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PESTICIDE USAGE SURVEY REPORT 275

ARABLE CROPS IN NORTHERN IRELAND 2016

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https://www.daera-ni.gov.uk/articles/departmental-responsibilities-regarding-pesticides

Agri-food and Biosciences Institute for Northern Ireland

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SUMMARY

This is the fourteenth survey of pesticide usage practices on arable crops in Northern Ireland. Information on all aspects of pesticide usage was collected from 217 holdings throughout the Province, representing 27% of the total area of arable crops grown. Quantitative data has been adjusted to provide estimates of total pesticide usage.

The total area of arable crops grown in Northern Ireland in 2016 was 38,082 hectares. This is the lowest cropping area recorded since records began in 1990. This represented a decrease of 2% compared to that recorded in 2014 and a 38% reduction compared to that recorded in the first pesticide usage survey of the arable sector, in 1990. Approximately 43% of the arable cropping area in 2016 was in County Down, 24% in County Londonderry, 19% in County Antrim, 7% in County Armagh and 7% in County Tyrone. This distribution is similar to that recorded in 2006 - 2014. There was no significant area of arable cropping in County Fermanagh. A total of 366 products (including 7 adjuvants), comprising 134 active substances were recorded in use on field crops in the survey. No fallow, organic or cover crops were recorded during this survey period.

Spring barley, winter barley and winter wheat collectively accounted for 79% of all arable crops grown in Northern Ireland in 2016. Since 2012, the area of spring wheat crops grown decreased by 53% whilst during the same period the area of winter barley crops grown increased by 43%. Winter wheat accounted for 40% of the area treated with fungicides and 38% of the weight of fungicides applied whereas spring wheat accounted for only 2% of both the fungicide treated area and weight of fungicides applied. Undersown barley was the only arable crop not to receive a fungicide treatment.

Compared with 2014, fungicide applications increased by 10%, with chlorothalonil, either applied as a single active substance or as a formulation, the most frequently applied to cereal crops, especially spring barley and winter wheat. Herbicide and desiccant applications increased by 2%. Glyphosate was the most frequently applied, accounting for 20% of all herbicide and desiccant applications. Insecticide applications decreased by 15% when compared with 2014 and the weight applied decreased by 83%, mainly due to decreased applications of the organophosphorus insecticide, chlorpyrifos, used extensively in 2014 for control of Leatherjackets in spring barley crops. Whilst chlorpyrifos has been used to a lesser extent during this survey period on spring and winter barley, it should be noted that, from 31st March 2016, all uses have been revoked except for treatment of brassica crops in peat blocks via gantry-mounted sprayers.

Pyrethroids were the most frequently applied insecticides representing 92% of all insecticide applications. Esfenvalerate was the most frequently applied pyrethroid, primarily to spring and winter barley along with winter wheat crops, for general insect pest control. Growth regulator applications increased by 16% when compared to 2014. The principal growth regulator used in 2016 was chlormequat, which is consistent with previous surveys conducted in 1998-2014. In 2016, growth regulators were applied primarily to spring barley, spring wheat and spring oats and, most frequently, winter barley. Between 2012 and 2014, molluscicide applications decreased by 62% but rose by 96% during this reporting period. Primarily, molluscicide applications were to control slugs in ware potato crops accounting for 74% of area treated with this pesticide group.

The total weight of pesticides applied to arable crops in 2016 increased to 121 tonnes of active substances, representing a 3% increase compared with 2014 and 8 %, 11% and 28% reduction when compared with 2012, 2010 and 2008, respectively. Seed treatment applications increased by 3% and the weight applied by 69%.

Potato crops comprised 10% of the area of arable crops grown in Northern Ireland in 2016, accounting for 18% of the total pesticide-treated area. However, the weight of pesticides applied to potato crops represented 30% of the total weight of pesticides used on all arable crops. The total area of potatoes grown comprised 87% early/maincrop and 13% seed potato crops. Potato crops accounted for 29% of the area of arable crops treated with fungicides and received 48% of the total weight of fungicides applied. Furthermore, applications of herbicides and desiccants to potato crops represented 14% of the area treated and 17% of the weight applied of this pesticide group.

Unlike previous surveys, where the cultivation of pea and bean crops was recorded, only field beans were recorded in 2016, with 295 hectares being grown. Due to low numbers of early potato crops recorded in the survey the results for these crops were included with those for maincrop ware potatoes. In addition to information concerning field applications of pesticides to crops, data relating to post-harvest/storage treatments applied to farm-stored potatoes were collected. It was estimated that 67,283 tonnes of potatoes were stored on-farm, following the 2016 growing season. This represented a 63% increase compared with 2014. County Antrim accounted for 40% of all potatoes stored with Down and Londonderry both accounting for a further 26% each.

DEFINITIONS AND NOTES

- ‘Grown area’ refers to the actual planted area of crop.

- ‘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).

- ‘Reasons for use’ refers to the reasons given by the farmer for the use of a particular pesticide and may not always seem appropriate. Some reasons are non-specific e.g. ‘general disease control’ and ‘general fungal control’ are effectively the same but are reported as given by the grower.

- ‘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.

- ‘Quantity applied’ refers to the weight of pesticides applied, including all repeated applications, and is referred to in either kilogrammes (kg) or tonnes (t).

- ‘Comparison tables’; due to restrictions imposed by the foot and mouth outbreak in February 2001 and the inability to complete farm visits, the 2000 report sample size was reduced by over one third. Due to this reduced sample size, data collected on the use of pesticide on potatoes, both grown and stored, was unreliable and had to be omitted from the report. Therefore, when comparisons are made between this, 2016 report, and previous reports, no comparisons can be made with the 2000 report in relation to total treatment of arable crops and both field and storage treatments of seed and early/maincrop potatoes.

- In 2008, the set-aside rate was reduced to zero and the requirement to set-aside land was abolished altogether with effect from 1 January 2009. However, producers may still voluntarily set land aside. For the purpose of this survey set-aside land is not recorded.

- Where the term ‘Unknown’ is used it refers to active substances where only partial information was available i.e. treated area and/or quantity applied but the actual name of the product or active substance used could not be determined.

- ‘End rigs’ refers to the area at each end of a planted field for turning agricultural machinery, also referred to as ‘Headlands’.

- ‘Sealer’ refers to pre-emergent herbicides which prevent weed seed germination.

INTRODUCTION

As a participant of the UK Working Party on Pesticide Usage Surveys, the Agri-Food and Biosciences Institute (AFBI), on behalf of the Department of Agriculture, Environment and Rural Affairs (DAERA), conducts a programme of surveys to examine pesticide usage in all sectors of the agricultural and horticultural industries.

Principally, the data collected provides information for consideration by the UK Expert Committee on Pesticides. In addition, the information may be used by those involved in residue testing, environmental impact studies, public information and for the evaluation and regulation of trends in pesticide usage. Pesticide usage monitoring forms part of an obligation under the Food and Environment Act (1985) for post-registration monitoring of pesticides approved for use. The programme forms an integral part of the government's pesticide safety control arrangements, in providing quantitative and qualitative data on the usage of pesticides in agriculture, horticulture, food storage and associated industries. In addition, Regulation (EC) No. 1185/2009 also requires data delivery on agricultural use of pesticides.

This work is also undertaken in England and Wales by FERA Science Ltd (FERA) and in Scotland by Science and Advice for Scottish Agriculture (SASA). Pesticide usage reports from these regions may be obtained at the following sites:

(https://secure.fera.defra.gov.uk/pusstats/surveys/)
(https://www.sasa.gov.uk/pesticides/pesticide-usage/pesticide-usage-survey-reports)

This is the fourteenth survey of pesticide usage on arable crops grown in Northern Ireland. Previous surveys reported on pesticide usage on arable crops grown in 1990, (Jess *et al*., 1992), 1992 (Jess *et al*., 1995), 1994 (Jess *et al*., 1997), 1996 (Jess *et al*., 2000), 1998 (Jess *et al*., 2002), 2000 (Withers *et al*., 2004), 2002 (Withers *et al.,* 2004), 2004 (Withers *et al.,* 2006), 2006 (Withers *et al.,* 2007), 2008 (Withers *et al*.,2009), 2010 (Withers *et al*.,2011), 2012 (Withers *et al*.,2013) and 2014 (Withers *et al*.,2015). Data from previous surveys are included in the report for comparative purposes.

A list of published Northern Ireland Pesticide Usage Survey reports is shown in Appendix 1.

METHODS

The sample of holdings to be surveyed was selected from each of the six counties on the basis of the total area of arable crops grown, using data from the Northern Ireland Agricultural Census, June 2015 (Anon., 2016) and also single farm payment data (unpublished). However, due to sampling procedures and the distribution of arable crops in Northern Ireland, no holdings were visited in County Fermanagh. The arable crops grown comprised the following: barley; wheat; oats; oilseed rape; field beans, potatoes and rye.

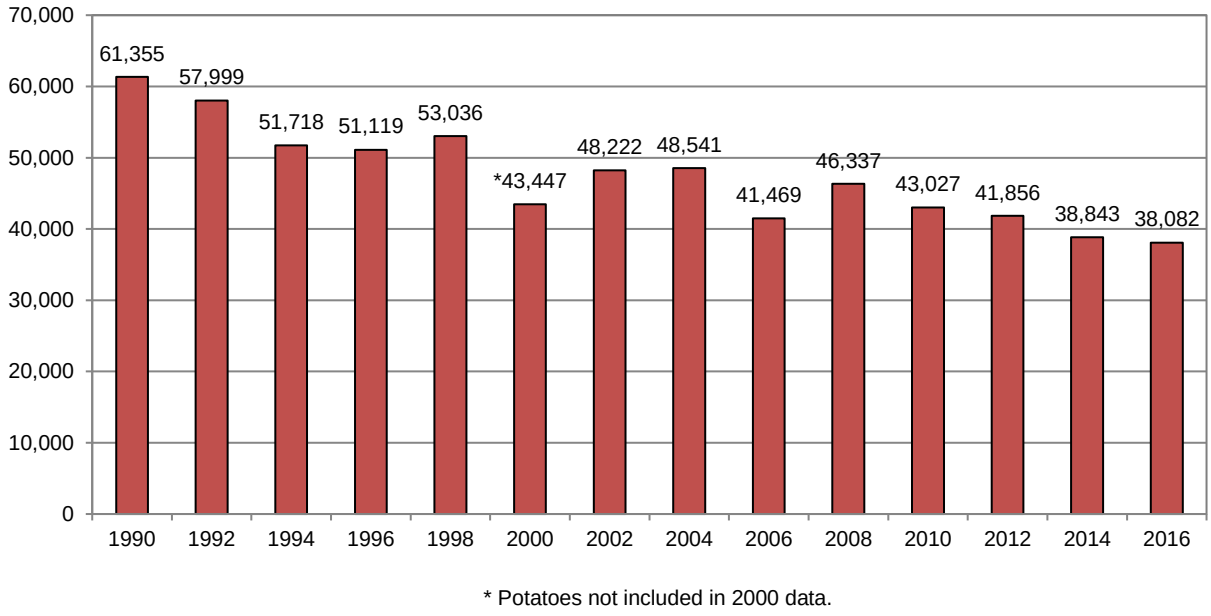
The sample was stratified into six size groups, according to the total area of cereal crops grown in each region. Holdings were selected at random within each of the size groups, the number of holdings being proportional to the total area of arable crops grown. In addition, ware and seed potato crops were selected from their own defined size groups province wide. The purpose of the survey was explained to the occupiers of selected holdings in preliminary correspondence. A total of 217 holdings were contacted during November 2016 to March 2017. A majority of data was collected by personal interview and the remainder by telephone interview. The data collected included: the area of crops grown; area treated; target crop; pesticides used and number of treatments applied. The growers' reasons for pesticide use were also included but may not always seem appropriate as they may have perceived treatment effects. Holdings selected in the original sample that were unable to provide data were replaced with those from the same county and size group held on a reserve list. During analysis, the sample data were raised to the total population level using raising factors calculated from the ratio of the number of farms sampled to the number of farms in the population within each region and size group. A further adjustment factor corrected the data in accordance with the areas of arable crops published in the Northern Ireland Agricultural Census, June 2016 (Anon., 2017). The total number of farms in each size group and the number of farms sampled are shown in Table 1.

The collected data were entered using SQL, a relational database programme. Validated data were downloaded for analysis using IBM SPSS Statistics Version 22 software.

Crops

Information was collected on spring barley, undersown barley, winter barley, spring wheat, winter wheat, spring oats, undersown oats, winter oats, spring oilseed rape, winter oilseed rape, beans, ware potatoes, seed potatoes and rye. Data on pesticide usage on these crops were collected from 643 crops surveyed on 217 holdings. This accounted for 27% of crops (Table 2).

Figure 1: Comparison of the areas of arable crops grown in Northern Ireland (ha), 1990 - 2016.



* Potatoes not included in 2000 data.

Figure 2: Regional distribution of arable crops grown in Northern Ireland (ha), 2016.

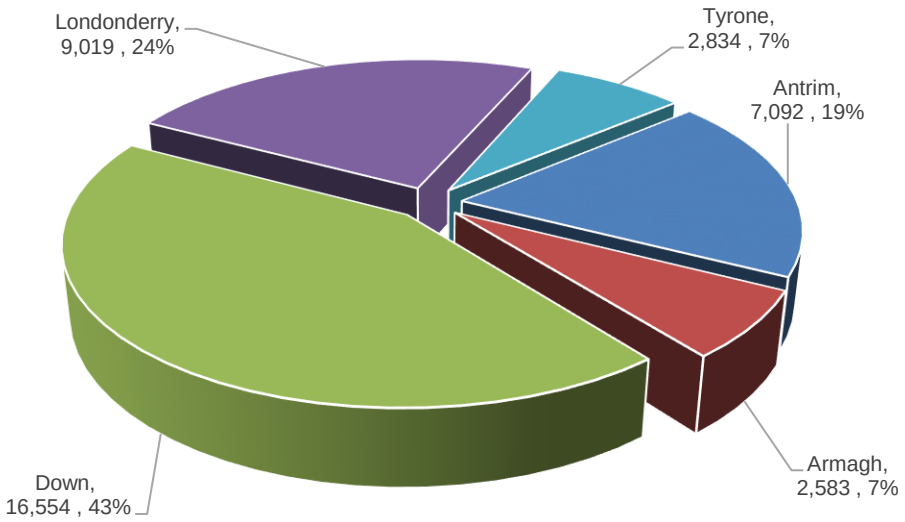


Figure 3: Regional distribution of individual arable crops grown in Northern Ireland (ha), 2016.

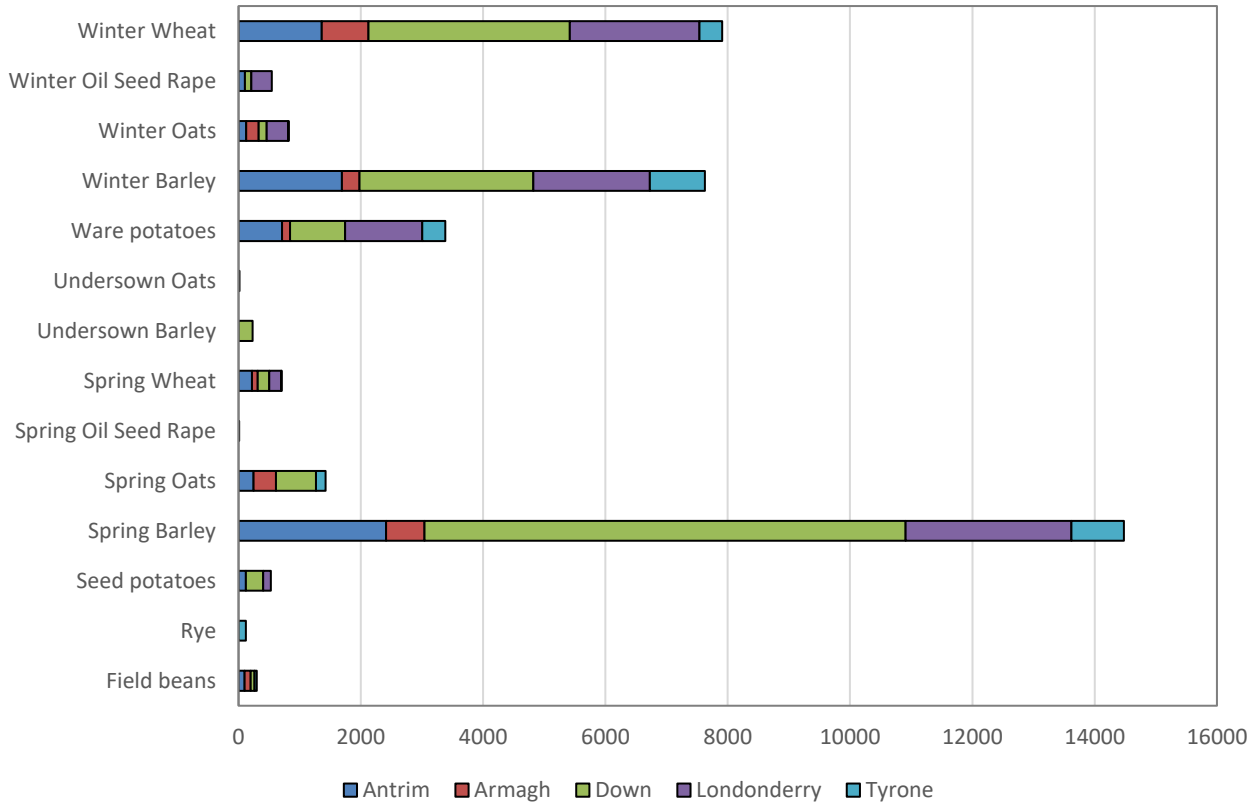


Figure 4: Areas of individual crops grown in Northern Ireland (ha), 2016.

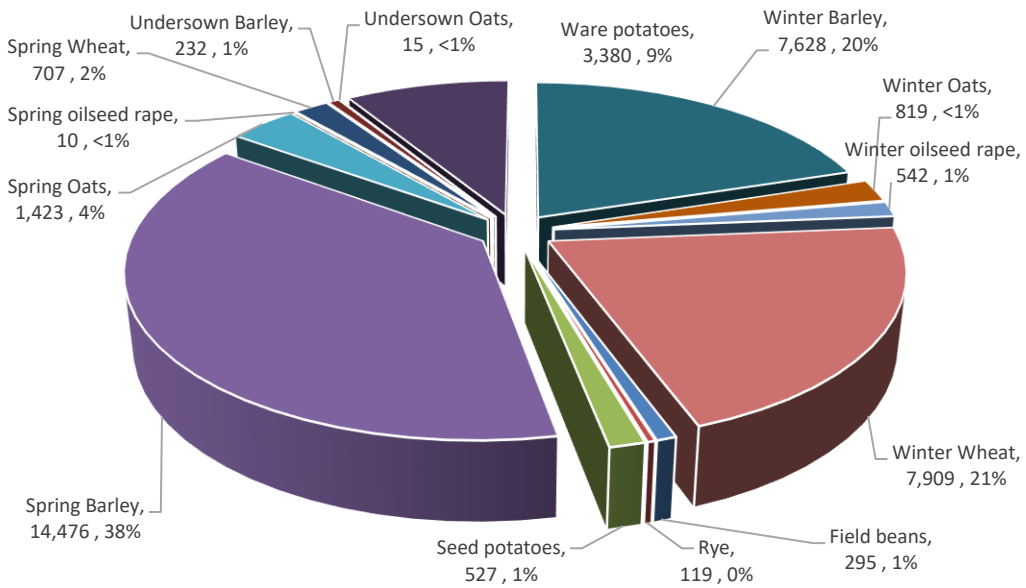


Figure 5: Comparison of the areas of cereal crops grown in Northern Ireland (ha), 1990 - 2016.

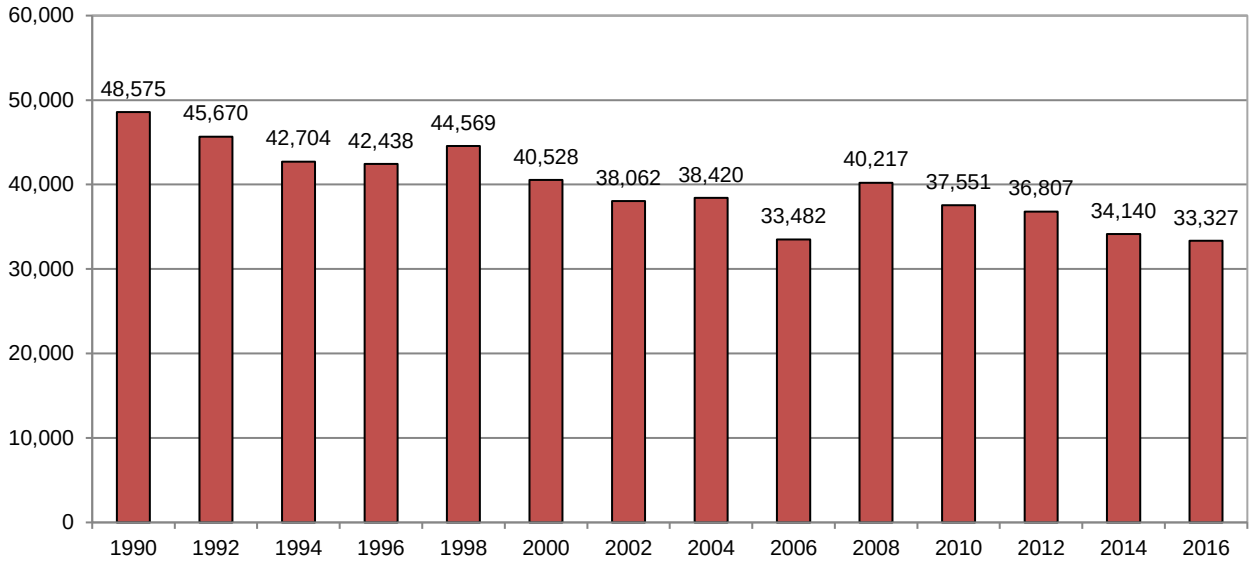


Figure 6: Regional distribution of cereal crops grown in Northern Ireland (ha), 1990 - 2016.

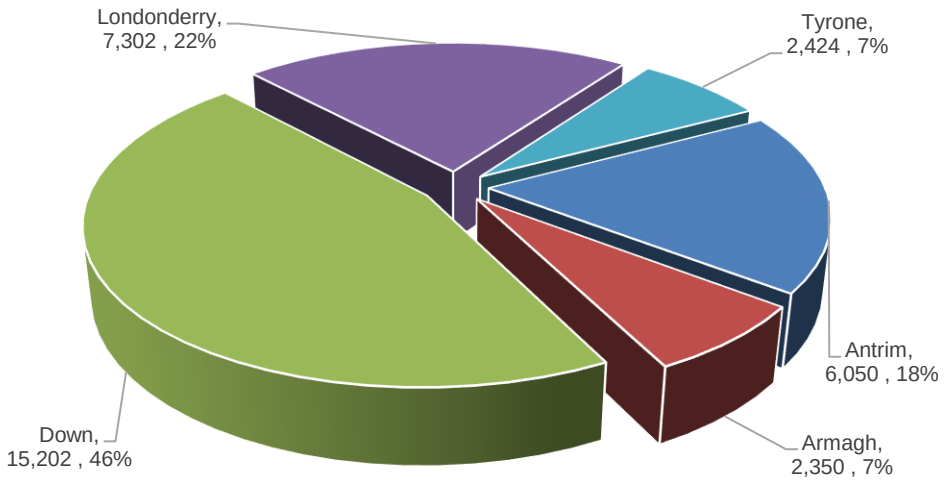
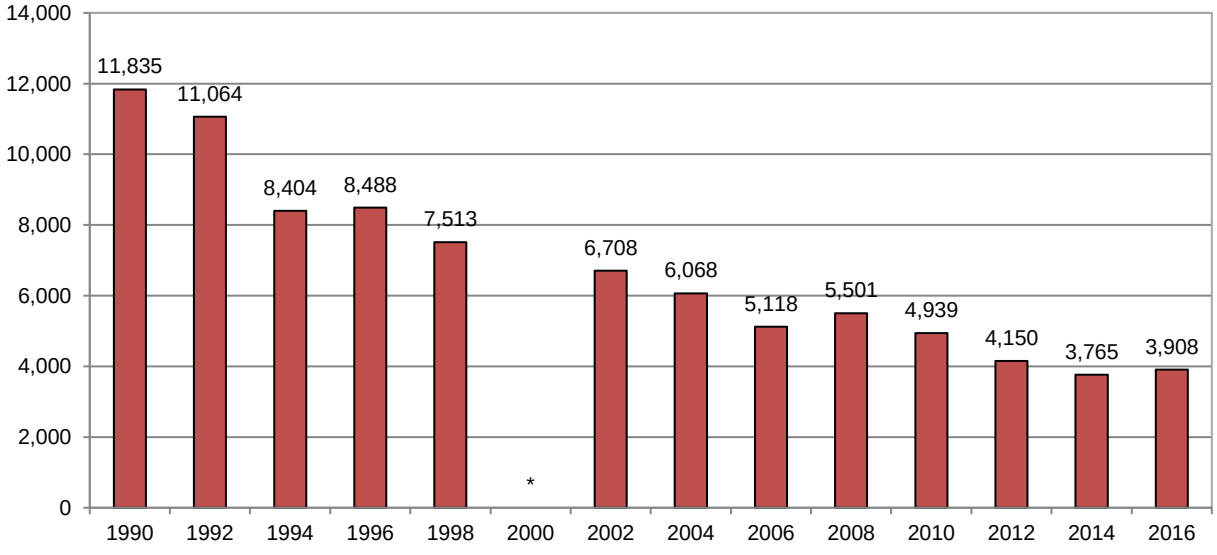


Figure 7: Comparison of the areas of potato crops grown in Northern Ireland (ha), 1990 - 2016.



