



Department of
**Agriculture,
Food and the Marine**

An Roinn
**Talmhaíochta,
Bia agus Mara**

Pesticide Usage in Republic of Ireland

**Arable Crops Survey
Report 2012**

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ARABLE CROPS SURVEY REPORT 2012

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Summary

This is the second survey of pesticide usage on arable crops in Ireland carried out by DAFM, providing comparative data to that obtained in the previous survey in 2004.

Information on all aspects of pesticide usage was collected from 245 holdings across Ireland representing 6.3% of the total area of arable crops grown. Quantitative data have been adjusted to provide estimates of total pesticide usage.

In 2012 an estimated 343,399 hectares of arable crops were grown which when adjusted for crops not surveyed represents a 5.4 % increase compared to total estimated area in 2004. In 2012 an estimated 1,144,043 kgs of active substance was applied to arable crops which when adjusted for crops not surveyed represents a 19.6% decrease in weight of pesticide applied compared to 2004.

A total of 114 active substances were recorded in use on arable crops in the survey.

Fungicides were applied to 48% of the pesticide-treated area, accounting for 49% of the total weight of pesticides used. Herbicides were applied to 25% of the pesticide-treated area, representing 30% of the total weight of pesticides used. Insecticides were applied to 10% of the pesticide treated area of arable crops, representing 2% of the weight of pesticides applied. Molluscicide treatments represented 1% of pesticide treated area and less than 1% of the weight of pesticides applied. Growth regulator usage accounted for 8% of the pesticide-treated area and 17% of the weight of active substance applied. Seed treatments were applied to 8% of the pesticide-treated area, representing 2% of the weight of active substances applied.

Winter wheat comprised 24% of the area of arable crops in Ireland 2012, accounting for 34% of the total pesticide treated area and 38% of the total weight of pesticides used on all arable crops. Winter wheat accounted for 36% of the area of arable crops treated with fungicide and received 35% of the total weight of fungicides applied. Winter wheat crops represented 26% of the area of arable crops treated with herbicide and received 31% of the total weight of herbicides applied. Winter wheat crops represented 51% of the area of arable crops treated with growth regulators and received 55% of the total weight of growth regulators applied.

Spring barley comprised 43% of the area of arable crops in Ireland 2012, accounting for 34% of the total pesticide treated area and 26% of the total weight of pesticides used on all arable crops. Spring barley accounted for 32% of the area of arable crops treated with fungicide and received 30% of the weight of total fungicides applied. Spring barley accounted for 42% of the area of arable crops treated with herbicides and received 28% of the total weight of herbicides applied. Spring barley accounted for 43% of the area of arable crops treated with seed treatments and received 37% of the total weight of seed treatments applied. Spring barley accounted for 35% of the area of arable crops treated with insecticides and received 13% of the total weight of insecticides applied.

Winter barley comprised 12% of the area of arable crops in Ireland 2012, accounting for 12% of the total pesticide treated area and 13% of the total weight of pesticides used on all arable crops. Winter barley accounted for 12% of the area of arable crops treated with fungicide and received 11% of the total weight of fungicides applied. Winter barley accounted for 12% of the arable crops treated with herbicide and received 15% of the total weight of herbicides applied. Winter barley accounted for 20% of the area of arable crops treated with growth regulators and received 16% of the total weight of growth regulators applied.

Potato crops comprised 2% of the area of arable crops grown in Ireland in 2012, accounting for 5% of the total pesticide-treated area and 8% of the total weight of pesticides used on all arable crops. The total area of potatoes grown comprised 86% main crop, 4% seed and 10% early potato crops. Potato crops accounted for 7% of the area of arable crops treated with fungicide and received 12% of the total weight of fungicides applied. Applications of herbicides to potato crops represented 4% of the area of arable crops treated with herbicides and 5% of the total weight of herbicides applied.

Definitions & notes.

- ‘Basic area’; refers to the actual planted area of crop treated with a given pesticide.
- ‘Treated area’; refers to the total area treated with a pesticide, which includes all repeated applications to the basic area. This is measured in ‘spray-hectares’ (basic area x number of spray applications = spray hectares (spha)).
- ‘Rounding’; due to rounding of figures there may be slight differences in totals both within and between tables.
- ‘Spray applications’; refers to the number of treatments of any pesticide type to the treated areas.
- ‘PPP’; refers to plant protection product.

Background

The regulatory system for PPPs in Ireland is based directly on EU legislation which provides a very high level of protection for man, animals and the environment. The hazard of an active substance is an inherent property which can cause a harmful effect and cannot be altered or mitigated.

Legislation has been put in place at both EU and national level to minimise the risks associated with the use of PPPs while ensuring necessary crop protection. Previously legislation has concentrated mainly on the authorisation of PPPs for specific uses and the laboratory testing of food samples for PPP residues. New legislation (Sustainable Use of Pesticides Directive) based on the EU ‘Thematic strategy on the sustainable use of pesticides’ aims to achieve a balance between ensuring human and

environmental safety while maintaining continued viability of the farming and amenity sectors. This will involve training and registration of advisers, distributors, operators and inspectors of pesticide application equipment, controls on storage, supply and use, adoption of the principles of IPM and improved statistics on PPP use. To address the requirement for improved statistics, Regulation (EC) No 1185/2009 was adopted on 25 November 2009 which requires each member state to collect statistics on PPP use. It is the area identified above as “improved statistics on PPP use” that this survey and future surveys will be addressing.

While sales data can provide information on the overall amount of PPPs used in the country, surveys at farm/grower/producer level are required to quantify the amounts used on different crops and to identify where and how they are being used. This type of information is required to clearly identify the risks involved and to develop and defend a strategy for the sustainable use of PPPs. Some of the specific outputs of a usage survey are as follows:

1. Provision of reliable factual data to inform policy makers.
2. Provision of information for the on-going review process of existing PPPs by providing data regarding national and regional usage of PPPs and use patterns for particular crops.
3. Monitoring farm practices to highlight areas where PPP use might be reduced by supplementation with or replacement by alternative pest control strategies e.g. use of resistant varieties, cultivation practices etc.
4. Provision of data to assess likely operator exposure to PPPs and to predict environmental impact of PPP use.
5. Monitoring changes in patterns of PPP use over time in response to government policy or economic factors.

6. Provision of information for residue monitoring programmes to assist with identifying particular areas of risk and to validate findings.

Methods

The sample of holdings to be surveyed was selected from each of the 26 counties, on the basis of the total area of arable crops grown, using data from the Department of Agriculture Food and Marine. For the purpose of the survey the country was divided into three geographical regions namely the East, South and the North/West as per Table A. The sample was stratified into six size groups, according to the total area of arable crops grown in each region. Holdings were selected at random within each of the size groups and the number of holdings selected was proportional to the total area of arable crops grown.

Table A: Regions selected for survey and respective counties.

Regions	East	South	North/West
Counties	Louth	Wexford	Donegal
	Meath	Kilkenny	Leitrim
	Dublin	Waterford	Monaghan
	Kildare	Tipperary	Cavan
	Offaly	Limerick	Westmeath
	Laois	Cork	Longford
	Carlow	Kerry	Sligo
	Wicklow		Roscommon
			Mayo
			Galway
			Clare

The purpose of the survey was explained to the occupiers of selected holdings in preliminary correspondence. A total of 245 holdings were visited during the period March to June 2013 and data collected by personal interview for arable crops harvested in 2012. The data collected included; the area of crops grown, area treated, target crop, pesticide used and number of treatments applied. Holdings selected in the original sample which were unable to provide data were replaced with ones from the same county and size group held on a reserve list. The total number of farms in each size group and the number of farms sampled are shown in Table B. The collected data were entered using Oracle, a relational database programme. Validated data were downloaded for analysis using SPSS software.

Table B: The total number of farms in each size group (A) with arable crops and number of samples (B) from each size group.

Region	Size group (hectares)												Total	
	<10		10<20		20<40		40<100		100-200		>200		Holdings	
	Holdings in size group	Holdings sampled	Holdings in size group	Holdings sampled	Holdings in size group	Holdings sampled	Holdings in size group	Holdings sampled	Holdings in size group	Holdings sampled	Holdings in size group	Holdings sampled	in size group	Holdings sampled
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
East	1,688	9	1,048	9	1,021	19	820	34	228	19	96	22	4,901	112
South	2,888	11	1,744	19	1,344	26	820	32	157	14	48	15	7,001	117
North/West	1,178	3	260	2	152	3	104	5	11	2	2	1	1,707	16
Ireland	5,754	23	3,052	30	2,517	48	1,744	71	396	35	146	38	13,609	245

Crops

Information was collected for spring barley, winter barley, spring wheat, winter wheat, spring oats, winter oats, oilseed rape, peas & beans, triticale, seed potatoes, early potatoes and maincrop potatoes.

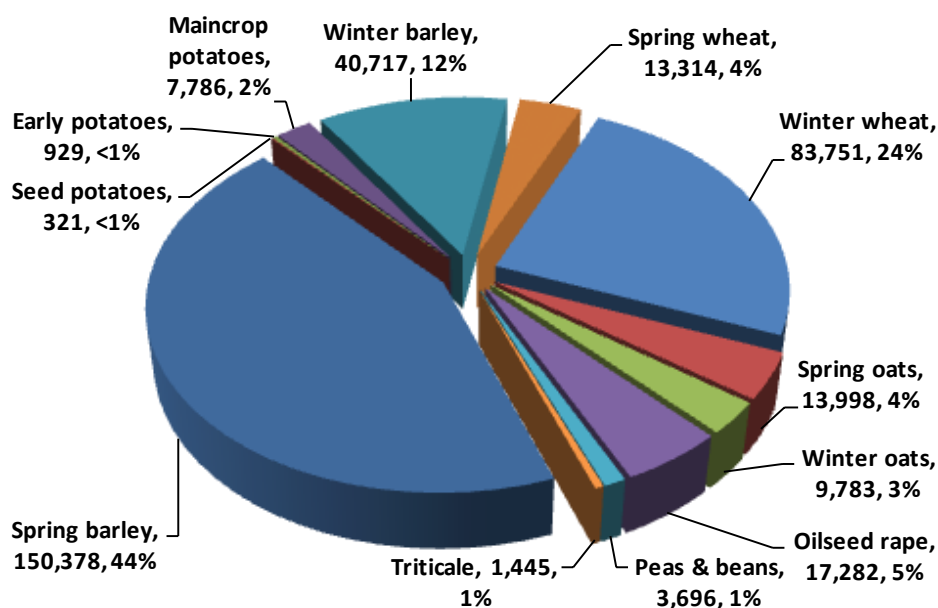
The number and areas of crops surveyed are shown in Table C. Data from 245 farms provided information on 661 examples of 12 crop types. The total area of crops sampled in the survey (21,851 ha) was representative of the area of arable crops grown in Ireland in 2012 (343,399 ha).

Table C: The total number and area (hectares) of crops sampled, and the proportion (%) of the total area of crops surveyed in Ireland, 2012.

Crop	Number of crops surveyed	Survey area (ha)	Proportion of crops surveyed (%)
Spring barley	196	6,341	4.21%
Winter barley	91	3,265	8.01%
Spring wheat	34	548	4.11%
Winter wheat	146	7,438	8.88%
Spring oats	36	617	4.40%
Winter oats	30	549	5.61%
Oilseed rape (S & W)	59	1,534	8.87%
Peas & beans	15	311	8.41%
Triticale	2	45	3.11%
Seed potatoes	2	30	9.63%
Early potatoes	10	72	7.75%
Maincrop potatoes	40	1,101	14.14%
Total	661	21,851	6.36%

Spring Barley was grown on an estimated 44% of the total area of arable crops in 2012. Winter wheat and winter barley accounted for 24% and 12% of the total area of arable crops grown in 2012 respectively. Oilseed rape and spring wheat accounted for 5% and 4% of the total area of arable crops in 2012 respectively.

Figure 1: Areas of individual arable crops grown in Ireland (ha), 2012.



Regional distribution of crops

The South region was the largest producer of arable crops in Ireland during 2012, accounting for 49% of the area of arable crops grown and 46% of the total pesticide-treated area. Overall, 44% of the weight of herbicides, 45% of the weight of fungicides, 40% of the weight of insecticides, 33% of the weight of molluscicides, 44% of the weight of growth regulators and 43% of the weight of seed treatments were applied to arable crops in this region.

The East region accounted for 45% of the total area of arable crops grown and 49% of the total pesticide-treated area. Overall 52% of the weight of herbicides, 49% of the weight of fungicides, 57% of the weight of insecticides, 62% of the weight of molluscicides, 50% of the weight of growth regulators and 44% of the weight of seed treatments were applied to arable crops in this region.

The North/West region accounted for 6% of the total arable growing area and 5% of the pesticide treated area. Overall, 4% of the weight of herbicides, 6% of the weight of fungicides, 3% of the weight of insecticides, 5% of the weight of molluscicides, 6%

of the weight of growth regulators and 13% of the weight of seed treatments were applied to arable crops in this region.

Figure 2: Regional distribution (ha) of arable crops grown in Ireland, 2012.

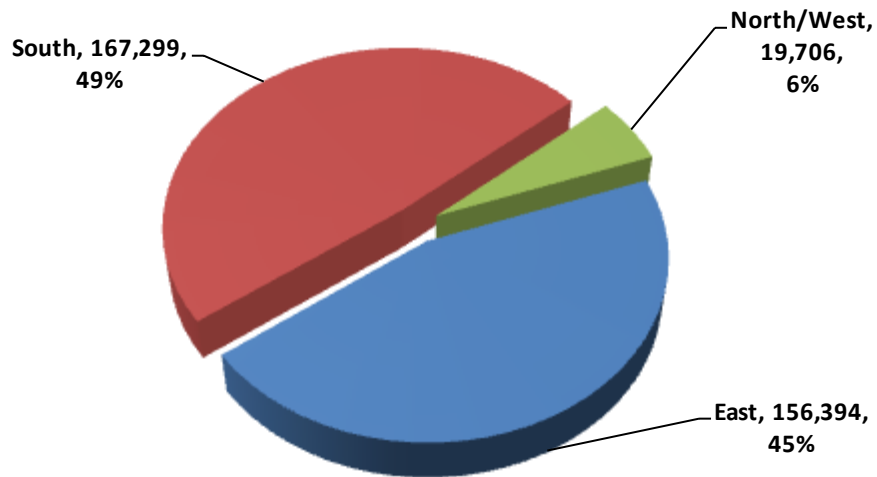


Figure 3: Regional distribution (ha) of individual arable crops grown in Ireland, 2012.

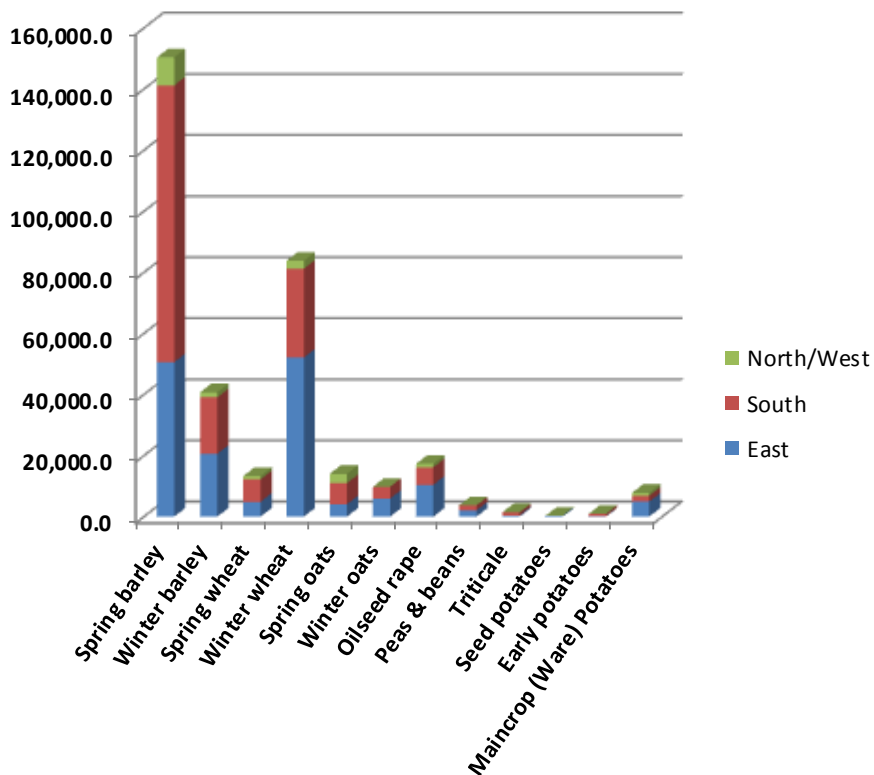


Figure 4: Regional distribution (ha) of cereal crops grown in Ireland, 2012.

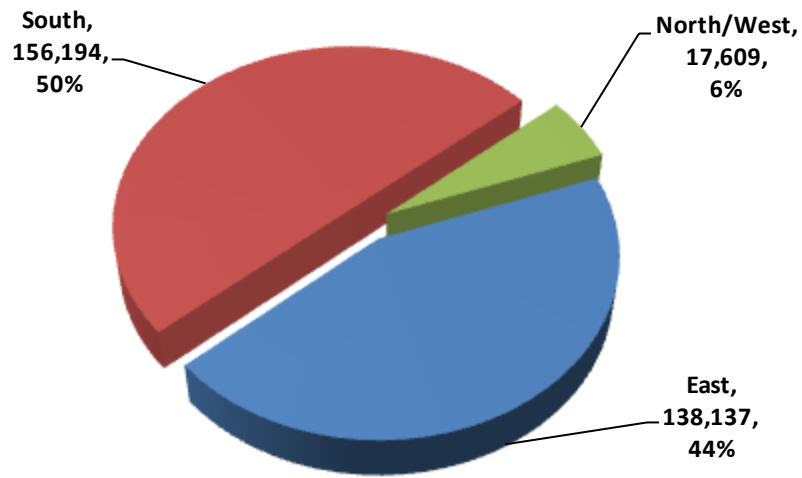


Figure 5: Regional distribution (ha) of potato crops (seed, early & maincrop) grown in Ireland, 2012.

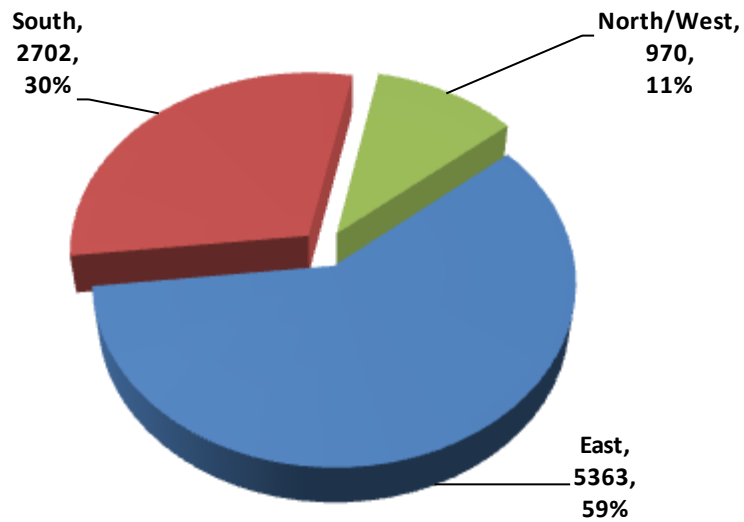
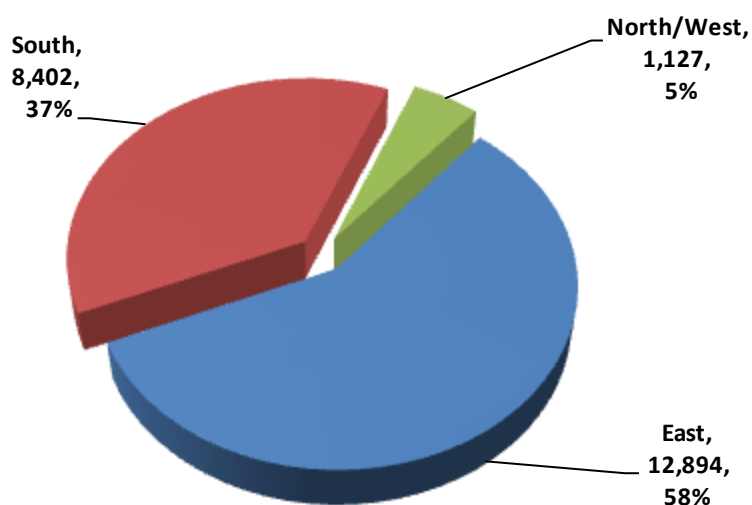


Figure 6: Regional distribution (ha) of other arable crops (oilseed rape, peas, beans & triticale) grown in Ireland, 2012.



Pesticide usage

Fungicides were applied to 48% of the pesticide-treated area and accounted for 49% of the total weight of pesticides used. Herbicides were applied to 25% of the pesticide-treated area accounting for 30% of the total weight of pesticides used. Insecticides were applied to 10% of the pesticide treated area of arable crops, accounting for 2% of the weight of pesticides applied. Molluscicide treatments represented 1% of pesticide treated area and less than 1% of the weight of pesticides applied. The use of growth regulators accounted for 8% of the pesticide-treated area and 17% of the weight of active substance applied. Seed treatments usage accounted for 8% of the pesticide-treated area, representing 2% of the weight of active substances applied.

The use of fungicides on cereal crops accounted for 47% of the cereal pesticide treated area and 48% of the total weight of pesticides applied to cereal crops. The use of fungicides on potato crops accounted for 69% of the potato pesticide treated area and 75% of the total weight of pesticides applied to potato crops.

Figure 7: Pesticide usage (spha) on arable crops treated in Ireland, 2012.

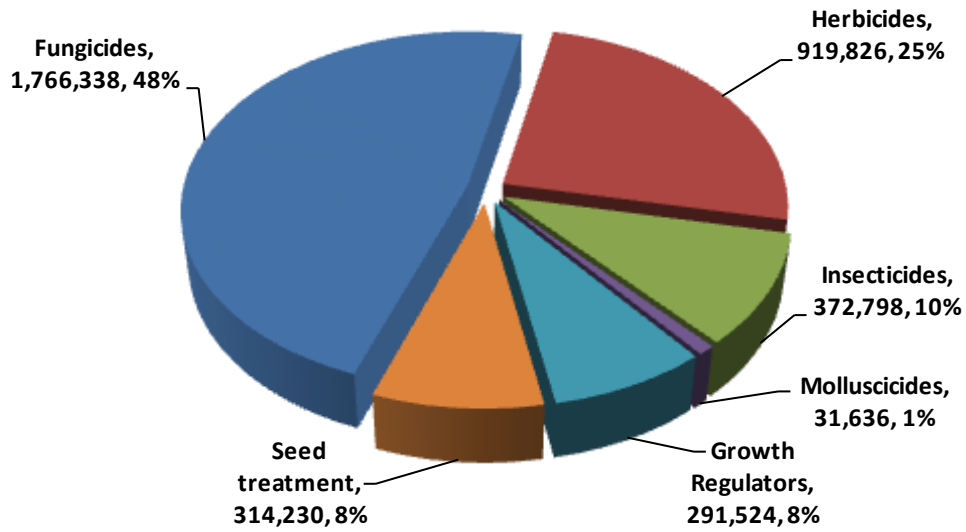


Figure 8: Weight (kgs) of pesticides applied to arable crops treated in Ireland, 2012.

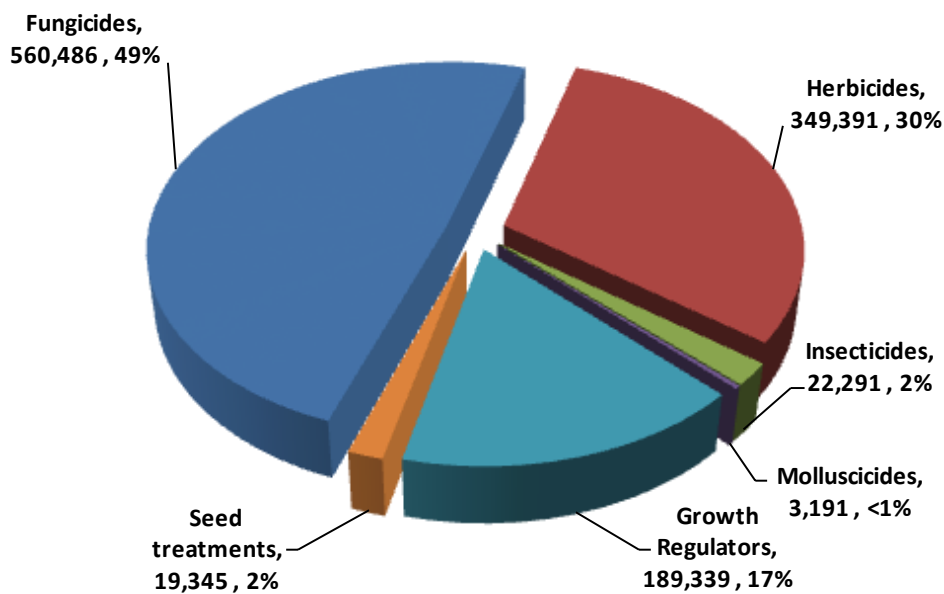


Figure 9: Pesticide usage (spha) on cereal crops grown in Ireland, 2012.

