodinafop-propargyl	0	0	0	0	3,111	3	0	0	0	0	0	0	3,111	58
Clopyralid	0	0	351	+	590	1	0	0	652	10	0	0	1,593	95
Dicamba	314	1	36,782	14	1,889	2	173	9	0	0	2,468	16	41,626	1,763
Dichlorprop-P	0	0	5,114	2	0	0	0	0	0	0	0	0	5,114	3,010
Diflufenican	31,139	54	1,190	+	45,659	41	0	0	0	0	0	0	77,989	3,779
Fenoxaprop-P-ethyl	73	+	0	0	2,462	2	0	0	0	0	0	0	2,535	143
Florasulam	1,233	2	351	+	3,237	3	0	0	652	10	459	3	5,932	15
Flufenacet	7,647	13	0	0	10,826	10	0	0	0	0	0	0	18,473	2,599
Flupyrsulfuron-methyl	0	0	0	0	7,193	6	0	0	4,292	66	0	0	11,485	91
Fluroxypyr	3,122	5	7,541	3	15,304	13	0	0	1,415	22	941	6	29,083	2,999
Flurtamone	4,413	8	0	0	8,743	8	0	0	0	0	0	0	13,155	1,325

** includes triticale, '+' = <0.5%

Cont

TABLE 24 Cereals herbicide active ingredients continued

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Herbicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*All cereals
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Glyphosate**	32,197	54	62,248	23	28,848	25	800	42	763	12	204	1	**125,060	88,486
Iodosulfuron-methyl-sodium	0	0	159	+	2,971	3	0	0	0	0	0	0	3,129	8
Ioxynil	393	1	46,522	18	1,239	1	130	7	133	2	3,316	22	51,733	5,517
Isoproturon	39,946	69	5,059	2	72,020	64	0	0	0	0	0	0	117,025	104,621
Linuron	0	0	3,982	2	0	0	0	0	0	0	0	0	3,982	351
MCPA	0	0	16,845	6	372	+	0	0	0	0	126	1	17,343	8,033
MCPB	0	0	2,901	1	0	0	0	0	0	0	0	0	2,901	3,269
Mecoprop-P	11,018	18	169,917	64	38,516	32	1,347	70	3,206	45	9,087	60	233,109	104,390
Mesosulfuron-methyl	0	0	8,947	3	2,813	3	130	7	0	0	0	0	11,889	43
Metsulfuron-methyl	4,093	7	144,456	55	12,999	12	973	51	2,535	39	9,520	63	175,354	568
Pendimethalin	27,921	48	0	0	51,082	46	0	0	0	0	0	0	79,763	50,860
Picolinafen	18,309	32	0	0	34,801	31	0	0	0	0	0	0	53,110	1,413
Pinoxaden	967	2	18,303	7	6,254	6	0	0	0	0	0	0	25,524	592
Propoxycarbazone-sodium	0	0	0	0	94	+	0	0	0	0	0	0	94	7
Prosulfocarb	1,289	2	41	+	2,029	2	0	0	0	0	0	0	3,359	5,855
Sulfosulfuron	0	0	0	0	3,422	3	0	0	0	0	0	0	3,422	65
Thifensulfuron-methyl	2,274	4	178,415	68	12,122	11	1,174	61	228	3	0	0	194,214	4,600