* Potatoes not included in 2000 data

Figure 8: Regional distribution of potato crops grown in Northern Ireland (ha), 2016.

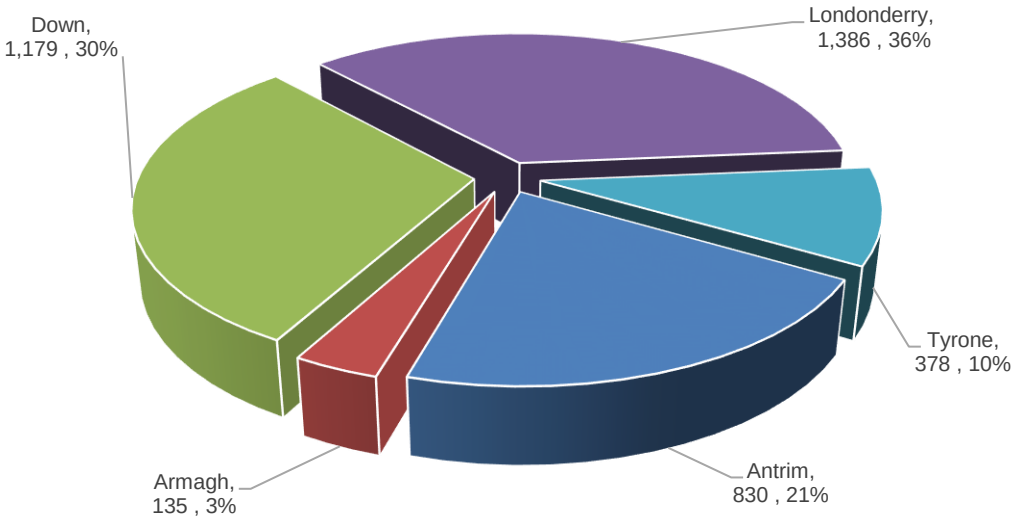
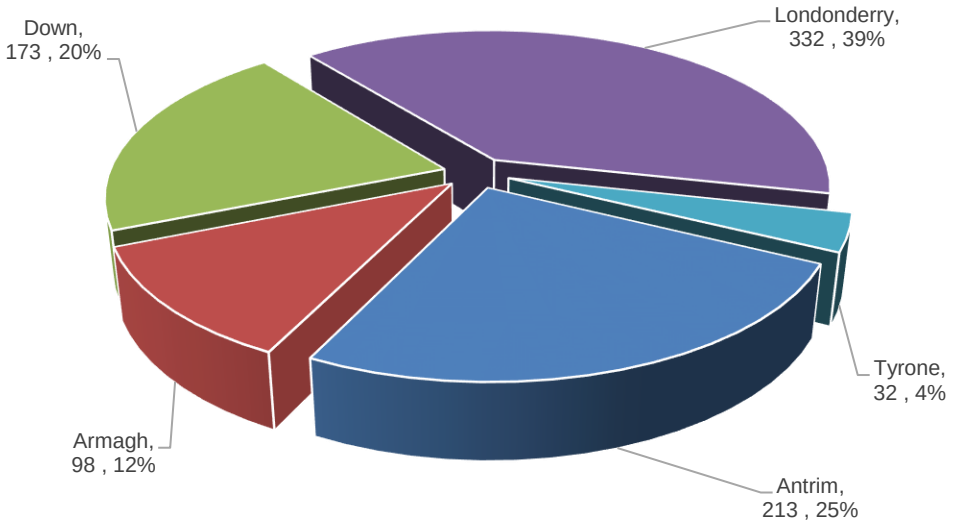
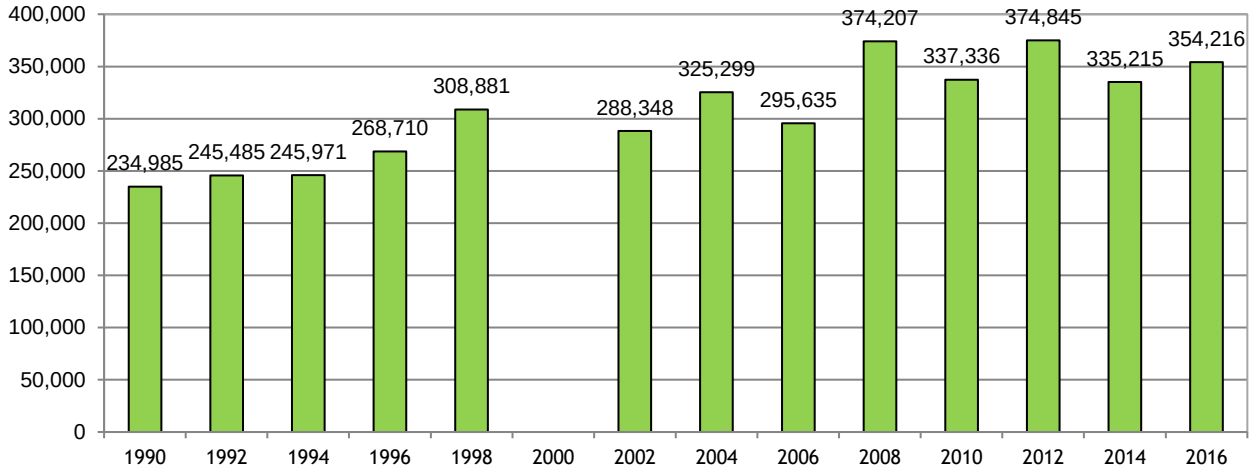


Figure 9: Regional distribution of other arable crops (oilseed rape, beans) grown in Northern Ireland (ha), 2016.



Pesticide usage

Figure 10: Comparison of the areas of arable crops treated in Northern Ireland (spha), 1990 – 2016.



* Potatoes not included in 2000 data.

Figure 11: Pesticide usage (spha) on arable crops in Northern Ireland, 2016.

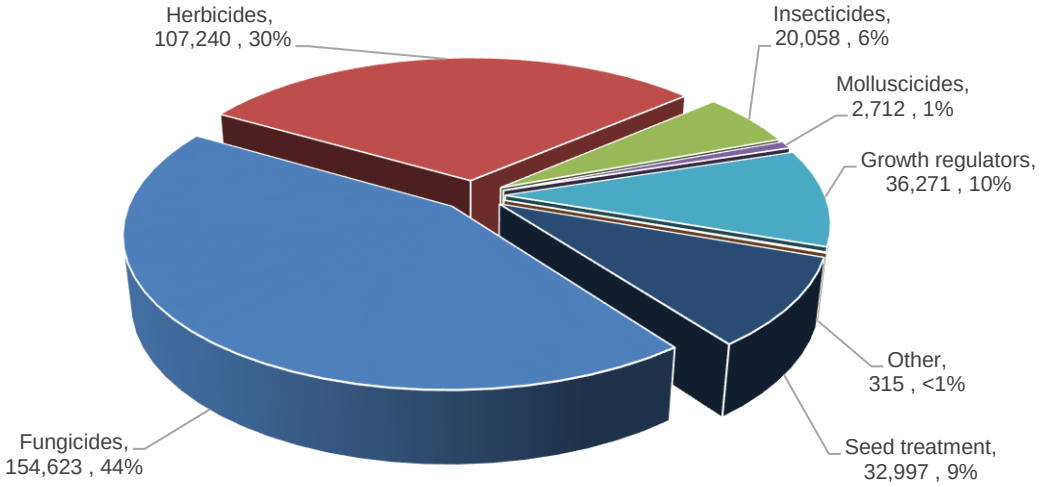
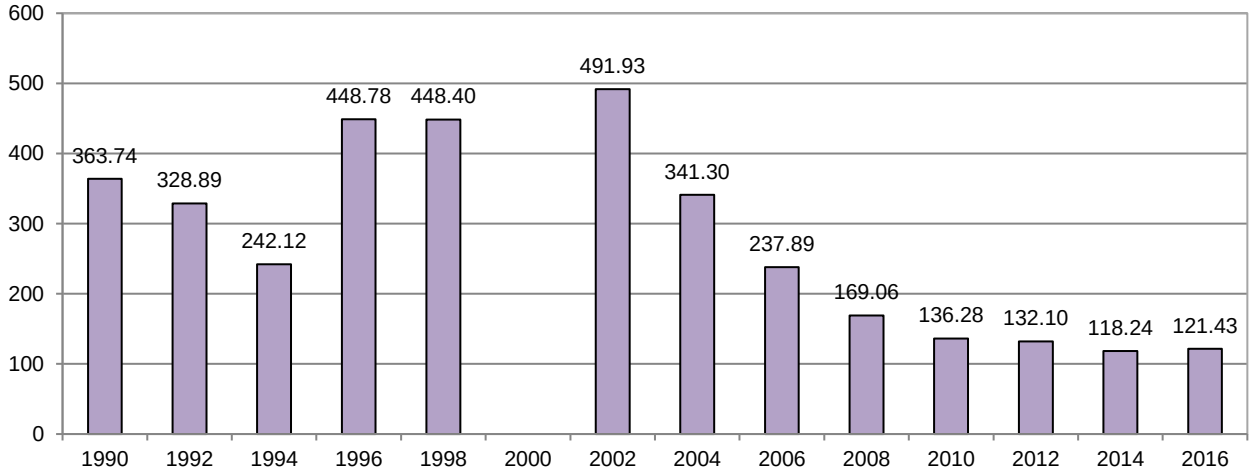


Figure 12: Comparison of the weight of pesticides applied (tonnes) to arable crops in Northern Ireland, 1990 - 2016.



* Potatoes not included in 2000 data.

Figure 13: Weight of pesticides (tonnes) applied to arable crops in Northern Ireland, 2016.

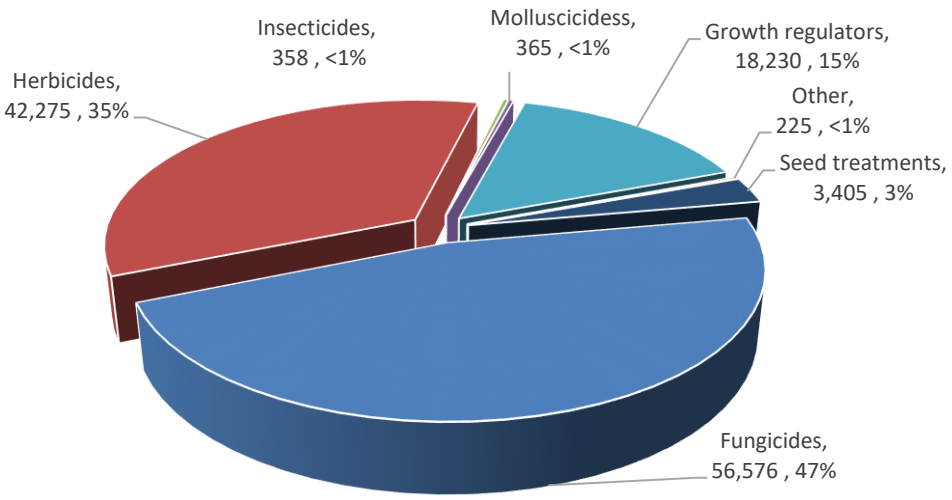


Figure 14: Area (spha (log^{10})) of arable crops treated with each pesticide type in Northern Ireland, 2016, by region.

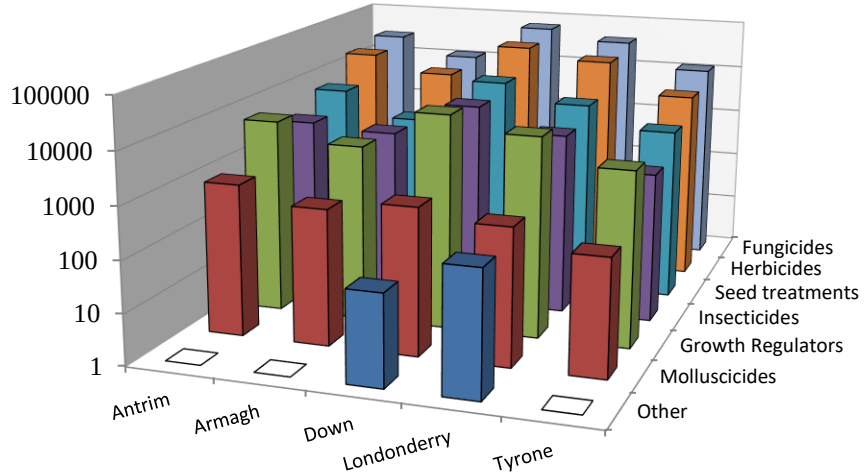


Figure 15: Weight (kg (log^{10})) of each pesticide type applied to arable crops in Northern Ireland, 2016, by region.

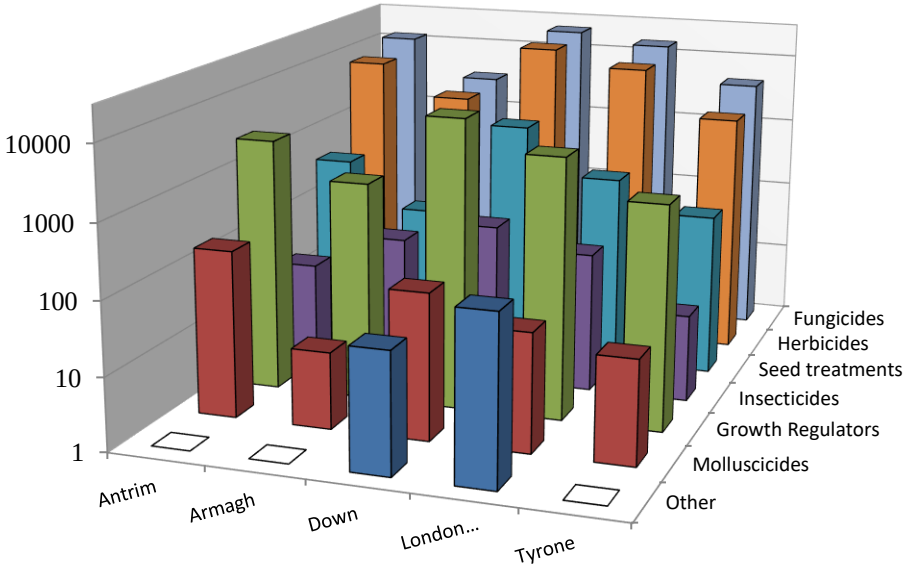


Figure 16: Comparison of the areas of cereal crops treated (spha) in Northern Ireland, 1990 - 2016.

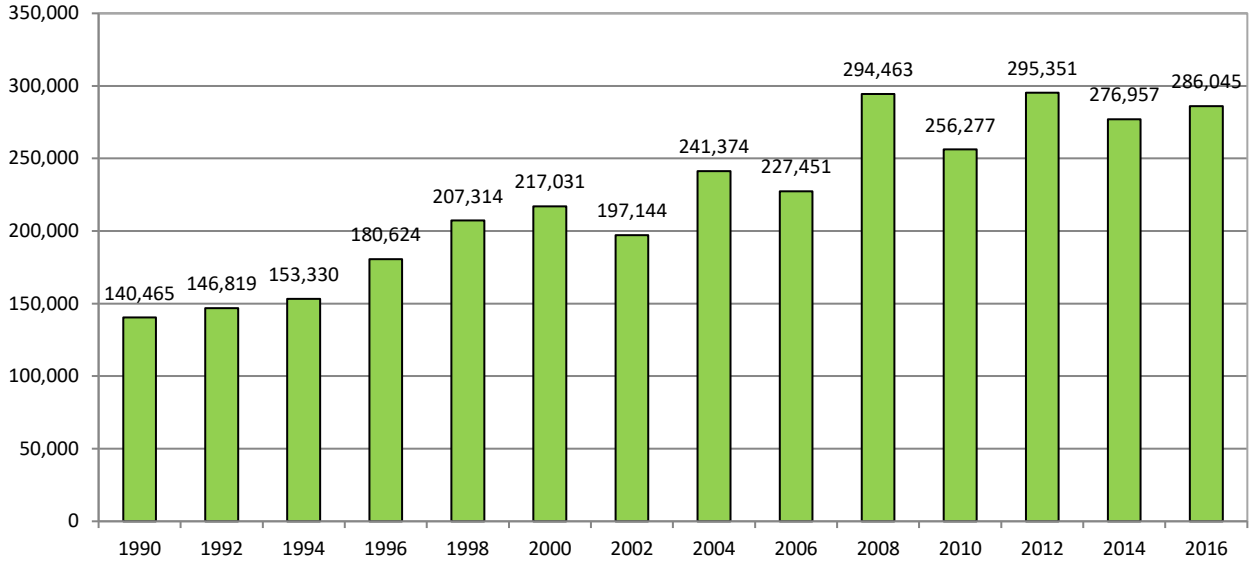


Figure 17: Pesticide usage (spha) on cereal crops in Northern Ireland, 2016.

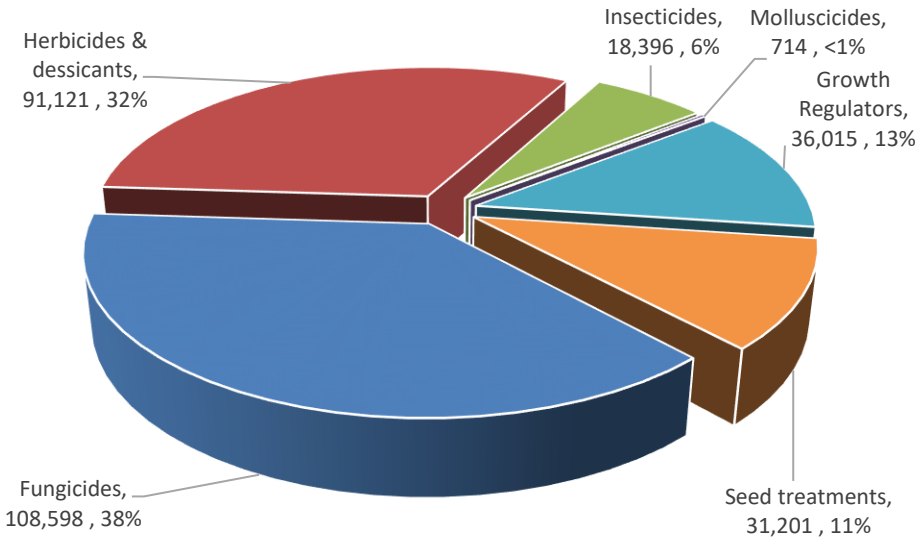


Figure 18: Comparison of the weight of pesticides applied (tonnes) to arable crops in Northern Ireland, 1990 - 2016.

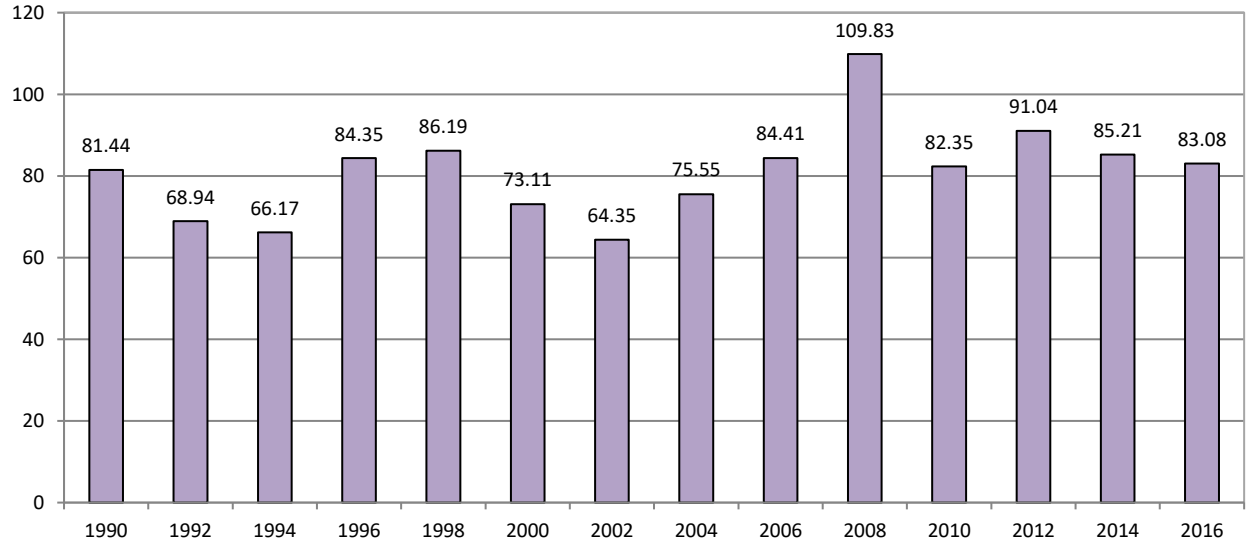


Figure 19: Weight of pesticides (tonnes) applied to cereal crops in Northern Ireland, 2016.

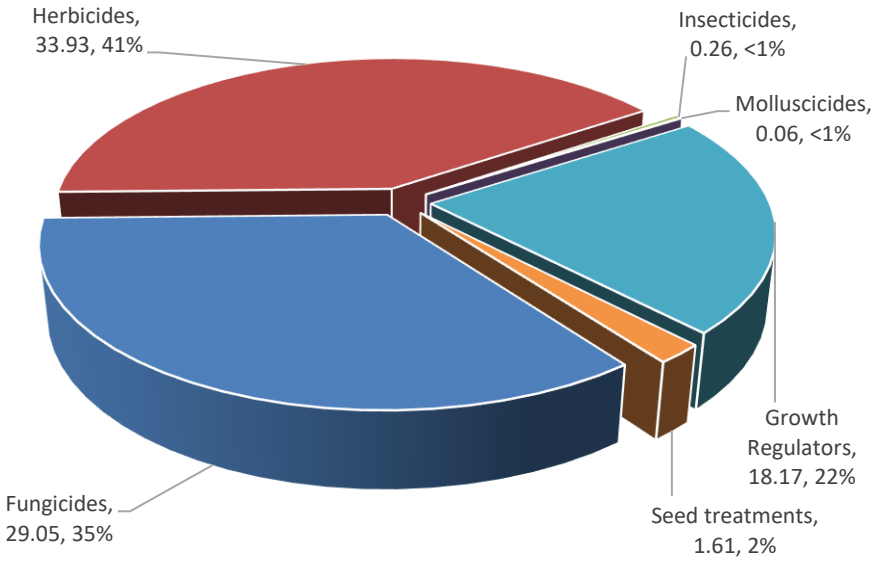


Figure 20: Pesticide usage (spha) on other arable crops in Northern Ireland, 2016.

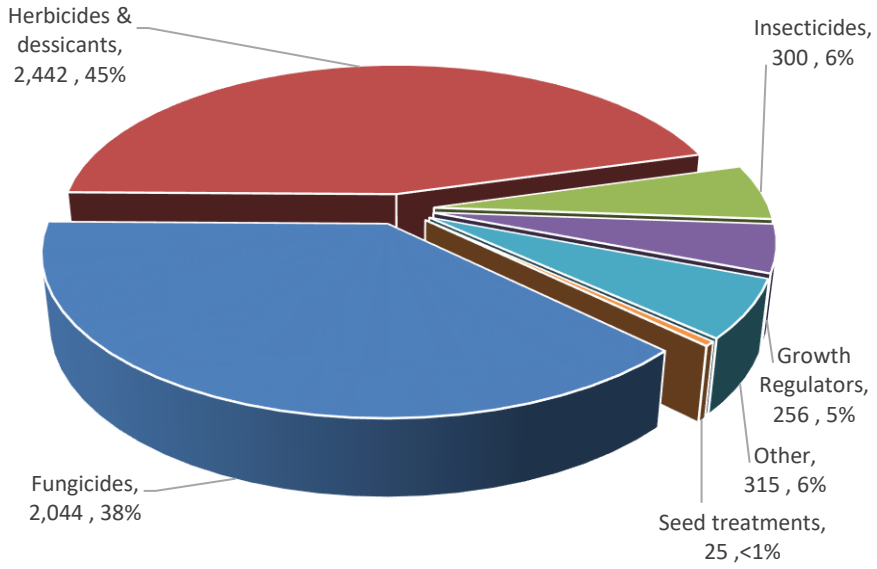


Figure 21: Weight of pesticides (tonnes) applied to other arable crops in Northern Ireland, 2016.