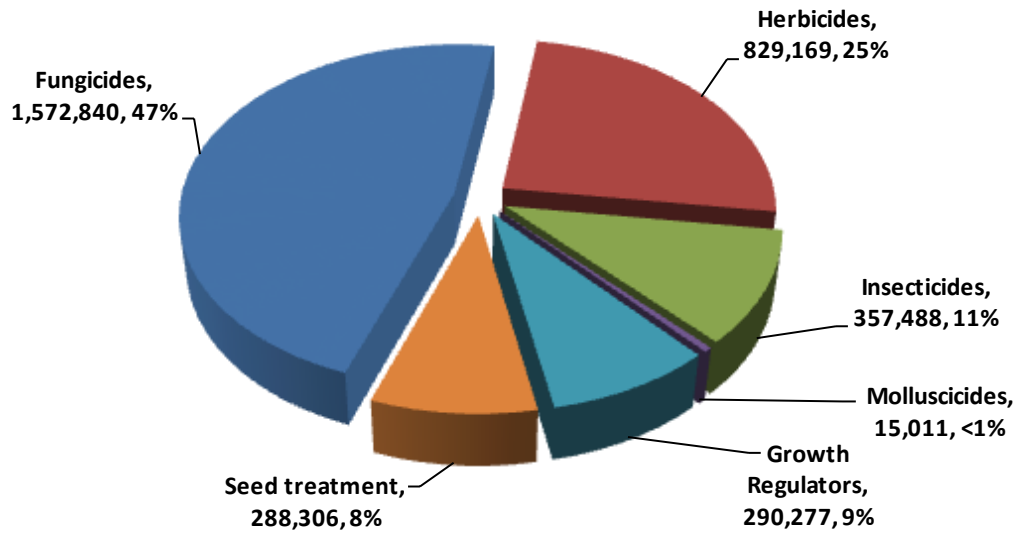


Figure 10: Weight of pesticides (kg) applied to cereal crops grown in Ireland, 2012.

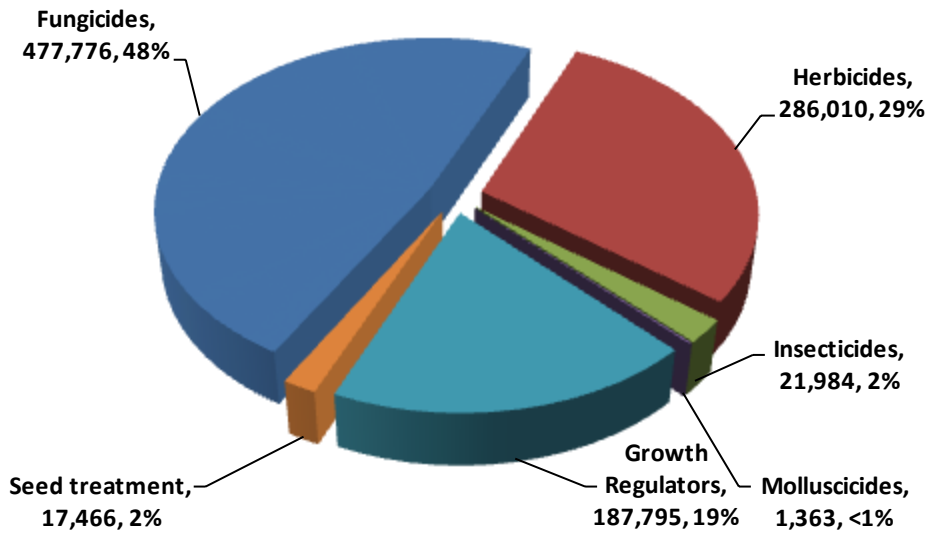


Figure 11: Pesticide usage (spha) on potato crops (seed, early, maincrop) grown in Ireland, 2012.

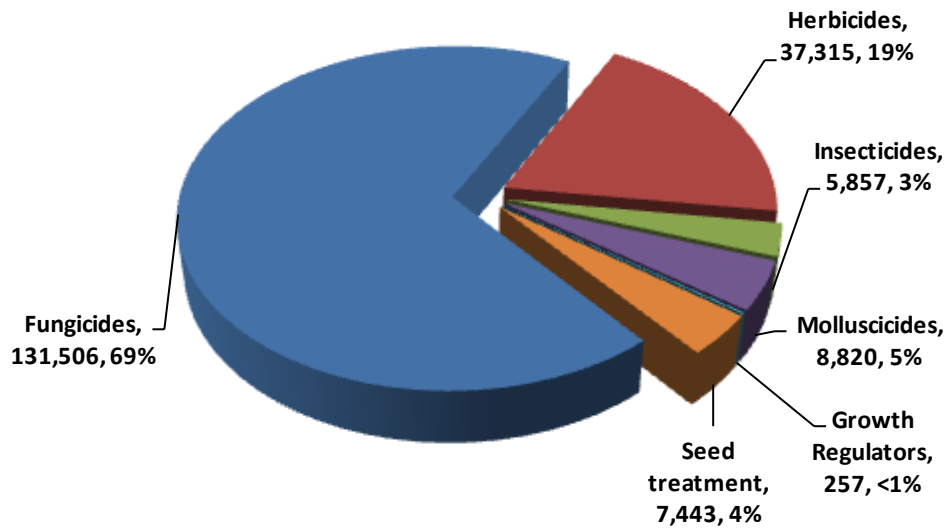


Figure 12: Weight of pesticides (kg) applied to potato crops (seed, early & maincrop) grown in Ireland, 2012.

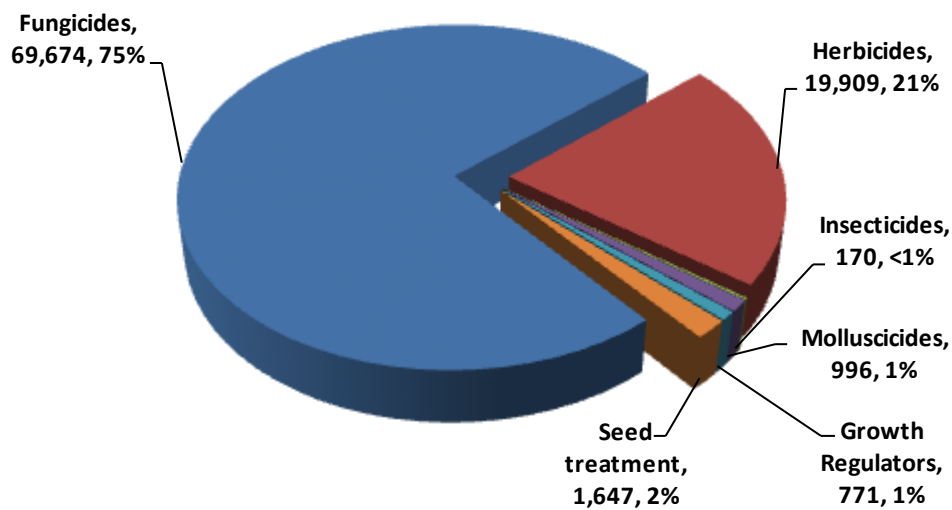


Figure 13: Pesticide usage (spha) on other arable crops (oilseed rape, peas & beans, triticale) grown in Ireland, 2012.

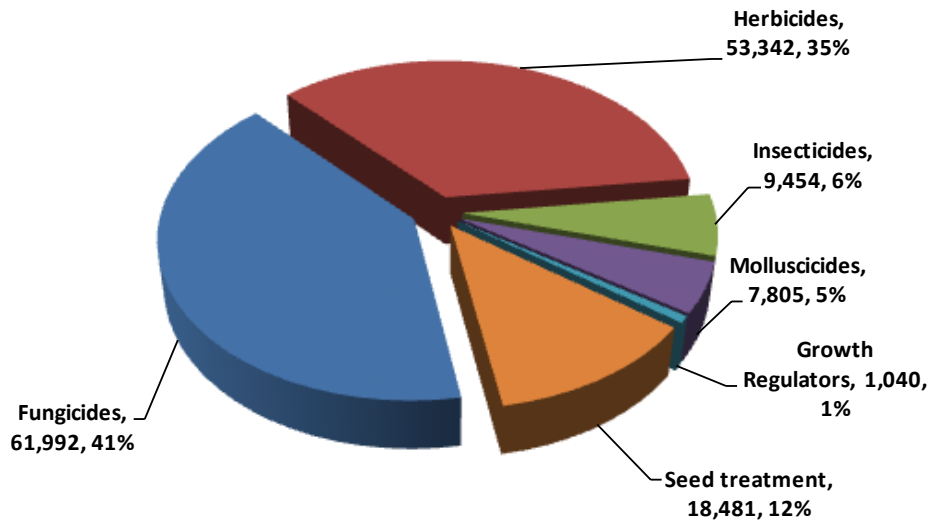
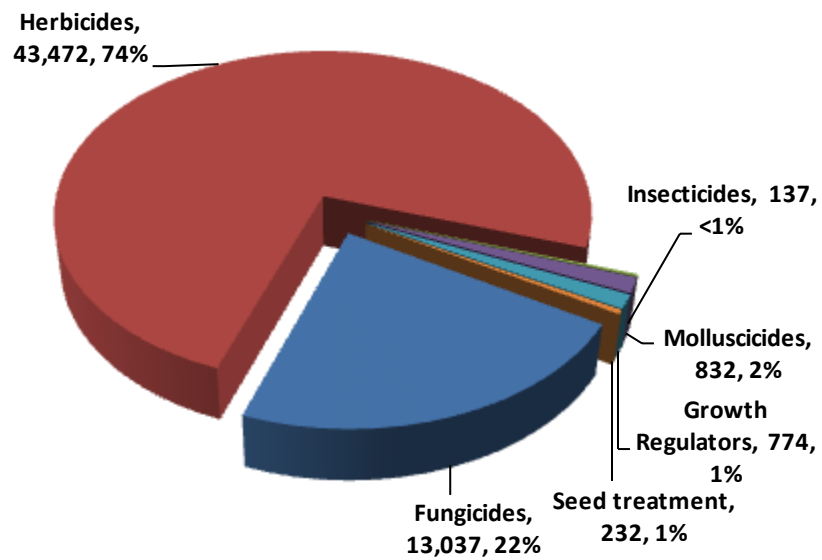


Figure 14: Weight of pesticides (kg) applied to other arable crops (oilseed rape, peas & beans, triticale) grown in Ireland, 2012.



Arable crop areas 2004-2012

The largest change in crop areas when comparing 2004 with 2012 data is oilseed rape where the area has increased from 1,792 ha to 17,282 ha. The second largest increase is in spring oats where the area has increased from 7,000 ha to 13,998 ha. Winter barley has increased from 20,500 ha to 40,717 ha. Spring barley, winter oats, spring wheat and potatoes witnessed a reduction in areas grown of 8%, 24%, 57% and 32% respectively when compared to 2004 areas. Details of changes in crop areas between 2004 and 2012 are outlined in Table D below.

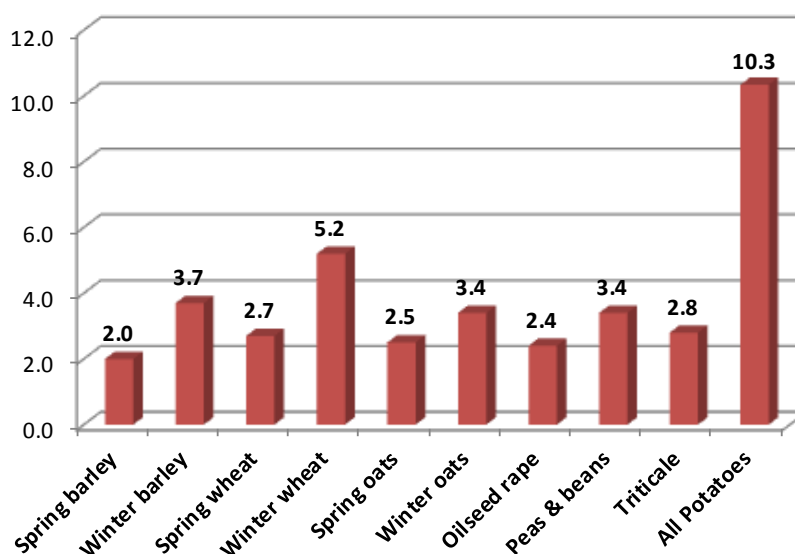
Table D: Arable crops areas (ha) for surveys in 2004 and 2012 and percentage (%) change in areas grown.

Crop	Ha grown		% change
	2004	2012	
Spring barley	163,200	150,378	-8
Winter barley	20,500	40,717	99
Spring wheat	31,200	13,314	-57
Winter wheat	71,500	83,751	17
Spring oats	7,000	13,998	100
Winter oats	12,900	9,782	-24
Oilseed rape	1,792	17,282	864
Peas & beans	2,978	3,696	24
Triticale	(not surveyed)	1,445	
All Potatoes	13,224	9,035	-32
All crops (excl. triticale)	324,294	341,953	5

Quantity of pesticide applied per crop, 2004-2012

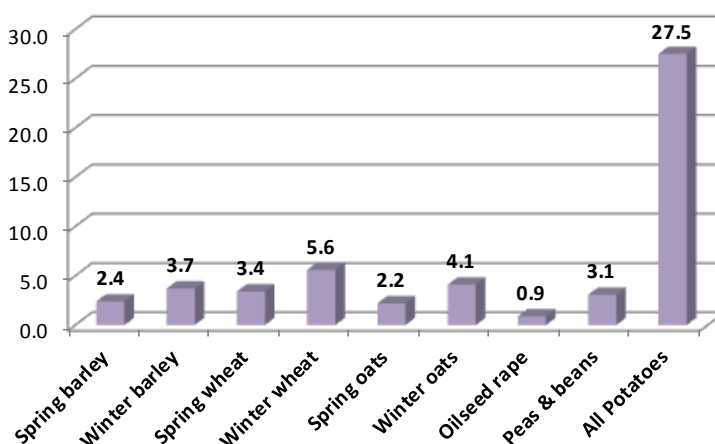
The average weight of pesticide applied per hectare of crop grown for each crop is provided in Figure 15. Average weights were calculated as the total weight of pesticides applied divided by the total area of crop grown (whether treated or untreated).

Figure 15: Average weight of pesticides applied per hectare of crop grown in Ireland (kg/ha), 2012.



The highest weight of pesticides applied per hectare was on potato crops (10.3kg/ha). This results from the relatively high number of pesticide treatments, in particular fungicide treatments applied to potato crops. The winter cereal crops had the next highest levels of pesticide use with winter wheat (5.2kg/ha), winter barley (3.7kg/ha) and winter oats (3.4kg/ha). The average weight of pesticide applied per hectare of crop grown as per 2004 survey is provided in Figure 16.

Figure 16: Average weight of pesticides applied per hectare of crop grown in Ireland (kg/ha), 2004.



The largest difference is the quantity of pesticides applied to potato crops which has reduced from 27.5 kgs/ha (2004) to 10.6 kg/ha (2012). The quantity of pesticides applied to oilseed rape has increased from 0.9 kg/ha (2004) to 2.4 kg/ha (2012) which is as a result of a shift from growing spring oilseed rape to winter oilseed rape which is a more pesticide intensive crop.

Pesticide applied on crop growing area, 2004-2012.

The average weight of pesticide applied per hectare of crop grown for 2004 and 2012 including percentage change is provided.

Spring barley

Quantities (kg/ha) of herbicides, insecticides and seed treatments applied to spring barley reduced by 41%, 64% and 57% respectively when comparing 2004 and 2012. Quantities (kg/ha) of fungicides, molluscicides and growth regulators increased by 2%, 14% and 424% respectively when comparing 2004 and 2012.

Figure 17: Quantity of pesticide type (kg/ha) and percentage change (%) for spring barley for surveys in 2004 and 2012.

Pesticide type	Kg/ha on area grown		% change
	2004	2012	
Fungicides	1.11	1.14	2
Herbicides	1.14	0.67	-41
Insecticides	0.06	0.02	-64
Molluscicides	0.00	0.00	14
Growth Regulators	0.02	0.11	424
Seed treatments	0.11	0.05	-57
All pesticides	2.44	1.99	-18

Winter barley

Quantities (kg/ha) of herbicides, Insecticides and seed treatments applied to winter barley reduced by 12%, 65% and 61% respectively when comparing 2004 and 2012. Quantities (kg/ha) of fungicides, molluscicides and growth regulators increased by 6%, 13% and 53% respectively when comparing 2004 and 2012.

Figure 18: Quantity of pesticide type (kg/ha) and percentage change (%) for winter barley for surveys in 2004 and 2012.

Pesticide type	Kg/ha on area grown		% change
	2004	2012	
Fungicides	1.47	1.57	6
Herbicides	1.53	1.35	-12
Insecticides	0.04	0.01	-65
Molluscicides	0.01	0.01	13
Growth Regulators	0.49	0.75	53
Seed treatments	0.13	0.05	-61
All pesticides	3.67	3.74	2

Spring wheat

Quantities (kg/ha) of herbicides, growth regulators and seed treatments applied to spring wheat reduced by 54%, 17% and 33% respectively when comparing 2004 and 2012. Quantities (kg/ha) of fungicides and insecticides increased by 8% and 2% respectively when comparing 2004 and 2012. No molluscicide applications were noted on spring wheat.

Figure 19: Quantity of pesticide type (kg/ha) and percentage change (%) for spring wheat for surveys in 2004 and 2012.

Pesticide type	Kg/ha on area grown		% change
	2004	2012	
Fungicides	1.15	1.23	8
Herbicides	1.12	0.52	-54
Insecticides	0.11	0.11	2
Molluscicides	0.00	0.00	0
Growth Regulators	0.95	0.79	-17
Seed treatments	0.09	0.06	-33
All pesticides	3.42	2.71	-21

Winter wheat

Quantities (kg/ha) of herbicides, growth regulators and seed treatments applied to winter wheat reduced by 32%, 2% and 33% respectively when comparing 2004 and 2012. Quantities (kg/ha) of fungicides, insecticides and molluscicides increased by 10%, 48% and 453% respectively when comparing 2004 and 2012.

Figure 20: Quantity of pesticide type (kg/ha) and percentage change (%) for winter wheat for surveys in 2004 and 2012.

Pesticide type	Kg/ha on area grown		% change
	2004	2012	
Fungicides	2.16	2.37	10
Herbicides	1.92	1.30	-32
Insecticides	0.13	0.19	48
Molluscicides	0.00	0.01	453
Growth Regulators	1.28	1.26	-2
Seed treatments	0.11	0.07	-33
All pesticides	5.61	5.21	-7

Spring oats

Quantities (kg/ha) of herbicides, insecticides and seed treatments applied to spring oats reduced by 7%, 6% and 42% respectively when comparing 2004 and 2012. Quantities (kg/ha) of fungicides and growth regulators increased by 39% and 17% respectively when comparing 2004 and 2012. No molluscicide applications were noted on spring oats.

Figure 21: Quantity of pesticide type (kg/ha) and percentage change (%) for winter wheat for surveys in 2004 and 2012.

Pesticide type	Kg/ha on area grown		
	2004	2012	% change
Fungicides	0.71	0.98	39
Herbicides	0.66	0.61	-7
Insecticides	0.03	0.02	-6
Molluscicides	0.00	0.00	0
Growth Regulators	0.70	0.81	17
Seed treatments	0.10	0.06	-42
All pesticides	2.18	2.48	14

Winter oats

Quantities (kg/ha) of herbicides, insecticides, growth regulators and seed treatments applied to winter oats reduced by 5%, 75%, 38% and 63% respectively when comparing 2004 and 2012. Quantities (kg/ha) of fungicides increased by 23% when comparing 2004 and 2012. No molluscicide applications were noted on winter oats.

Figure 22: Quantity of pesticide type (kg/ha) and percentage change (%) for winter oats for surveys in 2004 and 2012.

Pesticide type	Kg/ha on area grown		
	2004	2012	% change
Fungicides	1.15	1.42	23
Herbicides	0.65	0.62	-5
Insecticides	0.08	0.02	-75
Molluscicides	0.00	0.00	0
Growth Regulators	2.06	1.28	-38
Seed treatments	0.15	0.05	-63
All pesticides	4.09	3.39	-17

Oilseed rape

Quantities (kg/ha) of insecticides and seed treatments applied to oilseed rape reduced by 91% and 60% respectively when comparing 2004 and 2012. Quantities (kg/ha) of fungicides, herbicides, and molluscicides increased by 130%, 217% and 63% respectively when comparing 2004 and 2012. No growth regulator applications were noted on oilseed rape.

Figure 23: Quantity of pesticide type (kg/ha) and percentage change (%) for oilseed rape for surveys in 2004 and 2012.

Pesticide type	Kg/ha on area grown		% change
	2004	2012	
Fungicides	0.16	0.37	130
Herbicides	0.63	1.99	217
Insecticides	0.04	0.00	-91
Molluscicides	0.03	0.05	63
Growth Regulators	0.00	0.00	0
Seed treatments	0.03	0.01	-60
All pesticides	0.89	2.42	172

Peas and beans

Quantities (kg/ha) of fungicides and insecticides applied to peas and beans reduced by 32% and 92% respectively when comparing 2004 and 2012. Quantities (kg/ha) of herbicides increased by 113% when comparing 2004 and 2012. No growth regulator or molluscicide applications were noted on peas and beans. Seed treatment was recorded as “unspecified seed treatment” and so a weight (kg) could not be calculated.

Figure 24: Quantity of pesticide type (kg/ha) and percentage change (%) for peas and beans for surveys in 2004 and 2012.

Pesticide type	Kg/ha on area grown		% change
	2004	2012	
Fungicides	1.76	1.19	-32
Herbicides	1.04	2.21	113
Insecticides	0.07	0.01	-92
Molluscicides	0.00	0.00	0
Growth Regulators	0.00	0.00	0
Seed treatments	0.22	(not recorded)	
All pesticides (Ex. sd. tr.)	2.87	3.41	19

Potatoes (seed, early and maincrop)

Quantities (kg/ha) of fungicides, herbicides, insecticides and molluscicides applied to potatoes (as a group) reduced by 45%, 83%, 90% and 27% respectively when comparing 2004 and 2012. Quantities (kg/ha) of growth regulators and seed treatments increased by 90% and 259% respectively when comparing 2004 and 2012.

Figure 25: Quantity of pesticide type (kg/ha) and percentage change (%) for potatoes for surveys in 2004 and 2012.

Pesticide type	Kg/ha on area grown		% change
	2004	2012	
Fungicides	14.09	7.71	-45
Herbicides	13.01	2.20	-83
Insecticides	0.18	0.02	-90
Molluscicides	0.15	0.11	-27
Growth Regulators	0.04	0.09	90
Seed treatments	0.05	0.18	259
All pesticides	27.53	10.31	-63

Pesticide usage survey results 2012

Pesticide usage on spring barley

150,378 ha of spring barley grown in Ireland.

1,276,302 treated hectares.

299,376 kilogrammes applied.

98.50% of the area of spring barley crops grown received a pesticide treatment.

Spring barley received on average 7.98 treatments consisting of 3.51 fungicide, 2.54 herbicide, 0.84 insecticide, 0.01 molluscicide, 0.17 growth regulators and 0.91 seed treatment applications.

Figure 26: Pesticide usage (spha) on spring barley crops in Ireland, 2012.

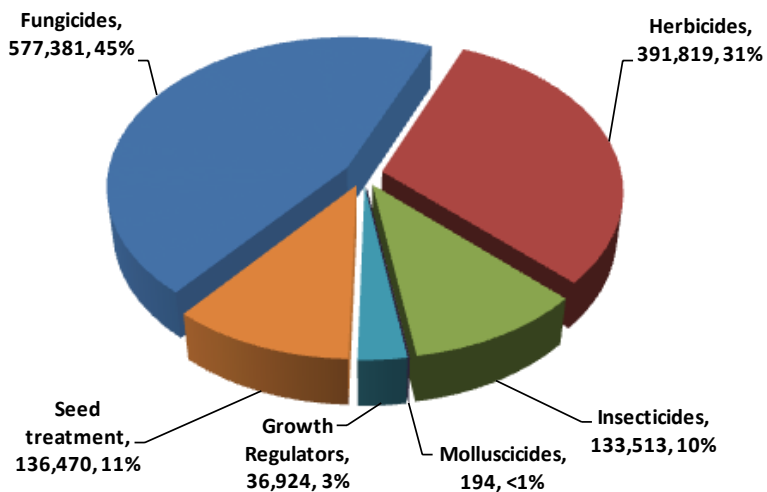


Figure 27: Weight of pesticides (kg) applied to spring barley crops in Ireland, 2012.