**' includes triticale, '+' = <0.5%

***' pre-harvest treatments accounted for 80% of the total area treated with glyphosate

Cont

TABLE 24 Cereals herbicide active ingredients continued

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Herbicides	Winter barley		Spring barley		Winter wheat		Spring wheat		Winter oats		Spring oats		*All cereals	*All cereals
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Tralkoxydim	3,092	5	12,747	5	1,591	1	0	0	0	0	0	0	17,431	3,097
Tribenuron-methyl	7,572	13	95,569	36	18,490	16	173	9	2,722	42	5,021	33	130,307	877
Trifluralin	4,580	8	0	0	6,452	6	0	0	0	0	0	0	11,032	5,887
All herbicides	205,317	98	883,728	93	400,466	96	5,029	70	18,480	99	34,782	68	1,550,878	422,525
Growth regulators														
2-chloroethylphosphonic acid	41,451	71	8,774	3	32,488	29	0	0	652	10	0	0	84,126	15,751
Chlormequat	69,675	87	20,182	7	147,433	89	547	29	5,320	71	9,168	60	253,085	182,852
Imazaquin	0	0	0	0	15,665	12	0	0	0	0	0	0	15,665	15
Mepiquat chloride	11,376	26	1,384	1	31,082	23	0	0	0	0	0	0	49,842	9,300
Prohexadione-calcium	8,856	15	0	0	22,796	19	0	0	0	0	0	0	31,652	856
Trinexapac-ethyl	28,532	49	5,761	2	60,789	47	244	13	2,960	45	5,478	36	104,525	3,940
All growth regulators	165,890	92	36,101	12	310,253	95	791	29	8,931	77	14,646	60	538,895	212,714
Area grown	57,612		262,322		111,886		1,911		6,529		15,191		456,547	

** includes triticale

TABLE 25 Oilseed rape seed treatment active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Seed treatments	Winter oilseed rape		Set aside oilseed rape		All oilseed rape	All oilseed rape
	(ha)		(ha)		(ha)	(kg)
Beta-cyfluthrin	27,225	86	36	37	27,262	211
Fludioxonil	1,672	5	62	63	1,734	1
Imidacloprid	27,225	86	36	37	27,262	211
Iprodione	5,101	16	0	0	5,101	49
Metalaxyl-M	1,672	5	62	63	1,734	4
Prochloraz	12,875	41	0	0	12,875	69
Thiamethoxam	1,672	5	62	63	1,734	35
Thiram	21,803	69	0	0	21,803	254
Unspecified seed treatment	125	+	0	0	125	
Area grown	31,623	97	99	100	31,722	

‘+’ = <0.5%

TABLE 26 Oilseed rape insecticide and molluscicide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

<i>Insecticides</i>	<i>Winter oilseed rape</i>		<i>Set aside oilseed rape</i>		<i>All oilseed rape</i>	<i>All oilseed rape</i>
	(ha)	(%)	(ha)	(%)	(ha)	(kg)
<i>Pyrethroids</i>						
Alpha-cypermethrin	1,565	5	0	0	1,565	23
Bifenthrin	547	2	0	0	547	2
Cypermethrin	4,536	13	0	0	4,536	104
Deltamethrin	648	2	0	0	648	4
Lambda-cyhalothrin	13,042	24	0	0	13,042	64
Tau-fluvalinate	10,516	30	99	100	10,615	369
Zeta-cypermethrin	3,034	9	99	100	3,133	32
<i>All pyrethroids/insecticides</i>	33,890	71	197	100	34,087	599
<i>Molluscicides</i>						
Metaldehyde	9,824	27	99	100	9,923	2,502
Methiocarb	2,548	7	0	0	2,548	230
<i>All molluscicides</i>	12,372	34	99	100	12,471	2,732
Area grown	31,623		99		31,722	

TABLE 27 Oilseed rape fungicide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Fungicides	Winter oilseed rape		Set aside oilseed rape		All oilseed rape	All oilseed rape
	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Azoxystrobin	4,626	15	0	0	4,626	722
Boscalid	13,179	42	0	0	13,179	2,939
Carbendazim	30,825	75	99	100	30,923	7,287
Cyproconazole	3,837	12	0	0	3,837	236
Famoxadone	6,401	20	99	100	6,499	696
Flusilazole	33,010	63	296	100	33,306	3,690
Iprodione	1,994	6	0	0	1,994	675
Mancozeb	154	+	0	0	154	97
Metconazole	5,237	14	0	0	5,237	174
Prochloraz	4,255	13	0	0	4,255	1,244
Prothioconazole	28,506	65	0	0	28,506	3,203
Sulphur	3,797	10	0	0	3,797	18,354
Tebuconazole	20,752	46	0	0	20,752	2,751
Thiophanate-methyl	1,994	6	0	0	1,994	675
All fungicides	158,565	100	493	100	159,058	42,743
Area grown	31,623		99		31,722	