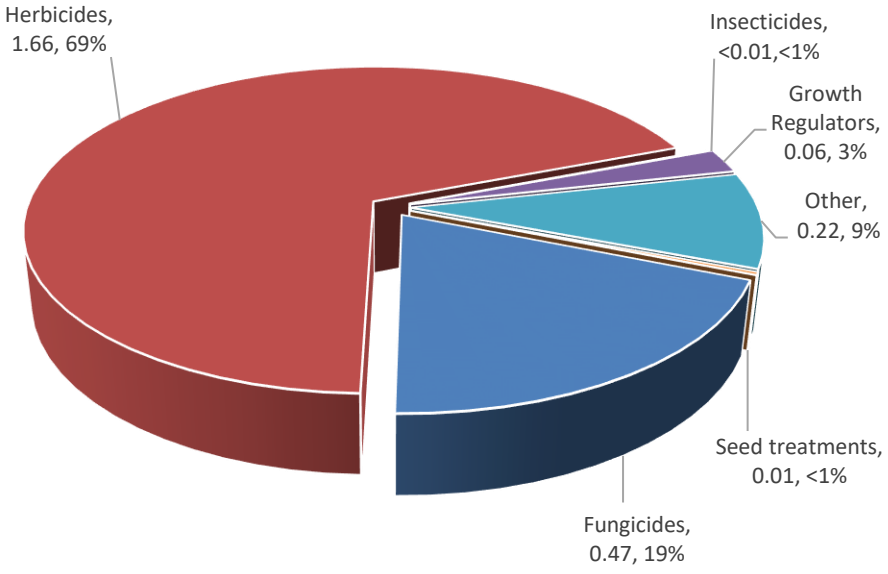


Figure 22: Comparison of the areas of potato crops treated (spha) in Northern Ireland, 1990 - 2016.

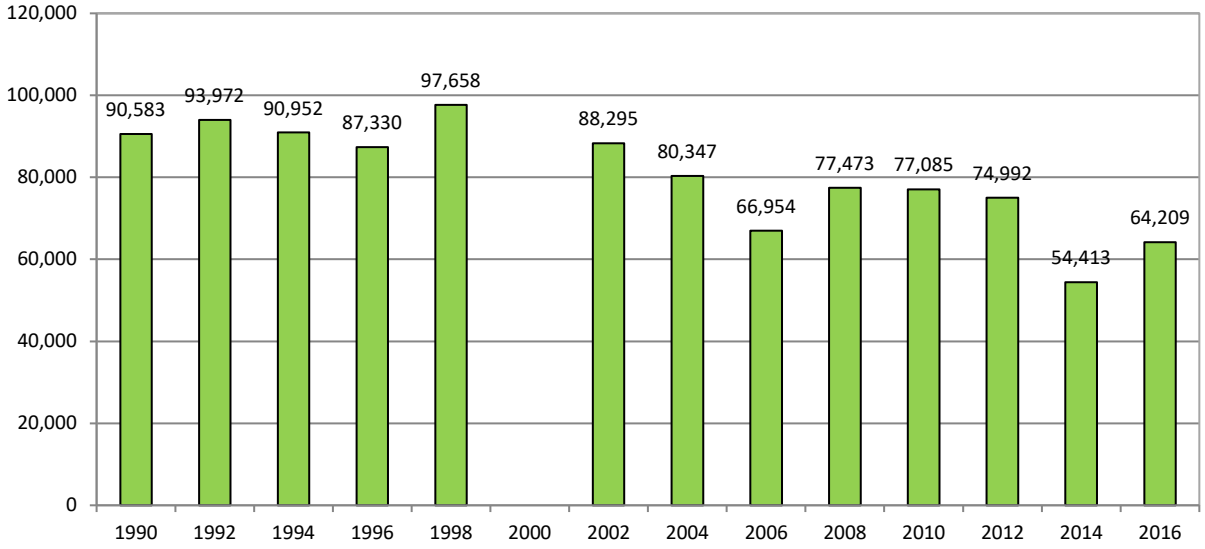


Figure 23: Pesticide usage (spha) on potato crops in Northern Ireland, 2016.

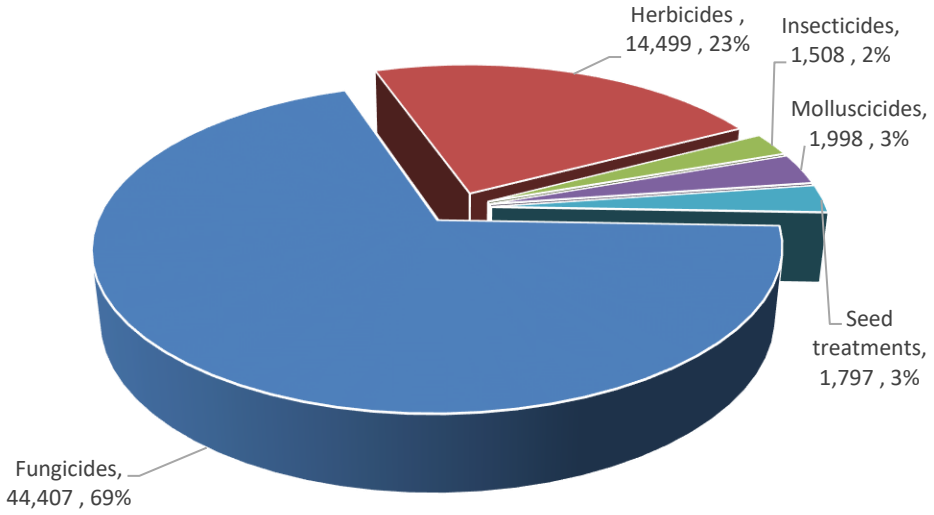


Figure 24: Comparison of the weight of pesticides applied (tonnes) to potato crops in Northern Ireland, 1990 - 2016.

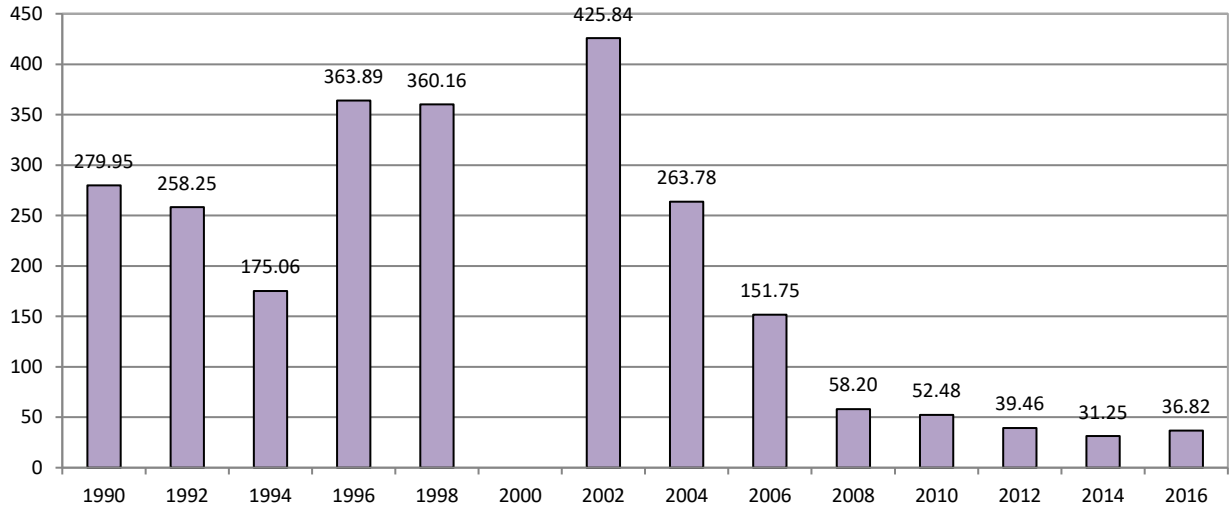
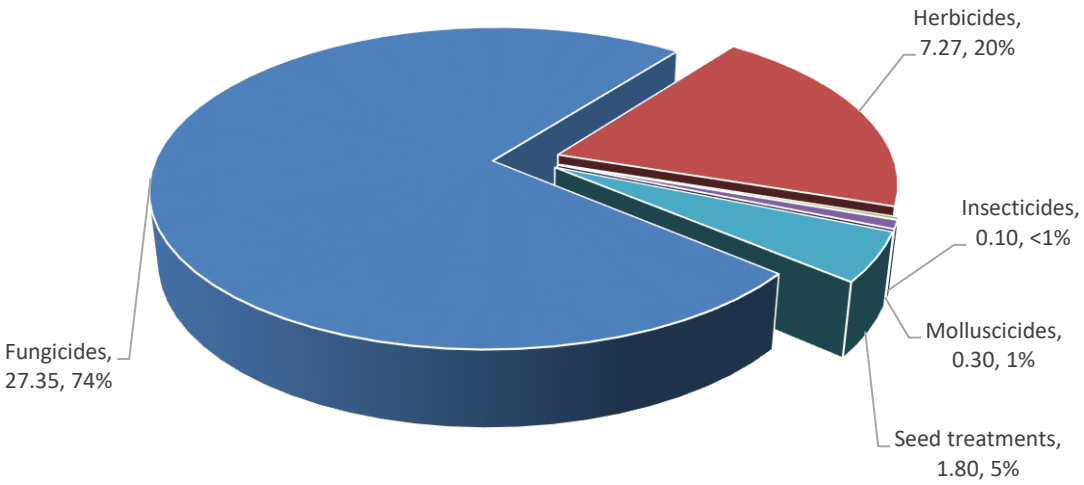


Figure 25: Weight of pesticides (tonnes) applied to potato crops in Northern Ireland, 2016.



Pesticide usage on spring barley:

- 14,476 hectares of spring barley grown in Northern Ireland
- 97,996 treated hectares
- 25,883 kilogrammes applied
- 99% of the area of spring barley crops grown received a pesticide treatment.
- Spring barley received on average 2.63 fungicide, 2.70 herbicide, 1.15 insecticide, 2 molluscicide and 1.31 growth regulator applications.

Figure 26: Comparison of the areas of spring barley crops grown in Northern Ireland (ha), 1990 - 2016.

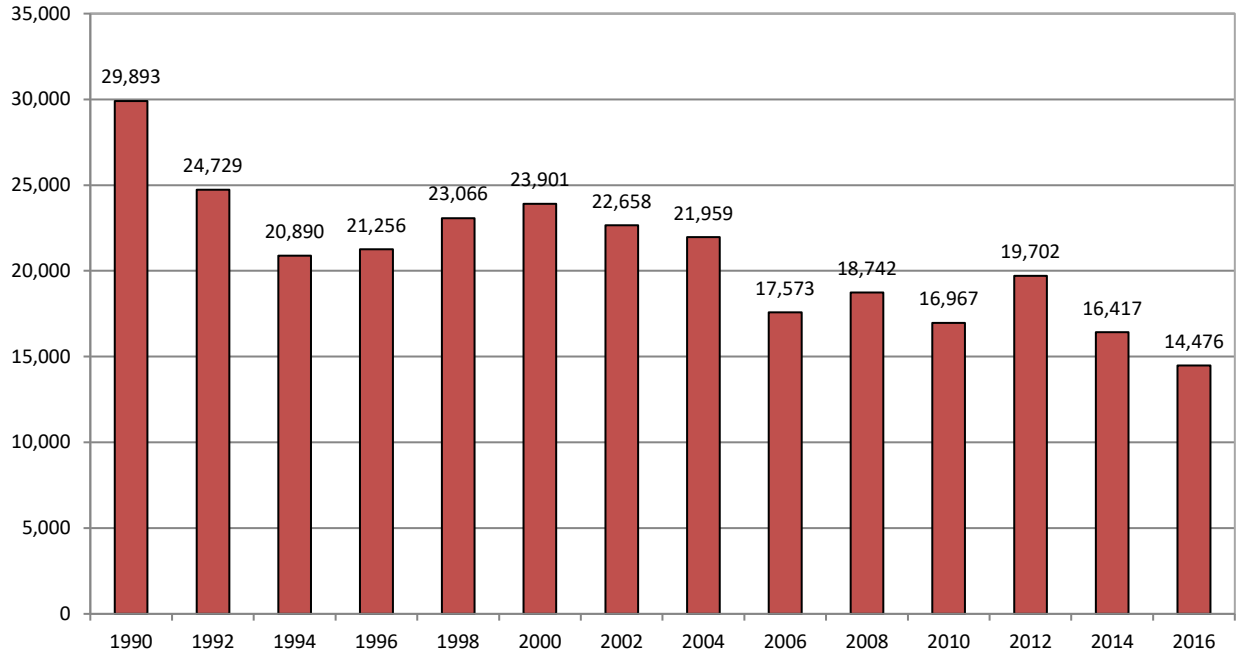


Figure 27: Regional distribution of spring barley crops grown in Northern Ireland (ha), 2016.

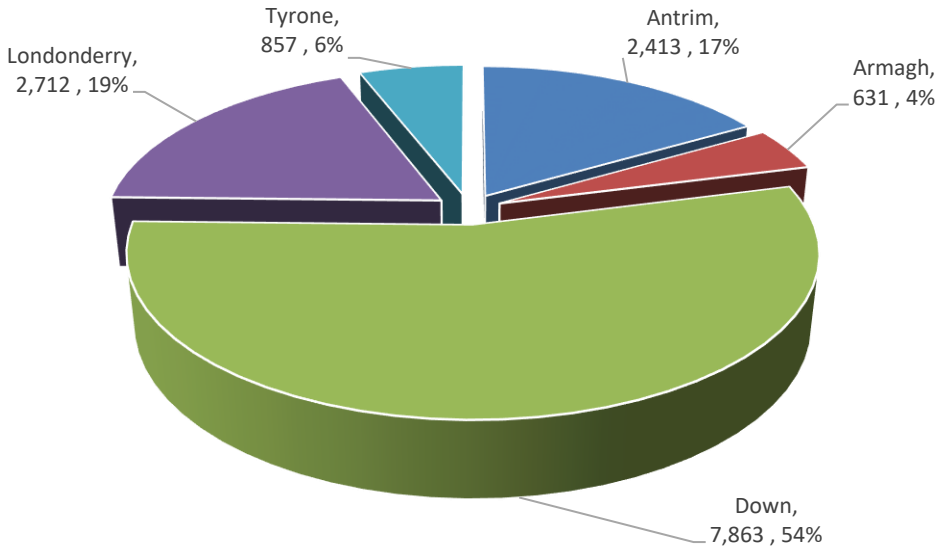


Figure 28: Pesticide usage (spha) on spring barley crops in Northern Ireland, 2016.

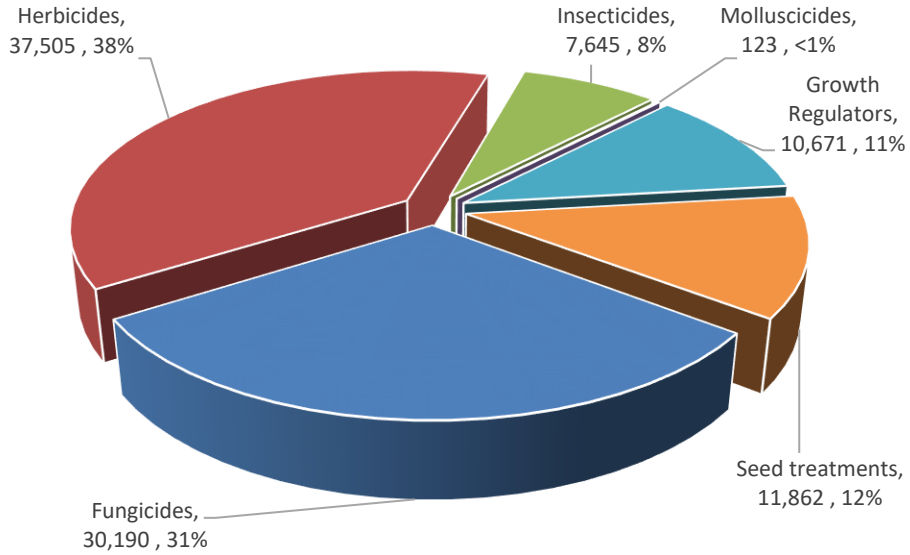


Figure 29: Weight of pesticides (kg) applied to spring barley crops in Northern Ireland, 2016.

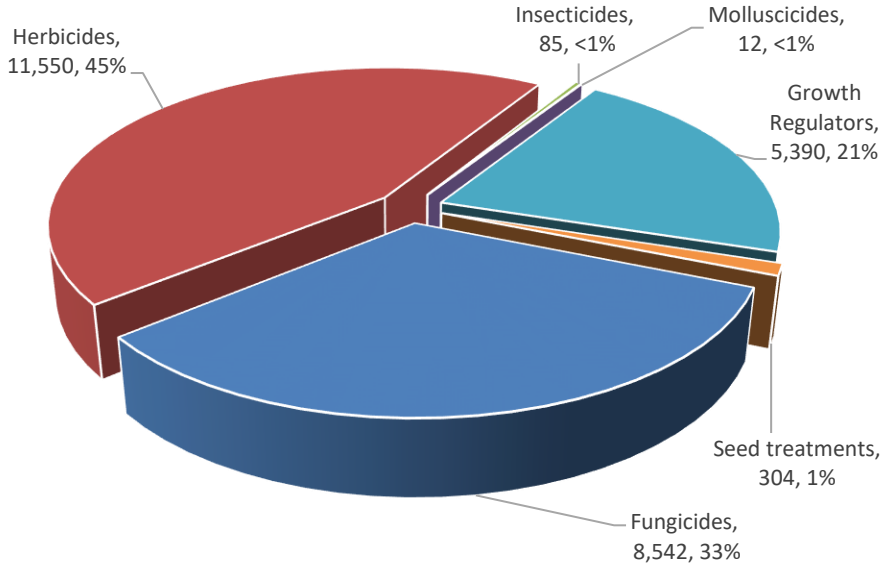
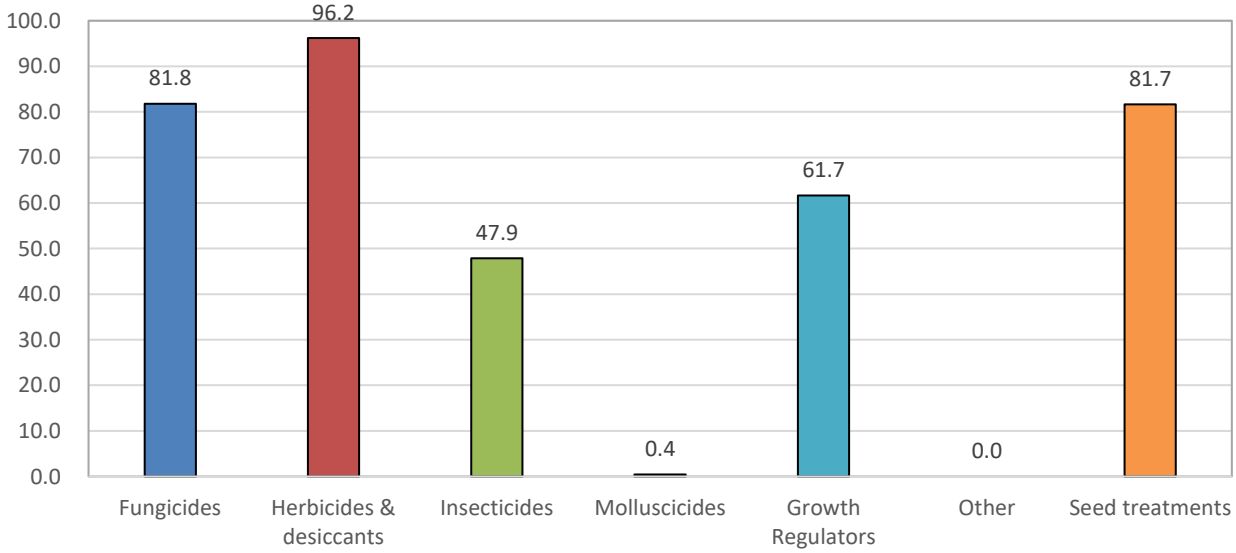


Figure 30: Proportional area (%) of spring barley crops treated with each pesticide type in Northern Ireland, 2016.

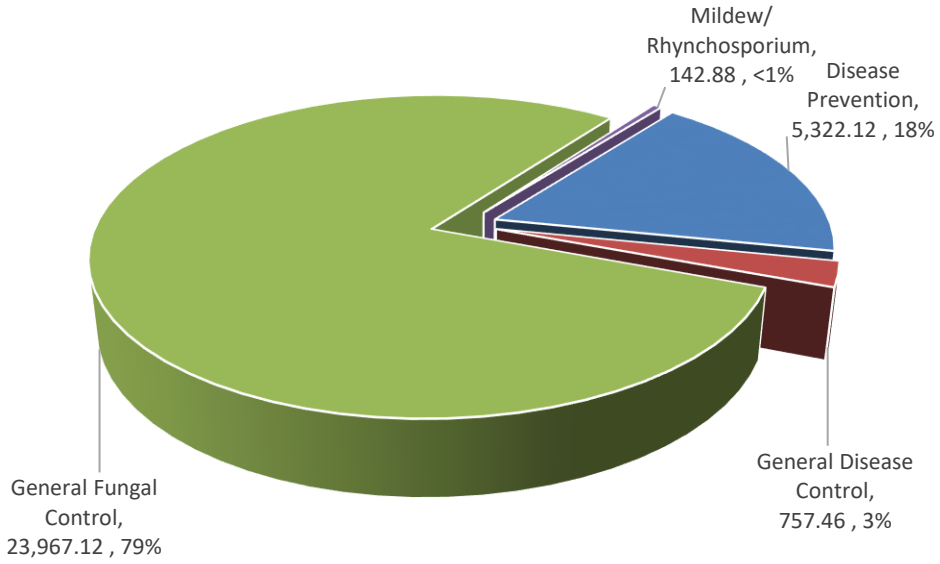


Fungicides - spring barley

- Basic area treated: 11,837 hectares
- Total area treated: 30,190 spray hectares
- Weight of active substances applied: 8,542 kilogrammes
- 82% of the area grown treated with fungicides.
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlorothalonil	7,846	6,787	3,589	26
Prothioconazole	3,310	2,962	357	11
Bixafen/prothioconazole	2,273	2,051	319	8
Prothioconazole/trifloxystrobin	1,748	1,620	288	6
Epoxiconazole	1,631	1,561	124	5

Figure 31: Spring barley: reasons for fungicide use (spha), 2016.

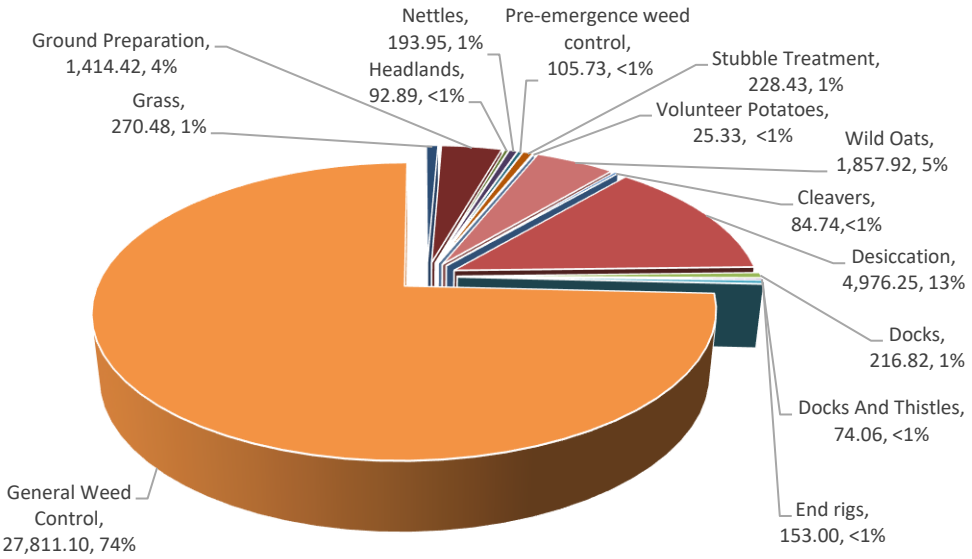


Herbicides & desiccants - spring barley

- Basic area treated: 13,927 hectares
- Total area treated: 37,505 spray hectares
- Weight of active substances applied: 11,550 kilogrammes
- 96% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Glyphosate	7,553	6,675	5,652	20
Metsulfuron-methyl/tribenuron-methyl	4,605	4,345	50	12
Fluroxypyr	4,147	3,921	595	11
Metsulfuron-methyl	3,568	3,568	20	10
Mecoprop-P	2,852	2,725	1,951	8

Figure 32: Spring barley: reasons for herbicide & desiccant use (spha), 2016.