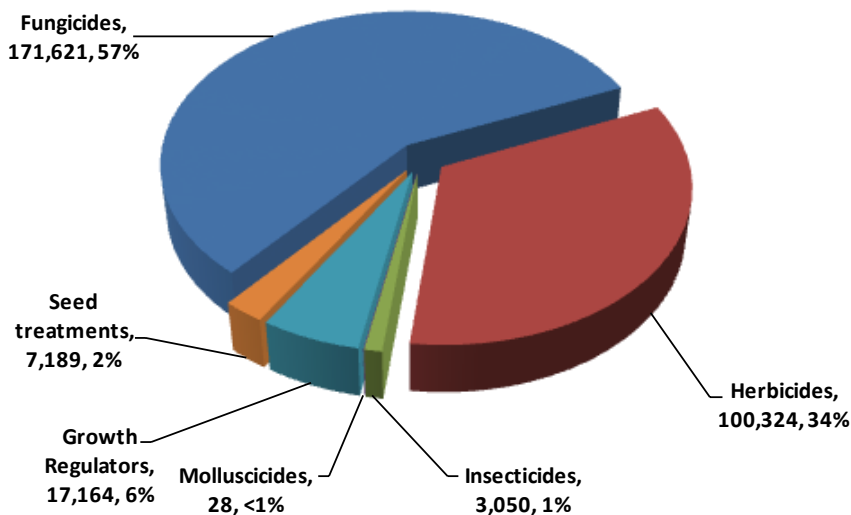


Figure 28: Proportional area of spring barley crops treated with each pesticide group in Ireland, 2012.

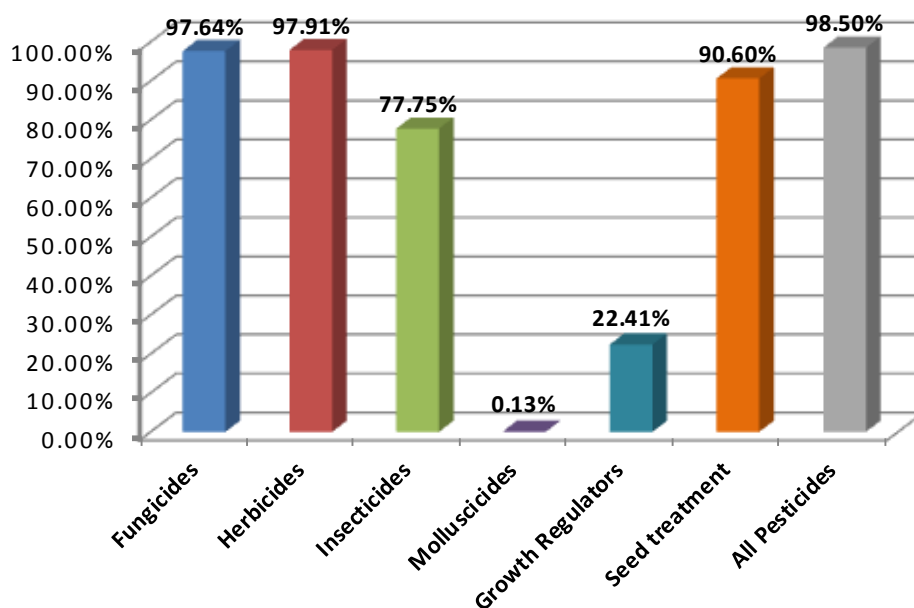


Figure 29: The top 10 active ingredients most extensively used on spring barley in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Prothioconazole	173,104	113,180	19,398	13.6
Chlorothalonil	149,450	118,722	76,889	11.7
Tribenuron-methyl	100,368	98,452	820	7.9
Fenpropimorph	92,167	76,262	24,172	7.2
Epoxiconazole	82,797	62,632	5,322	6.5
Metsulfuron-methyl	82,475	82,051	306	6.5
Thifensulfuron-methyl	80,142	77,795	2,165	6.3
Fluroxypyr	67,513	65,926	7,182	5.3
Cypermethrin	65,010	62,318	1,591	5.1
Mecoprop-P	63,792	63,792	37,996	5.0

Figure 30: The top 10 active ingredients most extensively used on spring barley in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Chlorothalonil	76,889	149,450	118,722	25.7
Mecoprop-P	37,996	63,792	63,792	12.7
Glyphosate	36,460	43,230	39,587	12.2
Fenpropimorph	24,172	92,167	76,262	8.1
Prothioconazole	19,398	173,104	113,180	6.5
Chlormequat	15,430	26,603	26,079	5.2
Fluroxypyr	7,182	67,513	65,926	2.4
Spiroxamine	6,279	26,511	18,620	2.1
Cyprodinil	6,022	21,860	21,860	2.0
Folpet	5,491	11,423	10,065	1.8

Pesticide usage on winter barley

40,717 ha of winter barley grown in Ireland.

471,194 treated hectares.

152,302 kilogrammes applied.

100% of the area of winter barley crops grown received a pesticide treatment.

Winter barley received on average 10.82 treatments consisting of 4.80 fungicide, 2.53 herbicide, 1.07 insecticide, 0.06 molluscicide, 1.43 growth regulator and 0.93 seed treatment applications.

Figure 31: Pesticide usage (spha) on winter barley crops in Ireland, 2012.

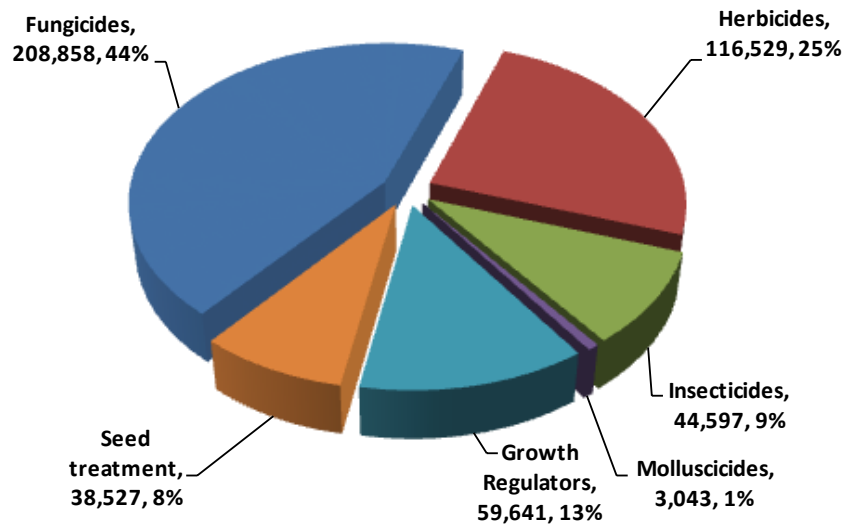


Figure 32: Weight of pesticides (kg) applied to winter barley crops in Ireland, 2012.

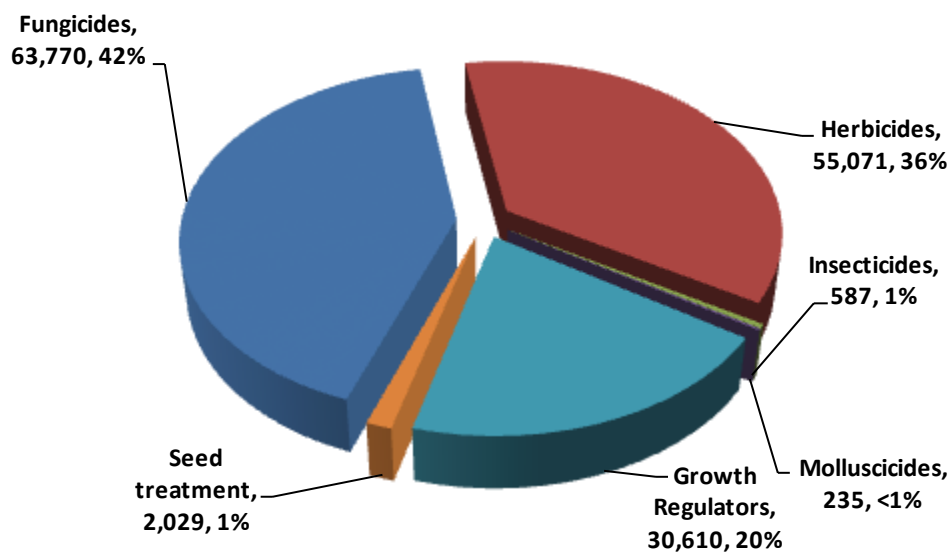


Figure 33: Proportional area of winter barley crops treated with each pesticide group in Ireland, 2012.

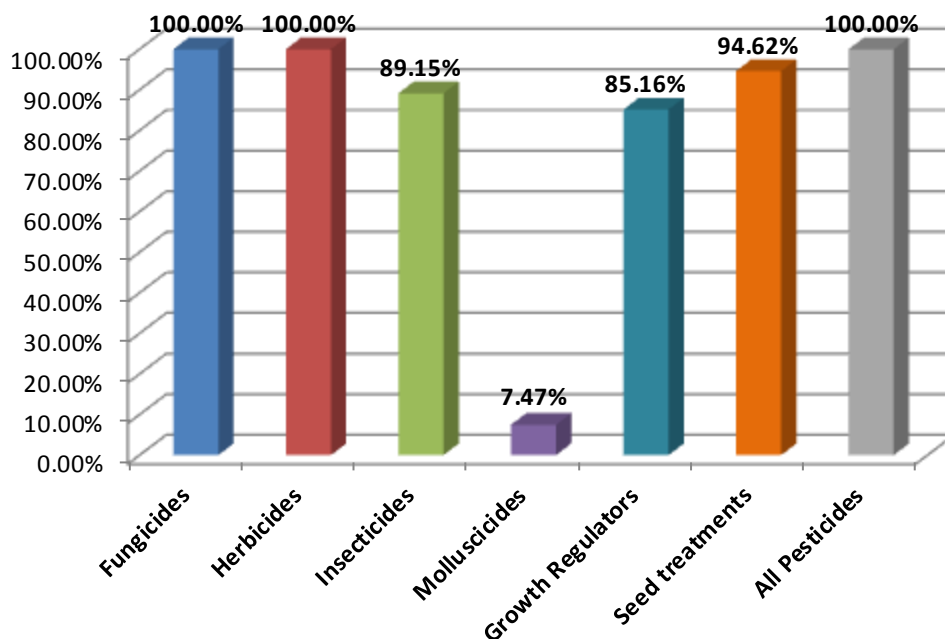


Figure 34: The top 10 active ingredients most extensively used on winter barley in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated	Quantity applied (kg)	% of the treated area
Prothioconazole	80,743	39,213	9,334	17.1
Chlorothalonil	56,414	36,382	28,162	12.0
Isoproturon	34,169	33,164	33,398	7.3
Diflufenican	29,808	27,275	3,735	6.3
Fenpropimorph	29,125	25,090	8,831	6.2
Bixafen	27,060	21,919	1,050	5.7
Chlormequat	26,356	26,006	22,686	5.6
Esfenvalerate	23,089	20,755	93	4.9
Pinoxaden	19,975	19,975	483	4.2
Epoxiconazole	19,029	13,593	1,245	4.0

Figure 35: The top 10 active ingredients most extensively used on winter barley in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated	% of the weight applied
Isoproturon	33398	34169	33164	21.9
Chlorothalonil	28162	56414	36382	18.5
Chlormequat	22686	26356	26006	14.9
Glyphosate	10361	14923	13549	6.8
Prothioconazole	9334	80743	39213	6.1
Fenpropimorph	8831	29125	25090	5.8
Pendimethalin	4162	4355	4355	2.7
Mepiquat chloride	3801	11431	11431	2.5
Diflufenican	3735	29808	27275	2.5
Cyprodinil	3583	13241	11019	2.4

Pesticide usage on spring wheat

13,314 ha of spring wheat grown in Ireland.

137,383 treated hectares.

36,083 kilogrammes applied.

100% of the area of spring wheat crops grown received a pesticide treatment.

Spring wheat received on average 10.33 treatments consisting of 4.30 fungicide, 2.33 herbicide, 1.52 insecticide, 1.23 growth regulator and 0.95 seed treatment applications.

Figure 36: Pesticide usage (spha) on spring wheat crops in Ireland, 2012.

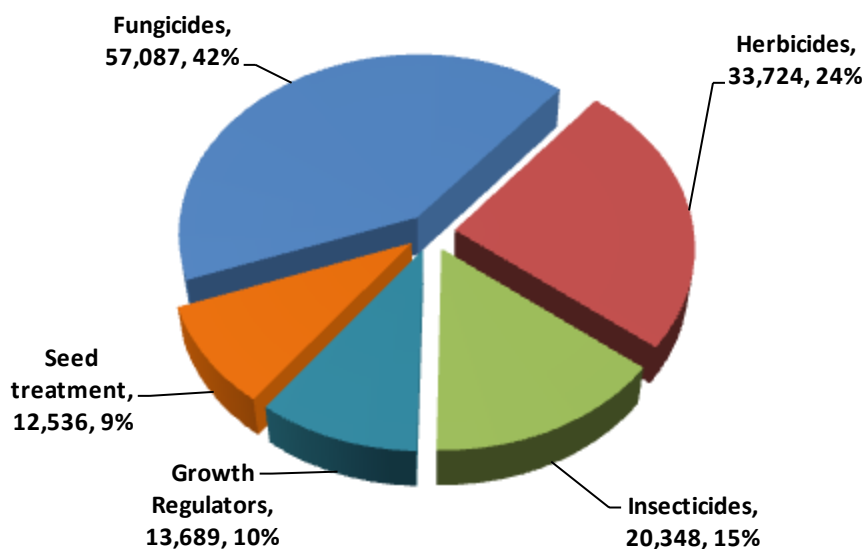


Figure 37: Weight of pesticides (kg) applied to spring wheat crops in Ireland, 2012.

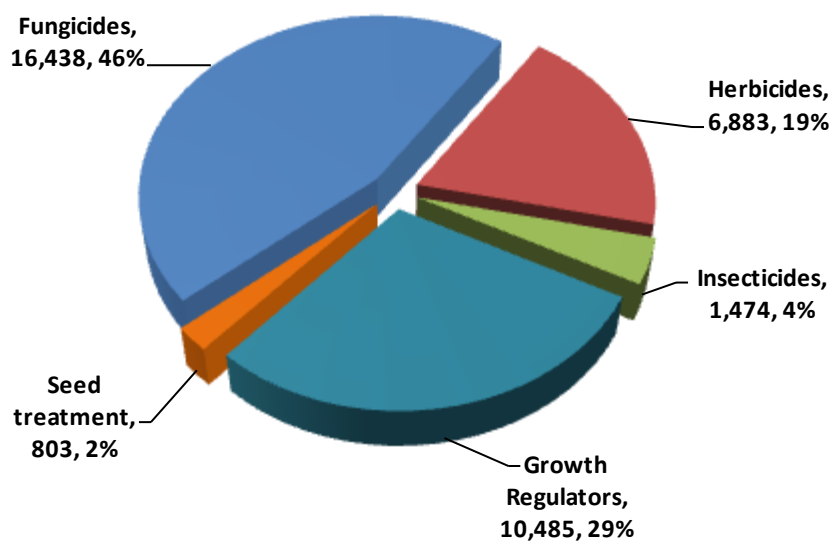


Figure 38: Proportional area of spring wheat crops treated with each pesticide group in Ireland, 2012.

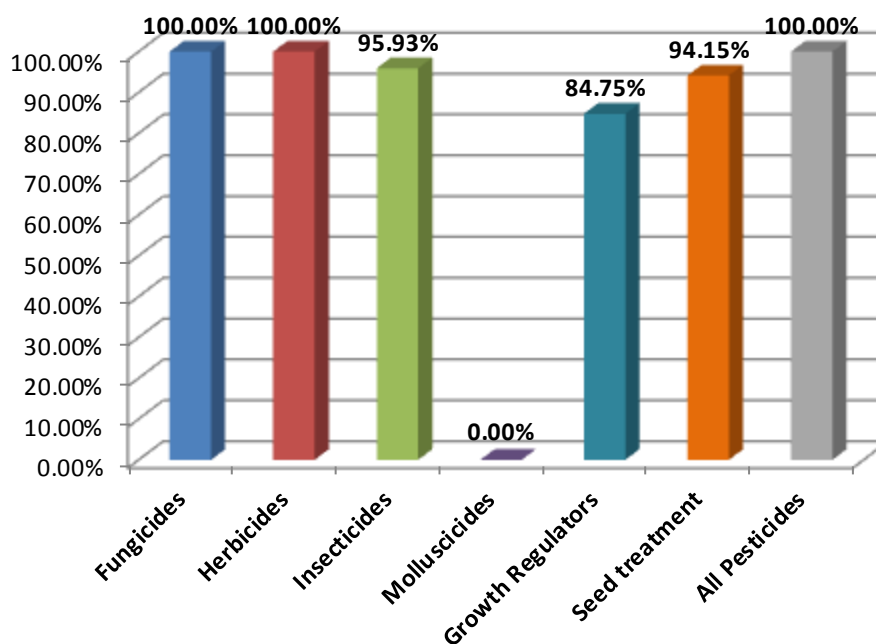


Figure 39: The top 10 active ingredients most extensively used on spring wheat in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Epoxiconazole	21,286	12,075	1,573	15.5
Chlorothalonil	15,046	11,518	7,246	11.0
Chloromequat	12,973	10,993	10,167	9.4
Tribenuron-methyl	10,506	9,926	72	7.6
Fenpropimorph	9,695	6,471	2,287	7.1
Cypermethrin	8,582	8,514	199	6.2
Thifensulfuron-methyl	7,733	7,733	329	5.6
Prothioconazole	7,658	6,032	1,032	5.6
Fluroxypyr	7,286	6,929	1,363	5.3
Metsulfuron-methyl	6,906	6,906	53	5.0

Figure 40: The top 10 active ingredients most extensively used on spring wheat in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Chloromequat	10167	12973	10993	28.2
Chlorothalonil	7246	15046	11518	20.1
Mecoprop-P	2782	4361	4361	7.7
Fenpropimorph	2287	9695	6471	6.3
Epoxiconazole	1573	21286	12075	4.4
Fluroxypyr	1363	7286	6929	3.8
Dimethoate	1248	4516	4516	3.5
Prothioconazole	1032	7658	6032	2.9
Glyphosate	904	1142	1142	2.5
Fenpropridin	768	2054	1617	2.1

Pesticide usage on winter wheat

83,751 ha of winter wheat grown in Ireland.

1,256,275 treated hectares.

436,741 kilogrammes applied.

99.80% of the area of winter wheat crops grown received a pesticide treatment.

Winter wheat received on average 13.97 treatments consisting of 7.23 fungicide, 2.54 herbicide, 1.59 insecticide, 0.12 molluscicide, 1.56 growth regulator and 0.93 seed treatment applications.

Figure 41: Pesticide usage (spha) on winter wheat crops in Ireland, 2012.

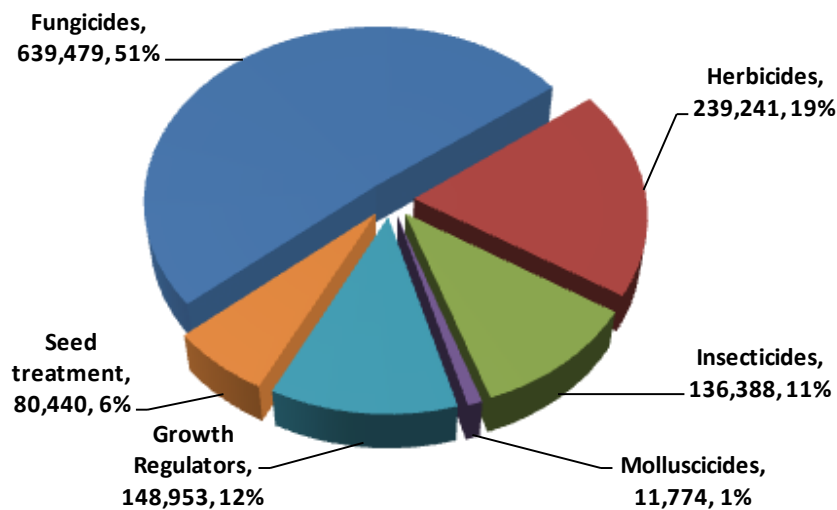


Figure 42: Weight of pesticides (kg) applied to winter wheat crops in Ireland, 2012.

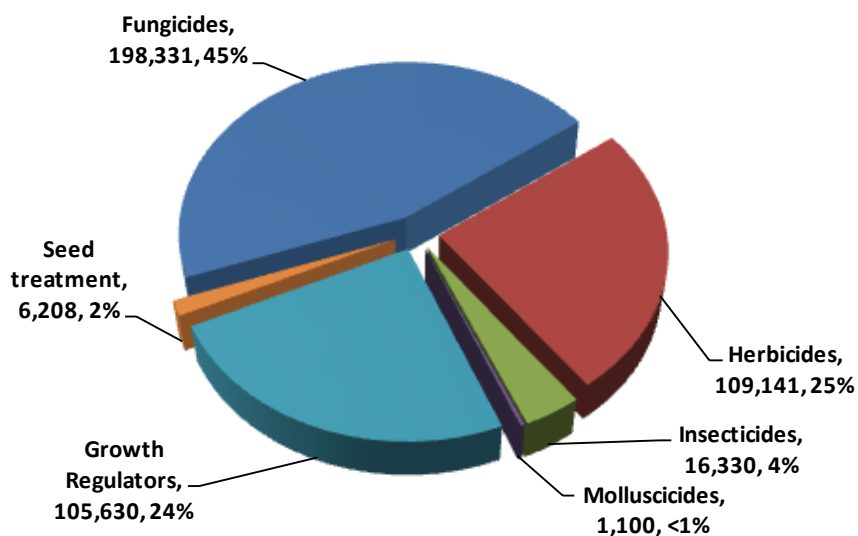


Figure 43: Proportional area of winter wheat crops treated with each pesticide group in Ireland, 2012.

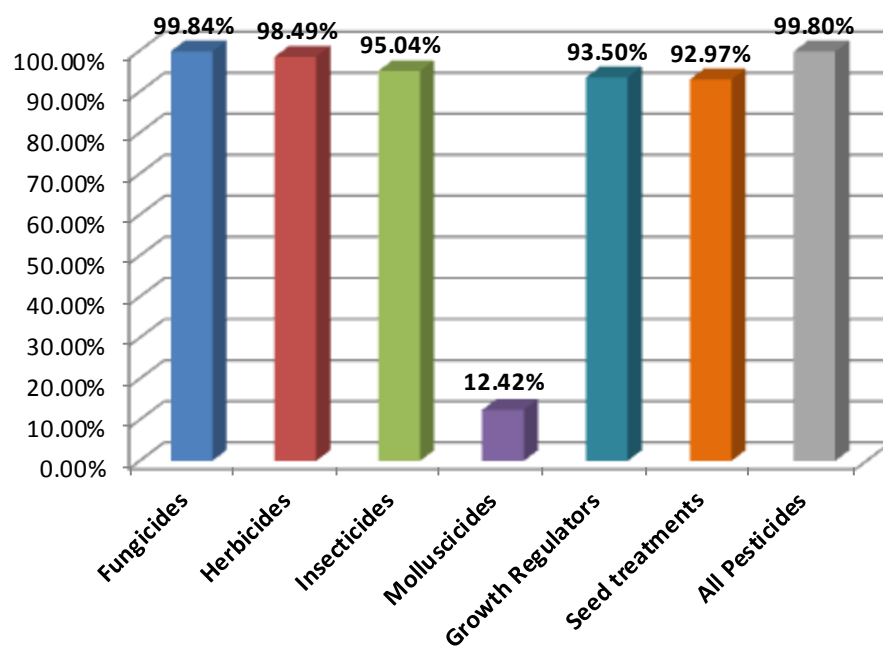


Figure 44: The top 10 active ingredients most extensively used on winter wheat in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Epoxiconazole	205,933	79,580	14,601	16.4
Chlorothalonil	194,421	81,570	98,325	15.5
Chloromequat	108,269	81,947	98,338	8.6
Prothioconazole	99,536	64,244	13,556	7.9
Metconazole	81,645	53,939	3,273	6.5
Fenpropimorph	72,325	45,662	20,004	5.8
Diflufenican	59,035	57,400	8,012	4.7
Isoproturon	56,078	55,301	60,677	4.5
Dimethoate	52,554	52,554	15,096	4.2
Tebuconazole	51,660	47,296	6,716	4.1

Figure 45: The top 10 active ingredients most extensively used on winter wheat in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Chloromequat	98,338	108,269	81,947	22.5
Chlorothalonil	98,325	194,421	81,570	22.5
Isoproturon	60,677	56,078	55,301	13.9
Fenpropimorph	20,004	72,325	45,662	4.6
Glyphosate	19,657	29,432	26,469	4.5
Dimethoate	15,096	52,554	52,554	3.5
Epoxiconazole	14,601	205,933	79,580	3.3
Prothioconazole	13,556	99,536	64,244	3.1
Boscalid	10,642	47,803	43,614	2.4
Prosulfocarb	8,865	5,770	5,770	2.0

Pesticide usage on spring oats.