'+' = <0.5%

TABLE 28 Oilseed rape herbicide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Herbicides	Winter oilseed rape		Set aside oilseed rape		All oilseed rape	All oilseed rape
	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Bifenox	263	1	0	0	263	126
Clomazone	6,694	21	0	0	6,694	436
Clopyralid	2,255	7	99	100	2,354	197
Dimethenamid-P	6,081	19	0	0	6,081	2,465
Diquat	520	2	0	0	520	280
Fluazifop-P-butyl	866	3	0	0	866	82
Glyphosate	17,315	54	99	100	17,413	21,460
Metazachlor	28,578	89	62	63	28,641	17,333
Picloram	1,403	4	99	100	1,502	35
Propaquizafop	7,404	23	0	0	7,404	333
Propyzamide	3,012	10	36	37	3,048	1,401
Quinmerac	3,429	11	0	0	3,429	627
Quizalofop-P-ethyl	3,884	12	0	0	3,884	96
Quizalofop-P-tefuryl	174	1	0	0	174	6
Trifluralin	3,613	11	36	37	3,650	2,135
All herbicides	85,493	97	431	100	85,924	47,011
Area grown	31,623		99		31,722	

TABLE 29 Potato seed treatment active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Seed treatments	Seed potatoes		Ware potatoes		Early potatoes		All potatoes	All potatoes
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Flutolanil	792	7	2,830	16	0	0	3,622	895
Imazalil	6,355	54	6,321	37	0	0	12,677	379
Pencycuron	9,084	78	10,143	59	607	72	19,833	10,563
Thiabendazole	216	2	8	+	0	0	224	20
Unspecified seed treatment	165	1	0	0	0	0	165	
Area grown	11,720	99	17,279	84	837	72	29,836	

'+' = <0.5%

TABLE 30 Potato insecticide and molluscicide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

<i>Insecticides</i>	<i>Seed potatoes</i>		<i>Ware potatoes</i>		<i>Early potatoes</i>		<i>All potatoes</i>	<i>All potatoes</i>
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
<i>Pyrethroids</i>								
Cypermethrin	1,430	6	0	0	0	0	1,430	35
Lambda-cyhalothrin	39,718	88	15,488	41	899	55	56,106	308
<i>All pyrethroids</i>	41,148		15,488		899		57,536	343
<i>Carbamates</i>								
Oxamyl	550	5	3,187	18	0	0	3,738	7,365
Pirimicarb	25,232	75	10,560	34	811	55	36,603	4,026
<i>All carbamates</i>	25,782		13,748		811		40,341	11,391
<i>Organophosphates</i>								
Fosthiazate	96	1	675	4	155	18	926	1,686
<i>All organophosphates</i>	96		675		155		926	1,686
<i>Neonicotinoids</i>								
Acetamiprid	335	3	502	3	0	0	837	42
Thiacloprid	11,833	66	3,167	13	89	11	15,089	1,259
Thiamethoxam	1,667	14	678	4	0	0	2,345	33
<i>All neonicotinoids</i>	13,834		4,347		89		18,270	1,334

Cont

TABLE 30 Potato insecticide and molluscicide active ingredients continued
 Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

<i>Insecticides</i>	<i>Seed potatoes</i>		<i>Ware potatoes</i>		<i>Early potatoes</i>		<i>All potatoes</i>	<i>All potatoes</i>
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
<i>Others</i>								
Flonicamid	2,201	11	224	1	0	0	2,425	193
Pymetrozine	3,561	25	1,080	4	0	0	4,641	645
<i>All others</i>	5,762		1,304		0		7,066	838
<i>All insecticides</i>	86,623	94	35,562	67	1,954	55	124,138	15,592
<i>Molluscicides</i>								
Ferric phosphate	276	2	1,496	2	0	0	1,772	101
Metaldehyde	2,781	12	16,407	31	872	30	20,060	3,576
Methiocarb	7,844	27	14,324	36	585	44	22,753	1,958
<i>All molluscicides</i>	10,901	38	32,227	51	1,457	56	44,586	5,634
Area grown	11,720		17,279		837		29,836	