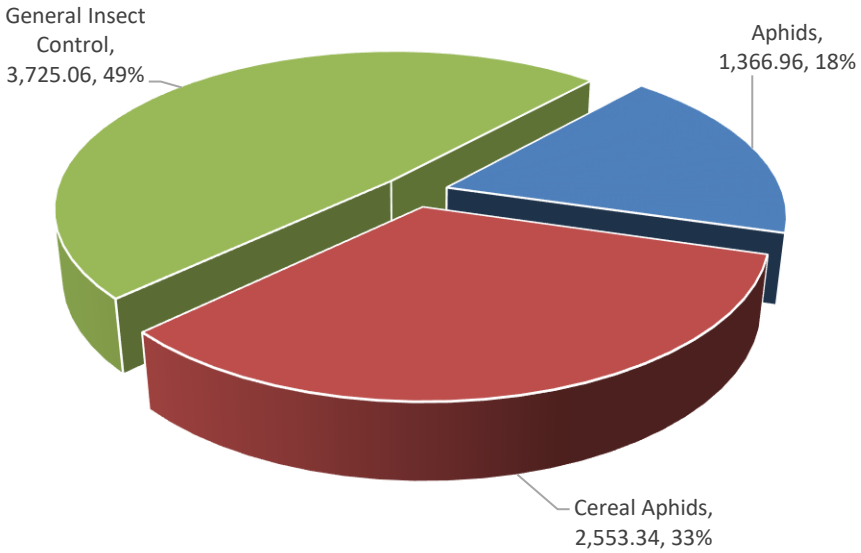


Insecticides - spring barley

- Basic area treated: 6,931 hectares
- Total area treated: 7,645 spray hectares
- Weight of active substances applied: 85 kilogrammes
- 48% of the area grown treated with insecticides.
- The most commonly applied active substances were:

Active substance	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kgs)**	**% of the treated area (spha)**
Esfenvalerate	4,755	4,284	19	62
Lambda-cyhalothrin	2,496	2,253	12	33
Cypermethrin	186	186	4	2
Deltamethrin	105	105	1	1
Chlorpyrifos	104	104	50	1

Figure 33: Spring barley: reasons for insecticide use (spha), 2016.



Molluscicides - spring barley

- Basic area treated: 61 hectares
- Total area treated: 123 spray hectares
- Weight of active substances applied: 12 kilogrammes
- 0.42% of the area grown treated with molluscicides
- All applications were to control slugs
- The only active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Ferric phosphate	61	61	4	50
Metaldehyde	61	61	8	50

Growth regulators - spring barley

- Basic area treated: 8,925 hectares
- Total area treated: 10,671 spray hectares
- Weight of active substances applied: 5,390 kilogrammes
- 62% of the area grown treated with growth regulators
- All reasons for use were given as growth regulation
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlormequat	5,804	5,639	4,983	54
Trinexapac-ethyl	3,527	3,463	172	33
2-chloroethylphosphonic acid	773	773	113	7
Mepiquat chloride/prohexadione-calcium	560	521	121	5
Ethephon	6	6	2	<1

Seed treatments - spring barley

- Basic area treated: 11,820 hectares
- Total area treated: 11,862 spray hectares
- Weight of active substances applied: 304 kilogrammes
- 82% of the area grown was sown with treated seed
- All reasons for use were given as growth regulation
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Fludioxonil	6,565	6,565	59	55
Prochloraz/triticonazole	3,527	3,527	105	30
Fluopyram/prothioconazole/tebuconazole	708	708	12	6
Clothianidin/prothioconazole	489	489	52	4
Carboxin/thiram	345	345	69	3

Pesticide usage on undersown barley:

- 232 hectares of undersown barley crops grown in Northern Ireland
- 926 treated hectares
- 414 kilogrammes applied
- 100% of the area of undersown barley crops grown received a pesticide treatment
- Undersown barley received on average 2 herbicide and 1 growth regulator applications
- No fungicides were used on undersown barley crops

Figure 34: Comparison of the areas of undersown barley crops grown in Northern Ireland (ha), 1990 - 2016.

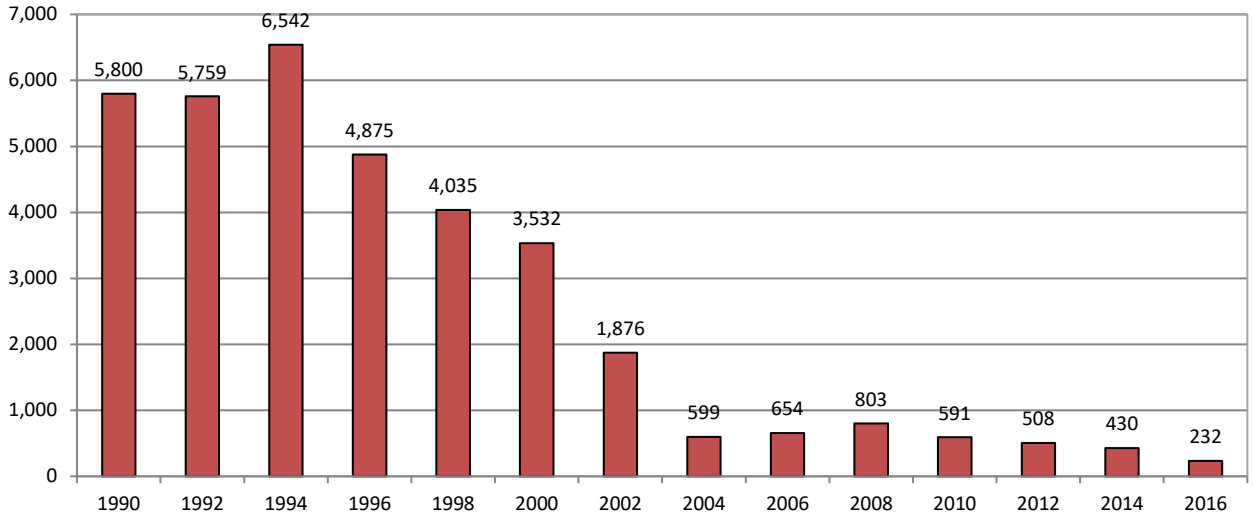


Figure 35: Pesticide usage (spha) on undersown barley crops in Northern Ireland, 2016.

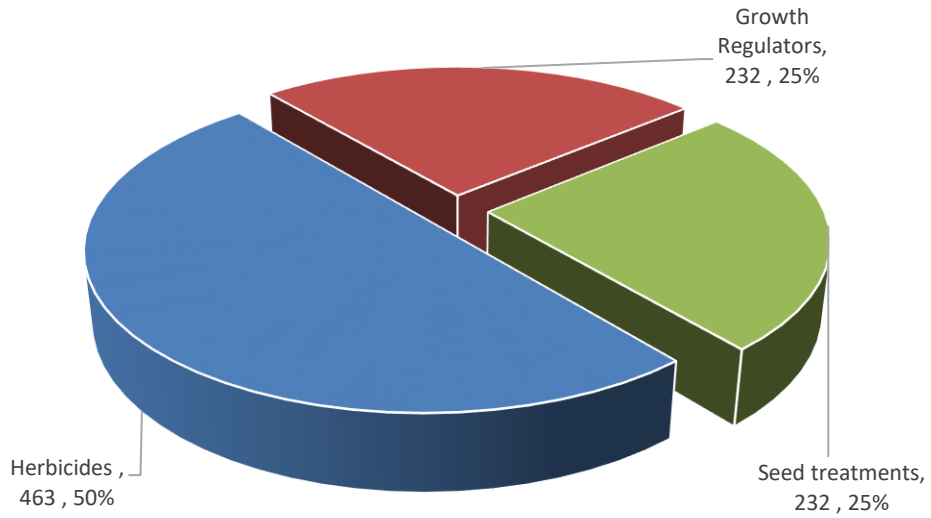


Figure 36: Weight of pesticides (kg) applied to undersown barley crops in Northern Ireland, 2016.

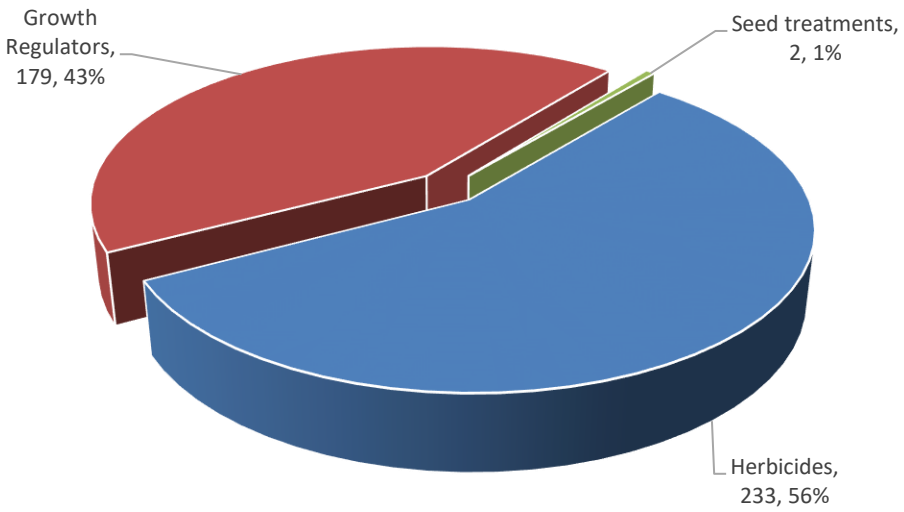
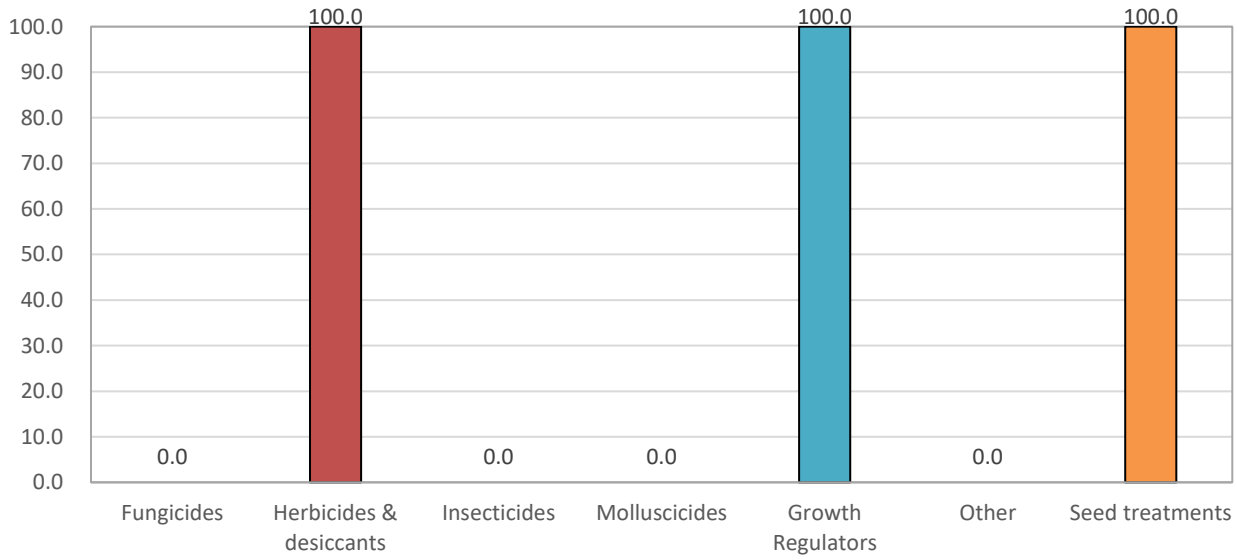


Figure 37: Proportional area (%) of undersown barley crops treated with each pesticide type in Northern Ireland, 2016.



Herbicides & desiccants - undersown barley

- Basic area treated: 232 hectares
- Total area treated: 463 spray hectares
- Weight of active substances applied: 233 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- All applications were for general weed control
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
2,4-DB	232	232	232	50
Tribenuron-methyl	232	232	1	50

Growth regulators - undersown barley

- Basic area treated: 232 hectares
- Total area treated: 232 spray hectares
- Weight of active substances applied: 179 kilogrammes
- 100% of the area grown treated with growth regulators
- All applications were for growth regulation
- The only active substance applied was:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlormequat	232	232	179	100

Seed treatments - undersown barley

- Basic area treated: 232 hectares
- Total area treated: 232 spray hectares
- Weight of active substances applied: 2 kilogrammes
- 100% of the area grown was sown with treated seed
- The only active substance applied was:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Fludioxonil	232	232	2	100

Pesticide usage on winter barley:

- 7,628 hectares of winter barley grown in Northern Ireland
- 71,266 treated hectares
- 22,742 kilogrammes applied
- 100% of the area of winter barley crops grown received a pesticide treatment.
- Winter barley received on average 3.67 fungicide, 2.97 herbicide, 1.23 insecticide, 1 molluscicide and 1.70 growth regulator applications

Figure 38: Comparison of the areas of winter barley crops grown in Northern Ireland (ha), 1990 - 2016.

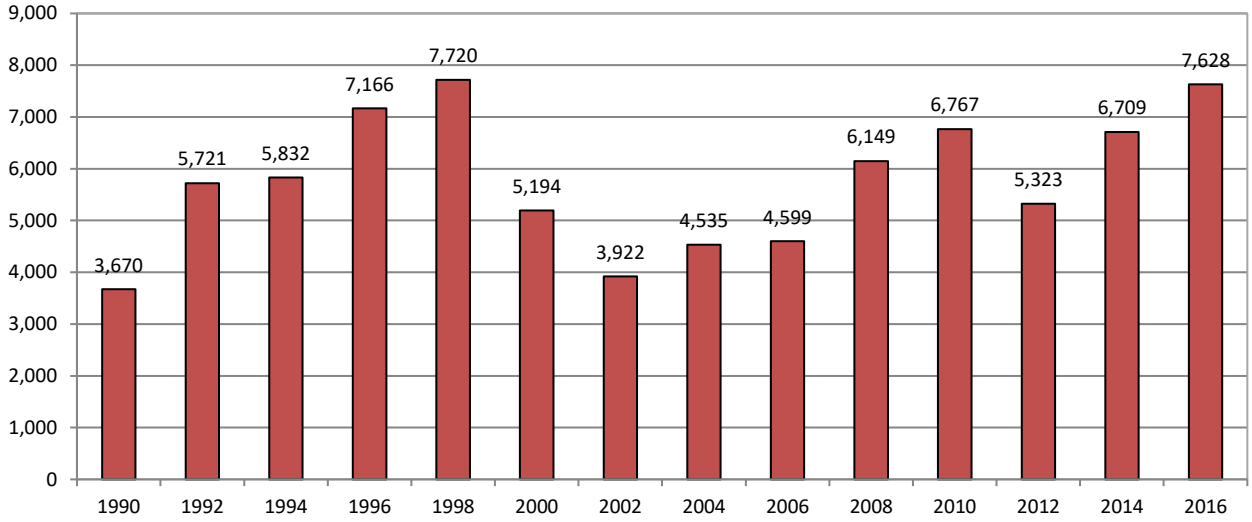


Figure 39: Regional distribution of winter barley crops grown in Northern Ireland (ha), 2016.

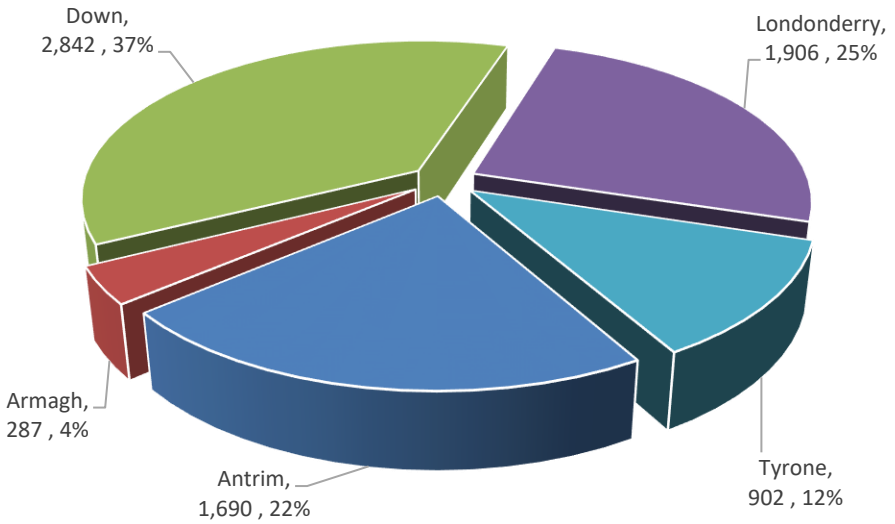


Figure 40: Pesticide usage (spha) on winter barley crops in Northern Ireland, 2016.

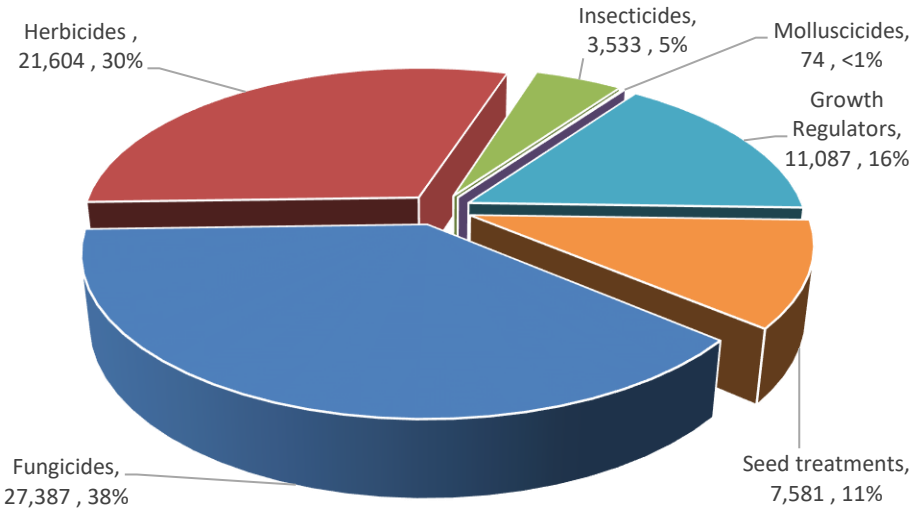


Figure 41: Weight of pesticides (kg) applied to winter barley crops in Northern Ireland, 2016.

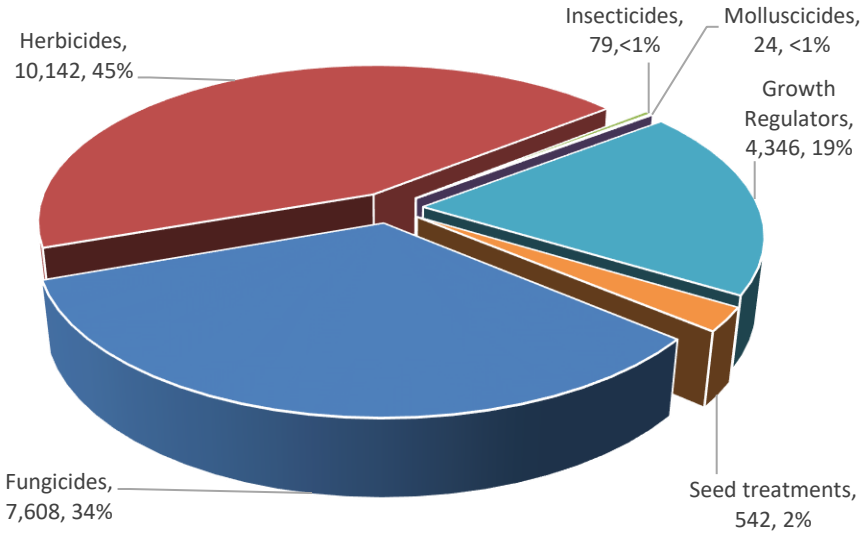
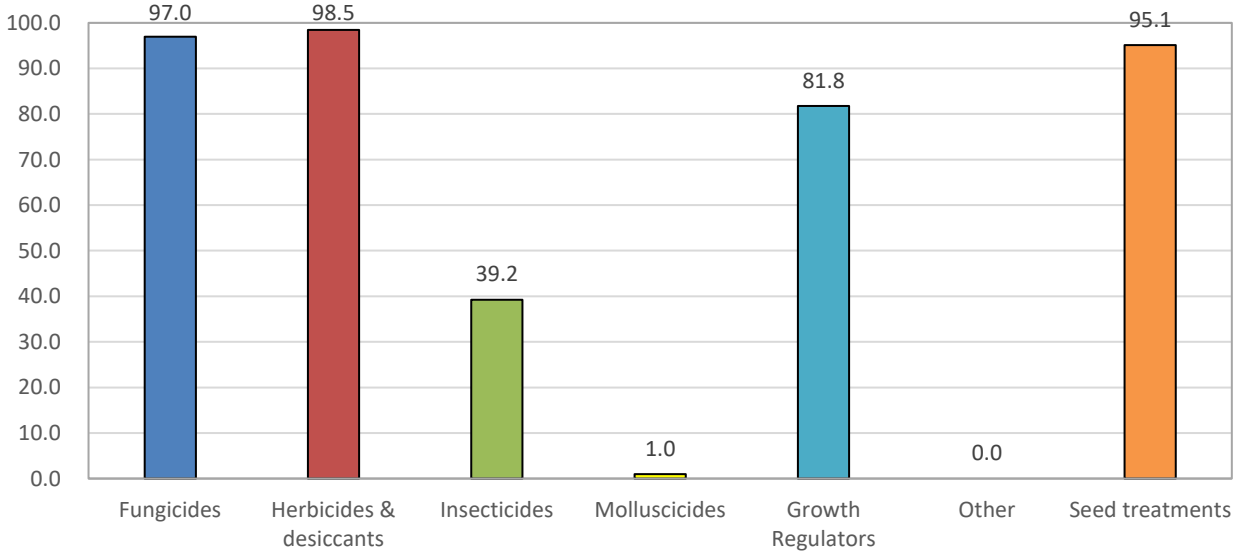


Figure 42: Proportional area (%) of winter barley crops treated with each pesticide type in Northern Ireland, 2016.

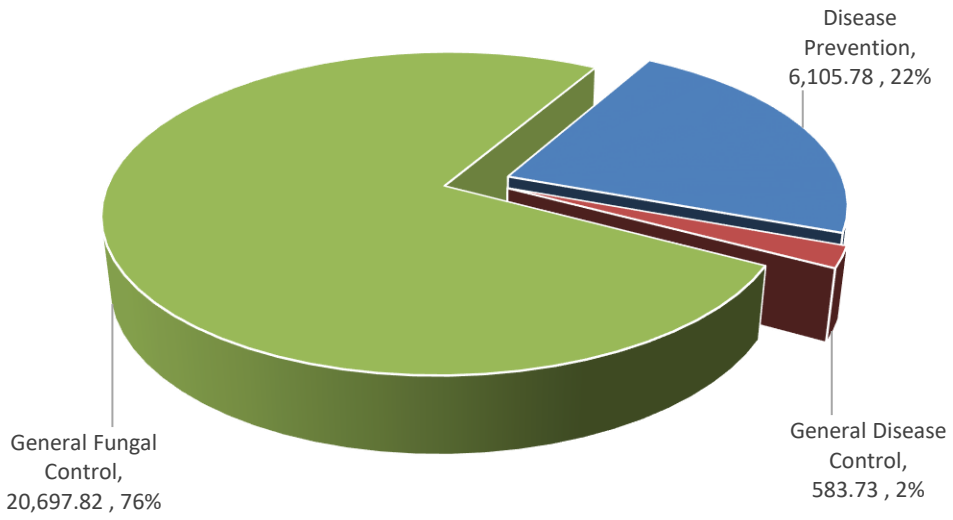


Fungicides - winter barley

- Basic area treated: 7,396 hectares
- Total area treated: 27,387 spray hectares
- Weight of active substances applied: 7,608 kilogrammes
- 97% of the area grown treated with fungicides.
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlorothalonil	7,553	5,390	3,416	28
Prothioconazole	3,265	2,638	365	12
Bixafen/prothioconazole	2,895	2,421	457	11
Cyprodinil/isopyrazam	1,703	1,515	554	6
Fenpropimorph	1,576	1,576	330	6

Figure 43: Winter barley: reasons for fungicide use (spha), 2016.