13,998 ha of spring oats grown in Ireland.

113,967 treated hectares.

34,689 kilogrammes applied.

89.60% of the area of winter wheat crops grown received a pesticide treatment.

Spring oats received on average 6.55 treatments consisting of 2.57 fungicide, 1.71 herbicide, 0.86 insecticide, 0.72 growth regulator and 0.69 seed treatment applications.

Figure 46: Pesticide usage (spha) on spring oat crops in Ireland, 2012.

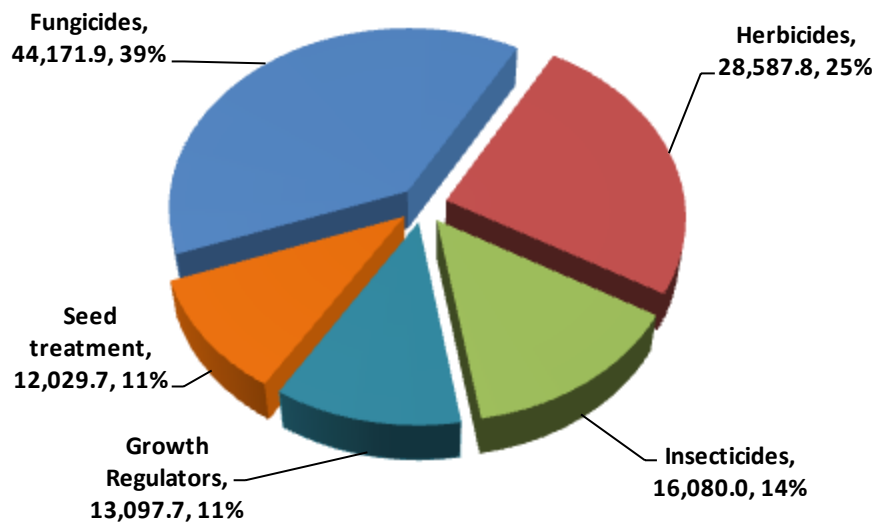


Figure 47: Weight of pesticides (kg) applied to spring oat crops in Ireland, 2012.

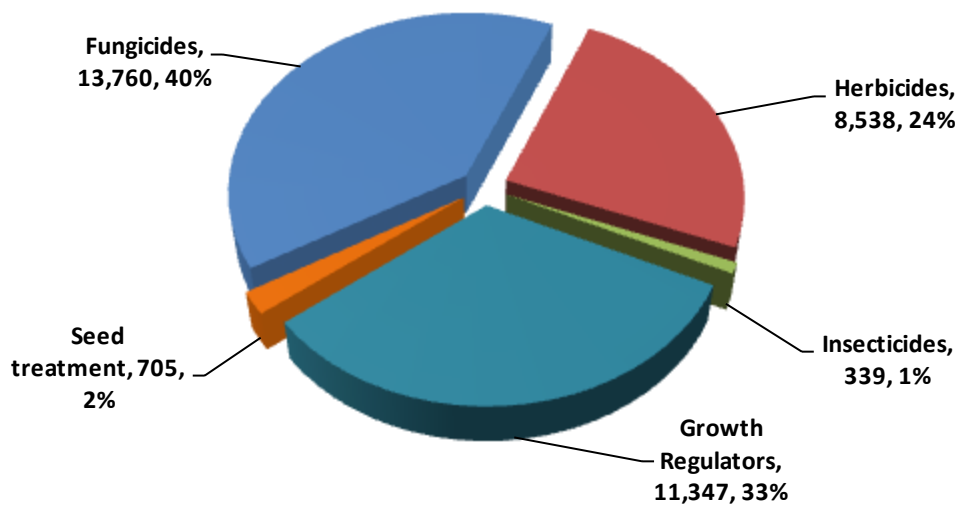


Figure 48: Proportional area of spring oat crops treated with each pesticide group in Ireland, 2012.

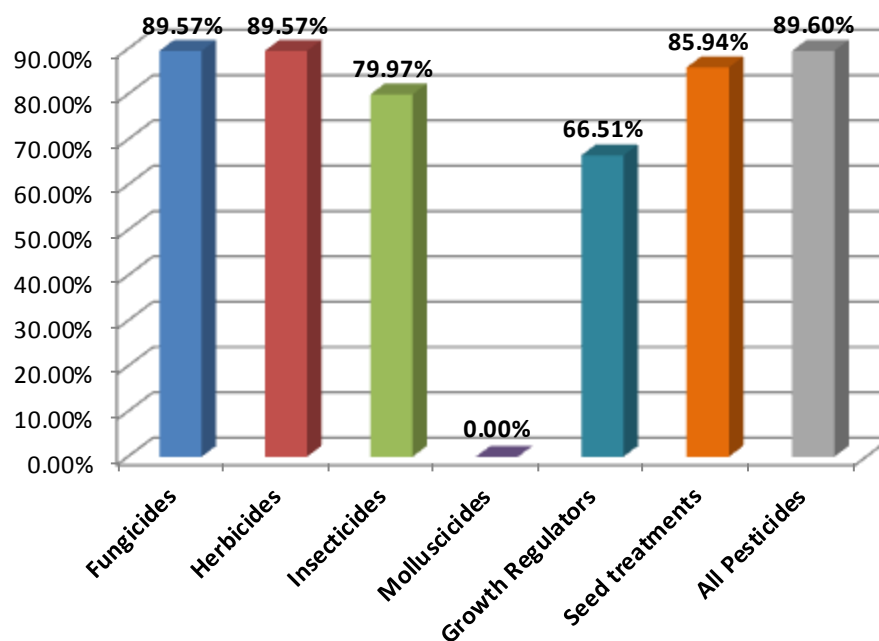


Figure 49: The top 10 active ingredients most extensively used on spring oats in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated	Quantity applied (kg)	% of the treated area
Fenpropimorph	22,210	10,364	7,082	19.5
Epoxiconazole	13,092	8,451	937	11.5
Chloromequat	12,079	9,730	11,114	10.6
Tribenuron-methyl	11,699	11,067	239	10.3
Metrafenone	9,466	6,336	795	8.3
Mecoprop-P	8,438	8,438	4,245	7.4
Proquinazid	7,198	5,837	251	6.3
Thifensulfuron-methyl	7,102	7,102	218	6.2
Pyraclostrobin	6,827	6,489	719	6.0
Prochloraz	6,455	6,455	133	5.7

Figure 50: The top 10 active ingredients most extensively used on spring oats in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated	% of the weight applied
Chloromequat	11,114	12,079	9,730	32.0
Fenpropimorph	7,082	22,210	10,364	20.4
Mecoprop-P	4,245	8,438	8,438	12.2
Glyphosate	2,039	3,908	3,794	5.9
Chlorothalonil	1,856	3,014	1,778	5.4
Epoxiconazole	937	13,092	8,451	2.7
Dichlorprop-P	910	3,449	3,449	2.6
Metrafenone	795	9,466	6,336	2.3
Pyraclostrobin	719	6,827	6,489	2.1
Fenpropidin	518	1,048	1,048	1.5

Pesticide usage on winter oats.

9,782 ha of winter oats grown in Ireland.

97,920 treated hectares.

33,203 kilogrammes applied.

100% of the area of winter oat crops grown received a pesticide treatment.

Winter oats received on average 9.88 treatments consisting of 4.74 fungicide, 1.80 herbicide, 0.65 insecticide, 1.83 growth regulator and 0.86 seed treatment applications.

Figure 51: Pesticide usage (spha) on winter oat crops in Ireland, 2012.

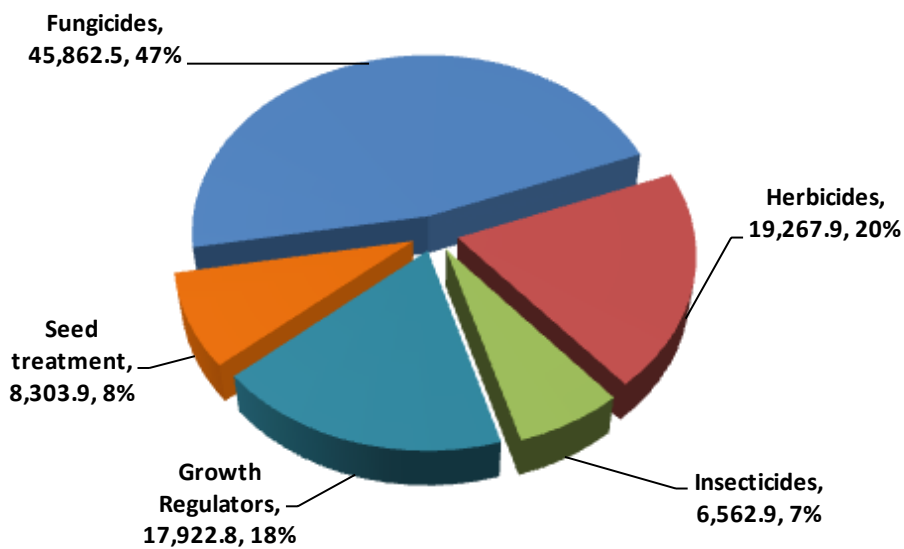


Figure 52: Weight of pesticides (kg) applied to winter oat crops in Ireland, 2012.

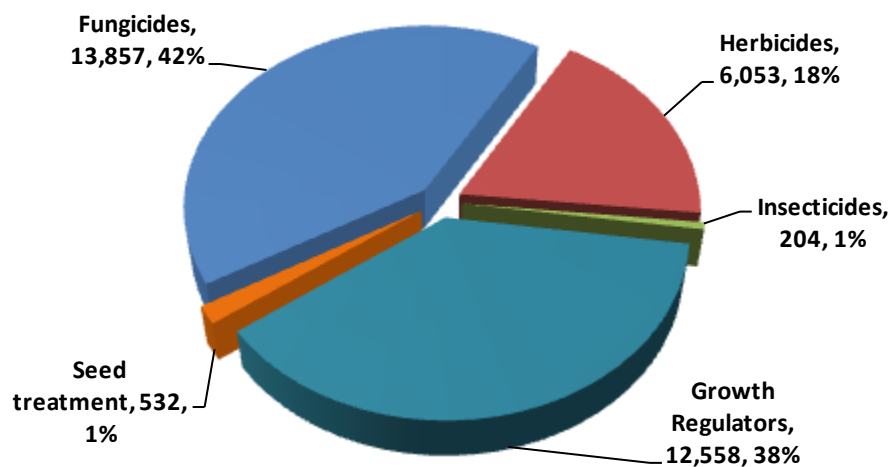


Figure 53: Proportional area of winter oat crops treated with each pesticide group in Ireland, 2012.

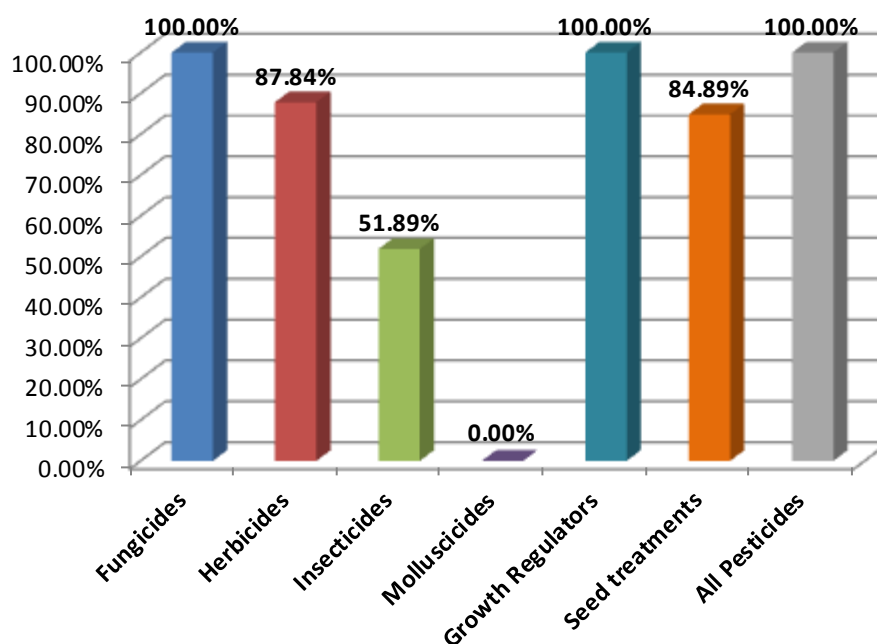


Figure 54: The top 10 active ingredients most extensively used on winter oats in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Fenpropimorph	28,360	9,614	9,796	29.0
Chlormequat	14,864	11,502	12,419	15.2
Pyraclostrobin	10,960	6,750	1,272	11.2
Epoxiconazole	10,383	8,647	731	10.6
Tribenuron-methyl	5,817	5,817	43	5.9
Metrafenone	5,531	4,419	532	5.6
Proquinazid	5,096	4,449	166	5.2
Glyphosate	3,674	3,379	3,052	3.8
Esfenvalerate	3,392	3,216	15	3.5
Flurtamone	3,242	3,242	495	3.3

Figure 55: The top 10 active ingredients most extensively used on winter oats in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Chlormequat	12,419	14,864	11,502	37.4
Fenpropimorph	9,796	28,360	9,614	29.5
Glyphosate	3,052	3,674	3,379	9.2
Pyraclostrobin	1,272	10,960	6,750	3.8
Epoxiconazole	731	10,383	8,647	2.2
Dichlorprop-P	656	2,116	2,116	2.0
Metrafenone	532	5,531	4,419	1.6
Flurtamone	495	3,242	3,242	1.5
Tebuconazole	454	2,592	1,616	1.4
Fluroxypyr	415	3,087	3,087	1.2

Pesticide usage on oilseed rape.

17,282 ha of oilseed rape grown in Ireland.

117,190 treated hectares.

41,836 kilogrammes applied.

100% of the area of oilseed rape crops grown received a pesticide treatment.

Oilseed rape received on average 6.38 treatments consisting of 2.32 fungicide, 2.34 herbicide, 0.29 insecticide, 0.47 molluscicide and 0.96 seed treatment applications.

Figure 56: Pesticide usage (spha) on oilseed rape crops in Ireland, 2012.

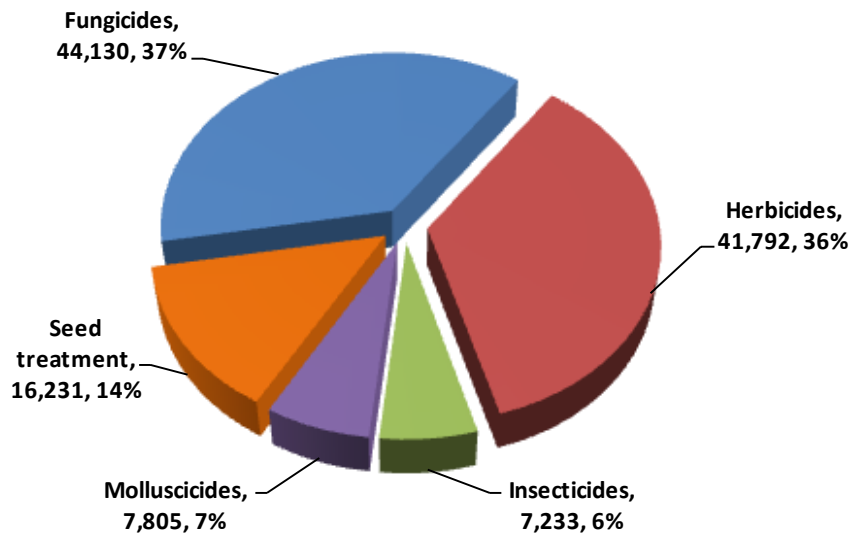


Figure 57: Weight of pesticides (kg) applied to oilseed rape crops in Ireland, 2012.

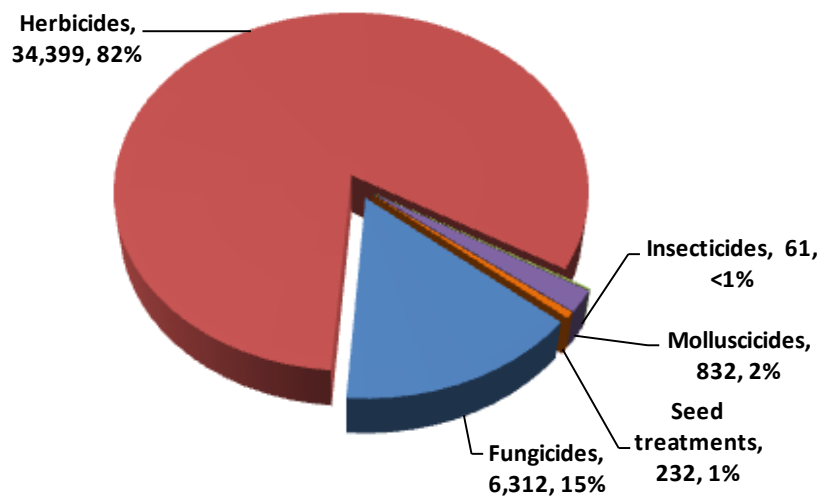


Figure 58: Proportional area of oilseed rape crops treated with each pesticide group in Ireland, 2012.

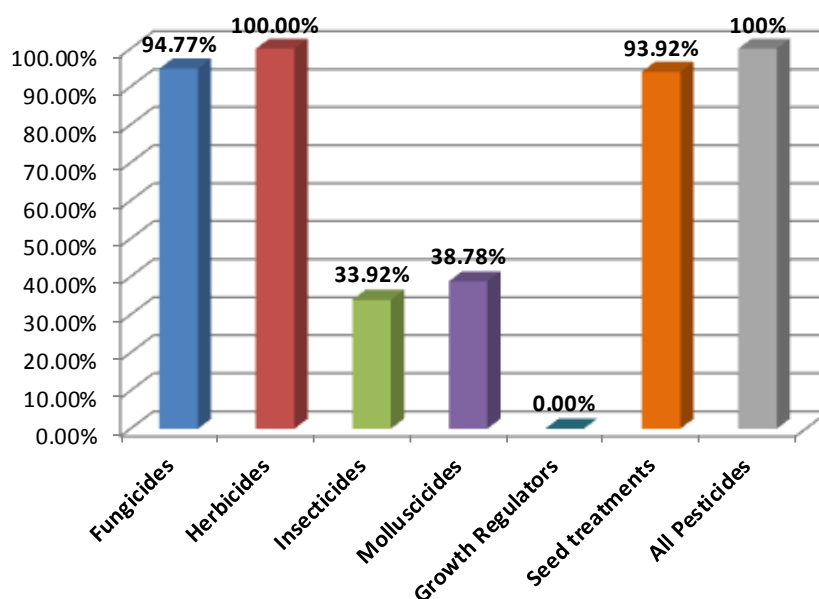


Figure 59: The top 10 active ingredients most extensively used on oilseed rape in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated	Quantity applied (kg)	% of the treated area
Fludioxonil	16,803	16,803	6	14.3
Metaxyl-m	16,803	16,803	23	14.3
Thiamethoxam	16,803	16,803	203	14.3
Glyphosate	16,654	15,050	22,624	14.2
Prothioconazole	11,188	8,462	1,220	9.5
Metazachlor	10,039	9,808	7,567	8.6
Metconazole	9,550	8,555	437	8.1
Tebuconazole	9,038	8,126	1,319	7.7
Boscalid	7,696	7,406	1,596	6.6
Lambda-cyhalothrin	6,421	5,294	49	5.5

Figure 60: The top 10 active ingredients most extensively used on oilseed rape in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated	% of the weight applied
Glyphosate	22,624	16,654	15,050	54.1
Metazachlor	7,567	10,039	9,808	18.1
Propyzamide	2,450	3,774	3,774	5.9
Boscalid	1,596	7,696	7,406	3.8
Tebuconazole	1,319	9,038	8,126	3.2
Prothioconazole	1,220	11,188	8,462	2.9
Azoxystrobin	792	6,186	5,940	1.9
Quinmerac	785	3,375	3,375	1.9
Methiocarb	545	5,364	5,364	1.3
Flusilazole	465	3,854	3,854	1.1

Pesticide usage on peas and beans.

3,696 ha of peas and beans grown in Ireland.

22,958 treated hectares.

12,591 kilogrammes applied.

100% of the area of pea and bean crops grown received a pesticide treatment.

Pea and bean crops received on average 5.48 treatments consisting of 2.91 fungicide, 2.07 herbicide, 0.19 insecticide and 0.31 seed treatment applications.

Figure 61: Pesticide usage (spha) on pea and bean crops in Ireland, 2012.

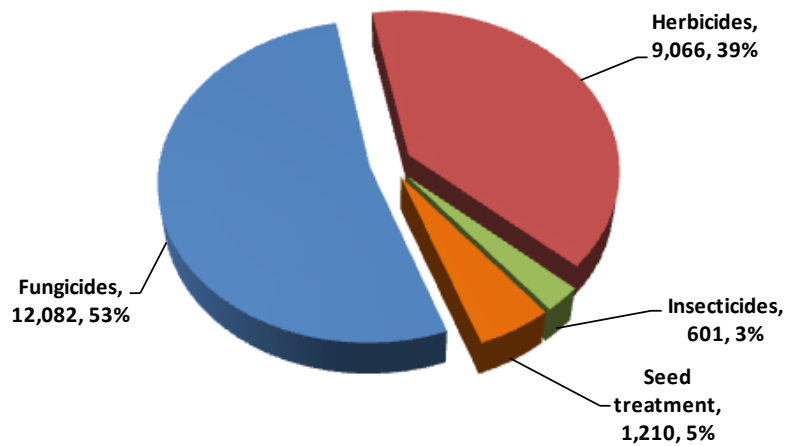


Figure 62: Weight of pesticides (kg) applied to pea and bean crops in Ireland, 2012.
(Seed treatments were recorded as "unspecified seed treatments" and so no weight can be calculated)

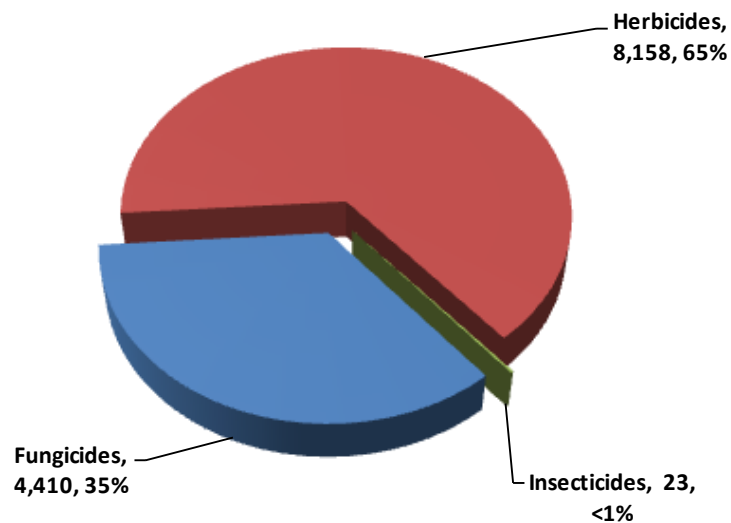


Figure 63: Proportional area of pea and bean crops treated with each pesticide group in Ireland, 2012.

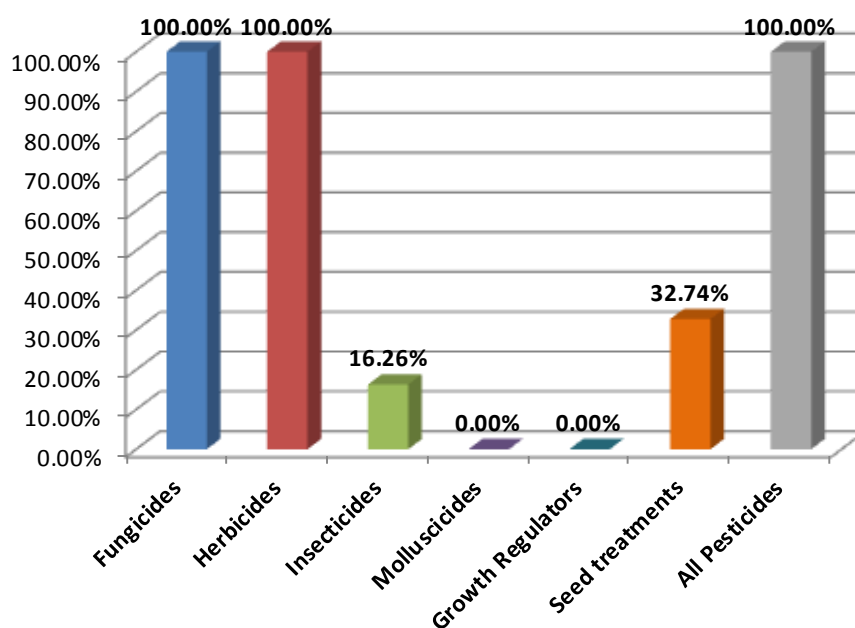


Figure 64: The top 10 active ingredients most extensively used on peas and beans in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated	Quantity applied (kg)	% of the treated area
Chlorothalonil	4,669	2,355	2,699	20.3
Pyraclostrobin	4,379	1,548	225	19.1
Boscalid	4,077	1,548	805	17.8
Pendimethalin	2,730	2,730	2,339	11.9
Azoxystrobin	2,498	1,980	401	10.9
Imazamox	1,983	1,983	99	8.6
Glyphosate	1,879	1,879	2,752	8.2
Tebuconazole	1,463	1,463	240	6.4
Bentazone	927	927	556	4.0
Propaquizafop	927	927	32	4.0

Figure 65: The top 10 active ingredients most extensively used on peas and beans in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated	% of the weight applied
Glyphosate	2,752	1,879	1,879	21.9
Chlorothalonil	2,699	4,669	2,355	21.4
Pendimethalin	2,339	2,730	2,730	18.6
Prosulfocarb	1,854	927	927	14.7
Boscalid	805	4,077	1,548	6.4
Bentazone	556	927	927	4.4
Azoxystrobin	401	2,498	1,980	3.2
Tebuconazole	240	1,463	1,463	1.9
Linuron	233	571	571	1.9
Pyraclostrobin	225	4,379	1,548	1.8

Pesticide usage on triticale.