TABLE 31 Potato fungicide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Fungicides	Seed potatoes		Ware potatoes		Early potatoes		All potatoes	All potatoes
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Amisulbrom	1,379	7	2,568	10	0	0	3,947	395
Azoxystrobin	584	5	1,346	8	155	18	2,085	1,191
Benalaxyl	767	3	0	0	0	0	767	123
Benthiavali carb isopropyl	4,672	29	5,952	21	0	0	10,624	290
Chlorothalonil	1,904	15	4,036	10	189	17	6,128	3,196
Copper oxychloride	0	0	9,665	5	0	0	9,665	4,159
Cyazofamid	29,934	82	35,813	81	901	61	66,649	5,309
Cymoxanil	42,856	91	67,083	88	1,575	72	111,514	9,577
Dimethomorph	3,657	23	7,605	30	431	26	11,692	1,725
Famoxadone	436	2	4,465	15	324	18	5,225	635
Fenamidone	6,815	37	9,136	31	448	30	16,399	2,436
Fluazinam	19,585	73	48,606	84	1,758	88	69,948	12,254
Fluopicolide	12,083	56	14,735	46	559	47	27,377	2,486
Mancozeb	33,647	92	51,431	87	626	37	85,705	101,430
Mandipropamid	7,942	33	12,854	40	654	60	21,450	2,868
Maneb	0	0	828	1	0	0	828	795
Metalaxyl-M	1,762	8	1,237	5	462	28	3,461	214
Propamocarb hydrochloride	20,032	74	25,703	62	1,196	47	46,931	39,675
Sulphur	0	0	4,376	6	0	0	4,376	6,582
Zoxamide	776	3	2,802	10	0	0	3,579	535
All fungicides	188,832	100	310,240	98	9,278	100	508,350	195,873
Area grown	11,720		17,279		837		29,836	

TABLE 32 Potato herbicide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Herbicides	Seed potatoes		Ware potatoes		Early potatoes		All potatoes	All potatoes
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Carfentrazone-ethyl	2,727	21	1,685	10	64	8	4,475	153
Clomazone	0	0	403	2	0	0	403	15
Cycloxydim	61	1	14	+	50	6	125	55
Diquat	24,346	93	40,127	92	1,450	72	65,923	25,014
Linuron	5,155	44	7,791	45	566	68	13,512	13,217
Metribuzin	5,967	51	8,939	50	699	83	15,605	8,692
Paraquat	4,559	39	4,546	26	0	0	9,105	2,835
Prosulfocarb	931	8	3,033	18	98	12	4,062	10,412
Rimsulfuron	0	0	766	4	0	0	766	7
Sulphuric acid	3,634	27	1,917	9	0	0	5,551	812,513
All herbicides	47,381	100	69,220	93	2,925	100	119,526	872,913
Growth regulators								
Maleic hydrazide	0	0	403	2	0	0	403	968
All growth regulators	0	0	403	2	0	0	403	968
Area grown	11,720		17,279		837		29,836	

‘+’ = <0.5%

TABLE 33 Legume seed treatment active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Seed treatments	Combine peas		Field beans		All crops	All crops
	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Thiram	1,451	98	0	0	1,451	187
Area grown	1,480	98	3,172	0	4,652	

TABLE 34 Legume insecticide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Insecticides	Combine peas		Field beans		All crops	All crops
	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Pyrethroids						
Alpha-cypermethrin	0	0	543	17	543	8
Cypermethrin	0	0	184	6	184	5
Deltamethrin	0	0	182	6	182	1
Lambda-cyhalothrin	235	16	1,111	27	1,346	9
Zeta-cypermethrin	0	0	235	7	235	2
All pyrethroids	235		2,254		2,489	25
Carbamates	0	0	0	0	0	0
Pirimicarb	0	0	40	1	40	3
All carbamates	0		40		40	3
All insecticides	235	16	2,294	46	2,530	28
Area grown	1,480		3,172		4,652	

TABLE 35 Legume fungicide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Fungicides	Combine peas		Field beans		All crops	All crops
	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Azoxystrobin	657	30	1,640	50	2,296	278
Boscalid	0	0	301	9	301	55
Chlorothalonil	657	30	3,914	88	4,570	2,473
Copper oxychloride	0	0	261	7	261	59
Cyproconazole	0	0	1,108	35	1,108	57
Iprodione	0	0	296	9	296	80
Metalaxyl-M	0	0	682	21	682	25
Metconazole	0	0	106	3	106	5
Pyraclostrobin	0	0	301	9	301	14
Sulphur	0	0	261	7	261	183
Tebuconazole	0	0	904	29	904	113
Thiophanate-methyl	0	0	57	2	57	19
All fungicides	1,313	30	9,831	89	11,144	3,360
Area grown	1,480		3,172		4,652	