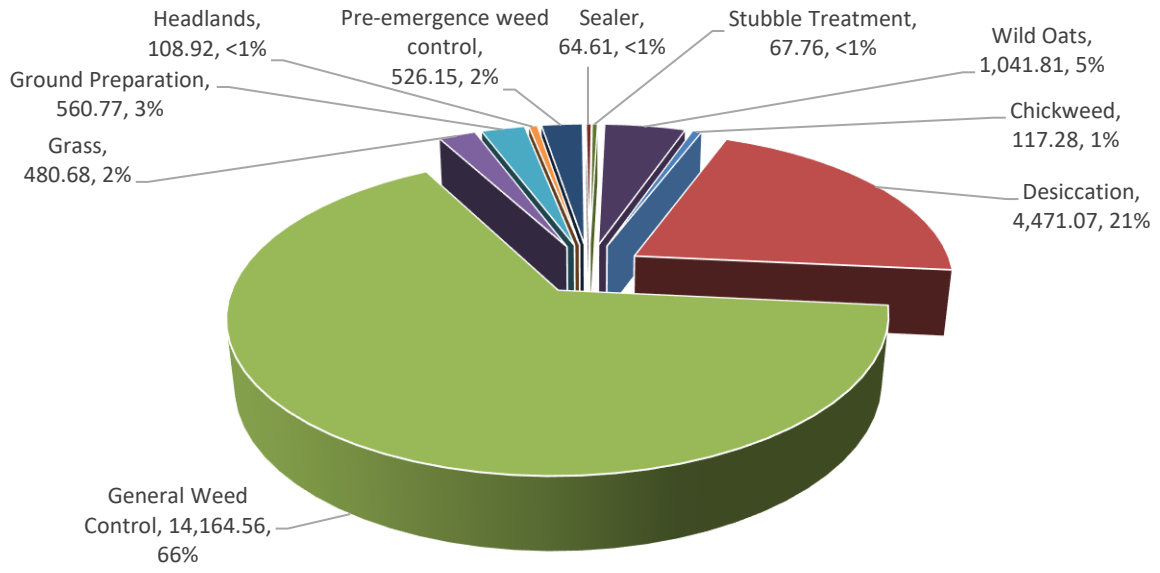


Herbicides & desiccants - winter barley

- Basic area treated: 7,510 hectares
- Total area treated: 21,604 spray hectares
- Weight of active substances applied: 10,142 kilogrammes
- 99% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Glyphosate	5,585	4,862	3,788	26
Diflufenican	3,251	3,251	296	15
Flufenacet/pendimethalin	2,931	2,931	2,992	14
Diflufenican/flufenacet	2,130	2,130	390	10
Pinoxaden	1,448	1,448	48	7

Figure 44: Winter barley: reasons for herbicide & desiccant use (spha), 2016.

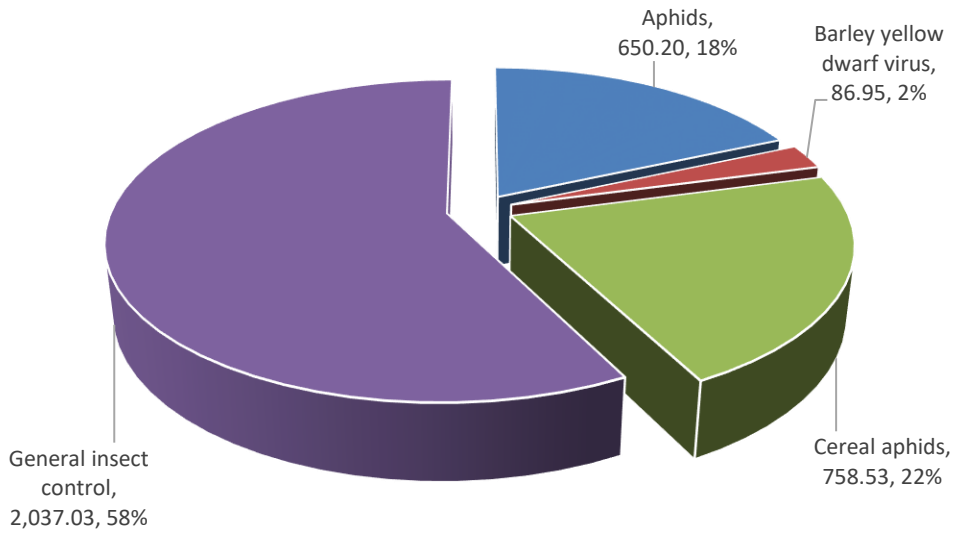


Insecticides - winter barley

- Basic area treated: 2,993 hectares
- Total area treated: 3,533 spray hectares
- Weight of active substances applied: 79 kilogrammes
- 39% of the area grown treated with insecticides.
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Esfenvalerate	1,862	1,530	7	53
Lambda-cyhalothrin	1,430	1,274	8	40
Chlorpyrifos	232	232	63	7
Cypermethrin	9	9	<1	<1

Figure 45: Winter barley: reasons for insecticide use (spha), 2016.



Molluscicides – winter barley

- Basic area treated: 74 hectares
- Total area treated: 74 spray hectares
- Weight of active substances applied: 25 kilogrammes
- 0.97% of the area grown treated with molluscicides
- All applications were to control slugs
- The only active substance applied was:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Metaldehyde	74	74	24	100

Growth regulators - winter barley

- Basic area treated: 6,237 hectares
- Total area treated: 11,087 spray hectares
- Weight of active substances applied: 4,346 kilogrammes
- 82% of the area grown treated with growth regulators
- All reasons for use were given as growth regulation
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlormequat	4,671	4,090	3,467	28
Trinexapac-ethyl	3,932	3,539	229	12
2-chloroethylphosphonic acid	1,461	1,461	301	11
Mepiquat chloride/prohexadione-calcium	903	795	167	6
Chlormequat with choline chloride	78	78	104	6

Seed treatments - winter barley

- Basic area treated: 7,256 hectares
- Total area treated: 7,581 spray hectares
- Weight of active substances applied: 543 kilogrammes
- 95% of the area grown was sown with treated seed
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Clothianidin/prothioconazole	4,666	4,666	473	62
Prochloraz/triticonazole	1,186	1,185	33	16
Fludioxonil	612	612	5	8
Fluopyram/prothioconazole/tebuconazole	516	516	9	7
Prothioconazole	277	277	4	4

Pesticide usage on spring wheat:

- 707 hectares of spring wheat grown in Northern Ireland
- 4,995 treated hectares
- 1,215 kilogrammes applied
- 97% of the area of spring wheat crops grown received a pesticide treatment
- Spring wheat received on average 2.71 fungicide, 2.57 herbicide, 1.10 insecticide and 1.27 growth regulator applications

Figure 46: Comparison of the areas of spring wheat crops grown in Northern Ireland (ha), 1990 - 2016.

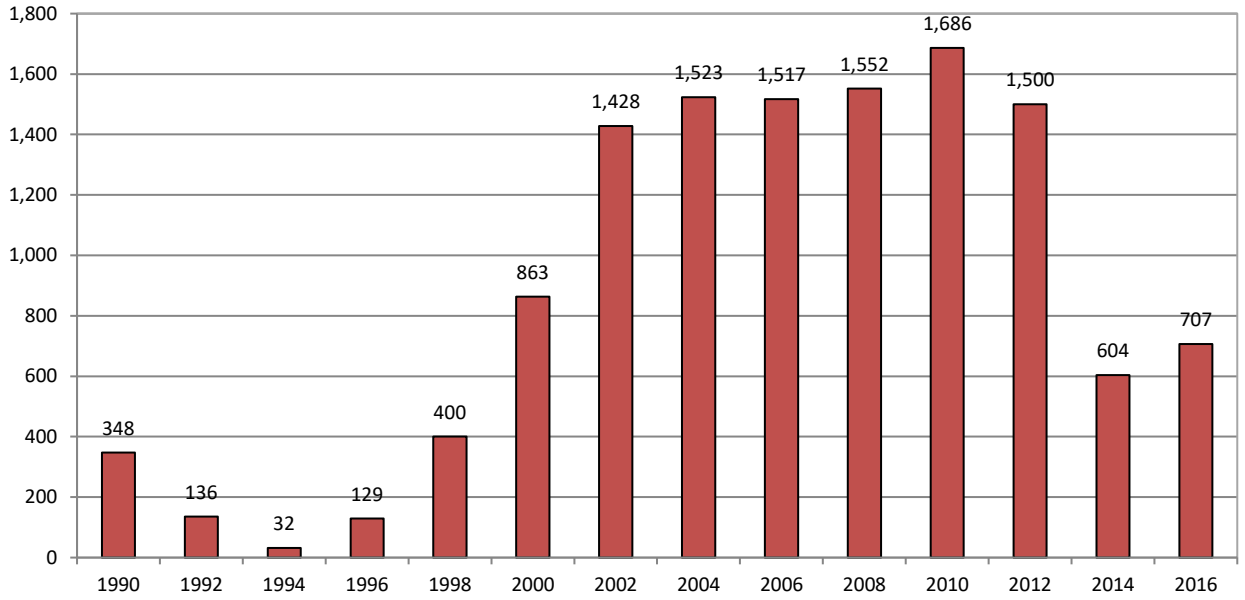


Figure 47: Regional distribution of spring wheat crops grown in Northern Ireland (ha), 2016.

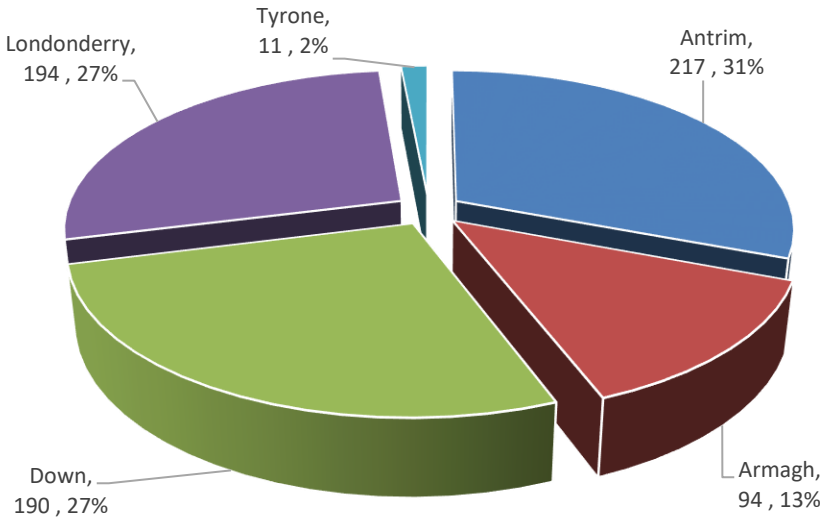


Figure 48: Pesticide usage (spha) on spring wheat crops in Northern Ireland, 2016.

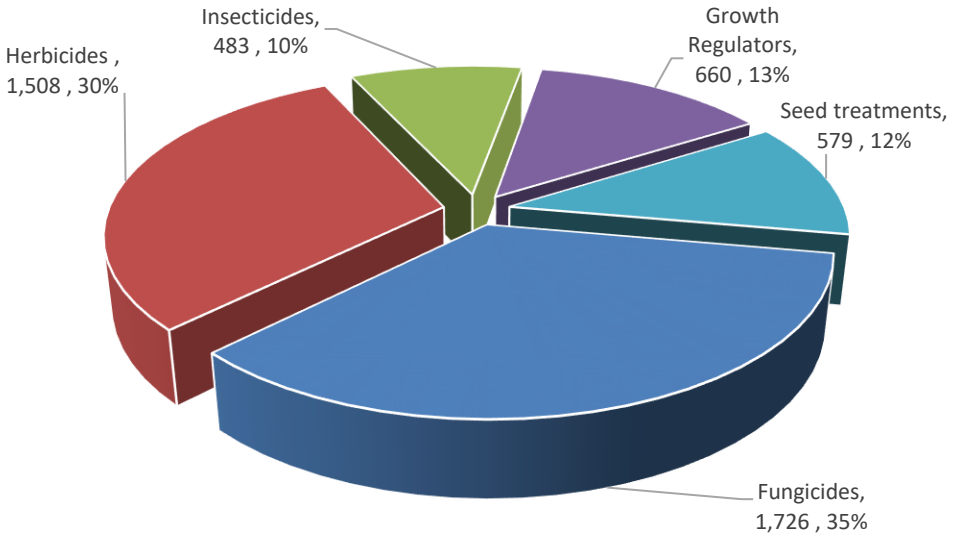


Figure 49: Weight of pesticides (kg) applied to spring wheat crops in Northern Ireland, 2016.

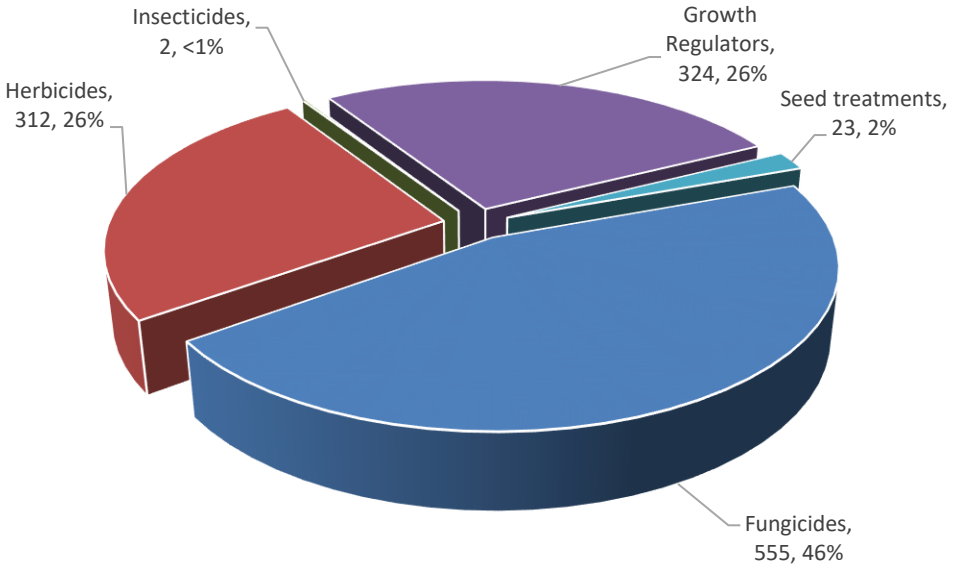
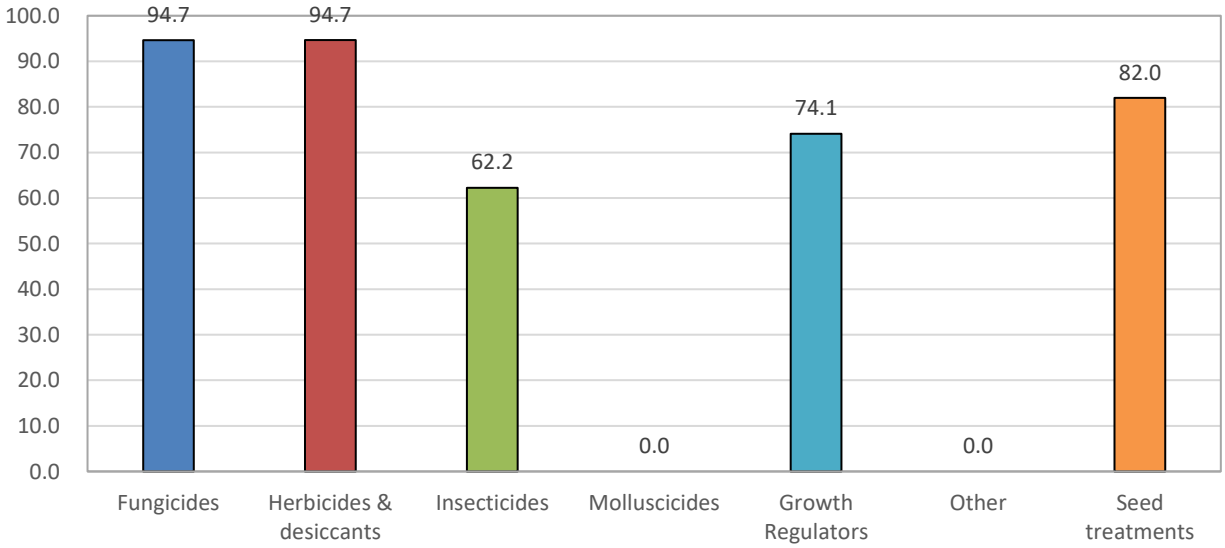


Figure 50: Proportional area (%) of spring wheat crops treated with each pesticide type in Northern Ireland, 2016.

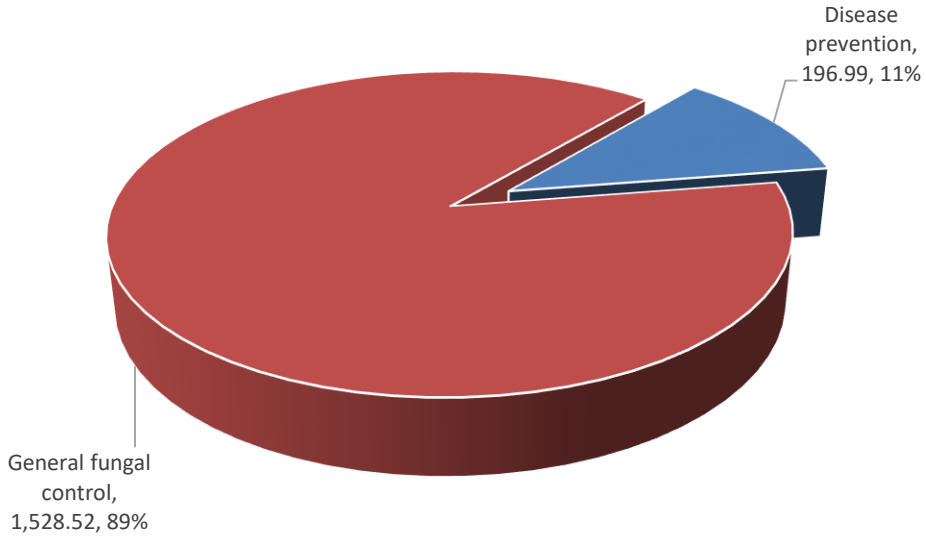


Fungicides - spring wheat

- Basic area treated: 669 hectares
- Total area treated: 1,726 spray hectares
- Weight of active substances applied: 555 kilogrammes
- 95% of the area grown treated with fungicides.
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlorothalonil	455	345	206	26
Epoxiconazole	232	191	22	13
Prothioconazole	220	110	27	13
Chlorothalonil/penthiopyrad	114	85	48	7
Epoxiconazole/fenpropimorph/kresoxim-methyl	113	83	48	7

Figure 51: Spring wheat: reasons for fungicide use (spha), 2016.

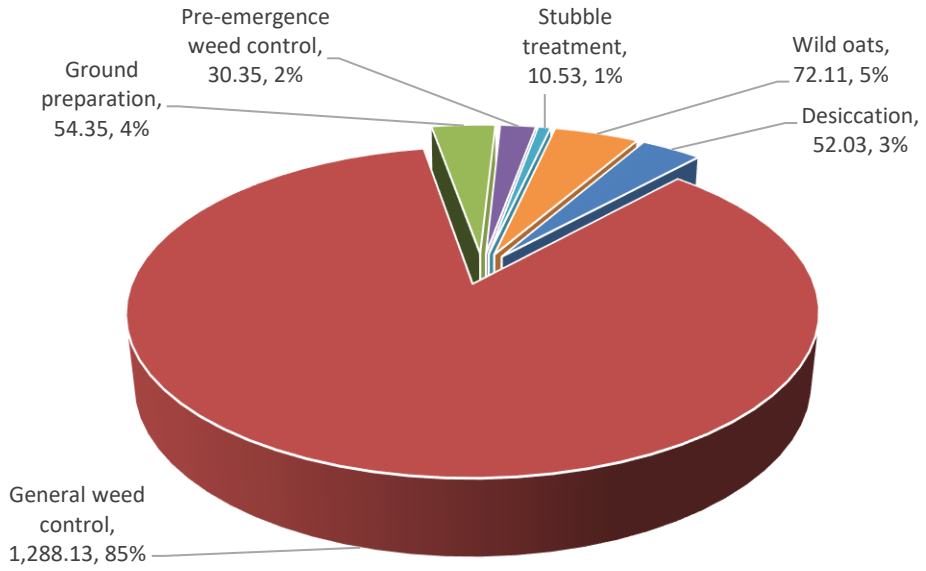


Herbicides & desiccants - spring wheat

- Basic area treated: 669 hectares
- Total area treated: 1,508 spray hectares
- Weight of active substances applied: 312 kilogrammes
- 95% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Fluroxypyr	341	341	61	23
Pinoxaden	180	180	7	12
Metsulfuron-methyl	149	149	1	10
Metsulfuron-methyl/thifensulfuron-methyl	128	128	6	8
Thifensulfuron-methyl/tribenuron-methyl	121	121	1	8

Figure 52: Spring wheat: reasons for herbicide & desiccant use (spha), 2016.

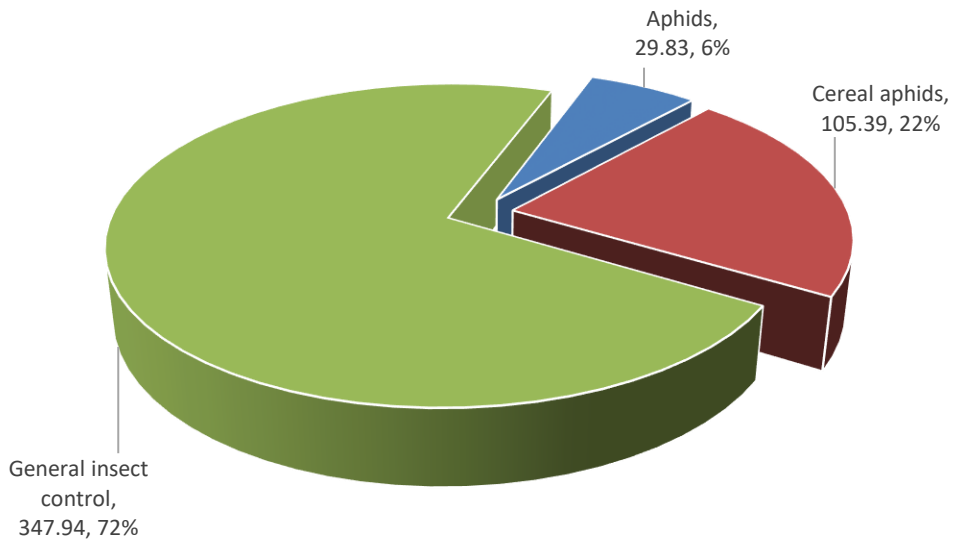


Insecticides - spring wheat

- Basic area treated: 440 hectares
- Total area treated: 483 spray hectares
- Weight of active substances applied: 2 kilogrammes
- 62% of the area grown treated with insecticides.
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Esfenvalerate	260	217	1	54
Lambda-cyhalothrin	212	212	1	44
Cypermethrin	11	11	<1	2

Figure 53: Spring wheat: reasons for insecticide use (spha), 2016.



Growth regulators - spring wheat

- Basic area treated: 524 hectares
- Total area treated: 660 spray hectares
- Weight of active substances applied: 324 kilogrammes
- 74% of the area grown treated with growth regulators
- All reasons for use were given as growth regulation
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlormequat	341	341	299	52
Trinexapac-ethyl	266	225	17	40
2-chloroethylphosphonic acid	53	53	7	8

Seed treatments - spring wheat

- Basic area treated: 579 hectares
- Total area treated: 579 spray hectares
- Weight of active substances applied: 23 kilogrammes
- 82% of the area grown was sown with treated seed
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Prochloraz/triticonazole	270	270	9	47
Fludioxonil	237	237	2	41
Carboxin/thiram	42	42	11	7
Fluopyram/prothioconazole/tebuconazole	30	30	1	5

Pesticide usage on winter wheat:

- 7,909 hectares of winter wheat grown in Northern Ireland
- 96,165 treated hectares
- 29,060 kilogrammes applied
- 100% of the area of winter wheat crops grown received a pesticide treatment
- Winter wheat received on average 5.26 fungicide, 2.78 herbicide, 1.29 insecticide, 1 molluscicide and 1.68 growth regulator applications

Figure 54: Comparison of the areas of winter wheat crops grown in Northern Ireland (ha), 1990 - 2016.