1,445 ha of triticale grown in Ireland.

11,966 treated hectares.

4,056 kilogrammes applied.

100% of the area of triticale crops grown received a pesticide treatment.

Triticale crops received on average 8.10 treatments consisting of 4.00 fungicide, 1.88 herbicide, 0.46 insecticide 0.88 growth regulators and 0.88 seed treatment applications.

Figure 66: Pesticide usage (spha) on triticale crops in Ireland, 2012.

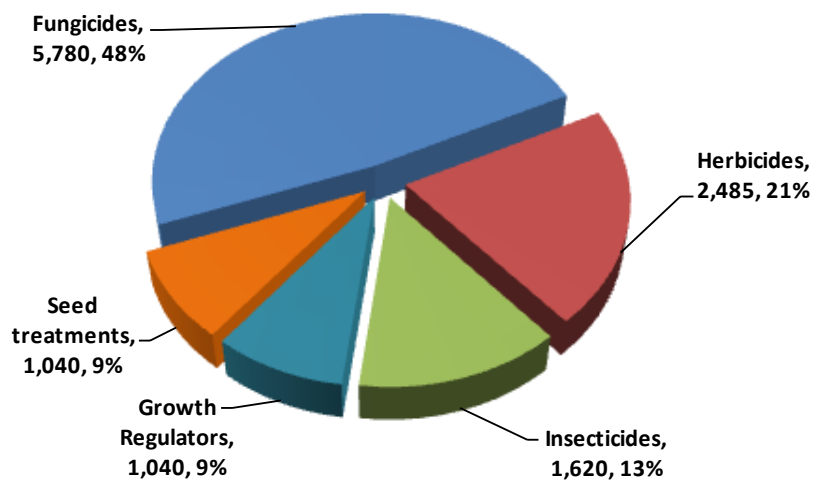


Figure 67: Weight of pesticides (kg) applied to triticale crops in Ireland, 2012.

(Seed treatments were recorded as "unspecified seed treatments" and so no weight can be calculated)

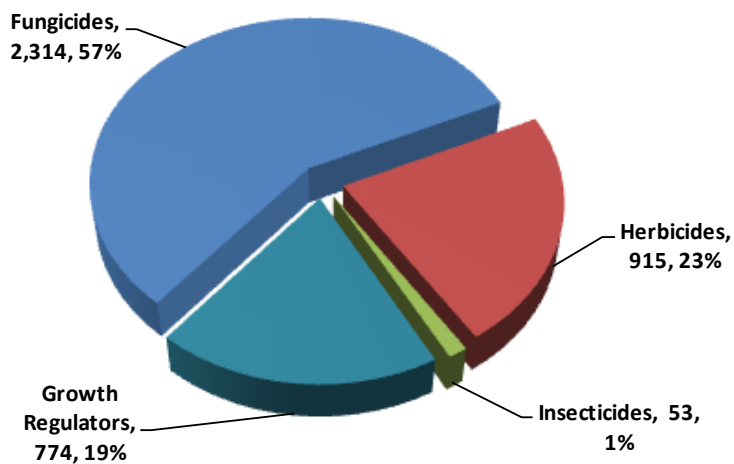


Figure 68: Proportional area of triticale crops treated with each pesticide group in Ireland, 2012.

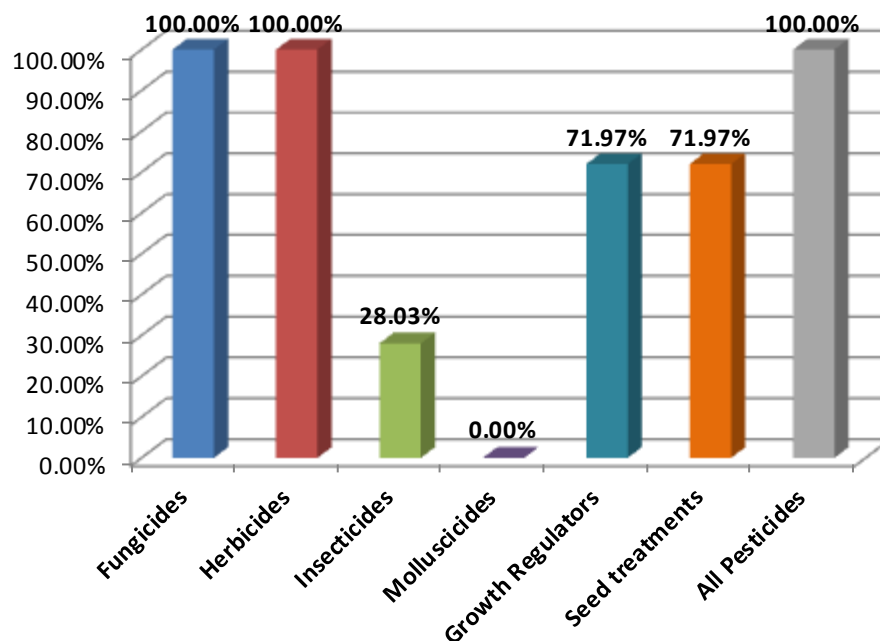


Figure 69: The top 10 active ingredients most extensively used on triticale in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated	Quantity applied (kg)	% of the treated area
Epoxiconazole	2485	1445	216	20.8
Fenpropimorph	1850	1445	616	15.5
Cypermethrin	1620	405	53	13.5
Diflufenican	1445	1445	135	12.1
Boscalid	1040	1040	262	8.7
Chlorothalonil	1040	1040	572	8.7
Fenpropidin	1040	1040	390	8.7
Metrafenone	1040	1040	117	8.7
Isoproturon	1040	1040	780	8.7
Chlormequat	1040	1040	774	8.7

Figure 70: The top 10 active ingredients most extensively used on triticale in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated	% of the weight applied
Isoproturon	780	1,040	1,040	19.2
Chlormequat	774	1,040	1,040	19.1
Fenpropimorph	616	1,850	1,445	15.2
Chlorothalonil	572	1,040	1,040	14.1
Fenpropidin	390	1,040	1,040	9.6
Boscalid	262	1,040	1,040	6.5
Epoxiconazole	216	2,485	1,445	5.3
Diflufenican	135	1,445	1,445	3.3
Metrafenone	117	1,040	1,040	2.9
Tebuconazole	76	405	405	1.9

Pesticide usage on seed potato crops.

320 ha of seed potato grown in Ireland.

5,768 treated hectares.

1,932 kilogrammes applied.

100% of the area of seed potato crops grown received a pesticide treatment.

Seed potato crops received on average 18.00 treatments consisting of 11.00 fungicide, 5.00 herbicide, 1.00 insecticide and 1.00 seed treatment applications.

Figure 71: Pesticide usage (spha) on seed potato crops in Ireland, 2012.

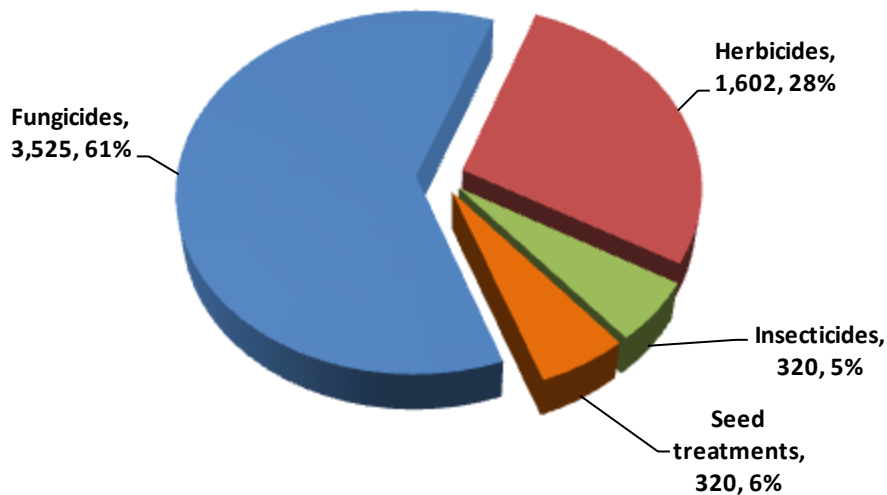


Figure 72: Weight of pesticides (kg) applied to seed potato crops in Ireland, 2012.

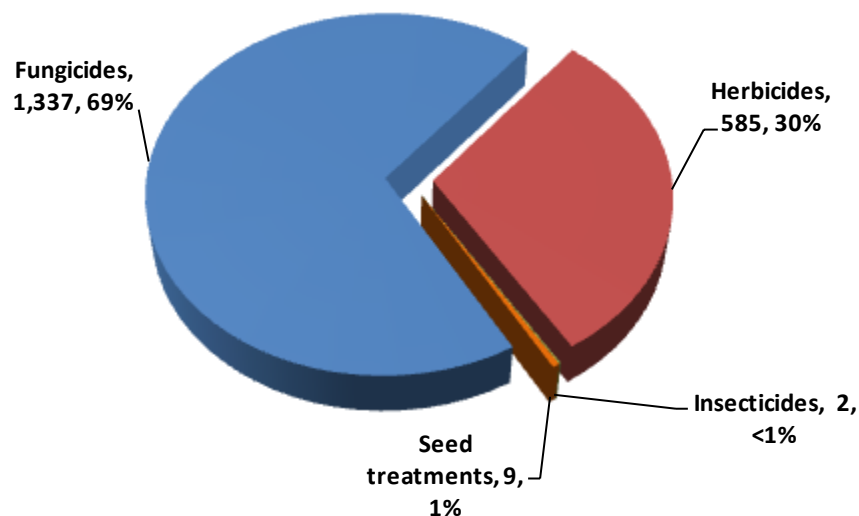


Figure 73: Proportional area of seed potato crops treated with each pesticide group in Ireland, 2012.

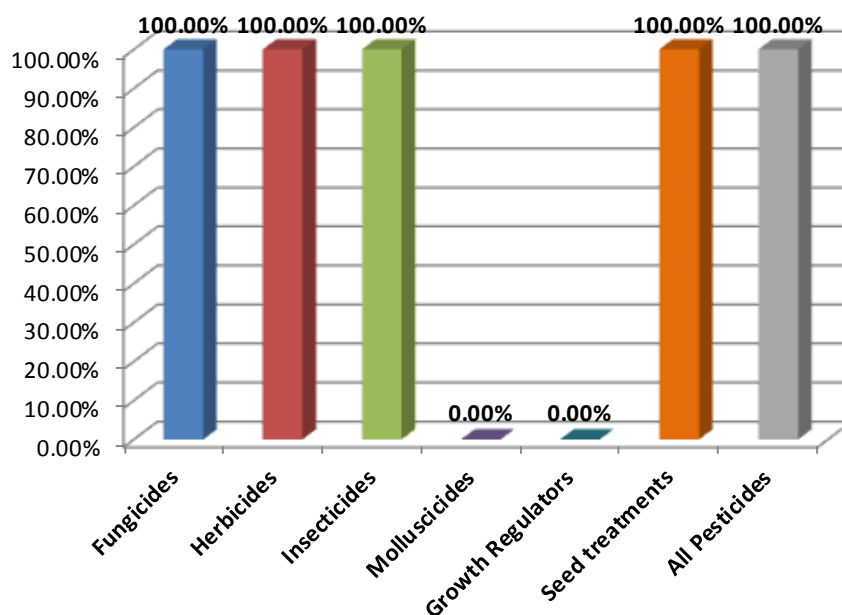


Figure 74: The top 10 active ingredients most extensively used on seed potato crops in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated	Quantity applied (kg)	% of the treated area
Cymoxanil	1,442	320	195	25.0
Cyazofamid	961	320	77	16.7
Fluazinam	641	320	128	11.1
Diquat	641	320	288	11.1
Mandipropamid	481	320	72	8.3
Imazalil	320	320	9	5.6
Mancozeb	320	320	545	5.6
Propamocarb hydrochloride	320	320	320	5.6
Cycloxydim	320	320	40	5.6
Linuron	320	320	144	5.6

Figure 75: The top 10 active ingredients most extensively used on seed potato crops in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated	% of the weight applied
Mancozeb	545	320	320	28.2
Propamocarb hydrochloride	320	320	320	16.6
Diquat	288	641	320	14.9
Cymoxanil	195	1,442	320	10.1
Linuron	144	320	320	7.5
Fluazinam	128	641	320	6.6
Metribuzin	112	320	320	5.8
Cyazofamid	77	961	320	4.0
Mandipropamid	72	481	320	3.7
Cycloxydim	40	320	320	2.1

Pesticide usage on early potato crops.

929 ha of early potato grown in Ireland.

10,958 treated hectares.

8,918 kilogrammes applied.

100% of the area of early potato crops grown received a pesticide treatment.

Early potato crops received on average 12.38 treatments consisting of 7.97 fungicide, 3.01 herbicide, 0.03 insecticide, 0.26 molluscicide and 1.11 seed treatment applications.

Figure 76: Pesticide usage (spha) on early potato crops in Ireland, 2012.

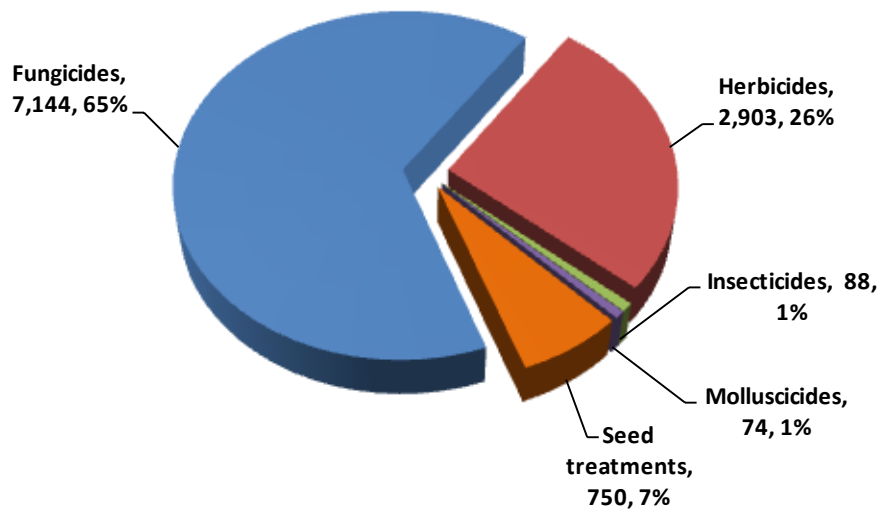


Figure 77: Weight of pesticides (kg) applied to early potato crops in Ireland, 2012.

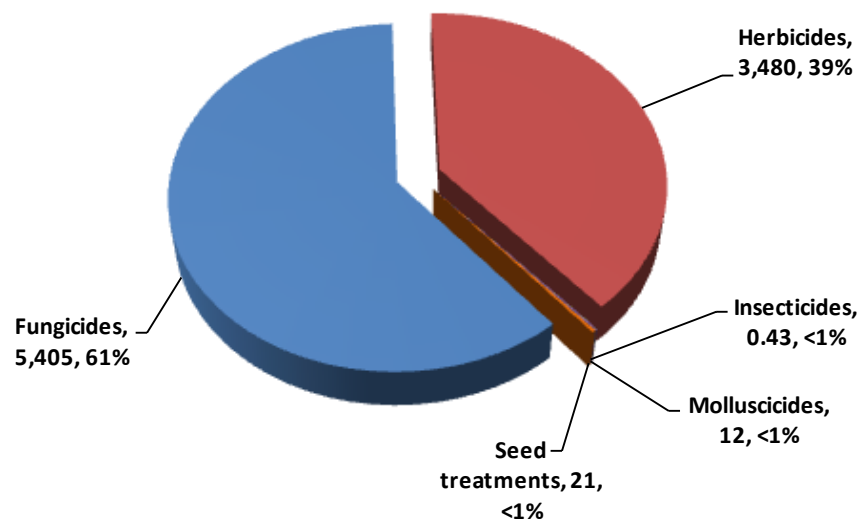


Figure 78: Proportional area of early potato crops treated with each pesticide group in Ireland, 2012.

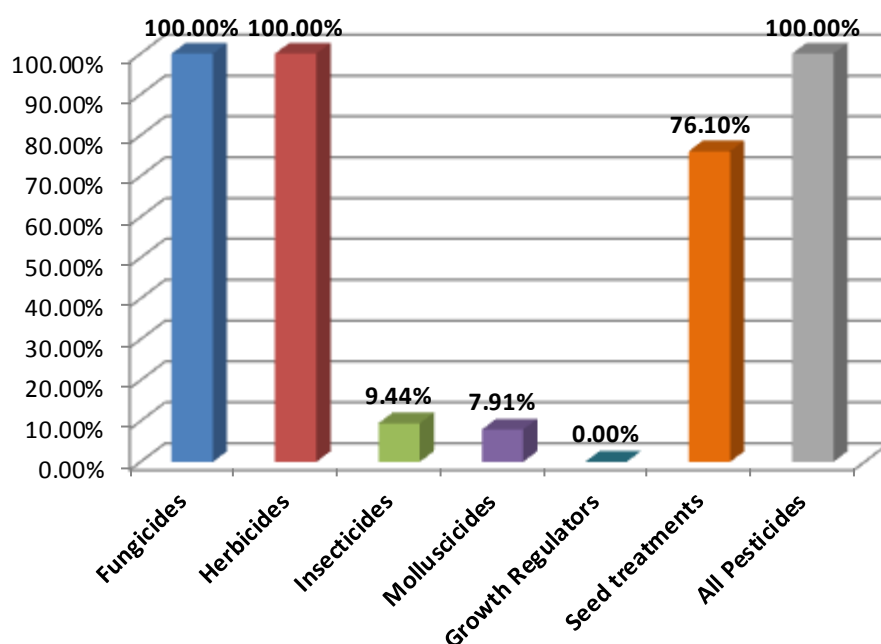


Figure 79: The top 10 active ingredients most extensively used on early potato crops in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated	Quantity applied (kg)	% of the treated area
Propamocarb hydrochloride	3,393	916	3,338	31.0
Fluopicolide	3,130	916	312	28.6
Mandipropamid	1,189	559	178	10.9
Fluazinam	913	272	179	8.3
Metribuzin	868	868	482	7.9
Mancozeb	762	343	969	7.0
Prosulfocarb	693	693	1,945	6.3
Diquat	666	636	306	6.1
Cymoxanil	556	168	61	5.1
Azoxystrobin	527	441	71	4.8

Figure 80: The top 10 active ingredients most extensively used on seed potato crops in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated	% of the weight applied
Propamocarb hydrochloride	3,338	3,393	916	37.4
Prosulfocarb	1,945	693	693	21.8
Mancozeb	969	762	343	10.9
Metribuzin	482	868	868	5.4
Glyphosate	429	397	397	4.8
Fluopicolide	312	3,130	916	3.5
Diquat	306	666	636	3.4
Pendimethalin	295	223	223	3.3
Chlorothalonil	194	484	441	2.2
Fluazinam	179	913	272	2.0

Pesticide usage on maincrop potato crops.

7,786 ha of maincrop potato grown in Ireland.

174,471 treated hectares.

82,316 kilogrammes applied.

99.60% of the area of early potato crops grown received a pesticide treatment.

Maincrop potatoes received on average 15.19 treatments consisting of 10.46 fungicide, 3.11 herbicide, 0.29 insecticide, 0.66 molluscicide, 0.01 growth regulator and 0.66 seed treatment applications.

Figure 81: Pesticide usage (spha) on maincrop potato in Ireland, 2012.

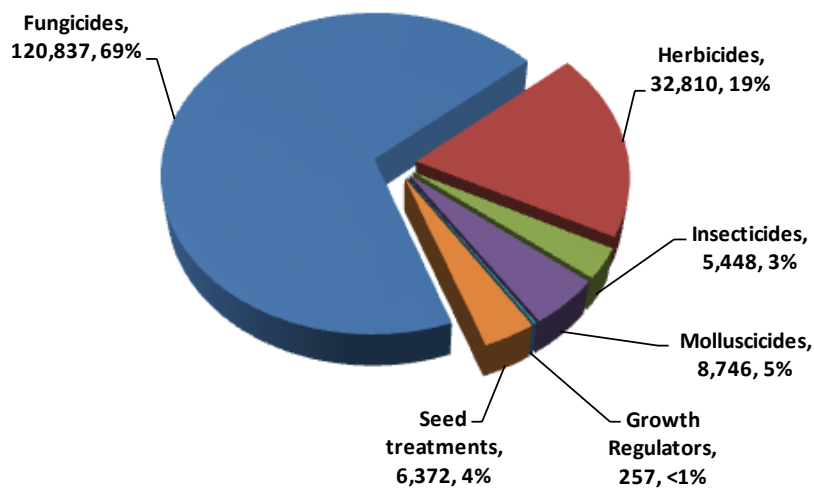


Figure 82: Weight of pesticides (kg) applied to maincrop potato in Ireland, 2012.

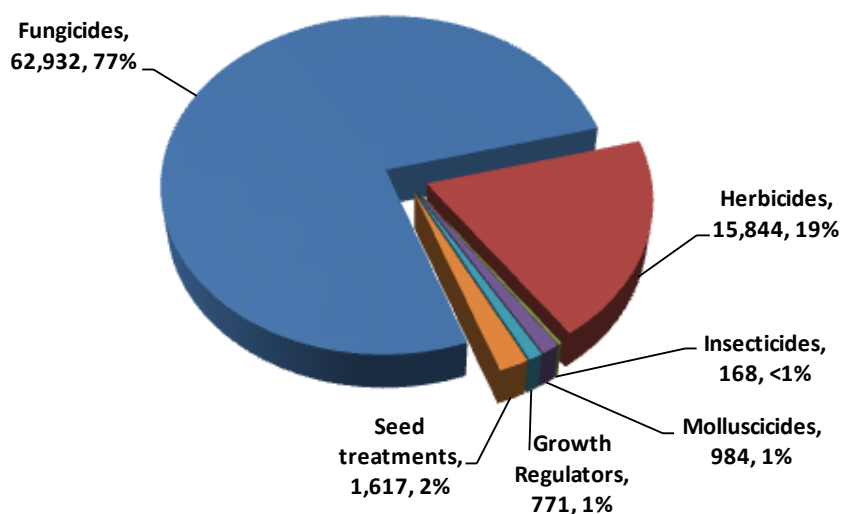


Figure 83: Proportional area of maincrop potato treated with each pesticide group in Ireland, 2012.

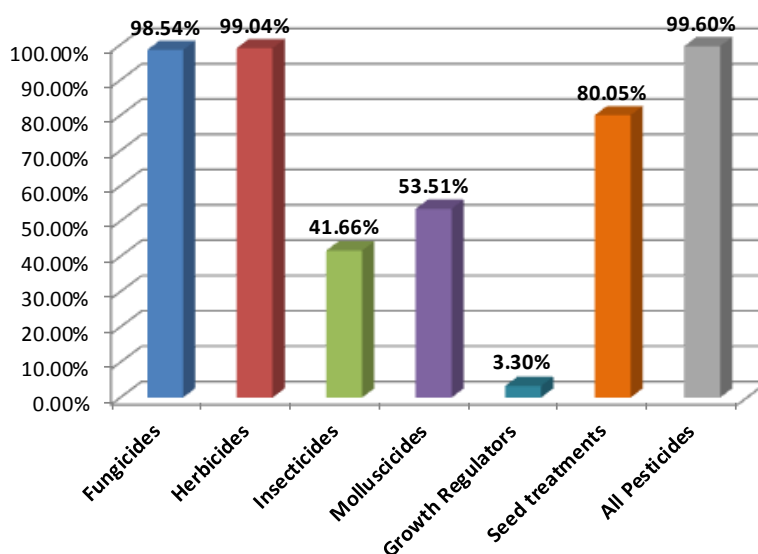


Figure 84: The top 10 active ingredients most extensively used on maincrop potato in Ireland in 2012, ranked by area treated (spray-hectares).