TABLE 36 Legume herbicide active ingredients

Area treated (ha) and percentage of crop treated, and weights (kg) of active ingredients for all crops

Herbicides	Combine peas		Field beans		All crops	All crops
	(ha)	(%)	(ha)	(%)	(ha)	(kg)
Bentazone	150	10	0	0	150	98
Carbetamide	0	0	103	3	103	185
Clomazone	0	0	1,482	47	1,482	99
Cyanazine	235	16	0	0	235	206
Diquat	568	38	478	15	1,046	509
Fluazifop-P-butyl	0	0	107	3	107	14
Glyphosate	886	60	1,061	33	1,947	2,055
Imazamox	1,005	68	782	25	1,786	96
Isoxaben	211	14	583	18	793	50
MCPA	29	2	0	0	29	1
MCPB	179	12	0	0	179	110
Pendimethalin	1,005	68	2,535	80	3,540	2,573
Simazine	0	0	103	3	103	103
Terbutylazine	211	14	610	19	820	288
Terbutryn	0	0	27	1	27	20
Trifluralin	0	0	543	17	543	289
All herbicides	4,478	100	8,413	85	12,891	6,695
Area grown	1,480		3,172		4,652	

TABLE 37 Principal active ingredients

Area (area treated × 1000) treated with the 50 most used active ingredients, including seed treatments, on all crops surveyed

	<i>Ai</i>	Type	2008	2006
1	Prothioconazole	F/S	586	345
2	Chlorothalonil	F	520	442
3	Tebuconazole	F/S	336	304
4	Fenpropimorph	F	292	262
5	Chlormequat	G	253	205
6	Epoxiconazole	F	246	165
7	Mecoprop-P	H	233	218
8	Thifensulfuron-methyl	H	194	151
9	Triazoxide	S	179	185
10	Metsulfuron-methyl	H	175	155
11	Flusilazole	F	156	172
12	Prochloraz	F/S	146	46
13	Glyphosate	H	145	103
14	Tribenuron-methyl	H	130	112
15	Trifloxystrobin	F	126	73
16	Lambda-cyhalothrin	I	121	77
17	Mancozeb	F	120	119
18	Isoproturon	H	117	112
19	Cymoxanil	F	112	82
20	Pyraclostrobin	F	110	86
21	Fluoxastrobin	F/S	106	76
22	Trinexapac-ethyl	G	105	98
23	Metrafenone	F	101	37
24	Spiroxamine	F	98	50
25	Triticonazole	S	91	49
26	2-Chloroethylphosphonic acid	G	84	62
27	Pendimethalin	H	83	70
28	Thiram	S	83	35
29	Diffufenican	H	78	54
30	Azoxystrobin	F	75	69
31	Fluazinam	F	70	66
32	Cyproconazole	F	69	56
33	Metaldehyde	M	68	27
34	Diquat	H	67	36
35	Cyazofamid	F	67	20
36	Bromoxynil	H	66	54
37	Cyprodinil	F	66	52
38	Carboxin	S	60	8
39	Boscalid	F	54	53
40	Picolinafen	H	53	44
41	Ioxynil	H	52	46
42	Mepiquat chloride	G	50	11
43	Propiconazole	F	49	22
44	Picoxystrobin	F	47	45
45	Propamocarb	F	47	15
46	Proquinazid	F	46	32
47	Famoxadone	F	44	64
48	Pirimicarb	I	42	37
49	Dicamba	H	42	49
50	Carbendazim	F	35	43

TABLE 38 Principal active ingredients

Quantity (tonnes) of the 50 most used active ingredients, including seed treatments, on all crops surveyed