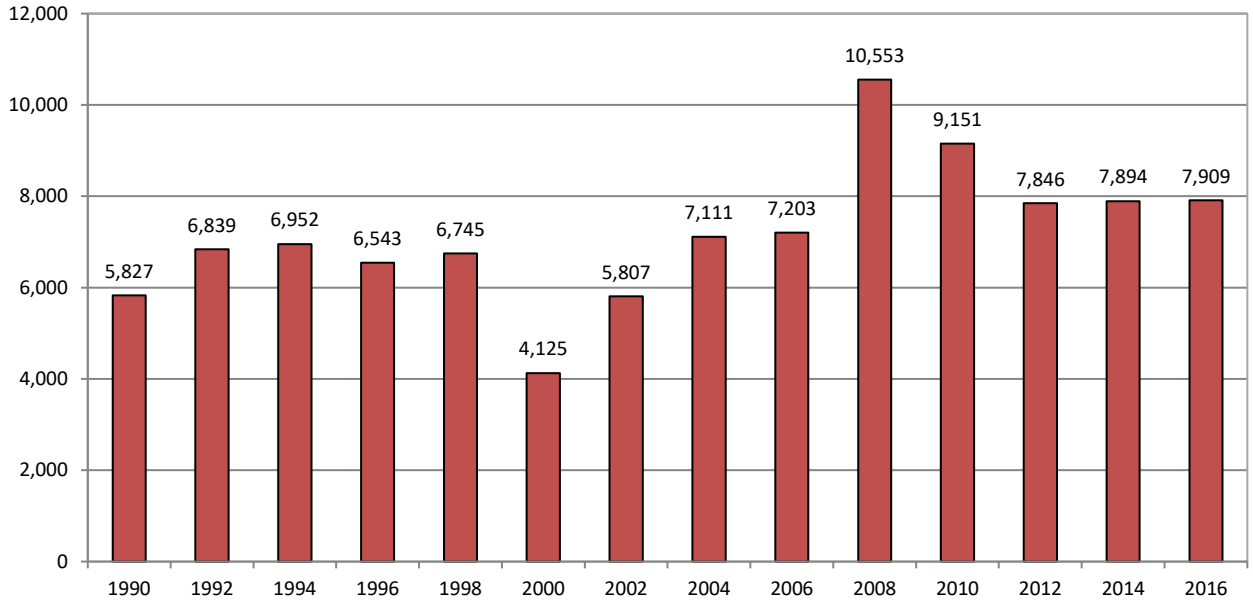


Figure 55: Regional distribution of winter wheat crops grown in Northern Ireland (ha), 2016.

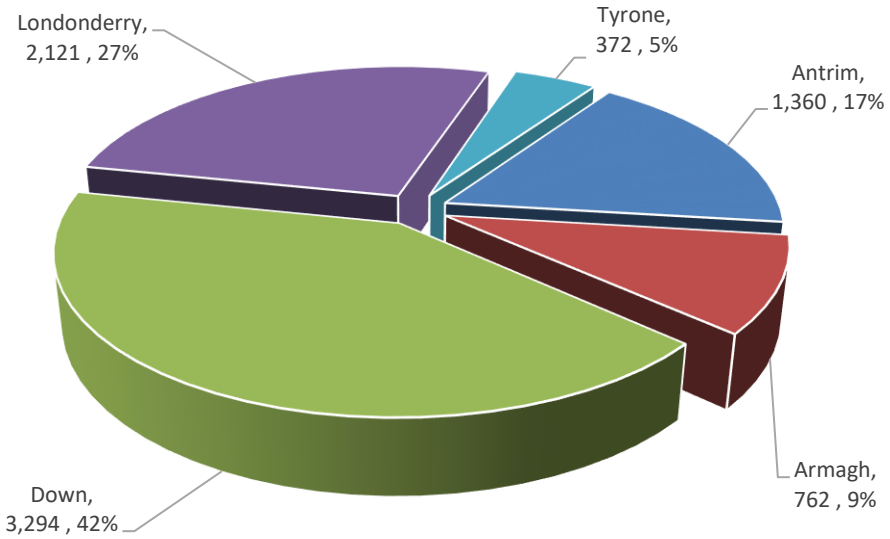


Figure 56: Pesticide usage (spha) on winter wheat crops in Northern Ireland, 2016.

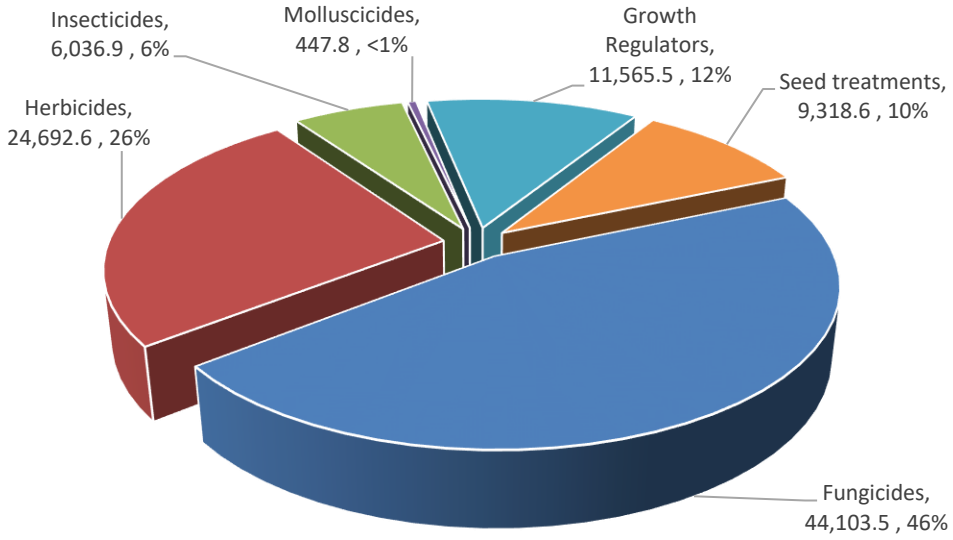


Figure 57: Weight of pesticides (kg) applied to winter wheat crops in Northern Ireland, 2016.

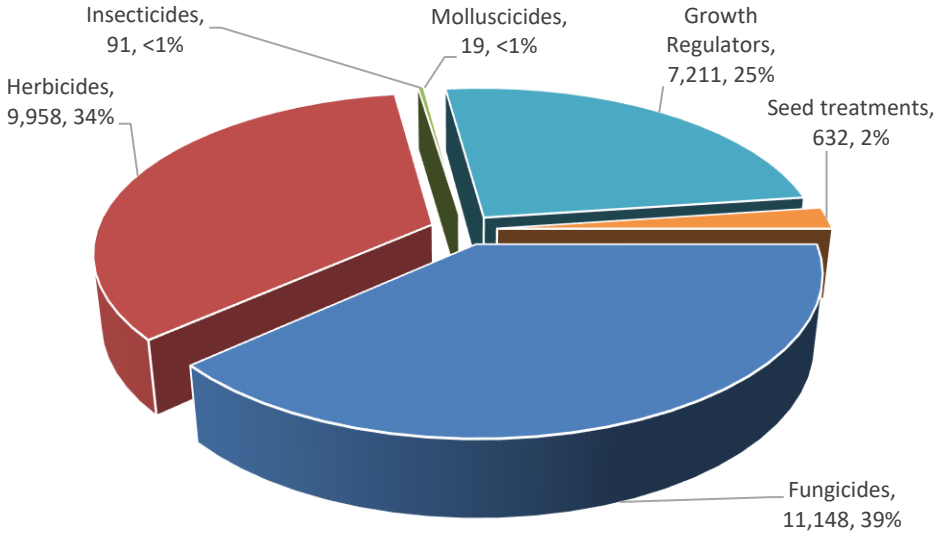
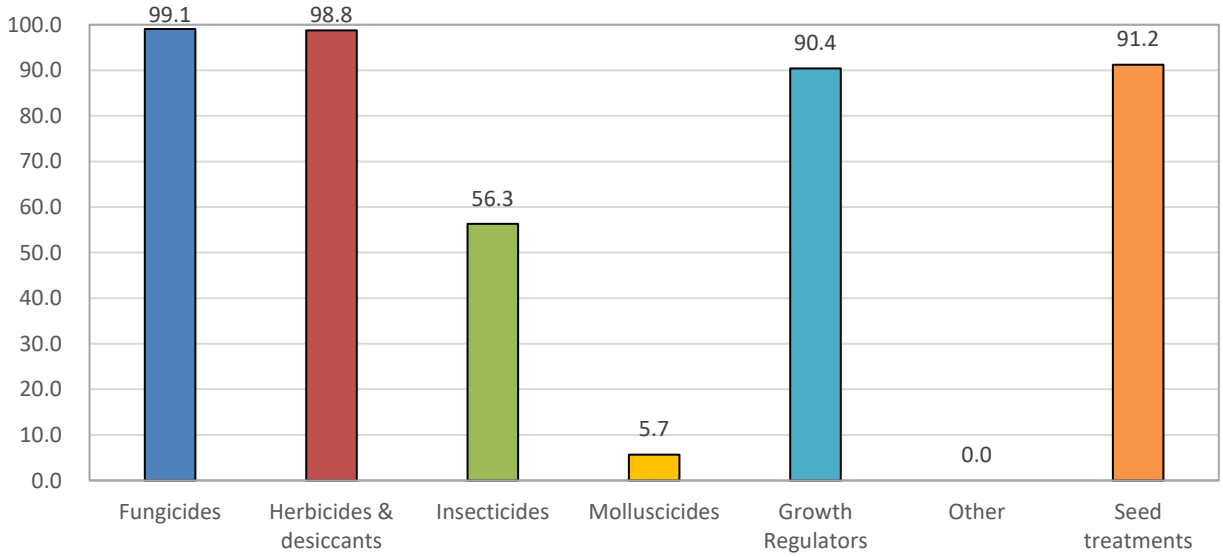


Figure 58: Proportional area (%) of winter wheat crops treated with each pesticide type in Northern Ireland, 2016.

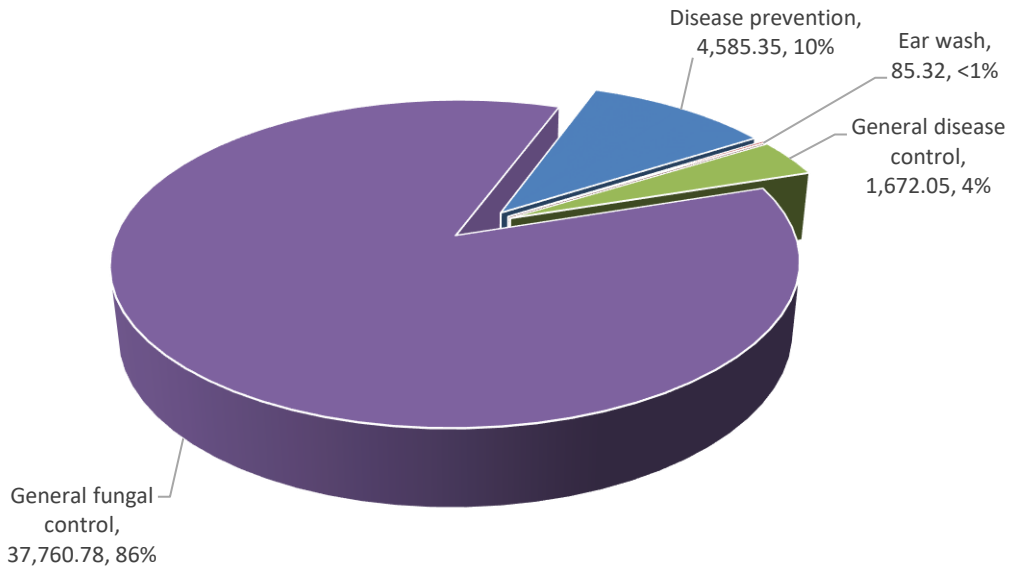


Fungicides - winter wheat

- Basic area treated: 7,838 hectares
- Total area treated: 44,104 spray hectares
- Weight of active substances applied: 11,148 kilogrammes
- 99% of the area grown treated with fungicides.
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlorothalonil	8,760	5,585	3,990	20
Epoxiconazole	3,989	2,776	393	9
Tebuconazole	3,565	2,981	430	8
Prothioconazole	3,480	2,483	371	8
Prothioconazole/tebuconazole	3,306	2,973	604	7

Figure 59: Winter wheat: reasons for fungicide use (spha), 2016.

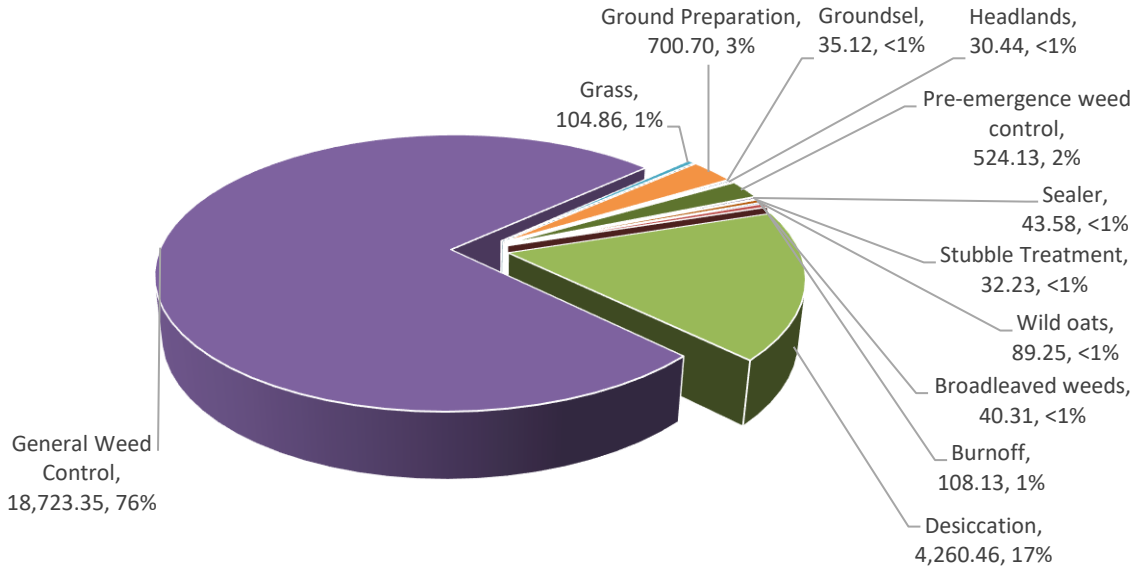


Herbicides & desiccants - winter wheat

- Basic area treated: 7,811 hectares
- Total area treated: 24,693 spray hectares
- Weight of active substances applied: 9,958 kilogrammes
- 99% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Glyphosate	5,475	4,975	4,556	22
Diflufenican/iodosulfron-methyl-sodium/mesosulfuron-methyl	3,306	3,306	191	13
Fluroxypyr	2,605	2,299	374	11
Flufenacet/pendimethalin	2,343	1,936	2,044	9
Mecoprop-P	1,699	1,699	1,093	7

Figure 60: Winter wheat: reasons for herbicide & desiccant use (spha), 2016.

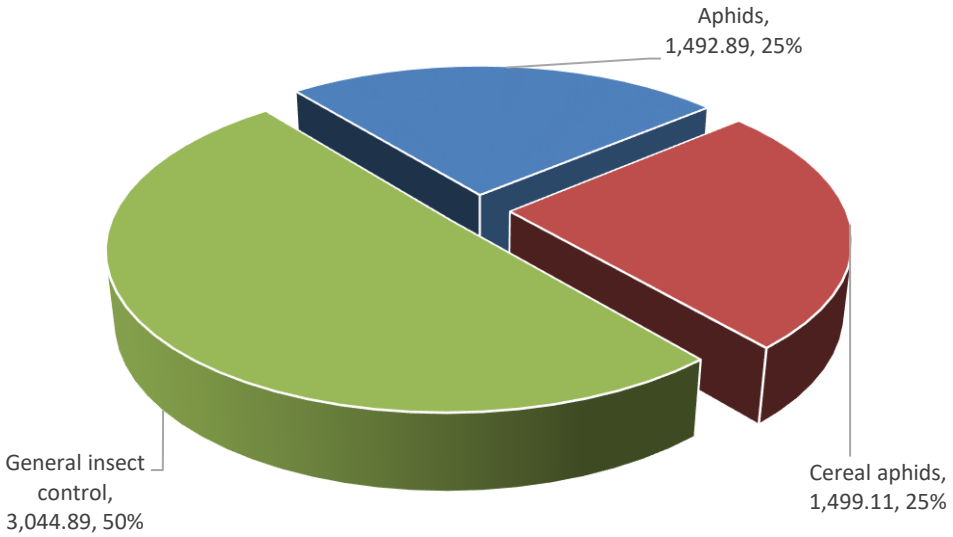


Insecticides - winter wheat

- Basic area treated: 4,454 hectares
- Total area treated: 6,037 spray hectares
- Weight of active substances applied: 91 kilogrammes
- 56% of the area grown treated with insecticides.
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Lambda-cyhalothrin	3,090	2,228	15	51
Esfenvalerate	2,629	1,954	10	44
Dimethoate	287	287	61	5
Pirimicarb	30	30	4	1

Figure 61: Winter wheat: reasons for insecticide use (spha), 2016.



Molluscicides – winter wheat

- Basic area treated: 448 hectares
- Total area treated: 448 spray hectares
- Weight of active substances applied: 19 kilogrammes
- 5.7% of the area grown treated with molluscicides
- All applications were to control slugs
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Metaldehyde	408	408	11	91
Ferric phosphate	40	40	8	9

Growth regulators - winter wheat

- Basic area treated: 7,151 hectares
- Total area treated: 11,566 spray hectares
- Weight of active substances applied: 7,211 kilogrammes
- 90% of the area grown treated with growth regulators
- All reasons for use were given as growth regulation
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlormequat	6,463	5,367	6,432	56
Trinexapac-ethyl	2,849	2,526	151	25
2-chloroethylphosphonic acid	1,162	1,162	203	10
Chlormequat/imazaquin	561	349	260	5
Mepiquat chloride/prohexadione-calcium	502	502	125	4

Seed treatments - winter wheat

- Basic area treated: 7,216 hectares
- Total area treated: 9,319 spray hectares
- Weight of active substances applied: 632 kilogrammes
- 91% of the area grown was sown with treated seed
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Clothianidin/prothioconazole	3,773	3,773	391	40
Silthiofam	2,201	2,110	92	24
Prochloraz/triticonazole	1,285	1,285	37	14
Fludioxonil	688	688	6	7
Fluopyram/prothioconazole/tebuconazole	578	578	9	6

Pesticide usage on spring oats:

- 1,423 hectares of spring oats grown in Northern Ireland
- 6,396 treated hectares
- 1,287 kilogrammes applied
- 82% of the area of spring oat crops grown received a pesticide treatment
- Spring oats received on average 2 fungicide, 2.19 herbicide, 1 insecticide, 1 molluscicide and 1.23 growth regulator applications

Figure 62: Comparison of the areas of spring oat crops grown in Northern Ireland (ha), 1990 - 2016.

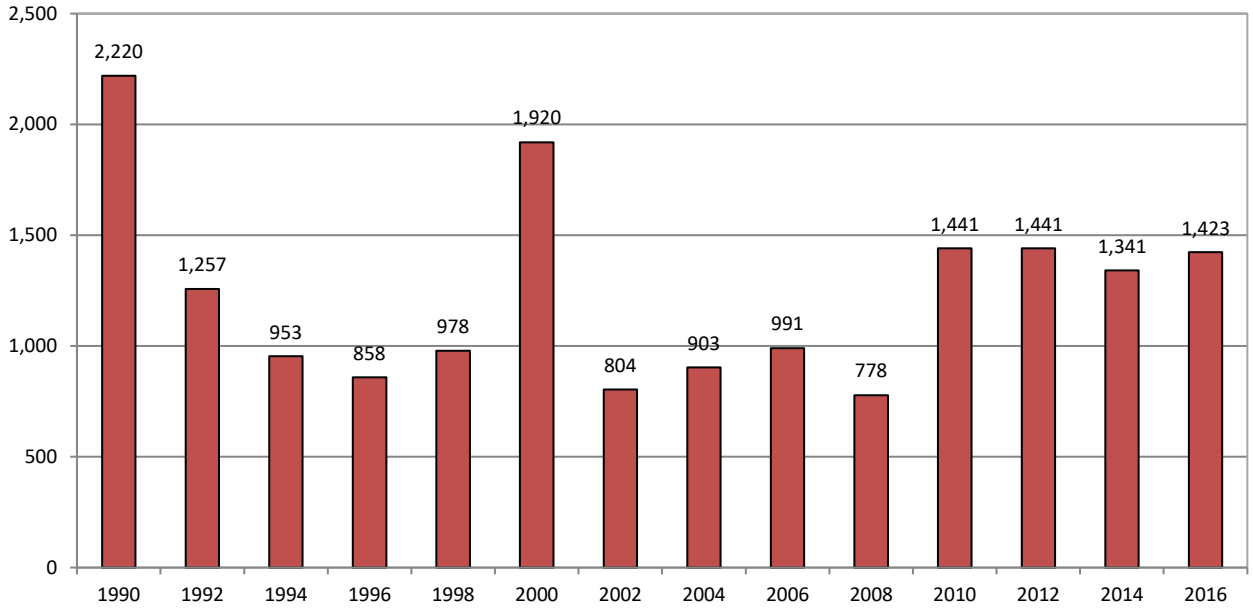


Figure 63: Regional distribution of spring oat crops grown in Northern Ireland (ha), 2016.

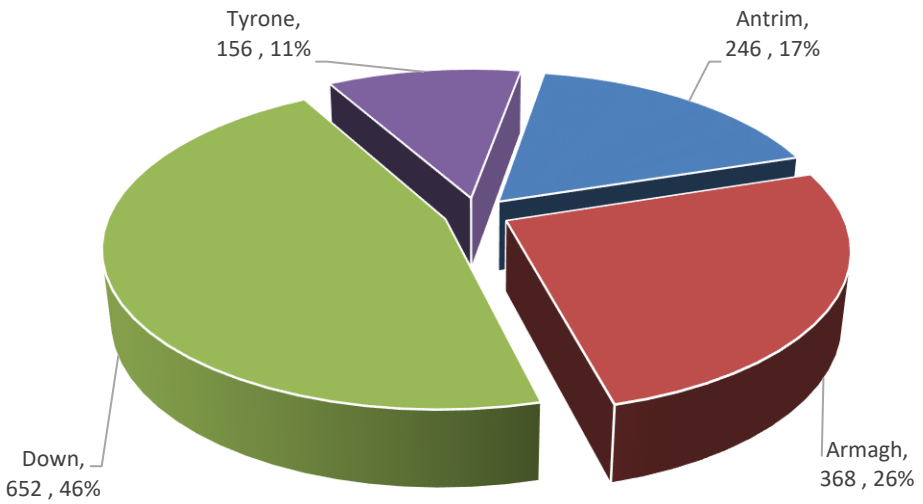


Figure 64: Pesticide usage (spha) on spring oat crops in Northern Ireland, 2016.

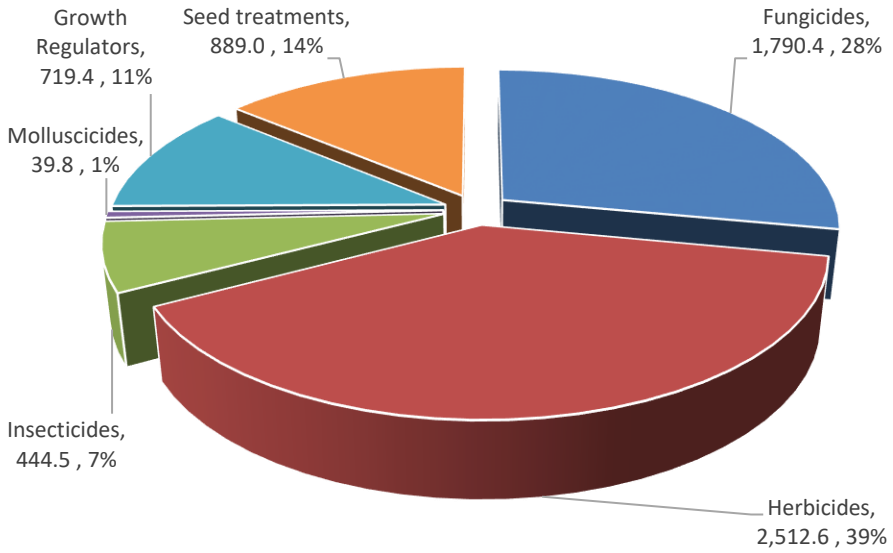


Figure 65: Weight of pesticides (kg) applied to spring oat crops in Northern Ireland, 2016.