Active substance	Treated area (spha)	Basic area treated	Quantity applied (kg)	% of the treated area
Cymoxanil	34,770	6,223	3,781	19.9
Fluazinam	27,791	6,587	5,439	15.9
Propamocarb hydrochloride	21,541	6,974	20,298	12.3
Diquat	18,976	7,580	7,358	10.9
Mancozeb	18,925	5,988	25,378	10.8
Mandipropamid	17,945	6,310	2,642	10.3
Fluopicolide	11,556	6,092	1,140	6.6
Cyazofamid	11,010	5,019	1,012	6.3
Methiocarb	8,103	4,166	867	4.6
Metribuzin	7,164	7,164	3,068	4.1

Figure 85: The top 10 active ingredients most extensively used on maincrop potato in Ireland in 2012, ranked by weight (kg).

Active substance	Quantity applied (kg)	Treated area (spha)	Basic area treated	% of the weight applied
Mancozeb	25,378	18,925	5,988	30.8
Propamocarb hydrochloride	20,298	21,541	6,974	24.7
Diquat	7,358	18,976	7,580	8.9
Fluazinam	5,439	27,791	6,587	6.6
Cymoxanil	3,781	34,770	6,223	4.6
Metribuzin	3,068	7,164	7,164	3.7
Mandipropamid	2,642	17,945	6,310	3.2
Prosulfocarb	2,097	747	747	2.5
Metalaxyl-m	1,907	2,466	1,563	2.3
Linuron	1,840	3,420	3,420	2.2

Table 1: Estimated area (hectares) of arable crops grown regionally in Ireland, 2012.

Crop	Region			
	East	South	North/West	Ireland
Spring barley	50,568	90,626	9,184	150,378
Winter barley	20,600	18,475	1,642	40,717
Spring wheat	4,886	7,286	1,142	13,314
Winter wheat	52,064	29,080	2,607	83,751
Spring oats	4,053	6,912	3,033	13,998
Winter oats	5,966	3,816	.	9,782
Oilseed rape	10,446	5,709	1,127	17,282
Peas & beans	2,043	1,653	.	3,696
Triticale	405	1,040	.	1,445
Seed potatoes	320	.	.	320
Early potatoes	131	785	13	929
Maincrop potatoes	4,911	1,917	957	7,786
Total	156,394	167,299	19,706	343,399

Table 2a: Estimated area (spray-hectares) of arable crops treated regionally with each pesticide type in Ireland, 2012.

Pesticide type	Region			
	East	South	North/West	Ireland
Fungicides	866,309	814,455	85,573	1,766,338
Herbicides	440,178	434,565	45,083	919,826
Insecticides	174,991	176,677	21,130	372,798
Molluscicides	22,113	7,852	1,671	31,636
Growth Regulators	142,948	132,935	15,640	291,524
Seed treatments	147,462	146,753	20,015	314,230
Total	1,794,002	1,713,238	189,112	3,696,352

Table 2b: Estimated weight (kg) applied to arable crops regionally with each pesticide type in Ireland, 2012.

Pesticide type	Region			
	East	South	North/West	Ireland
Fungicides	273,673	252,425	34,389	560,486
Herbicides	180,771	152,980	15,640	349,391
Insecticides	12,629	8,962	699	22,291
Molluscicides	1,994	1,043	154	3,191
Growth Regulators	95,592	83,492	10,255	189,339
Seed treatments	8,481	8,426	2,437	19,345
Total	573,141	507,328	63,574	1,144,043

Table 3: The total area (spray hectares) and the basic area (hectares), of arable crops in Ireland 2012 treated with each pesticide type.

Crop type	Pesticide Type														
	Fungicides		Herbicides		Insecticides		Molluscicides		Growth regulators		Seed treatments		All Pesticides		
	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha) treated (ha) grown	
Spring barley	577,381	146,829	391,819	147,236	133,513	116,926	194	194	36,924	33,702	136,470	136,242	1,276,302	148,158	150,378
Winter barley	208,858	40,717	116,529	40,717	44,597	36,301	3,043	3,043	59,641	34,674	38,527	38,527	471,194	40,717	40,717
Spring wheat	57,087	13,314	33,724	13,314	20,348	12,772	.	.	13,689	11,284	12,536	12,536	137,383	13,314	13,314
Winter wheat	639,479	83,618	239,241	82,484	136,388	79,595	11,774	10,406	148,953	78,306	80,440	77,862	1,256,275	83,618	83,751
Spring oats	44,172	12,539	28,588	12,539	16,080	11,195	.	.	13,098	9,309	12,030	12,030	113,967	12,539	13,998
Winter oats	45,862	9,782	19,268	8,593	6,563	5,077	.	.	17,923	9,782	8,304	8,304	97,920	9,782	9,782
Oilseed rape	44,130	16,379	41,792	17,282	7,233	5,863	7,805	6,702	.	.	16,231	16,231	117,190	17,282	17,282
Peas & beans	12,082	3,696	9,066	3,696	601	601	.	.	.	.	1,210	1,210	22,958	3,696	3,696
Triticale	5,780	1,445	2,485	1,445	1,620	405	.	.	1,040	1,040	1,040	1,040	11,966	1,445	1,445
Seed potatoes	3,525	320	1,602	320	320	320	.	.	.	.	320	320	5,768	320	320
Early potatoes	7,144	929	2,903	929	88	88	74	74	.	.	750	707	10,958	929	929
Maincrop potatoes	120,837	7,672	32,810	7,711	5,448	3,243	8,746	4,166	257	257	6,372	6,232	174,471	7,753	7,786
Total	1,766,338	337,241	919,826	336,266	372,798	272,386	31,636	24,584	291,524	178,355	314,230	311,240	3,696,352	339,554	343,399

Table 4: The total quantities (kilograms) of each pesticide type used on arable crops in Ireland 2012.

<i>Crop</i>	Pesticide type						Total weight applied (kg)
	Fungicides	Herbicides	Insecticides	Molluscicides	Growth regulators	Seed treatments	
Spring barley	171,621	100,324	3,050	28	17,164	7,189	299,376
Winter barley	63,770	55,071	587	235	30,610	2,029	152,302
Spring wheat	16,438	6,883	1,474	.	10,485	803	36,083
Winter wheat	198,331	109,141	16,330	1,100	105,630	6,208	436,741
Spring oats	13,760	8,538	339	.	11,347	705	34,689
Winter oats	13,857	6,053	204	.	12,558	532	33,203
Oilseed rape	6,312	34,399	61	832	.	232	41,836
Peas & beans	4,410	8,158	23	.	.	.	12,591
Triticale	2,314	915	53	.	774	.	4,056
Seed potatoes	1,337	585	2	.	.	9	1,932
Early potatoes	5,405	3,480	0	12	.	21	8,918
Maincrop potatoes	62,932	15,844	168	984	771	1,617	82,316
<i>All arable crops</i>	560,486	349,391	22,291	3,191	189,339	19,345	1,144,043

Table 5: The proportional area (%) of each crop treated with each pesticide type and the average number of treatments (in parentheses) for all crops grown in Ireland, 2012.

Crop	Fungicides		Herbicides		Insecticides		Molluscicides		Growth Regulators		Seed treatments		All pesticides	
	%	treatments	%	treatments	%	treatments	%	treatments	%	treatments	%	treatments	%	treatments
Spring barley	97.64	(3.51)	97.91	(2.54)	77.75	(.84)	0.13	(.01)	22.41	(.17)	90.60	(.91)	98.5	(7.98)
Winter barley	100.00	(4.80)	100.00	(2.53)	89.15	(1.07)	7.47	(.06)	85.16	(1.43)	94.62	(.93)	100	(10.82)
Spring wheat	100.00	(4.30)	100.00	(2.33)	95.93	(1.52)	0.00		84.75	(1.23)	94.15	(.95)	100	(10.33)
Winter wheat	99.84	(7.23)	98.49	(2.54)	95.04	(1.59)	12.42	(.12)	93.50	(1.56)	92.97	(.93)	99.8	(13.97)
Spring oats	89.57	(2.57)	89.57	(1.71)	79.97	(.86)	.	.	66.51	(.72)	85.94	(.69)	89.6	(6.55)
Winter oats	100.00	(4.74)	87.84	(1.80)	51.89	(.65)	.	.	100.00	(1.83)	84.89	(.86)	100.00	(9.88)
Oilseed rape	94.77	(2.32)	100.00	(2.34)	33.92	(.29)	38.78	(.47)	.		93.92	(.96)	100.00	(6.38)
Peas & beans	100.00	(2.91)	100.00	(2.07)	16.26	(.19)	.	.	.		32.74	(.31)	100.00	(5.48)
Triticale	100.00	(4.00)	100.00	(1.88)	28.03	(.46)	.	.	71.97	(.88)	71.97	(.88)	100.00	(8.10)
Seed potatoes	100.00	(11.00)	100.00	(5.00)	100.00	(1.00)	.	.	.		100.00	(1.00)	100.00	(18.00)
Early potatoes	100.00	(7.97)	100.00	(3.01)	9.44	(.03)	7.91	(.26)	.		76.10	(1.11)	100.00	(12.38)
Maincrop potatoes	98.54	(10.46)	99.04	(3.11)	41.66	(.29)	53.51	(.66)	3.30	(.01)	80.05	(.66)	99.60	(15.19)

Table 6: Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2012.

Pesticide type & formulation	Crop												
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	All crops
Fungicides													
Azoxystrobin	9,672	1,150	2,196	11,868	457	248	5,448	1,571	.	.	43	682	33,336
Azoxystrobin/chlorothalonil	13,673	2,299	769	17,583	341	286	738	927	.	.	484	.	37,100
Azoxystrobin/fenpropimorph	.	.	.	3,672	.	.	.	.	.	.	.	.	3,672
Benthiavalicarb-isopropyl/mancozeb	.	.	.	.	.	.	.	.	.	.	436	6,835	7,271
Bixafen/Prothioconazole	25,239	27,060	2,329	33,204	.	.	.	.	.	.	.	.	87,832
Bixafen/Prothioconazole/Spiroxamine	1,155	.	866	11,107	.	.	.	.	.	.	.	.	13,129
Boscalid	.	.	944	826	.	.	7,524	.	.	.	.	.	9,293
Boscalid/Epoxiconazole	16,564	7,262	705	46,977	1,170	78	171	.	1,040	.	.	257	74,224
Boscalid/pyraclostrobin	.	.	.	.	.	.	.	4,077	.	.	.	.	4,077
Carbendazim/flusilazole	10,915	1,117	.	.	1,498	.	3,761	.	.	.	.	.	17,291
Carboxin/thiram	2,253	.	.	.	.	652	.	.	.	.	.	.	2,905
Chlorothalonil	123,654	52,240	11,984	169,199	1,975	.	171	3,318	1,040	.	.	164	363,745
Chlorothalonil/cyproconazole/propiconazole	1,032	555	1,064	10	.	.	.	.	.	.	.	.	2,662
Chlorothalonil/metalaxyl-M	.	.	.	.	.	.	.	423	.	.	.	.	423
Chlorothalonil/picoxystrobin	10,419	1,265	1,229	2,565	.	.	.	.	.	.	.	.	15,479
Chlorothalonil/Proquinazid	672	54	.	5,064	698	.	.	.	.	.	.	.	6,488
Cyazofamid	.	.	.	.	.	.	.	.	.	961	73	11,010	12,044
Cymoxanil	.	.	.	.	.	.	.	.	.	801	243	20,816	21,860
Cymoxanil/mancozeb	.	.	.	.	.	.	.	.	.	320	226	7,633	8,180
Cymoxanil/propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	320	88	6,321	6,729
Cyproconazole/Picoxystrobin	.	.	.	.	647	2,362	.	.	.	.	.	.	3,009
Cyproconazole/propiconazole	.	.	.	.	357	48	.	.	.	.	.	.	405
Cyprodinil/isopyrazam	18,222	12,242	263	857	.	.	.	.	.	.	.	.	31,585
Cyprodinil/Propiconazole	3,638	999	.	.	.	.	.	.	.	.	.	.	4,637
Difenoconazole/Tebuconazole	.	.	.	1,426	.	.	.	.	.	.	.	.	1,426
Dimethomorph/mancozeb	.	.	.	.	.	.	.	.	.	.	.	540	540

Table 6(cont.): Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2012.

Pesticide type & formulation	Crop												
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	All crops
<i>Fungicides (cont.)</i>													
Epoxiconazole	12,527	1,897	7,021	24,656	1,206	4,554	.	.	405	.	.	.	52,266
Epoxiconazole/ fenpropimorph	5,623	32	1,250	12,440	.	.	.	.	.	.	.	.	19,346
Epoxiconazole/ fenpropimorph/ kresoxim-methyl	6,366	2,315	.	389	568	506	.	.	.	.	.	.	10,144
Epoxiconazole/ fenpropimorph/ metrafenone	4,002	210	3,461	5,517	9,041	5,246	.	.	1,040	.	.	.	28,518
Epoxiconazole/ fenpropimorph/ pyraclostrobin	11,987	2,364	580	545	.	.	.	.	.	.	.	.	15,476
Epoxiconazole/ Fluxapyroxad	16,629	3,557	1,231	27,692	.	.	.	.	.	.	.	.	49,110
Epoxiconazole/ Isopyrazam	677	816	1,809	12,397	.	.	.	.	.	.	.	.	15,699
Epoxiconazole/ metconazole	452	576	3,898	75,319	682	.	.	.	.	.	.	.	80,927
Epoxiconazole/ Metrafenone	.	.	.	.	424	.	.	.	.	.	.	.	424
Epoxiconazole/ pyraclostrobin	7,970	.	1,330	.	.	.	.	302	.	.	.	.	9,602
Fenamidon/ propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	.	175	3,664	3,840
Fenpropidin	10,034	2,425	2,054	5,196	1,048	.	.	.	1,040	.	.	.	21,798
Fenpropimorph	52,828	18,102	3,751	39,656	5,827	12,949	.	.	405	.	.	.	133,519
Fenpropimorph/ flusilazole	3,044	.	.	.	.	.	.	.	405	.	.	.	3,449
Fenpropimorph/ pyraclostrobin	8,317	6,101	653	10,106	6,773	9,659	.	.	.	.	.	.	41,609
Fluazinam	.	.	.	.	.	.	.	.	.	641	913	27,030	28,584
Fluazinam/ metalaxyl-M	.	.	.	.	.	.	.	.	.	.	.	761	761
Fludioxonil	.	.	.	.	278	.	.	.	.	.	.	.	278
Fludioxonil/ metalaxyl-M/ thiamethoxam	.	.	.	.	.	.	572	.	.	.	.	.	572
Fluopicolide/ propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	.	3,130	11,556	14,686
Fluoxastrobin	7,926	1,770	226	.	.	.	.	.	.	.	.	.	9,922
Fluoxastrobin/ prothioconazole	10,340	868	.	.	.	.	.	.	.	.	.	.	11,208
Fluoxastrobin/ prothioconazole/ trifloxystrobin	16,165	4,041	.	.	.	.	.	.	.	.	.	.	20,206
Flusilazole	.	.	.	.	.	.	93	.	.	.	.	.	93
Fluxapyroxad	1,296	917	.	7,761	.	.	.	.	.	.	.	.	9,974
Folpet	11,423	4,106	341	10,487	.	.	.	.	.	.	.	.	26,358
Imazalil	100	.	.	.	.	.	.	.	.	.	.	.	100
Mancozeb	.	.	.	.	.	.	.	.	.	.	56	3,624	3,680
Mancozeb/ zoxamide	.	.	.	.	.	.	.	.	.	.	43	292	335

Table 6 (cont.): Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2012.

Pesticide type & formulation	Crop												
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	All crops
<i>Fungicides (cont.)</i>													
Mandipropamid	.	.	.	.	.	.	.	.	.	481	1,189	17,945	19,615
Metalaxyl-M	.	.	.	.	.	.	.	.	.	.	43	1,706	1,749
Metconazole	.	.	215	6,326	.	.	9,550	.	.	.	.	.	16,090
Metrafenone	.	.	.	2,428	.	285	.	.	.	.	.	.	2,712
Picoxystrobin	4,062	478	.	.	.	.	.	.	.	.	.	.	4,539
Prochloraz/Proquinazid/Tebuconazole	854	.	586	.	.	.	.	.	.	.	.	.	1,440
Prochloraz/triticonazole	316	.	.	.	.	.	.	.	.	.	.	.	316
Propiconazole	4,356	.	.	1,730	603	.	.	.	.	.	.	.	6,688
Proquinazid	6,935	768	1,425	12,317	6,500	5,096	.	.	.	.	.	.	33,040
Prothioconazole	82,603	34,198	2,707	15,699	1,884	.	7,063	.	.	.	.	.	144,154
Prothioconazole/Spiroxamine	25,356	8,671	310	2,133	.	.	.	.	.	.	.	.	36,471
Prothioconazole/Spiroxamine/Tebuconazole	.	576	.	8,556	.	.	.	.	.	.	.	.	9,132
Prothioconazole/tebuconazole	123	1,438	1,446	26,083	.	.	4,125	.	.	.	.	.	33,215
Prothioconazole/trifloxystrobin	11,265	1,293	.	316	.	.	.	.	.	.	.	.	12,874
Pyraclostrobin	15,679	4,042	310	11,775	54	1,302	.	.	.	.	.	.	33,162
Tebuconazole	1,021	1,053	132	15,594	2,140	2,592	4,913	1,463	405	.	.	.	29,313
All fungicides	577,381	208,858	57,087	639,479	44,172	45,862	44,130	12,082	5,780	3,525	7,144	120,837	1,766,338

Table 6 (cont.): Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2012.

Pesticide type & formulation	Crop												
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	All crops
<i>Herbicides</i>													
2,4-D/Dicamba/Fluroxypyr	1,501	.	.	.	.	.	.	.	.	.	.	.	1,501
Amidosulfuron	.	576	.	1,451	.	301	.	.	.	.	.	.	2,327
Bentazone	.	.	.	.	.	.	.	927	.	.	.	.	927
Bromoxynil/ioxynil	6,445	.	927	731	54	856	.	.	.	.	.	.	9,013
Bromoxynil/ioxynil/mecoprop-P	.	.	30	.	.	.	.	.	.	.	.	.	30
Carfentrazone-ethyl	.	.	.	.	.	.	.	.	.	.	.	390	390
Carfentrazone-ethyl/metsulfuron-methyl	2,800	.	.	.	.	.	.	.	.	.	.	.	2,800
Clodinafop-Propargyl/Cloquintocet-mexyl	.	.	.	573	.	.	.	.	.	.	.	.	573
Clodinafop-Propargyl/Cloquintocet-mexyl/Pinoxaden	1,879	.	.	2,766	.	.	.	.	.	.	.	.	4,644
Clomazone/linuron	.	.	.	.	.	.	.	571	.	.	.	503	1,074
Clopyralid	.	.	.	.	.	.	774	.	.	.	.	.	774
Clopyralid/Florasulam/Fluroxypyr	29,521	350	1,339	.	1,754	1,819	.	.	.	.	.	.	34,784
Cycloxydim	.	.	.	.	.	.	1,420	660	.	320	.	215	2,616
Dicamba/MCPA/mecoprop-P	2,928	.	.	.	.	.	.	.	.	.	.	.	2,928
Dicamba/mecoprop-P	2,904	.	.	.	79	.	.	.	.	.	.	.	2,983
Dichlorprop-P/MCPA/mecoprop-P	9,413	.	597	1,435	3,449	2,116	.	.	.	.	.	.	17,009
Diflufenican	953	25,866	226	44,439	.	.	.	.	1,445	.	43	.	72,972
Diflufenican/flufenacet	.	983	.	941	.	.	.	.	.	.	.	.	1,925
Diflufenican/flurtamone	.	188	.	976	.	3,242	.	.	.	.	.	.	4,406
Diflufenican/Iodosulfuron-methyl-sodium	.	.	.	11,920	.	.	.	.	.	.	.	.	11,920
Diflufenican/isoproturon	.	2,771	.	759	.	.	.	.	.	.	.	.	3,530
Diquat	.	.	.	.	.	.	107	259	.	641	666	18,976	20,649
Fenoxaprop-P-ethyl	.	.	510	6,848	.	.	.	.	.	.	.	.	7,358
Florasulam	.	977	.	3,664	.	176	.	.	.	.	.	.	4,816
Florasulam/Pyroxsulam	.	.	542	2,619	.	.	.	.	.	.	.	.	3,161
Fluazifop-P-butyl	.	.	.	.	.	.	890	.	.	.	.	.	890
Fluroxypyr	36,490	5,815	5,947	17,198	922	1,267	.	.	.	.	.	.	67,639
Glyphosate	43,230	14,923	1,142	28,855	3,908	3,674	16,654	1,879	.	.	397	694	115,355
Imazamox/pendimethalin	.	.	.	.	.	.	.	1,983	.	.	.	.	1,983
Iodosulfuron-methyl-sodium	4,993	.	.	314	.	.	.	.	.	.	.	.	5,307

Table 6 (cont.): Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2012.

Pesticide type & formulation	Crop												All crops
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	
<i>Herbicides (cont.)</i>													
iodosulfuron-methyl-sodium/mesosulfuron-methyl	.	.	.	13,593	.	.	.	.	.	.	.	.	13,593
Isoproturon	100	31,397	226	55,319	.	.	.	.	1,040	.	.	.	88,083
Linuron	.	.	.	.	.	.	.	.	.	320	13	2,916	3,250
MCPA	6,005	1,291	296	615	.	.	.	.	.	.	.	.	8,206
Mecoprop-P	48,547	760	3,734	1,624	4,911	.	.	.	.	.	.	.	59,576
Metazachlor	.	.	.	.	.	.	6,663	.	.	.	.	.	6,663
Metazachlor/quinmerac	.	.	.	.	.	.	3,375	.	.	.	.	.	3,375
Metribuzin	.	.	.	.	.	.	.	.	.	320	868	7,164	8,352
Metsulfuron-methyl	5,010	1,133	1,106	602	1,472	.	.	.	.	.	.	.	9,323
Metsulfuron-methyl/Thifensulfuron-methyl	27,899	.	1,513	574	.	.	.	.	.	.	.	.	29,987
Metsulfuron-methyl/tribenuron-methyl	46,766	1,169	4,286	4,156	3,779	3,087	.	.	.	.	.	.	63,243
Pendimethalin	.	93	.	1,555	.	.	.	748	.	.	223	331	2,949
Pendimethalin/picolinafen	.	4,262	.	4,813	.	.	.	.	.	.	.	.	9,075
Pinoxaden	60,066	19,975	5,083	18,315	341	.	.	.	.	.	.	.	103,779
Propaquizafop	.	.	.	.	.	.	5,026	927	.	.	.	215	6,169
Propyzamide	.	.	.	.	.	.	3,774	.	.	.	.	.	3,774
Prosulfocarb	.	.	.	5,770	.	.	.	927	.	.	693	747	8,137
Rimsulfuron	.	.	.	.	.	.	.	.	.	.	.	328	328
Tepraloxymid	767	.	.	.	.	.	1,964	184	.	.	.	331	3,245
Thifensulfuron-methyl/tribenuron-methyl	52,243	4,001	6,219	5,718	7,102	1,737	1,144	.	.	.	.	.	78,164
Tribenuron-methyl	1,359	.	.	1,097	817	994	.	.	.	.	.	.	4,267
All herbicides	391,819	116,529	33,724	239,241	28,588	19,268	41,792	9,066	2,485	1,602	2,903	32,810	919,826

Table 6 (cont.): Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2012.

Pesticide type & formulation	Crop												All crops
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	
<i>Insecticides</i>													
Chlorpyrifos	1,164	.	.	.	.	.	.	.	.	.	.	.	1,164
Cypermethrin	65,010	16,813	8,582	35,963	4,377	2,616	408	.	1,620	.	.	.	135,390
Deltamethrin	514	2,528	.	2,229	5,206	.	243	88	.	320	88	386	11,603
Dimethoate	1,689	461	4,516	52,554	698	492	.	.	.	.	.	430	60,840
Esfenvalerate	52,520	23,089	5,781	38,431	5,221	3,392	160	.	.	.	.	.	128,595
Lambda-cyhalothrin	12,616	1,705	1,468	5,427	578	63	6,421	347	.	.	.	4,400	33,025
Pirimicarb	.	.	.	1,784	.	.	.	166	.	.	.	151	2,101
Pymetrozine	.	.	.	.	.	.	.	.	.	.	.	82	82
All insecticides	133,513	44,597	20,348	136,388	16,080	6,563	7,233	601	1,620	320	88	5,448	372,798
<i>Molluscicides</i>													
Metaldehyde	.	.	.	2,465	.	.	2,440	.	.	.	.	643	5,548
Methiocarb	194	3,043	.	9,309	.	.	5,364	.	.	.	74	8,103	26,088
All molluscicides	194	3,043	.	11,774	.	.	7,805	.	.	.	74	8,746	31,636

Table 6 (cont.): Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2012.