	<i>Ai</i>	Type	2008	2006
1	Sulphuric acid	H	813	2,013
2	Chlorothalonil	F	225	199
3	Chlormequat	G	183	156
4	Mancozeb	F	120	142
5	Glyphosate	H	112	90
6	Isoproturon	H	105	100
7	Mecoprop-P	H	104	98
8	Sulphur	F	81	128
9	Pendimethalin	H	53	47
10	Fenpropimorph	F	53	49
11	Propamocarb	F	40	12
12	Prothioconazole	F/S	34	20
13	Diquat	H	26	10
14	Metazachlor	H	17	20
15	Spiroxamine	F	17	9
16	Prosulfocarb	H	16	0
17	2-Chloroethylphosphonic acid	G	16	11
18	Cyprodinil	F	15	14
19	Epoxiconazole	F	14	9
20	Tebuconazole	F/S	14	12
21	Linuron	H	14	19
22	Metaldehyde	M	13	8
23	Fluazinam	F	12	10
24	Boscalid	F	12	10
25	Flusilazole	F	11	13
26	Pencycuron	S	11	11
27	Prochloraz	F/S	10	4
28	Bromoxynil	H	10	7
29	Cymoxanil	F	10	7
30	Mepiquat chloride	G	9	3
31	Metribuzin	H	9	5
32	Carbendazim	F	8	8
33	Trifluralin	H	8	11
34	MCPA	H	8	31
35	Thiram	S	8	1
36	Azoxystrobin	F	7	8
37	Pyraclostrobin	F	7	6
38	Oxamyl	I	7	4
39	Carboxin	S	7	1
40	Fenpropidin	F	7	1
41	Trifloxystrobin	F	6	3
42	Metrafenone	F	6	2
43	Copper oxychloride	F	6	1
44	Ioxynil	H	6	4
45	Cyazofamid	F	5	2
46	Fluoxastrobin	F/S	5	4
47	Thifensulfuron-methyl	H	5	3
48	Chlorpyrifos	I	5	4
49	Pirimicarb	I	4	4
50	Chlorotoluron	H	4	5

For table 37 and table 38 the pesticide type is shown (H: Herbicide, F: Fungicide, I: Insecticide, S: seed-treatment, G: growth regulator & M: molluscicide)

TABLE 39 Total Arable, comparison with previous years

Pesticide usage in 2004, 2006 and 2008, area treated with formulations and active ingredients (a.i.) and the quantities applied.

	2004			2006			2008		
	<i>Formulations (ha)</i>	<i>a.i. (ha)</i>	<i>kg</i>	<i>Formulations (ha)</i>	<i>a.i. (ha)</i>	<i>kg</i>	<i>Formulations (ha)</i>	<i>a.i. (ha)</i>	<i>kg</i>
Insecticides & nematicides									
Pyrethroids	114,888	135,494	1,481	151,540	161,202	2,088	193,703	216,532	2,266
Organophosphates	9,418	9,418	6,217	8,448	8,448	5,683	9,866	9,866	7,544
Carbamates	19,556	40,162	4,785	30,574	40,236	10,770	22,664	45,493	11,627
Others	12,060	12,061	1,701	11,612	11,612	1,410	25,335	25,336	2,172
Mixed formulations	20,606	0	0	9,661	0	0	22,829	0	0
All insecticides & nematicides	176,528	197,135	14,184	211,837	221,498	19,952	274,397	297,227	23,608
Molluscicides	60,057	60,057	13,634	45,272	45,272	10,232	100,591	100,591	16,068
Fungicides	2,153,455	3,007,178	823,446	1,912,363	2,708,012	697,460	2,370,783	3,517,189	752,291
Herbicides/desiccants	1,234,036	1,709,008	6,006,543	1,100,859	1,537,976	2,514,861	1,285,667	1,769,483	1,349,385
Growth regulators	372,396	459,930	200,423	332,693	391,744	175,745	444,918	539,298	213,682
Seed treatments	539,819	900,547	38,855	473,248	878,300	28,087	556,396	1,085,806	37,530
All pesticides	4,536,291	6,333,855	7,097,085	4,076,272	5,782,802	3,446,337	5,032,752	7,309,594	2,392,564
Area planted (ha)	583,762			533,937			540,026		

NOTE: Unspecified treatments have been included in the formulation and active ingredient areas, however, as their weights are unknown they cannot be included in the quantities applied. Total Arable includes cereals, oilseeds, potatoes, legumes, set aside and minor crops, although there may be minor differences in the range of crops surveyed between survey years.