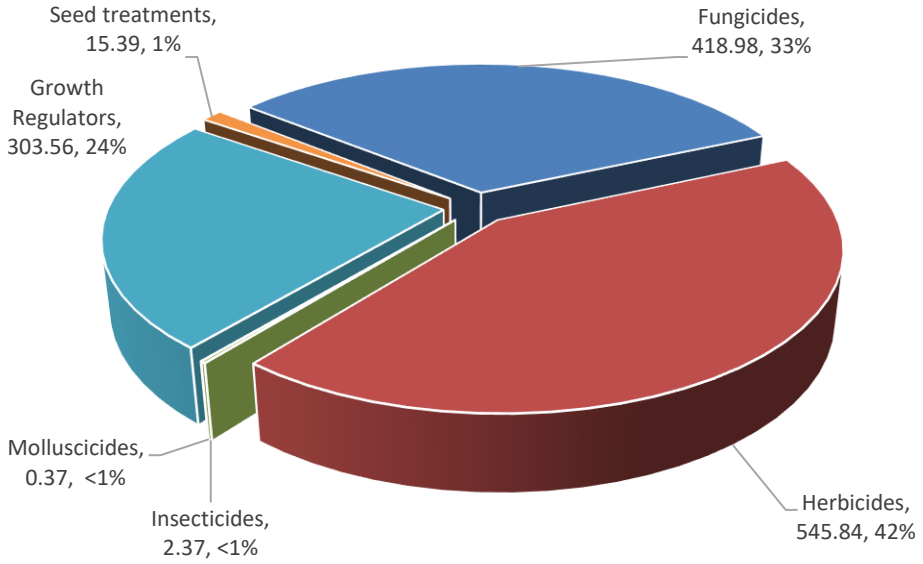
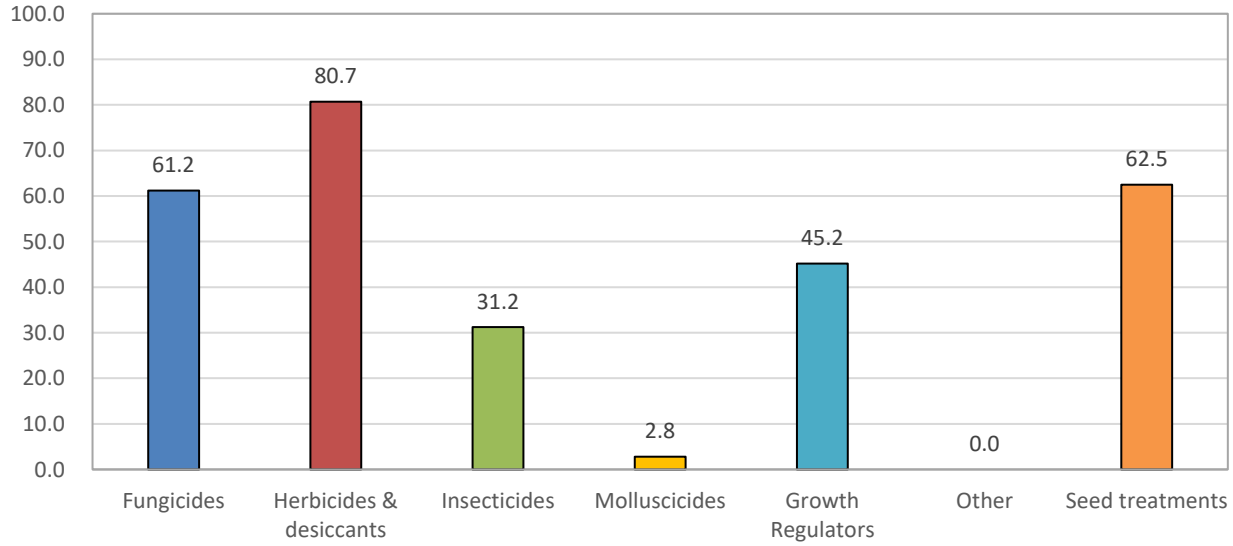


Figure 66: Proportional area (%) of spring oat crops treated with each pesticide type in Northern Ireland, 2016.

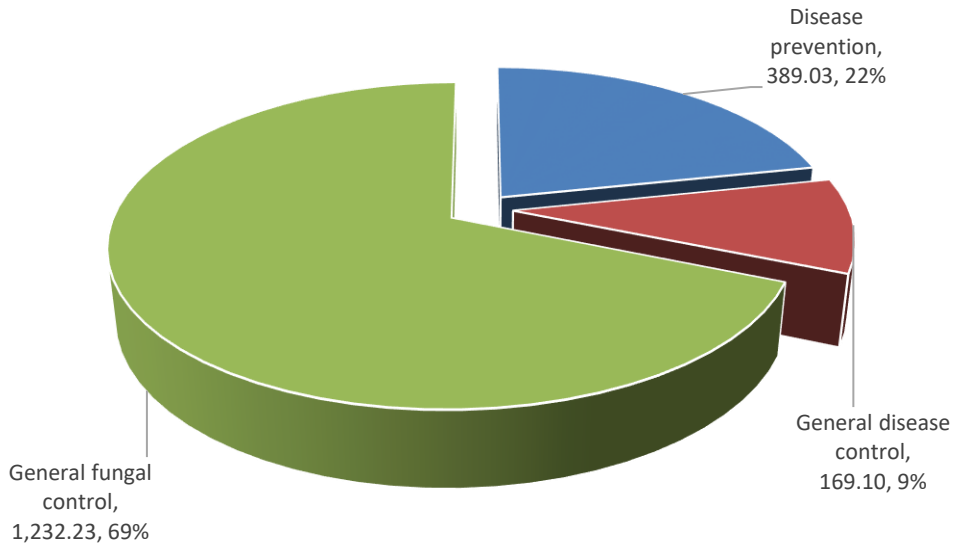


Fungicides – spring oats

- Basic area treated: 871 hectares
- Total area treated: 1,790 spray hectares
- Weight of active substances applied: 419 kilogrammes
- 61% of the area grown treated with fungicides.
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Fenpropimorph	462	462	150	26
Epoxiconazole	377	377	30	21
Pyraclostrobin	253	253	48	14
Tebuconazole	139	139	17	8
Epoxiconazole/fenpropimorph/metrafenone	128	88	67	7

Figure 67: Spring oats: reasons for fungicide use (spha), 2016.

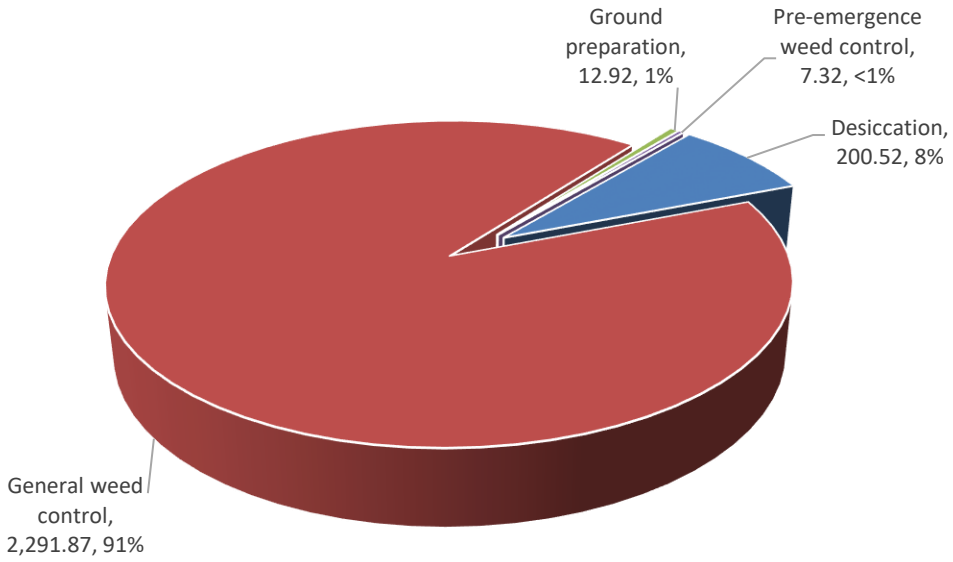


Herbicides & desiccants – spring oats

- Basic area treated: 1,148 hectares
- Total area treated: 2,513 spray hectares
- Weight of active substances applied: 546 kilogrammes
- 81% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Metsulfuron-methyl	652	652	3	26
Fluroxypyr	434	434	62	17
Metsulfuron-methyl/tribenuron-methyl	315	315	6	13
Mecoprop-P	263	263	155	10
Florasulam	241	241	1	10

Figure 68: Spring oats: reasons for herbicide & desiccant use (spha), 2016.

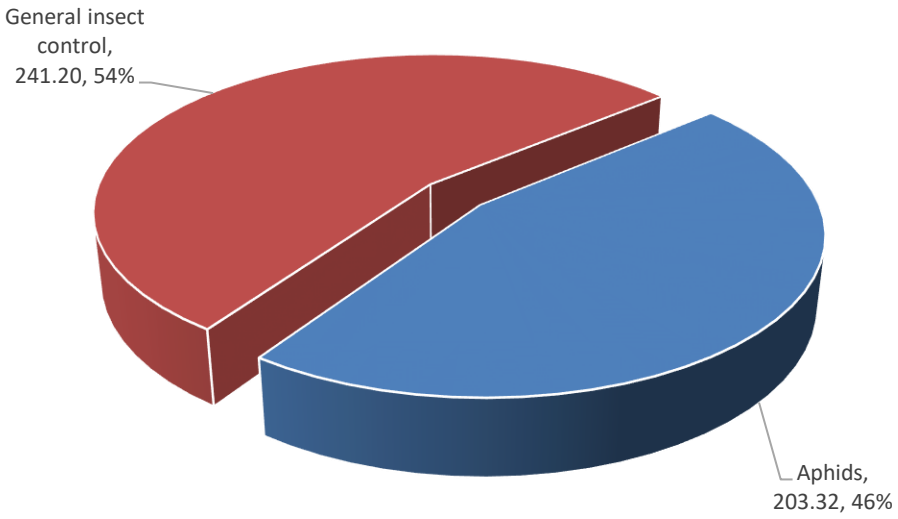


Insecticides – spring oats

- Basic area treated: 445 hectares
- Total area treated: 445 spray hectares
- Weight of active substances applied: 2 kilogrammes
- 31% of the area grown treated with insecticides.
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Lambda-cyhalothrin	227	227	1	51
Deltamethrin	185	185	1	42
Esfenvalerate	32	32	<1	7

Figure 69: Spring oats: reasons for insecticide use (spha), 2016.



Molluscicides – spring oats

- Basic area treated: 40 hectares
- Total area treated: 40 spray hectares
- Weight of active substances applied: 0.37 kilogrammes
- 2.8% of the area grown treated with molluscicides
- All applications were to control slugs
- The only active substance applied was:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Metaldehyde	40	40	<1	100

Growth regulators – spring oats

- Basic area treated: 643 hectares
- Total area treated: 719 spray hectares
- Weight of active substances applied: 304 kilogrammes
- 45% of the area grown treated with growth regulators
- All reasons for use were given as growth regulation
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlormequat	362	362	274	50
Trinexapac-ethyl	307	294	18	43
Mepiquat chloride/prohexadione-calcium	50	50	12	7

Seed treatments – spring oats

- Basic area treated: 889 hectares
- Total area treated: 889 spray hectares
- Weight of active substances applied: 15 kilogrammes
- 63% of the area grown was sown with treated seed
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Fludioxonil	792	792	7	89
Clothianidin/prothioconazole	57	57	6	6
Prochloraz/triticonazole	32	32	1	4
Carboxin/thiram	8	8	1	1

Pesticide usage on undersown oats:

- 15 hectares of undersown oats grown in Northern Ireland
- 198 treated hectares
- 59 kilogrammes applied
- 100% of the area of undersown oat crops grown received a pesticide treatment
- Undersown oats received on average 8 fungicide and 4 growth regulator applications
- Due to small areas these figures should be treated with caution

Figure 70: Comparison of the areas of undersown oat crops grown in Northern Ireland (ha), 1990 - 2016.

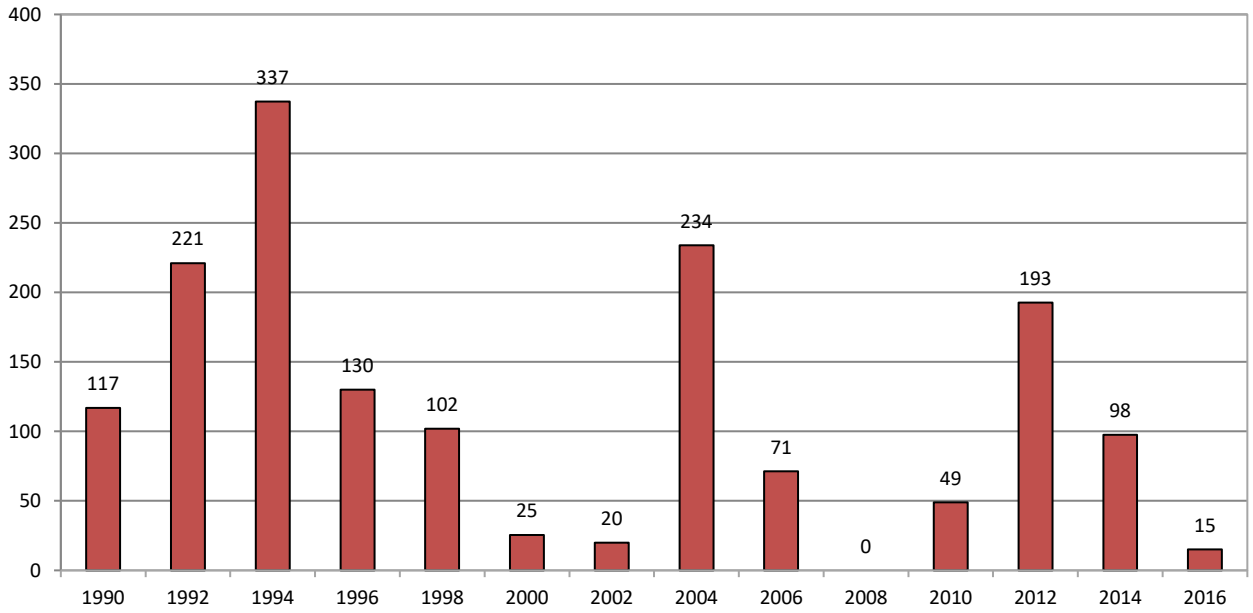


Figure 71: Pesticide usage (spha) on undersown oat crops in Northern Ireland, 2016.

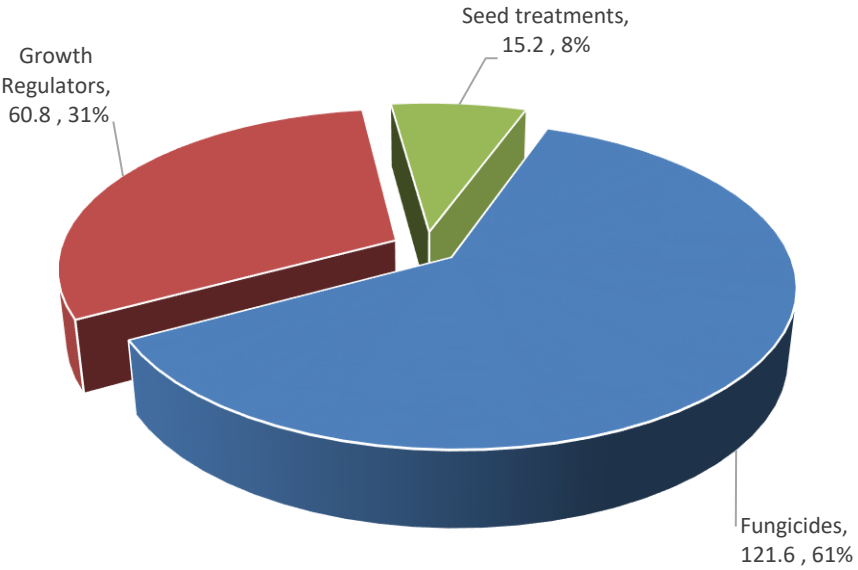


Figure 72: Weight of pesticides (kg) applied to undersown oat crops in Northern Ireland, 2016.

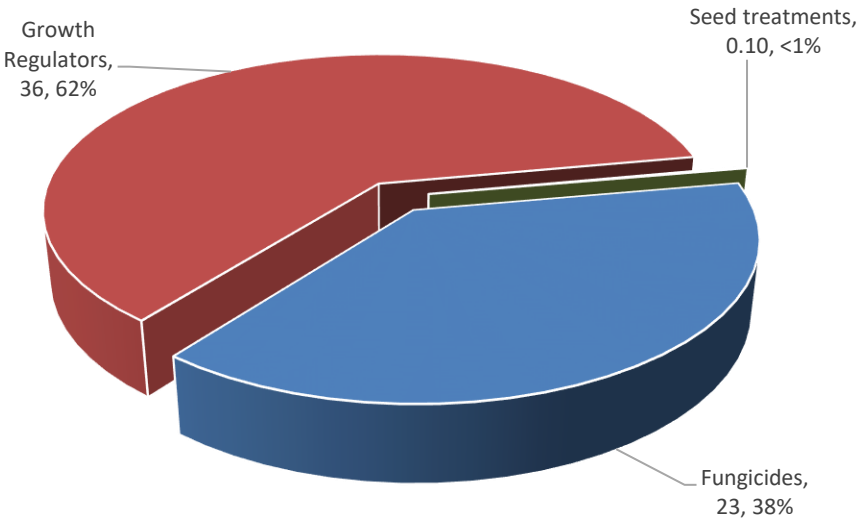
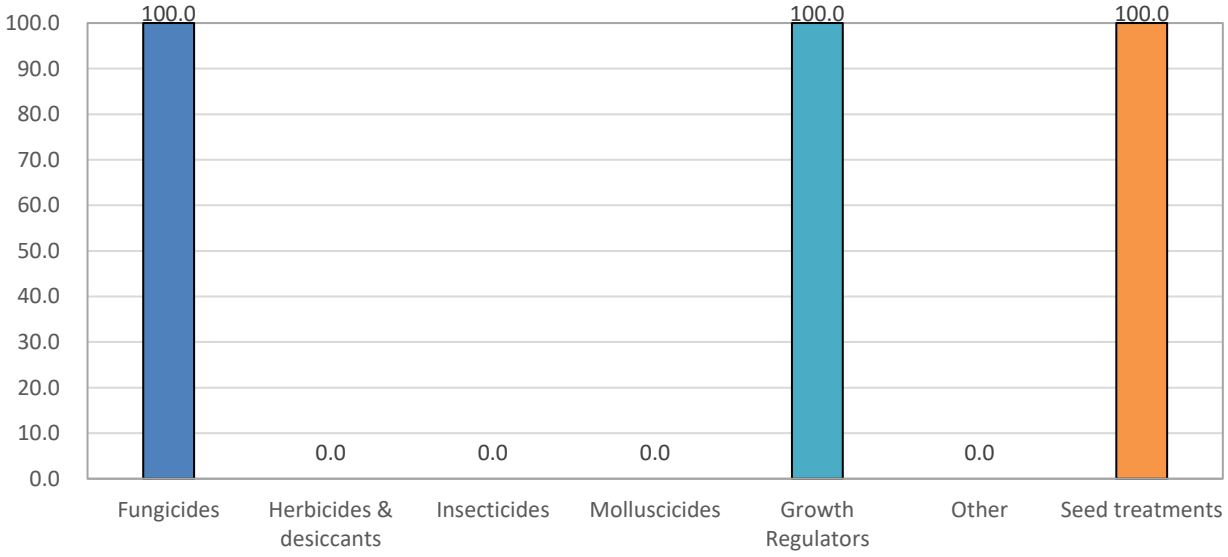


Figure 73: Proportional area (%) of undersown oat crops treated with each pesticide type in Northern Ireland, 2016.



Fungicides – undersown oats

- Basic area treated: 15 hectares
- Total area treated: 122 spray hectares
- Weight of active substances applied: 23 kilogrammes
- 100% of the area grown treated with fungicides
- All applications were for general fungal control
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Cyprodinil	30	15	2	25
Fenpropimorph	30	15	6	25
Prothioconazole	30	15	3	25
Chlorothalonil	15	15	10	13
Cyprodinil/picoxystrobin	15	15	2	13

Growth regulators – undersown oats

- Basic area treated: 15 hectares
- Total area treated: 61 spray hectares
- Weight of active substances applied: 36 kilogrammes
- 100% of the area grown treated with growth regulators
- All reasons for use were given as growth regulation
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlormequat	30	15	32	50
Trinexapac-ethyl	30	15	4	50

Seed treatments – undersown oats

- Basic area treated: 15 hectares
- Total area treated: 15 spray hectares
- Weight of active substances applied: 0.10 kilogrammes
- 100% of the area grown was sown with treated seed
- The only active substance applied was:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Fludioxonil	15	15	<1	100

Pesticide usage on winter oats:

- 819 hectares of winter oats grown in Northern Ireland
- 6,725 treated hectares
- 1,607 kilogrammes applied
- 100% of the area of winter oat crops grown received a pesticide treatment
- Winter oats received on average 3.05 fungicide, 2.53 herbicide, 1 insecticide, 1 molluscicide and 1.39 growth regulator applications

Figure 74: Comparison of the areas of winter oat crops grown in Northern Ireland (ha), 1990 - 2016.

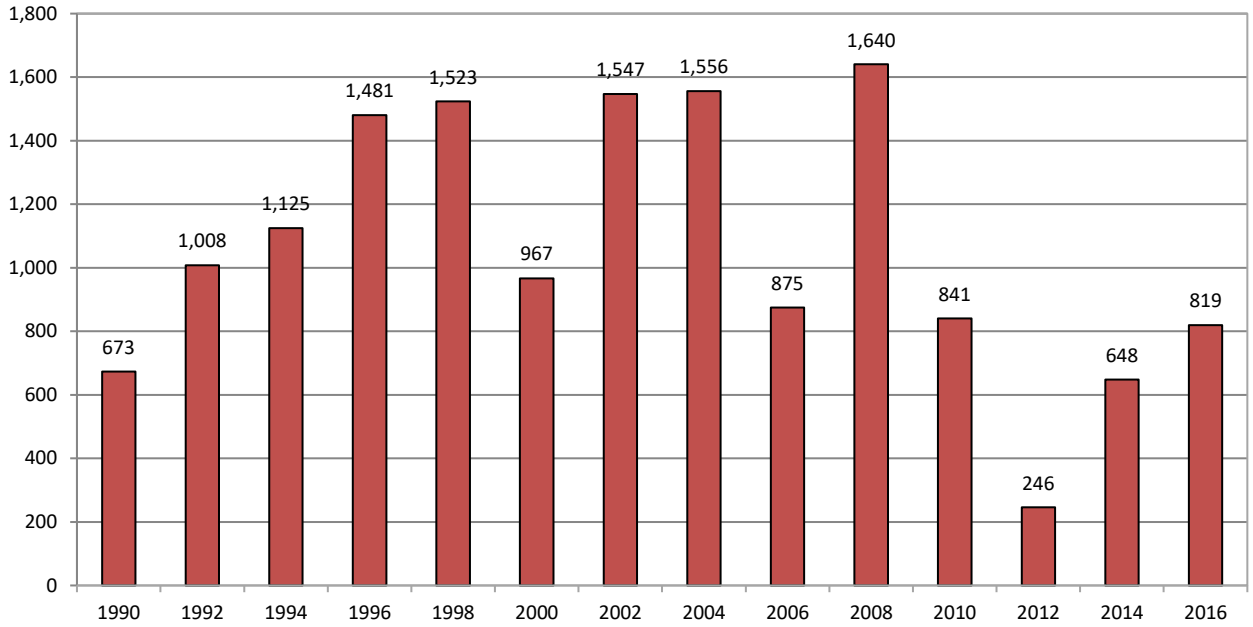


Figure 75: Regional distribution of winter oat crops grown in Northern Ireland (ha), 2016.