Pesticide type & formulation	Crop												All crops
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	
<i>Growth regulators</i>													
2-chloroethylphosphonic acid	.	5,795	.	1,810	.	.	.	.	.	.	.	.	7,605
2-chloroethylphosphonic acid/mepiquat chloride	3,810	9,637	540	14,498	341	.	.	.	.	.	.	.	28,826
Chlormequat chloride	26,603	26,356	12,973	103,394	12,079	14,864	.	.	1,040	.	.	.	197,309
Chlormequat/Imazaquin	.	.	.	4,875	.	.	.	.	.	.	.	.	4,875
Maleic hydrazide	.	.	.	.	.	.	.	.	.	.	.	257	257
Mepiquat chloride/Prohexadione-calcium	464	1,794	108	1,697	.	.	.	.	.	.	.	.	4,064
Trinexapac-ethyl	6,046	16,058	68	22,679	678	3,059	.	.	.	.	.	.	48,588
All growth regulators	36,924	59,641	13,689	148,953	13,098	17,923	.	.	1,040	.	.	257	291,524
<i>Seed treatments</i>													
Carboxin/thiram	30,561	6,884	3,340	23,267	2,487	2,206	.	.	.	.	.	.	68,745
Clothianidin/prothioconazole	.	1,380	.	2,437	444	488	.	.	.	.	.	.	4,748
Fludioxonil	.	1,144	.	1,547	877	152	.	.	.	.	.	.	3,721
Fludioxonil/flutriafol	6,642	999	.	363	.	.	.	.	.	.	.	.	8,003
Fludioxonil/metalaxyl-M/thiamethoxam	.	.	.	.	.	.	16,231	.	.	.	.	.	16,231
Flutolanil	.	.	.	.	.	.	.	.	.	.	43	304	348
Glyphosate	.	.	.	576	.	.	.	.	.	.	.	.	576
Imazalil	1,047	.	.	.	.	.	.	.	.	320	121	2,920	4,408
Imazalil/pencycuron	.	.	.	.	.	.	.	.	.	.	24	890	914
Imazalil/thiabendazole	.	.	.	.	.	.	.	.	.	.	.	996	996
Prochloraz/triticonazole	38,341	12,113	5,090	26,827	6,455	1,864	.	.	.	.	.	.	90,690
Prothioconazole	859	1,218	.	.	.	.	.	.	.	.	.	.	2,077
Silthiofam	5,278	3,869	.	8,987	.	.	.	.	.	.	.	.	18,133
Unknown seed treatment	53,744	10,920	4,106	16,436	1,767	3,593	.	1,210	1,040	.	562	1,262	94,641
All seed treatments	136,470	38,527	12,536	80,440	12,030	8,304	16,231	1,210	1,040	320	750	6,372	314,230
All pesticides	1,276,302	471,194	137,383	1,256,275	113,967	97,920	117,190	22,958	11,966	5,768	10,958	174,471	3,696,352

Table 7: Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2012.

Pesticide type & formulation	Crop												
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	All crops
<i>Fungicides</i>													
Azoxystrobin	1,669	256	643	2,348	71	37	761	289	.	.	33	378	6,485
Azoxystrobin/chlorothalonil	7,443	1,369	476	11,324	205	172	191	668	.	.	232	.	22,079
Azoxystrobin/fenpropimorph	.	.	.	1,433	.	.	.	.	.	.	.	.	1,433
Benthiavalicarb-isopropyl/mancozeb	.	.	.	.	.	.	.	.	.	.	501	7,707	8,208
Bixafen/Prothioconazole	4,562	4,548	574	8,031	.	.	.	.	.	.	.	.	17,715
Bixafen/Prothioconazole/Spiroxamine	693	.	460	6,675	.	.	.	.	.	.	.	.	7,828
Boscalid	.	.	88	166	.	.	1,566	.	.	.	.	.	1,820
Boscalid/Epoxiconazole	3,960	1,974	226	14,168	323	18	41	.	356	.	.	28	21,093
Boscalid/pyraclostrobin	.	.	.	.	.	.	.	1,007	.	.	.	.	1,007
Carbendazim/flusilazole	1,929	162	.	.	232	.	683	.	.	.	.	.	3,006
Carboxin/thiram	446	.	.	.	.	125	.	.	.	.	.	.	571
Chlorothalonil	63,930	26,161	5,602	84,952	1,383	.	86	1,835	572	.	.	82	184,602
Chlorothalonil/cyproconazole/propiconazole	503	271	679	6	.	.	.	.	.	.	.	.	1,459
Chlorothalonil/metalaxyl-M	.	.	.	.	.	.	.	332	.	.	.	.	332
Chlorothalonil/picoxystrobin	7,082	750	871	1,558	.	.	.	.	.	.	.	.	10,260
Chlorothalonil/Proquinazid	491	29	.	2,765	317	.	.	.	.	.	.	.	3,603
Cyazofamid	.	.	.	.	.	.	.	.	.	77	7	1,012	1,096
Cymoxanil	.	.	.	.	.	.	.	.	.	119	29	2,202	2,349
Cymoxanil/mancozeb	.	.	.	.	.	.	.	.	.	581	346	12,684	13,611
Cymoxanil/propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	361	99	6,972	7,431
Cyproconazole/Picoxystrobin	.	.	.	.	145	515	.	.	.	.	.	.	660
Cyproconazole/propiconazole	.	.	.	.	73	5	.	.	.	.	.	.	78
Cyprodinil/isopyrazam	6,278	4,244	33	171	.	.	.	.	.	.	.	.	10,726

Table 7 (cont.): Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2012.

Pesticide type & formulation	Crop												
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	All crops
<i>Fungicides (cont.)</i>													
Cyprodinil/Propiconazole	1,642	499	.	.	.	.	.	.	.	.	.	.	2,142
Difenoconazole/Tebuconazole	.	.	.	393	.	.	.	.	.	.	.	.	393
Dimethomorph/mancozeb	.	.	.	.	.	.	.	.	.	.	.	749	749
Epoxiconazole	1,044	97	622	1,774	89	255	.	.	25	.	.	.	3,908
Epoxiconazole/fenpropimorph	1,179	11	544	3,287	.	.	.	.	.	.	.	.	5,020
Epoxiconazole/fenpropimorph/kresoxim-methyl	1,962	787	.	155	183	121	.	.	.	.	.	.	3,208
Epoxiconazole/fenpropimorph/metrafenone	1,386	71	1,200	2,180	3,406	2,338	.	.	526	.	.	.	11,108
Epoxiconazole/fenpropimorph/ pyraclostrobin	3,622	510	75	162	.	.	.	.	.	.	.	.	4,370
Epoxiconazole/Fluxapyroxad	2,461	538	230	5,085	.	.	.	.	.	.	.	.	8,314
Epoxiconazole/Isopyrazam	102	164	357	2,582	.	.	.	.	.	.	.	.	3,205
Epoxiconazole/metconazole	36	37	378	7,255	74	.	.	.	.	.	.	.	7,781
Epoxiconazole/Metrafenone	.	.	.	.	70	.	.	.	.	.	.	.	70
Epoxiconazole/pyraclostrobin	1,063	.	95	.	.	.	.	41	.	.	.	.	1,198
Fenamidone/propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	.	158	3,239	3,397
Fenpropidin	2,718	688	768	1,678	518	.	.	.	390	.	.	.	6,760
Fenpropimorph	14,958	6,210	914	11,467	2,320	4,169	.	.	152	.	.	.	40,191
Fenpropimorph/flusilazole	2,895	.	.	.	.	.	.	.	217	.	.	.	3,112
Fenpropimorph/pyraclostrobin	3,363	2,510	268	4,531	3,387	5,313	.	.	.	.	.	.	19,373
Fluazinam	.	.	.	.	.	.	.	.	.	128	179	5,287	5,595
Fluazinam/metalaxyl-M	.	.	.	.	.	.	.	.	.	.	.	226	226
Fludioxonil	.	.	.	.	2	.	.	.	.	.	.	.	2
Fludioxonil/metalaxyl-M /thiamethoxam	.	.	.	.	.	.	0	.	.	.	.	.	0
Fluopicolide/propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	.	3,431	12,541	15,972
Fluoxastrobin	666	177	23	.	.	.	.	.	.	.	.	.	865
Fluoxastrobin/prothioconazole	2,018	186	.	.	.	.	.	.	.	.	.	.	2,204
Fluoxastrobin/prothioconazole/ trifloxystrobin	2,681	925	.	.	.	.	.	.	.	.	.	.	3,606

Table 7 (cont.): Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2012.

Pesticide type & formulation	Crop												All crops
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	
<i>Fungicides (cont.)</i>													
Flusilazole	.	.	.	.	.	.	9	.	.	.	.	.	9
Fluxapyroxad	120	68	.	659	.	.	.	.	.	.	.	.	847
Folpet	5,491	1,886	217	4,984	.	.	.	.	.	.	.	.	12,579
Imazalil	2	.	.	.	.	.	.	.	.	.	.	.	2
Mancozeb	.	.	.	.	.	.	.	.	.	.	103	4,956	5,059
Mancozeb/zoxamide	.	.	.	.	.	.	.	.	.	.	59	394	453
Mandipropamid	.	.	.	.	.	.	.	.	.	72	178	2,642	2,892
Metalaxyl-M	.	.	.	.	.	.	.	.	.	.	50	1,833	1,884
Metconazole	.	.	5	222	.	.	437	.	.	.	.	.	664
Metrafenone	.	.	.	176	.	13	.	.	.	.	.	.	189
Picoxystrobin	377	60	.	.	.	.	.	.	.	.	.	.	437
Prochloraz/Proquinazid/Tebuconazole	266	.	213	.	.	.	.	.	.	.	.	.	480
Prochloraz/triticonazole	8	.	.	.	.	.	.	.	.	.	.	.	8
Propiconazole	730	.	.	432	181	.	.	.	.	.	.	.	1,343
Proquinazid	263	29	55	514	236	166	.	.	.	.	.	.	1,263
Prothioconazole	8,992	3,613	267	1,994	226	.	789	.	.	.	.	.	15,881
Prothioconazole/Spiroxamine	8,963	3,562	114	981	.	.	.	.	.	.	.	.	13,620
Prothioconazole/Spiroxamine/ Tebuconazole	.	271	.	4,555	.	.	.	.	.	.	.	.	4,826
Prothioconazole/tebuconazole	22	339	384	6,097	.	.	862	.	.	.	.	.	7,703
Prothioconazole/trifloxystrobin	1,851	234	.	50	.	.	.	.	.	.	.	.	2,135
Pyraclostrobin	1,576	401	38	1,148	5	154	.	.	.	.	.	.	3,322
Tebuconazole	179	132	20	2,371	311	454	888	240	76	.	.	.	4,669
All fungicides	171,621	63,770	16,438	198,331	13,760	13,857	6,312	4,410	2,314	1,337	5,405	62,932	560,486

Table 7 (cont.): Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2012.

Pesticide type & formulation	Crop												
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	All crops
<i>Herbicides</i>													
2,4-D/Dicamba/Fluroxypyr	664	.	.	.	.	.	.	.	.	.	.	.	664
Amidosulfuron	.	22	.	27	.	3	.	.	.	.	.	.	52
Bentazone	.	.	.	.	.	.	.	556	.	.	.	.	556
Bromoxynil/ioxynil	2,447	.	342	280	22	286	.	.	.	.	.	.	3,377
Bromoxynil/ioxynil/mecoprop-P	.	.	10	.	.	.	.	.	.	.	.	.	10
Carfentrazone-ethyl	.	.	.	.	.	.	.	.	.	.	.	23	23
Carfentrazone-ethyl/metsulfuron-methyl	70	.	.	.	.	.	.	.	.	.	.	.	70
Clodinafop-Propargyl/Cloquintocet-mexyl	.	.	.	17	.	.	.	.	.	.	.	.	17
Clodinafop-Propargyl/Cloquintocet-mexyl /Pinoxaden	127	.	.	79	.	.	.	.	.	.	.	.	206
Clomazone/linuron	.	.	.	.	.	.	.	275	.	.	.	223	498
Clopyralid	.	.	.	.	.	.	47	.	.	.	.	.	47
Clopyralid/Florasulam/Fluroxypyr	3,917	48	167	.	224	423	.	.	.	.	.	.	4,780
Cycloxydim	.	.	.	.	.	.	114	80	.	40	.	32	266
Dicamba/MCPA/mecoprop-P	950	.	.	.	.	.	.	.	.	.	.	.	950
Dicamba/mecoprop-P	1,711	.	.	.	86	.	.	.	.	.	.	.	1,798
Dichlorprop-P/MCPA/mecoprop-P	6,330	.	505	571	1,849	1,333	.	.	.	.	.	.	10,587
Diflufenican	235	3,351	34	6,122	.	.	.	.	135	.	11	.	9,888
Diflufenican/flufenacet	.	171	.	169	.	.	.	.	.	.	.	.	341
Diflufenican/flurtamone	.	53	.	226	.	693	.	.	.	.	.	.	972
Diflufenican/Iodosulfuron-methyl-sodium	.	.	.	1,673	.	.	.	.	.	.	.	.	1,673
Diflufenican/isoproturon	.	2,111	.	774	.	.	.	.	.	.	.	.	2,885
Diquat	.	.	.	.	.	.	48	156	.	288	306	7,358	8,157
Fenoxaprop-P-ethyl	.	.	26	336	.	.	.	.	.	.	.	.	362
Florasulam	.	5	.	17	.	1	.	.	.	.	.	.	23
Florasulam/Pyroxsulam	.	.	10	59	.	.	.	.	.	.	.	.	69

Table 7 (cont.): Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2012.

Pesticide type & formulation	Crop												All crops
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	
<i>Herbicides (cont.)</i>													
Fluazifop-P-butyl	.	.	.	.	.	.	72	.	.	.	.	.	72
Fluroxypyr	4,878	740	1,271	1,935	130	183	.	.	.	.	.	.	9,137
Glyphosate	36,460	10,361	904	19,242	2,039	3,052	22,624	2,752	.	.	429	926	98,788
Imazamox/pendimethalin	.	.	.	.	.	.	.	1,580	.	.	.	.	1,580
Iodosulfuron-methyl-sodium	33	.	.	3	.	.	.	.	.	.	.	.	36
Iodosulfuron-methyl-sodium/mesosulfuron-methyl	.	.	.	209	.	.	.	.	.	.	.	.	209
Isoproturon	35	31,601	226	60,032	.	.	.	.	780	.	.	.	92,675
Linuron	.	.	.	.	.	.	.	.	.	144	11	1,651	1,807
MCPA	2,994	1,252	155	224	.	.	.	.	.	.	.	.	4,625
Mecoprop-P	34,473	456	2,658	1,215	3,699	.	.	.	.	.	.	.	42,501
Metazachlor	.	.	.	.	.	.	5,210	.	.	.	.	.	5,210
Metazachlor/quinmerac	.	.	.	.	.	.	3,142	.	.	.	.	.	3,142
Metribuzin	.	.	.	.	.	.	.	.	.	112	482	3,068	3,662
Metsulfuron-methyl	25	8	7	3	7	.	.	.	.	.	.	.	49
Metsulfuron-methyl/Thifensulfuron-methyl	1,053	.	295	13	.	.	.	.	.	.	.	.	1,361
Metsulfuron-methyl/tribenuron-methyl	436	12	42	42	41	20	.	.	.	.	.	.	593
Pendimethalin	.	88	.	1,442	.	.	.	857	.	.	295	421	3,103
Pendimethalin/picolinafen	.	4,167	.	4,862	.	.	.	.	.	.	.	.	9,029
Pinoxaden	1,720	483	121	561	9	.	.	.	.	.	.	.	2,892
Propaquizafop	.	.	.	.	.	.	385	32	.	.	.	27	445
Propyzamide	.	.	.	.	.	.	2,450	.	.	.	.	.	2,450
Prosulfocarb	.	.	.	8,865	.	.	.	1,854	.	.	1,945	2,097	14,761
Rimsulfuron	.	.	.	.	.	.	.	.	.	.	.	2	2
Tepraloxymid	4	.	.	.	.	.	103	14	.	.	.	17	137
Thifensulfuron-methyl/tribenuron-methyl	1,746	143	111	135	422	51	205	.	.	.	.	.	2,812
Tribenuron-methyl	17	.	.	8	11	7	.	.	.	.	.	.	43
All herbicides	100,324	55,071	6,883	109,141	8,538	6,053	34,399	8,158	915	585	3,480	15,844	349,391

Table 7 (cont.): Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2012.

Pesticide type & formulation	Crop												All crops
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	
<i>Insecticides</i>													
Chlorpyrifos	698	.	.	.	.	.	.	.	.	.	.	.	698
Cypermethrin	1,591	398	199	913	105	66	10	.	53	.	.	.	3,334
Deltamethrin	3	14	.	15	9	.	1	1	.	2	0	2	47
Dimethoate	502	74	1,248	15,096	203	123	.	.	.	.	.	116	17,361
Esfenvalerate	212	93	23	153	21	15	1	.	.	.	.	.	517
Lambda-cyhalothrin	46	8	4	23	1	0	49	1	.	.	.	26	158
Pirimicarb	.	.	.	130	.	.	.	21	.	.	.	11	162
Pymetrozine	.	.	.	.	.	.	.	.	.	.	.	12	12
All insecticides	3,050	587	1,474	16,330	339	204	61	23	53	2	0	168	22,291
<i>Molluscicides</i>													
Metaldehyde	.	.	.	329	.	.	288	.	.	.	.	118	735
Methiocarb	28	235	.	771	.	.	545	.	.	.	12	867	2,456
All molluscicides	28	235	.	1,100	.	.	832	.	.	.	12	984	3,191

Table 7 (cont.): Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2012.

Pesticide type & formulation	Crop												
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	All crops
Growth Regulators													
2-chloroethylphosphonic acid	.	1,449	.	434	.	.	.	.	.	.	.	.	1,883
2-chloroethylphosphonic acid/ mepiquat chloride	1,229	5,069	279	5,310	196	.	.	.	.	.	.	.	12,083
Chlormequat chloride	15,429	22,686	10,167	95,312	11,114	12,419	.	.	774	.	.	.	167,902
Chlormequat/ Imazaquin	.	.	.	3,033	.	.	.	.	.	.	.	.	3,033
Maleic hydrazide	.	.	.	.	.	.	.	.	.	.	.	771	771
Mepiquat chloride/Prohexadione-calcium	129	513	36	594	.	.	.	.	.	.	.	.	1,272
Trinexapac-ethyl	377	893	3	947	36	140	.	.	.	.	.	.	2,396
All growth regulators	17,164	30,610	10,485	105,630	11,347	12,558	.	.	774	.	.	771	189,339
Seed treatments													
Carboxin/thiram	5,880	1,351	678	4,502	498	434	.	.	.	.	.	.	13,343
Clothianidin/prothioconazole	.	136	.	209	23	50	.	.	.	.	.	.	417
Fludioxonil	.	9	.	13	7	1	.	.	.	.	.	.	30
Fludioxonil/ flutriafol	111	18	.	3	.	.	.	.	.	.	.	.	133
Fludioxonil/ metalaxyl-M/ thiamethoxam	.	.	.	.	.	.	232	.	.	.	.	.	232
Flutolanil	.	.	.	.	.	.	.	.	.	.	10	73	83
Glyphosate	.	.	.	415	.	.	.	.	.	.	.	.	415
Imazalil	16	.	.	.	.	.	.	.	.	9	3	73	101
Imazalil/pencycuron	.	.	.	.	.	.	.	.	.	.	8	352	360
Imazalil/thiabendazole	.	.	.	.	.	.	.	.	.	.	.	1,121	1,121
Prochloraz/ triticonazole	952	326	125	696	178	47	.	.	.	.	.	.	2,324
Prothioconazole	14	21	.	.	.	.	.	.	.	.	.	.	35
Silthiofam	214	167	.	371	.	.	.	.	.	.	.	.	753
Unknown seed treatment	0	0	0	0	0	0	.	0	0	.	0	0	0
All seed treatments	7,189	2,029	803	6,208	705	532	232	0	0	9	21	1,617	19,345
All pesticides	299,376	152,302	36,083	436,741	34,689	33,203	41,836	12,591	4,056	1,932	8,918	82,316	1,144,043

Table 8: The fifty active ingredients most extensively used on arable crops in Ireland in 2012, ranked by area treated (spray-hectares).

No.	Active ingredient	Treated area (sp ha)
1	Chlorothalonil	425,897
2	Prothioconazole	368,220
3	Epoxiconazole	355,736
4	Fenpropimorph	255,733
5	Chlormequat	202,184
6	Tribenuron-methyl	145,674
7	Cypermethrin	135,390
8	Esfenvalerate	128,595
9	Glyphosate	115,355
10	Pinoxaden	108,424
11	Thifensulfuron-methyl	108,151
12	Metsulfuron-methyl	105,354
13	Pyraclostrobin	103,926
14	Fluroxypyr	103,924
15	Bixafen	100,960
16	Metconazole	97,017
17	Diflufenican	94,753
18	Isoproturon	91,613
19	Boscalid	87,595
20	Mecoprop-P	82,526
21	Tebuconazole	74,526
22	Azoxystrobin	74,109
23	Dimethoate	60,840
24	Fluxapyroxad	59,084
25	Spiroxamine	58,732
26	Trinexapac-ethyl	48,588
27	Isopyrazam	47,284
28	Florasulam	42,761
29	Fluoxastrobin	41,336
30	Proquinazid	40,968
31	Cymoxanil	36,769
32	2-chloroethylphosphonic acid	36,431
33	Cyprodinil	36,222
34	Clopyralid	35,558
35	Trifloxystrobin	33,079
36	Lambda-cyhalothrin	33,025
37	Mepiquat	32,890
38	Metrafenone	31,655
39	Iodosulfuron-methyl-Sodium	30,821
40	Fluazinam	29,345
41	MCPA	28,144
42	Folpet	26,358
43	Methiocarb	26,088
44	Propamocarb hydrochloride	25,255
45	Picoxystrobin	23,027
46	Fenpropidin	21,798
47	Flusilazole	20,833
48	Diquat	20,649
49	Mancozeb	20,007
50	Mandipropamid	19,615

Table 9: The fifty active ingredients most extensively used on arable crops in Ireland in 2012, ranked by weight (kilograms).