TABLE 40 Cereals, comparison with previous years

Pesticide usage in 2004, 2006 and 2008, area treated with formulations and active ingredients (a.i.) and the quantities applied.

	2004			2006			2008		
	<i>Formulations (ha)</i>	<i>a.i. (ha)</i>	<i>kg</i>	<i>Formulations (ha)</i>	<i>a.i. (ha)</i>	<i>kg</i>	<i>Formulations (ha)</i>	<i>a.i. (ha)</i>	<i>kg</i>
Insecticides									
Pyrethroids	54,174	54,174	707	72,581	72,581	1,081	122,083	122,419	1,299
Organophosphates	9,418	9,418	6,217	7,575	7,575	4,420	8,940	8,940	5,858
Carbamates	2,200	2,200	164	3,749	3,749	160	4,776	5,112	233
Mixed formulations	0	0	0	0	0	0	336	0	0
All insecticides	65,792	65,792	7,088	83,905	83,905	5,661	136,135	136,471	7,389
Molluscicides	6,149	6,149	1,470	11,685	11,685	2,588	43,534	43,534	7,702
Fungicides	1,719,351	2,390,469	496,169	1,519,871	2,160,238	428,767	1,853,950	2,838,637	510,315
Herbicides	1,033,235	1,480,640	454,861	903,767	1,315,326	391,456	1,087,430	1,550,878	422,525
Growth regulators	372,216	459,750	200,274	331,963	391,014	173,611	444,515	538,895	212,714
Seed treatments	411,795	741,909	18,351	363,136	736,937	13,848	424,220	948,203	24,652
All pesticides	3,608,538	5,144,709	1,178,213	3,214,327	4,699,105	1,015,931	3,989,784	6,056,618	1,185,297
Area planted (ha)	440,963			397,664			456,547		

NOTE: Unspecified treatments have been included in the formulation and active ingredient areas, however, as their weights are unknown they cannot be included in the quantities applied.

TABLE 41 Potatoes, comparison with previous years

Pesticide usage in 2004, 2006 and 2008, area treated with formulations and active ingredients (a.i.) and the quantities applied

	2004			2006			2008		
	<i>Formulations (ha)</i>	<i>a.i. (ha)</i>	<i>kg</i>	<i>Formulations (ha)</i>	<i>a.i. (ha)</i>	<i>kg</i>	<i>Formulations (ha)</i>	<i>a.i. (ha)</i>	<i>kg</i>
Insecticides & nematocides									
Pyrethroids	26,374	46,980	337	38,230	47,891	307	35,043	57,536	343
Organophosphates	0	0	0	821	821	1,232	926	926	1,686
Carbamates	17,140	37,746	4,846	26,344	36,005	10,528	17,848	40,341	11,391
Others	11,466	11,466	1,412	11,991	11,612	1,410	25,335	25,335	2,172
Mixed formulations	20,606	0	0	9,282	0	0	22,493	0	0
All insecticides & nematocides	75,586	96,192	6,595	86,668	96,329	13,477	101,645	124,138	15,592
Molluscicides	48,807	48,807	11,082	25,660	25,660	4,774	44,586	44,586	5,634
Fungicides	280,954	428,357	230,562	243,848	374,036	179,657	377,530	508,350	195,873
Herbicides/desiccants	108,643	127,671	5,473,250	91,477	108,977	2,054,761	113,206	119,526	872,913
Growth regulators	0	0	0	730	730	2,134	403	403	968
Seed treatments	34,982	45,168	18,975	29,553	33,162	12,927	31,255	36,521	11,857
All pesticides	548,972	746,195	5,740,464	477,936	638,894	2,267,730	668,625	833,524	1,102,837
Area planted (ha)	29,352			28,124			29,836		

NOTE: Unspecified treatments have been included in the formulation and active ingredient areas, however, as their weights are unknown they cannot be included in the quantities applied.

TABLE 42 Sampled area

Size (ha)	Highlands & Islands	Caithness & Orkney	Moray Firth	Aberdeen	Angus	East Fife	Lothian	Central Lowlands	Tweed Valley	S.Uplands	Solway
0.1-19.9	11	18	14	34	32	12	0	50	14	17	27
20-49.9	21	62	247	537	290	81	58	276	110	27	130
50-99.9	66	66	639	1,293	1,222	464	408	693	476	66	148
100-149.9	0	0	802	1,044	1,742	617	825	812	1,132	124	140
150+	0	0	2,500	4,085	5,206	2,356	3,364	1,732	3,810	177	215
All sizes	98	146	4,203	6,993	8,493	3,530	4,655	3,563	5,542	412	661

TABLE 43 Census area

Size (ha)	Highlands & Islands	Caithness & Orkney	Moray Firth	Aberdeen	Angus	East Fife	Lothian	Central Lowlands	Tweed Valley	S.Uplands	Solway
0.1-19.9	2,322	4,082	3,644	9,089	2,889	771	1,083	6,939	1,336	1,241	3,916
20-49.9	1,985	3,418	8,457	23,102	11,670	3,637	2,600	12,944	3,627	1,315	6,176
50-99.9	1,521	2,069	12,938	32,449	24,126	10,400	7,192	15,593	8,467	1,761	3,948
100-149.9	695	783	9,140	21,134	21,511	9,009	9,907	8,805	13,111	1,057	984
150+	0	355	19,370	32,032	45,695	19,339	23,923	13,145	34,493	1,978	2,303
All sizes	6,524	10,707	53,548	117,806	105,891	43,155	44,704	57,427	61,034	7,351	17,327

TABLE 44 Raising factors

Size (ha)	Highlands & Islands	Caithness & Orkney	Moray Firth	Aberdeen	Angus	East Fife	Lothian	Central Lowlands	Tweed Valley	S.Uplands	Solway
0.1-19.9	202.13	230.88	252.73	269.94	88.92	65.75	NA	137.46	97.53	74.55	143.80
20-49.9	96.68	55.06	34.21	43.05	40.24	44.65	44.54	46.98	32.94	48.08	47.34
50-99.9	23.19	31.41	20.25	25.09	19.74	22.44	17.63	22.51	17.78	26.48	26.66
100-149.9	NA	NA	11.39	20.24	12.35	14.60	12.01	10.85	11.59	8.51	7.01
150+	NA	NA	7.75	7.84	8.78	8.21	7.11	7.59	9.05	11.19	10.74

'NA' not applicable

TABLE 45 First and second adjustment factors

	Highlands & Islands	Caithness & Orkney	Moray Firth	Aberdeen	Angus	East Fife	Lothian	Central Lowlands	Tweed Valley	Southern Uplands	Solway	Adj 2
Winter barley	NA	NA	1.34	0.79	1.64	1.66	0.84	0.99	1.03	1.38	0.63	1.01
Spring barley	0.95	1.42	0.98	0.94	0.84	0.85	1.01	0.92	0.93	0.82	1.15	1.00
Wheat	NA	0.10	0.88	1.26	1.21	1.06	1.04	0.92	0.96	1.15	0.79	1.00
Winter oats	NA	NA	NA	NA	0.51	0.49	NA	1.94	1.61	NA	NA	1.25
Spring oats	2.79	0.82	0.98	7.03	0.68	1.59	0.87	1.84	0.95	NA	NA	1.06
Triticale	0.11	NA	1.32	NA	NA	NA	0.66	NA	2.97	NA	NA	2.11
Winter oilseed rape	NA	NA	1.44	1.29	1.13	0.84	0.98	1.18	0.89	NA	0.45	1.01
Seed potatoes	NA	NA	0.90	1.36	1.25	1.70	0.73	1.68	1.28	NA	NA	1.01
Early potatoes	NA	NA	NA	NA	0.98	NA	0.63	2.46	NA	NA	NA	1.59
Ware potatoes	3.20	NA	1.25	1.92	0.96	1.34	1.61	1.68	2.86	NA	NA	1.02
Combine peas	NA	NA	2.24	NA	NA	0.74	NA	0.88	NA	NA	NA	2.42
Field beans	NA	NA	0.15	NA	0.80	0.79	1.26	0.78	1.08	NA	NA	1.05
Lupins	NA	NA	0.07	NA	NA	NA	NA	NA	NA	NA	NA	14.58
All set-aside	0.95	0.12	3.62	2.00	1.00	4.41	1.29	0.44	0.76	1.66	1.29	1.00

'NA' not applicable