No.	Active ingredient	Quantity (kg)
1	Chlorothalonil	216,414
2	Chlormequat	170,928
3	Glyphosate	98,788
4	Isoproturon	95,116
5	Fenpropimorph	72,787
6	Mecoprop-P	47,178
7	Prothioconazole	44,674
8	Mancozeb	26,892
9	Epoxiconazole	24,661
10	Propamocarb hydrochloride	23,957
11	Boscalid	18,397
12	Dimethoate	17,361
13	Spiroxamine	16,470
14	Prosulfocarb	14,761
15	Pendimethalin	13,413
16	Folpet	12,579
17	Diflufenican	12,359
18	Fluroxypyr	11,913
19	Azoxystrobin	10,542
20	Tebuconazole	10,025
21	Cyprodinil	9,758
22	Pyraclostrobin	9,619
23	Mepiquat	9,102
24	Diquat	8,157
25	MCPA	7,793
26	Metazachlor	7,567
27	Fenpropidin	6,760
28	2-chloroethylphosphonic acid	5,955
29	Bixafen	5,827
30	Fluazinam	5,747
31	Dichlorprop-P	5,231
32	Fluxapyroxad	4,970
33	Isopyrazam	4,538
34	Cymoxanil	4,036
35	Metconazole	3,936
36	Metribuzin	3,662
37	Cypermethrin	3,334
38	Thifensulfuron-methyl	3,038
39	Pinoxaden	2,984
40	Flusilazole	2,944
41	Mandipropamid	2,892
42	Fluoxastrobin	2,869
43	Metrafenone	2,696
44	Picoxystrobin	2,618
45	Methiocarb	2,456
46	Propyzamide	2,450
47	Trinexapac-ethyl	2,396
48	Linuron	2,229
49	Clopyralid	2,142
50	Propiconazole	2,006

Table 10: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for spring barley 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of
		Active Ingredient	Active Ingredient	Active Ingredient
		Total	Total	Total
Spring Barley	Fungicides			
	Azoxystrobin	2,909	23,345	21,549
	Bixafen	1,139	26,394	25,107
	Boscalid	3,054	16,564	16,050
	Carbendazim	643	10,915	10,915
	Carboxin	3,163	32,814	32,814
	Chlorothalonil	76,889	149,450	118,722
	Cyproconazole	52	1,032	1,032
	Cyprodinil	6,022	21,860	21,860
	Epoxiconazole	5,322	82,797	62,632
	Fenpropidin	2,718	10,034	10,034
	Fenpropimorph	24,172	92,167	76,262
	Fludioxonil	56	6,642	6,642
	Fluoxastrobin	2,345	34,431	32,942
	Flusilazole	2,152	13,958	13,958
	Flutriafol	56	6,642	6,642
	Fluxapyroxad	1,323	17,925	17,806
	Folpet	5,491	11,423	10,065
	Imazalil	18	1,147	1,147
	Isopyrazam	1,629	18,899	18,899
	Kresoxim-methyl	613	6,366	6,317
	Metconazole	15	452	452
	Metrafenone	308	4,002	4,002
	Picoxystrobin	1,557	14,481	13,676
	Prochloraz	884	39,511	39,511
	Propiconazole	1,123	9,026	7,378
	Proquinazid	306	8,461	8,461
	Prothioconazole	19,398	173,104	113,180
	Pyraclostrobin	3,995	43,953	39,597
	Silthiofam	214	5,278	5,278
	Spiroxamine	6,279	26,511	18,620
	Tebuconazole	272	1,997	1,997
	Thiram	3,163	32,814	32,814
	Trifloxystrobin	1,290	27,430	26,251
	Triticonazole	240	38,657	38,657

Table 10 (cont.): Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for spring barley 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of
		Active Ingredient	Active Ingredient	Active Ingredient
		Total	Total	Total
Spring Barley	Herbicides			
	2,4-D	428	1,501	1,501
	Bromoxynil	1,224	6,445	6,445
	Carfentrazone-ethyl	56	2,800	2,800
	Clodinafop-Propargyl	56	1,879	1,879
	Clopyralid	1,717	29,521	29,521
	Cloquintocet-mexyl	14	1,879	1,879
	Dicamba	334	7,333	7,333
	Dichlorprop-P	3,129	9,413	9,413
	Diflufenican	235	953	953
	Florasulam	54	29,521	29,521
	Fluroxypyr	7,182	67,513	65,926
	Glyphosate	36,460	43,230	39,587
	Iodosulfuron-methyl-Sodium	33	4,993	4,292
	Ioxynil	1,224	6,445	6,445
	Isoproturon	35	100	100
	MCPA	5,078	18,346	18,346
	Mecoprop-P	37,996	63,792	63,792
	Metsulfuron-methyl	306	82,475	82,051
	Pinoxaden	1,776	61,944	60,265
	Tepraloxydim	4	767	767
	Thifensulfuron-methyl	2,165	80,142	77,795
	Tribenuron-methyl	820	100,368	98,452
	Insecticides			
	Chlorpyrifos	698	1,164	1,164
	Cypermethrin	1,591	65,010	62,318
	Deltamethrin	3	514	514
	Dimethoate	502	1,689	1,689
	Esfenvalerate	212	52,520	49,482
	Lambda-cyhalothrin	46	12,616	8,974
	Molluscicides			
	Methiocarb	28	194	194
	Growth Regulators			
	2-chloroethylphosphonic acid	414	3,810	3,810
	Chlormequat	15,429	26,603	26,079
	Mepiquat	926	4,275	4,275
	Prohexadione-calcium	18	464	464
	Trinexapac-ethyl	377	6,046	5,108

Table 11: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter barley 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of
		Active Ingredient	Active Ingredient	Active Ingredient
		Total	Total	Total
Winter barley	Fungicides			
	Azoxystrobin	485	3,449	3,449
	Bixafen	1,050	27,060	21,919
	Boscalid	1,509	7,262	7,262
	Carbendazim	54	1,117	1,117
	Carboxin	676	6,884	6,884
	Chlorothalonil	28,162	56,414	36,382
	Cyproconazole	28	555	555
	Cyprodinil	3,583	13,241	11,019
	Epoxiconazole	1,245	19,029	13,593
	Fenpropidin	688	2,425	1,886
	Fenpropimorph	8,831	29,125	25,090
	Fludioxonil	19	2,143	2,143
	Fluoxastrobin	501	6,679	5,905
	Flusilazole	108	1,117	1,117
	Flutriafol	9	999	999
	Fluxapyroxad	333	4,474	4,474
	Folpet	1,886	4,106	3,059
	Isopyrazam	1,157	13,058	10,836
	Kresoxim-methyl	246	2,315	2,315
	Metconazole	16	576	576
	Metrafenone	16	210	210
	Picoxystrobin	185	1,743	1,743
	Prochloraz	245	12,113	12,113
	Propiconazole	135	1,554	1,554
	Proquinazid	31	822	822
	Prothioconazole	9,334	80,743	39,213
	Pyraclostrobin	1,087	12,507	10,551
	Silthiofam	167	3,869	3,869
	Spiroxamine	2,474	9,247	5,472
	Tebuconazole	361	3,067	1,916
	Thiram	676	6,884	6,884
	Trifloxystrobin	309	5,334	5,334
	Triticonazole	82	12,113	12,113

Table 11 (cont.): Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter barley 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of
		Active Ingredient	Active Ingredient	Active Ingredient
		Total	Total	Total
Winter barley	Herbicides			
	Amidosulfuron	22	576	576
	Clopyralid	21	350	350
	Diflufenican	3,735	29,808	27,275
	Florasulam	6	1,326	1,326
	Flufenacet	117	983	983
	Fluroxypyr	766	6,165	6,165
	Flurtamone	38	188	188
	Glyphosate	10,361	14,923	13,549
	Isoproturon	33,398	34,169	33,164
	MCPA	1,252	1,291	1,291
	Mecoprop-P	456	760	760
	Metsulfuron-methyl	14	2,301	2,301
	Pendimethalin	4,162	4,355	4,355
	Picolinafen	93	4,262	4,262
	Pinoxaden	483	19,975	19,975
	Thifensulfuron-methyl	101	4,001	4,001
	Tribenuron-methyl	48	5,169	5,169
	Insecticides			
	Clothianidin	113	1,380	1,380
	Cypermethrin	398	16,813	13,754
	Deltamethrin	14	2,528	2,528
	Dimethoate	74	461	461
	Esfenvalerate	93	23,089	20,755
	Lambda-cyhalothrin	8	1,705	1,705
	Molluscicides			
	Methiocarb	235	3,043	3,043
	Growth Regulators			
	2-chloroethylphosphonic acid	3,157	15,432	15,432
	Chlormequat	22,686	26,356	26,006
	Mepiquat	3,801	11,431	11,431
	Prohexadione-calcium	73	1,794	1,794
	Trinexapac-ethyl	893	16,058	14,376

Table 12: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for spring wheat 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of
		Active Ingredient	Active Ingredient	Active Ingredient
		Total	Total	Total
Spring wheat	Fungicides			
	Azoxystrobin	722	2,964	2,964
	Bixafen	213	3,195	3,195
	Boscalid	257	1,648	1,648
	Carboxin	339	3,340	3,340
	Chlorothalonil	7,246	15,046	11,518
	Cyproconazole	70	1,064	1,064
	Cyprodinil	25	263	263
	Epoxiconazole	1,573	21,286	12,075
	Fenpropidin	768	2,054	1,617
	Fenpropimorph	2,287	9,695	6,471
	Fluoxastrobin	23	226	226
	Fluxapyroxad	115	1,231	1,231
	Folpet	217	341	341
	Isopyrazam	214	2,072	2,072
	Metconazole	164	4,113	3,254
	Metrafenone	267	3,461	2,982
	Picoxystrobin	145	1,229	1,229
	Prochloraz	225	5,676	5,676
	Propiconazole	87	1,064	1,064
	Proquinazid	71	2,011	2,011
	Prothioconazole	1,032	7,658	6,032
	Pyraclostrobin	171	2,873	2,873
	Spiroxamine	362	1,176	1,176
	Tebuconazole	278	2,164	1,578
	Thiram	339	3,340	3,340
	Triticonazole	31	5,090	5,090

Table 12 (cont.): Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for spring wheat 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of
		Active Ingredient	Active Ingredient	Active Ingredient
		Total	Total	Total
Spring wheat	Herbicides			
	Bromoxynil	173	957	957
	Clopyralid	73	1,339	982
	Dichlorprop-P	255	597	597
	Diflufenican	34	226	226
	Fenoxaprop-P-ethyl	26	510	510
	Florasulam	4	1,881	1,524
	Fluroxypyr	1,363	7,286	6,929
	Glyphosate	904	1,142	1,142
	loxynil	173	957	957
	Isoproturon	226	226	226
	MCPA	287	892	892
	Mecoprop-P	2,782	4,361	4,361
	Metsulfuron-methyl	53	6,906	6,906
	Pinoxaden	121	5,083	4,900
	Pyroxsulam	8	542	542
	Thifensulfuron-methyl	329	7,733	7,733
	Tribenuron-methyl	72	10,506	9,926
	Insecticides			
	Cypermethrin	199	8,582	8,514
	Dimethoate	1,248	4,516	4,516
	Esfenvalerate	23	5,781	4,808
	Lambda-cyhalothrin	4	1,468	1,468
	Growth Regulators			
	2-chloroethylphosphonic acid	94	540	540
	Chlormequat	10,167	12,973	10,993
	Mepiquat	216	648	648
	Prohexadione-calcium	5	108	108
	Trinexapac-ethyl	3	68	68

Table 13: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter wheat 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of
		Active Ingredient	Active Ingredient	Active Ingredient
		Total	Total	Total
Winter wheat	Fungicides			
	Azoxystrobin	4,613	33,123	32,659
	Bixafen	3,425	44,311	41,068
	Boscalid	10,642	47,803	43,614
	Carboxin	2,251	23,267	23,267
	Chlorothalonil	98,325	194,421	81,570
	Cyproconazole	1	10	10
	Cyprodinil	129	857	857
	Difenoconazole	112	1,426	1,426
	Epoxiconazole	14,601	205,933	79,580
	Fenpropidin	1,678	5,196	4,858
	Fenpropimorph	20,004	72,325	45,662
	Fludioxonil	14	1,910	1,910
	Flutriafol	1	363	363
	Fluxapyroxad	3,199	35,453	35,453
	Folpet	4,984	10,487	8,418
	Isopyrazam	1,539	13,254	13,254
	Kresoxim-methyl	49	389	389
	Metconazole	3,273	81,645	53,939
	Metrafenone	661	7,944	7,944
	Picoxystrobin	260	2,565	2,565
	Prochloraz	522	26,827	26,827
	Propiconazole	433	1,740	1,740
	Proquinazid	646	17,381	17,287
	Prothioconazole	13,556	99,536	64,244
	Pyraclostrobin	2,152	22,426	20,424
	Silthiofam	371	8,987	8,987
	Spiroxamine	7,355	21,797	19,404
	Tebuconazole	6,716	51,660	47,296
	Thiram	2,251	23,267	23,267
	Trifloxystrobin	17	316	316
	Triticonazole	174	26,827	26,827

Table 13 (cont.): Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter wheat 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of
		Active Ingredient	Active Ingredient	Active Ingredient
		Total	Total	Total
Winter wheat	Herbicides			
	Amidosulfuron	27	1,451	1,451
	Bromoxynil	140	731	731
	Clodinafop-Propargyl	49	3,339	3,339
	Cloquintocet-mexyl	12	3,339	3,339
	Dichlorprop-P	281	1,435	1,435
	Diflufenican	8,012	59,035	57,400
	Fenoxaprop-P-ethyl	336	6,848	6,848
	Florasulam	27	6,283	6,283
	Flufenacet	113	941	941
	Fluroxypyr	1,935	17,198	15,929
	Flurtamone	161	976	976
	Glyphosate	19,657	29,432	26,469
	Iodosulfuron-methyl-Sodium	88	25,828	25,305
	loxynil	140	731	731
	Isoproturon	60,677	56,078	55,301
	MCPA	369	2,050	2,050
	Mecoprop-P	1,360	3,059	2,733
	Mesosulfuron-methyl	157	13,593	13,593
	Metsulfuron-methyl	22	5,332	5,332
	Pendimethalin	6,196	6,368	6,368
	Picolinafen	108	4,813	4,813
	Pinoxaden	596	21,081	21,081
	Prosulfocarb	8,865	5,770	5,770
	Pyroxulam	49	2,619	2,619
	Thifensulfuron-methyl	97	6,292	6,292
	Tribenuron-methyl	82	10,971	10,971
	Insecticides			
	Clothianidin	174	2,437	2,437
	Cypermethrin	913	35,963	32,148
	Deltamethrin	15	2,229	2,229
	Dimethoate	15,096	52,554	52,554
	Esfenvalerate	153	38,431	36,228
	Lambda-cyhalothrin	23	5,427	5,427
	Pirimicarb	130	1,784	1,784
	Molluscicides			
	Metaldehyde	329	2,465	2,465
	Methiocarb	771	9,309	7,941
	Growth Regulators			
	2-chloroethylphosphonic acid	2,224	16,308	16,130
	Chlormequat	98,338	108,269	81,947
	Imazaquin	7	4,875	3,969
	Mepiquat	4,030	16,195	16,018
	Prohexadione-calcium	85	1,697	1,697
	Trinexapac-ethyl	947	22,679	22,449

Table 14: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for spring oats 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of
		Active Ingredient	Active Ingredient	Active Ingredient
		Total	Total	Total
Spring Oats	Fungicides			
	Azoxystrobin	105	799	799
	Boscalid	238	1,170	829
	Carbendazim	77	1,498	1,226
	Carboxin	249	2,487	2,487
	Chlorothalonil	1,856	3,014	1,778
	Cyproconazole	70	1,004	1,004
	Epoxiconazole	937	13,092	8,451
	Fenpropidin	518	1,048	1,048
	Fenpropimorph	7,082	22,210	10,364
	Fludioxonil	9	1,155	1,155
	Flusilazole	155	1,498	1,226
	Kresoxim-methyl	57	568	568
	Metconazole	31	682	341
	Metrafenone	795	9,466	6,336
	Picoxystrobin	104	647	647
	Prochloraz	133	6,455	6,455
	Propiconazole	225	959	959
	Proquinazid	251	7,198	5,837
	Prothioconazole	230	2,328	1,482
	Pyraclostrobin	719	6,827	6,489
	Tebuconazole	311	2,140	1,906
	Thiram	249	2,487	2,487
	Triticonazole	44	6,455	6,455

Table 14 (cont.): Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for spring oats 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of
		Active Ingredient	Active Ingredient	Active Ingredient
		Total	Total	Total
Spring Oats	Herbicides			
	Clopyralid	98	1,754	1,398
	Dicamba	11	79	79
	Dichlorprop-P	910	3,449	3,449
	Florasulam	3	1,754	1,398
	Fluroxypyr	253	2,676	2,320
	Glyphosate	2,039	3,908	3,794
	loxynil	11	54	54
	MCPA	469	3,449	3,449
	Mecoprop-P	4,245	8,438	8,438
	Metsulfuron-methyl	23	5,251	4,894
	Pinoxaden	9	341	341
	Thifensulfuron-methyl	218	7,102	7,102
	Tribenuron-methyl	239	11,699	11,067
	Insecticides			
	Bromoxynil	11	54	54
	Clothianidin	19	444	444
	Cypermethrin	105	4,377	4,377
	Deltamethrin	9	5,206	2,603
	Dimethoate	203	698	698
	Esfenvalerate	21	5,221	4,523
	Lambda-cyhalothrin	1	578	578
	Growth Regulators			
	2-chloroethylphosphonic acid	66	341	341
	Chlormequat	11,114	12,079	9,730
	Mepiquat	130	341	341
	Trinexapac-ethyl	36	678	678

Table 15: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter oats 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of
		Active Ingredient	Active Ingredient	Active Ingredient
		Total	Total	Total
Winter oats	Fungicides			
	Azoxystrobin	66	535	535
	Boscalid	13	78	78
	Carboxin	280	2,859	2,859
	Chlorothalonil	143	286	286
	Cyproconazole	149	2,410	2,239
	Epoxiconazole	731	10,383	8,647
	Fenpropimorph	9,796	28,360	9,614
	Fludioxonil	1	152	152
	Kresoxim-methyl	38	506	506
	Metrafenone	532	5,531	4,419
	Picoxystrobin	368	2,362	2,239
	Prochloraz	35	1,864	1,864
	Propiconazole	3	48	48
	Proquinazid	166	5,096	4,449
	Prothioconazole	8	488	488
	Pyraclostrobin	1,272	10,960	6,750
	Tebuconazole	454	2,592	1,616
	Thiram	280	2,859	2,859
	Triticonazole	12	1,864	1,864

Table 15 (cont.): Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter oats 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of	
		Active Ingredient	Active Ingredient	Active Ingredient	
		Total	Total	Total	
Winter oats	Herbicides				
	Amidosulfuron	3	301	301	
	Bromoxynil	143	856	856	
	Clopyralid	185	1,819	1,819	
	Dichlorprop-P	656	2,116	2,116	
	Diflufenican	198	3,242	3,242	
	Florasulam	7	1,995	1,995	
	Fluroxypyr	415	3,087	3,087	
	Flurtamone	495	3,242	3,242	
	Glyphosate	3,052	3,674	3,379	
	loxynil	143	856	856	
	MCPA	339	2,116	2,116	
	Mecoprop-P	339	2,116	2,116	
	Metsulfuron-methyl	10	3,087	3,087	
	Thifensulfuron-methyl	26	1,737	1,737	
	Tribenuron-methyl	43	5,817	5,817	
		Insecticides			
		Clothianidin	41	488	488
		Cypermethrin	66	2,616	2,538
		Dimethoate	123	492	492
		Esfenvalerate	15	3,392	3,216
		Lambda-cyhalothrin	0	63	63
		Growth Regulators			
		Chlormequat	12,419	14,864	11,502
		Trinexapac-ethyl	140	3,059	2,700

Table 16: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for oilseed rape 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of	
		Active Ingredient	Active Ingredient	Active Ingredient	
		Total	Total	Total	
Oilseed rape	Fungicides				
	Azoxystrobin	792	6,186	5,940	
	Boscalid	1,596	7,696	7,406	
	Carbendazim	228	3,761	3,761	
	Chlorothalonil	245	910	663	
	Epoxiconazole	11	171	171	
	Fludioxonil	6	16,803	16,803	
	Flusilazole	465	3,854	3,854	
	Metalaxyl-m	23	16,803	16,803	
	Metconazole	437	9,550	8,555	
	Prothioconazole	1,220	11,188	8,462	
	Tebuconazole	1,319	9,038	8,126	
	Thiamethoxam	203	16,803	16,803	
		Herbicides			
		Clopyralid	47	774	774
		Cycloxydim	114	1,420	1,420
		Diquat	48	107	107
		Fluazifop-P-butyl	72	890	890
		Glyphosate	22,624	16,654	15,050
		Metazachlor	7,567	10,039	9,808
		Propaquizafop	385	5,026	5,026
		Propyzamide	2,450	3,774	3,774
		Quinmerac	785	3,375	3,375
		Tepaloxymid	103	1,964	1,964
		Thifensulfuron-methyl	102	1,144	572
		Tribenuron-methyl	102	1,144	572
		Insecticides			
		Cypermethrin	10	408	408
		Deltamethrin	1	243	243
		Esfenvalerate	1	160	160
		Lambda-cyhalothrin	49	6,421	5,294
		Molluscicides			
		Metaldehyde	288	2,440	1,337
		Methiocarb	545	5,364	5,364

Table 17: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for peas and beans 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of	
		Active Ingredient	Active Ingredient	Active Ingredient	
		Total	Total	Total	
Peas & beans	Fungicides				
	Azoxystrobin	401	2,498	1,980	
	Boscalid	805	4,077	1,548	
	Chlorothalonil	2,699	4,669	2,355	
	Epoxiconazole	18	302	302	
	Metalaxyl-m	23	423	295	
	Pyraclostrobin	225	4,379	1,548	
	Tebuconazole	240	1,463	1,463	
		Herbicides			
	Bentazone	556	927	927	
	Clomazone	42	571	571	
	Cycloxydim	80	660	660	
	Diquat	156	259	259	
	Glyphosate	2,752	1,879	1,879	
	Imazamox	99	1,983	1,983	
	Linuron	233	571	571	
	Pendimethalin	2,339	2,730	2,730	
	Propaquizafop	32	927	927	
	Prosulfocarb	1,854	927	927	
	Tepraloxymid	14	184	184	
		Insecticides			
	Deltamethrin	1	88	88	
	Lambda-cyhalothrin	1	347	347	
	Pirimicarb	21	166	166	

Table 18: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for triticale 2012.

Crop	Active Substance	Quantity (kg) of Active Ingredient Total	Spray area (spha) of Active Ingredient Total	Basic area (ha) of Active Ingredient Total
Triticale	Fungicides			
	Boscalid	262	1,040	1,040
	Chlorothalonil	572	1,040	1,040
	Epoxiconazole	216	2,485	1,445
	Fenpropidin	390	1,040	1,040
	Fenpropimorph	616	1,850	1,445
	Flusilazole	65	405	405
	Metrafenone	117	1,040	1,040
	Tebuconazole	76	405	405
	Herbicides			
	Diflufenican	135	1,445	1,445
	Isoproturon	780	1,040	1,040
	Insecticides			
	Cypermethrin	53	1,620	405
	Growth Regulators			
	Chlormequat	774	1,040	1,040

Table 19: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for seed potatoes 2012.

Crop	Active Substance	Quantity (kg) of Active Ingredient Total	Spray area (spha) of Active Ingredient Total	Basic area (ha) of Active Ingredient Total
Seed potatoes	Fungicides			
	Cyazofamid	77	961	320
	Cymoxanil	195	1,442	320
	Fluazinam	128	641	320
	Imazalil	9	320	320
	Mancozeb	545	320	320
	Mandipropamid	72	481	320
	Propamocarb hydrochloride	320	320	320
	Herbicides			
	Cycloxydim	40	320	320
	Diquat	288	641	320
	Linuron	144	320	320
	Metribuzin	112	320	320
	Insecticides			
	Deltamethrin	2	320	320

Table 20: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for early potatoes 2012.

Crop	Active Substance	Quantity (kg) of Active Ingredient Total	Spray area (spha) of Active Ingredient Total	Basic area (ha) of Active Ingredient Total	
Early potatoes	Fungicides				
	Azoxystrobin	71	527	441	
	Benthiavdicarb-isopropyl	12	436	243	
	Chlorothalonil	194	484	441	
	Cyazofamid	7	73	43	
	Cymoxanil	61	556	168	
	Fenamidone	26	175	88	
	Fluazinam	179	913	272	
	Fluopicolide	312	3,130	916	
	Flutolanil	10	43	43	
	Imazalil	3	145	145	
	Mancozeb	969	762	343	
	Mandipropamid	178	1,189	559	
	Metalaxyl-m	50	43	43	
	Pencycuron	8	24	24	
	Propamocarb hydrochloride	3,338	3,393	916	
	Zoxamide	6	43	43	
		Herbicides			
		Diflufenican	11	43	43
		Diquat	306	666	636
		Glyphosate	429	397	397
		Linuron	11	13	13
		Metribuzin	482	868	868
		Pendimethalin	295	223	223
		Prosulfocarb	1,945	693	693
		Insecticides			
		Deltamethrin	0	88	88
		Molluscicides			
		Methiocarb	12	74	74

Table 21: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for maincrop potatoes 2012.

Crop	Active Substance	Quantity (kg) of	Spray area (spha) of	Basic area (ha) of	
		Total	Total	Total	
Maincrop potatoes	Fungicides				
	Azoxystrobin	378	682	682	
	Benthiavalicarb-isopropyl	188	6,835	2,856	
	Boscalid	21	257	257	
	Chlorothalonil	82	164	164	
	Cyazofamid	1,012	11,010	5,019	
	Cymoxanil	3,781	34,770	6,223	
	Dimethomorph	76	540	540	
	Epoxiconazole	6	257	257	
	Fenamidone	540	3,664	2,364	
	Fluazinam	5,439	27,791	6,587	
	Fluopicolide	1,140	11,556	6,092	
	Flutolanil	73	304	304	
	Imazalil	462	4,806	4,806	
	Mancozeb	25,378	18,925	5,988	
	Mandipropamid	2,642	17,945	6,310	
	Metalaxyl-m	1,907	2,466	1,563	
	Pencycuron	336	890	890	
	Propamocarb hydrochloride	20,298	21,541	6,974	
	Thiabendazole	747	996	996	
	Zoxamide	44	292	292	
		Herbicides			
		Carfentrazone-ethyl	23	390	390
		Clomazone	34	503	503
		Cycloxydim	32	215	215
		Diquat	7,358	18,976	7,580
		Glyphosate	926	694	694
		Linuron	1,840	3,420	3,420
		Metribuzin	3,068	7,164	7,164
		Pendimethalin	421	331	331
		Propaquizafop	27	215	215
		Prosulfocarb	2,097	747	747
		Rimsulfuron	2	328	328
		Tepraloxydim	17	331	331
		Insecticides			
		Deltamethrin	2	386	386
		Dimethoate	116	430	215
		Lambda-cyhalothrin	26	4,400	2,491
		Pirimicarb	11	151	151
		Pymetrozine	12	82	82
		Molluscicides			
		Metaldehyde	118	643	429
		Methiocarb	867	8,103	4,166
		Growth Regulators			
		Maleic hydrazide	771	257	257

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References

Pesticide Control Service, Department of Agriculture and Food Laboratories (2007).
Pesticide Usage Survey, Report Number 2, Arable Crops, 2004.