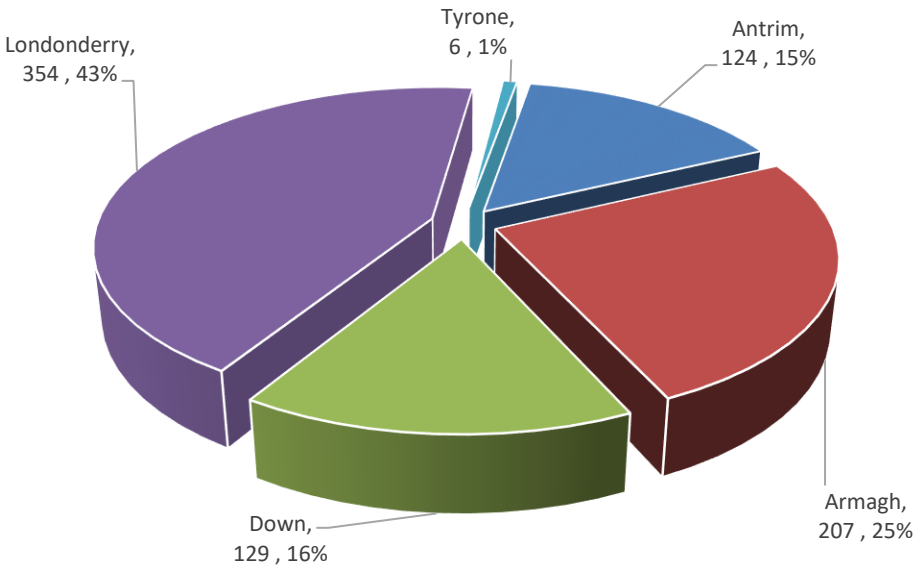


Figure 76: Pesticide usage (spha) on winter oat crops in Northern Ireland, 2016.

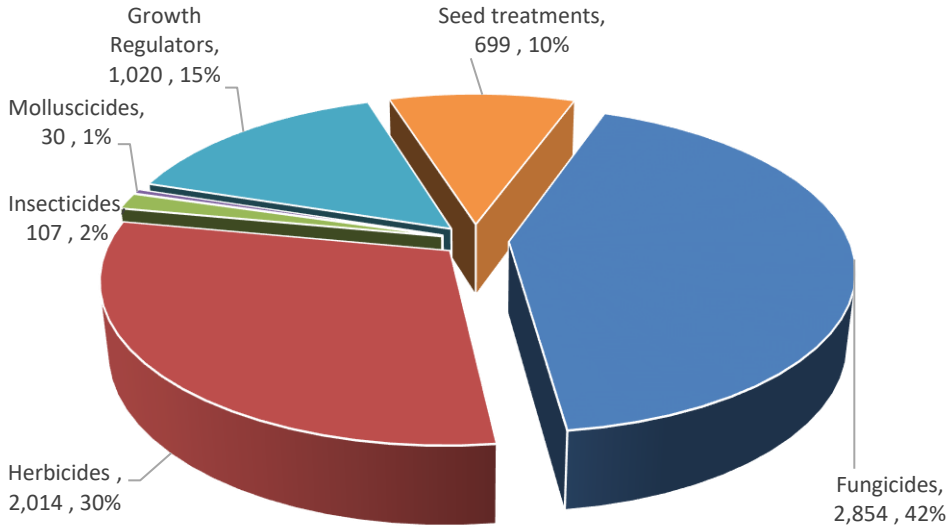


Figure 77: Weight of pesticides (kg) applied to winter oat crops in Northern Ireland, 2016.

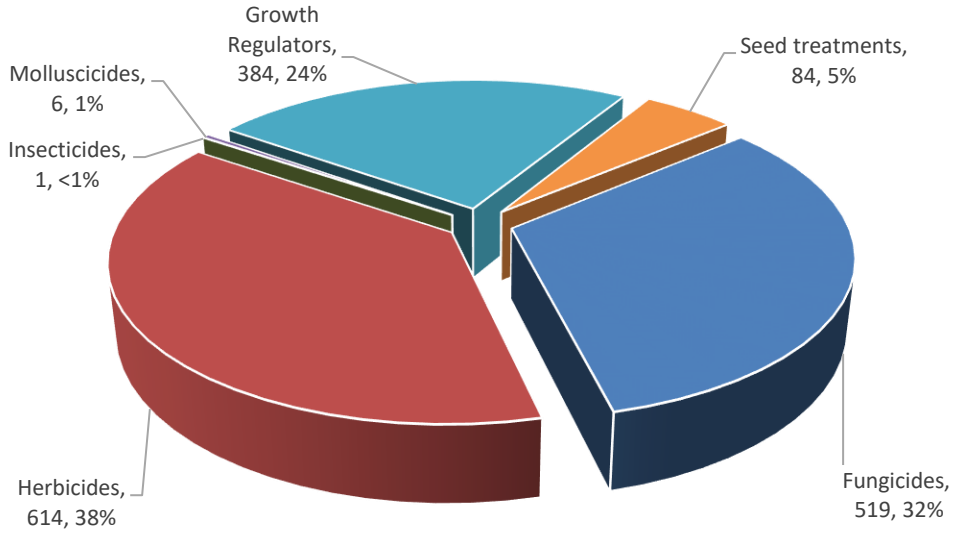
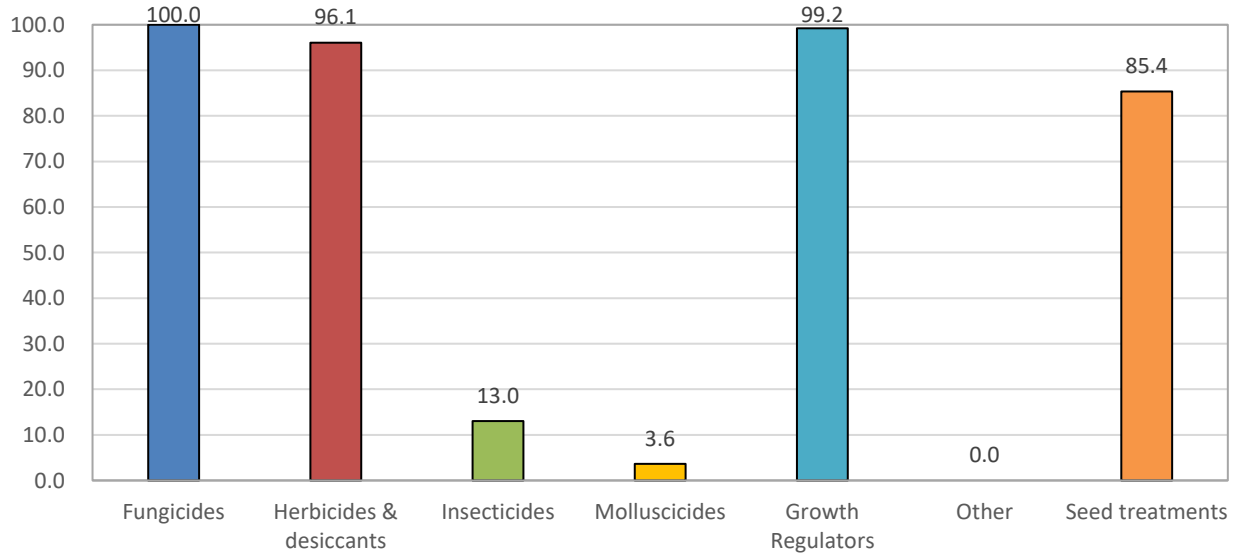


Figure 78: Proportional area (%) of winter oat crops treated with each pesticide type in Northern Ireland, 2016.

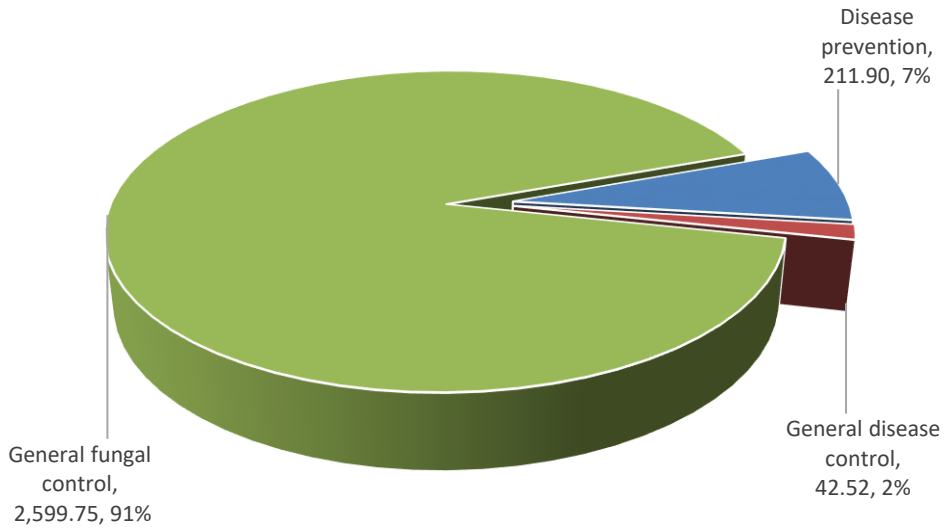


Fungicides – winter oats

- Basic area treated: 819 hectares
- Total area treated: 2,854 spray hectares
- Weight of active substances applied: 519 kilogrammes
- 100% of the area grown treated with fungicides.
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Epoxiconazole/fenpropimorph/metrafenone	706	261	238	25
Epoxiconazole	465	351	28	16
Pyraclostrobin	429	429	60	15
Proquinazid	427	255	15	15
Fenpropimorph	245	191	84	9

Figure 79: Winter oats: reasons for fungicide use (spha), 2016.

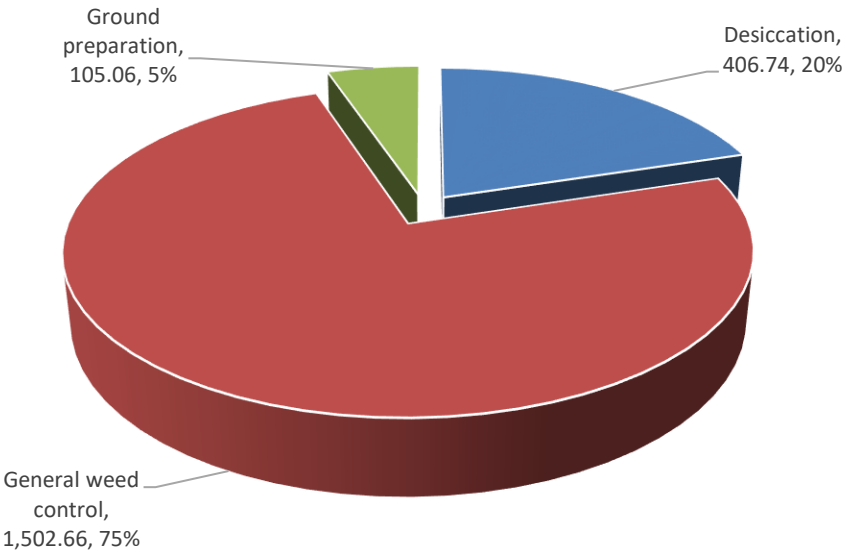


Herbicides & desiccants – winter oats

- Basic area treated: 787 hectares
- Total area treated: 2,015 spray hectares
- Weight of active substances applied: 614 kilogrammes
- 96% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Glyphosate	708	603	415	35
Fluroxypyr	271	271	39	13
Flupyrsulfuron-methyl/thifensulfuron-methyl	196	196	2	10
Metsulfuron-methyl/thifensulfuron-methyl	196	196	5	10
Mecoprop-P	191	191	117	9

Figure 80: Winter oats: reasons for herbicide & desiccant use (spha), 2016.

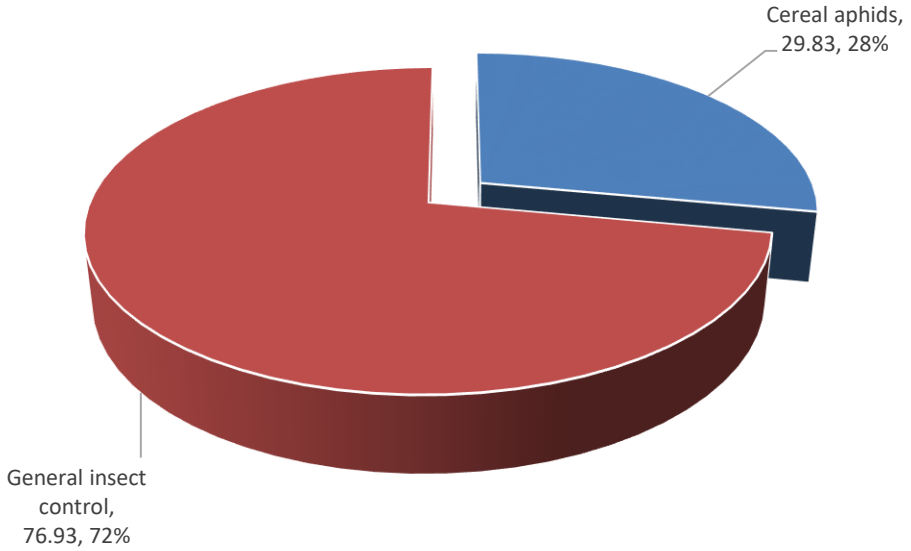


Insecticides – winter oats

- Basic area treated: 107 hectares
- Total area treated: 107 spray hectares
- Weight of active substances applied: 0.53 kilogrammes
- 13% of the area grown treated with insecticides
- The only active substance applied was:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Lambda-cyhalothrin	107	107	1	100

Figure 81: Winter oats: reasons for insecticide use (spha), 2016.



Molluscicides – winter oats

- Basic area treated: 30 hectares
- Total area treated: 30 spray hectares
- Weight of active substances applied: 5.76 kilogrammes
- 3.6% of the area grown treated with molluscicides
- All applications were to control slugs
- The only active substance applied was:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Ferric phosphate	30	30	6	100

Growth regulators – winter oats

- Basic area treated: 813 hectares
- Total area treated: 1,020 spray hectares
- Weight of active substances applied: 384 kilogrammes
- 99% of the area grown treated with growth regulators
- All reasons for use were given as growth regulation
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Trinexapac-ethyl	522	439	32	51
Chlormequat	433	403	329	42
Mepiquat chloride/prohexadione-calcium	65	65	23	6

Seed treatments – winter oats

- Basic area treated: 699 hectares
- Total area treated: 699 spray hectares
- Weight of active substances applied: 84 kilogrammes
- 85% of the area grown was sown with treated seed
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Clothianidin/prothioconazole	452	452	43	65
Carboxin/thiram	173	173	39	25
Prochloraz/triticonazole	43	43	1	6
Fludioxonil	32	32	<1	5

Pesticide usage on winter oilseed rape:

- 542 hectares of winter oilseed rape grown in Northern Ireland
- 3,993 treated hectares
- 1,583 kilogrammes applied
- 100% of the area of winter oilseed rape crops grown received a pesticide treatment
- Winter oilseed rape crops received on average 2.31 fungicide, 2.77 herbicide, 1 insecticide, 1 growth regulator and 1 other treatment applications

Figure 82: Comparison of the areas of winter oilseed rape crops grown in Northern Ireland (ha), 1990 - 2016.

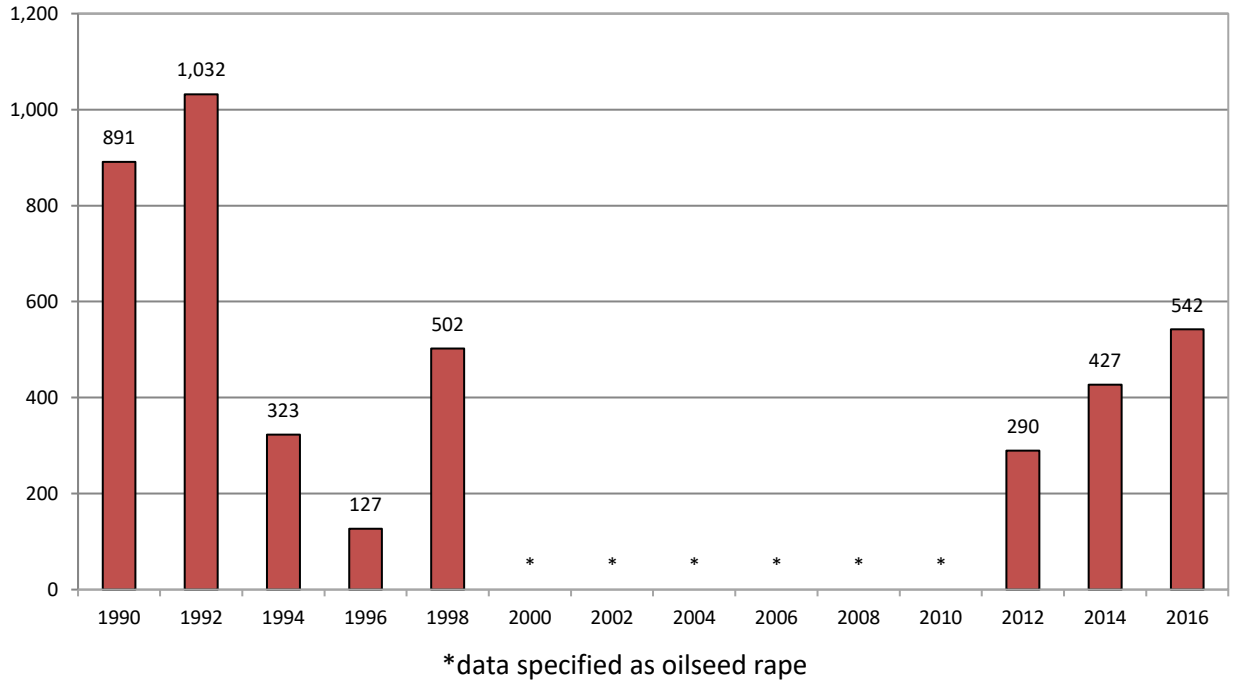


Figure 83: Regional distribution of winter oilseed rape crops grown in Northern Ireland (ha), 2016.

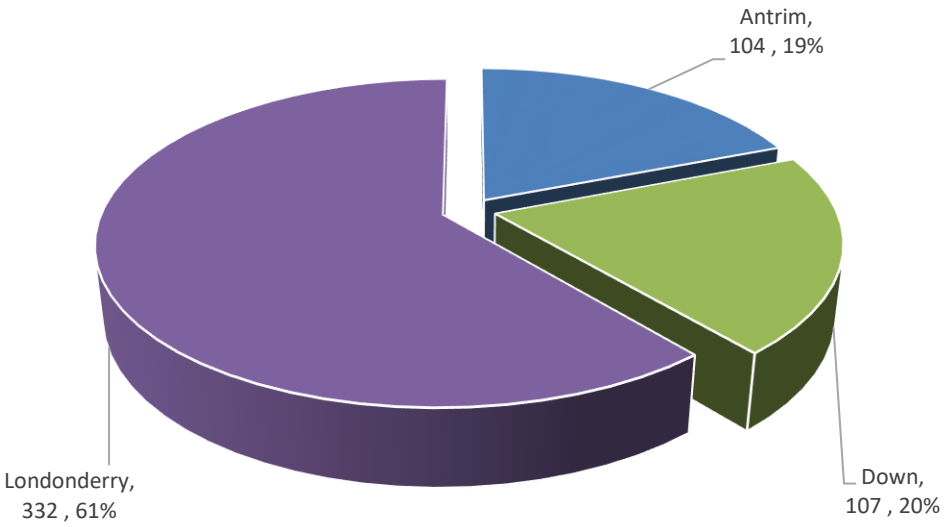


Figure 84: Pesticide usage (spha) on winter oilseed rape crops in Northern Ireland, 2016.

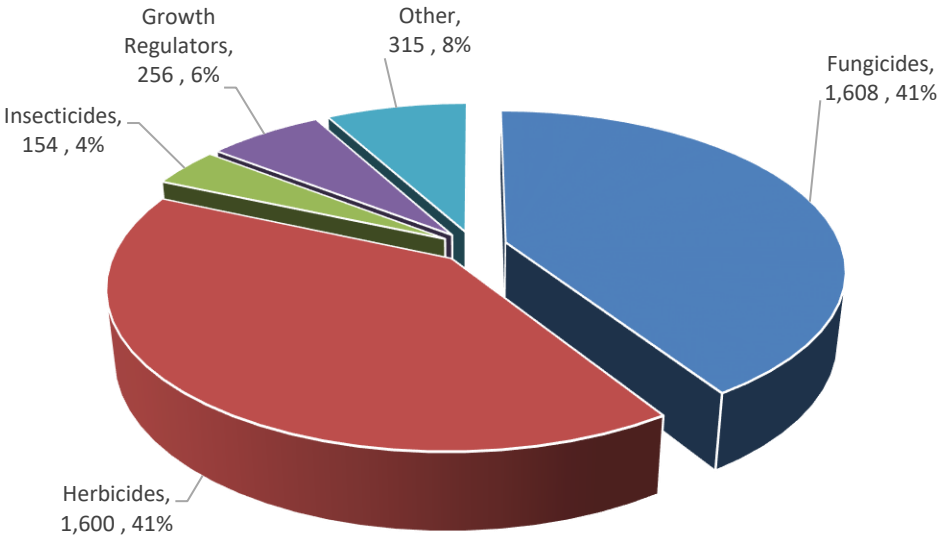


Figure 85: Weight of pesticides (kg) applied to winter oilseed rape crops in Northern Ireland, 2016.

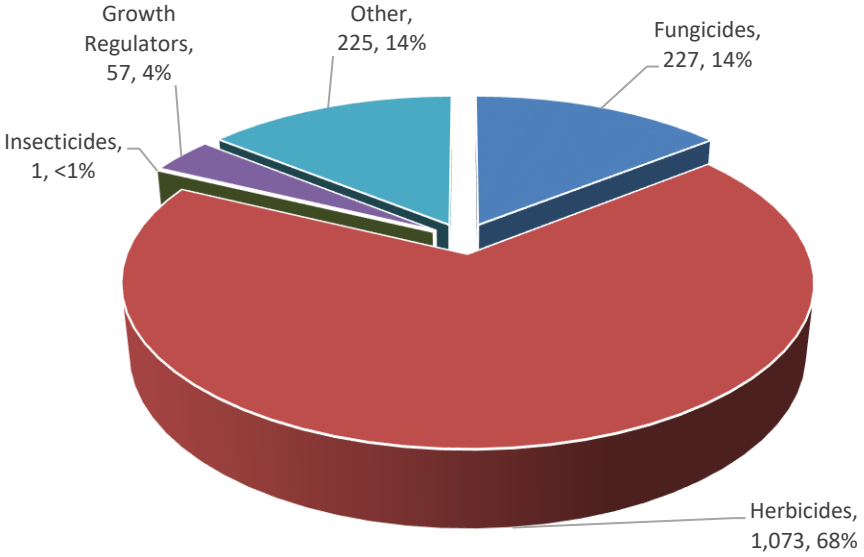
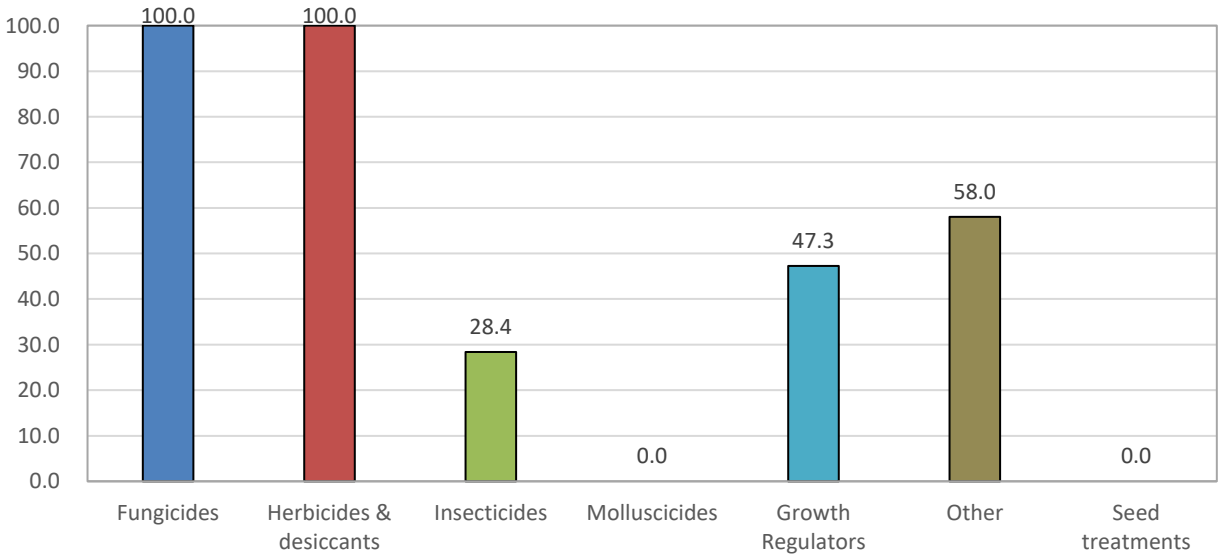


Figure 86: Proportional area (%) of winter oilseed rape crops treated with each pesticide type in Northern Ireland, 2016.

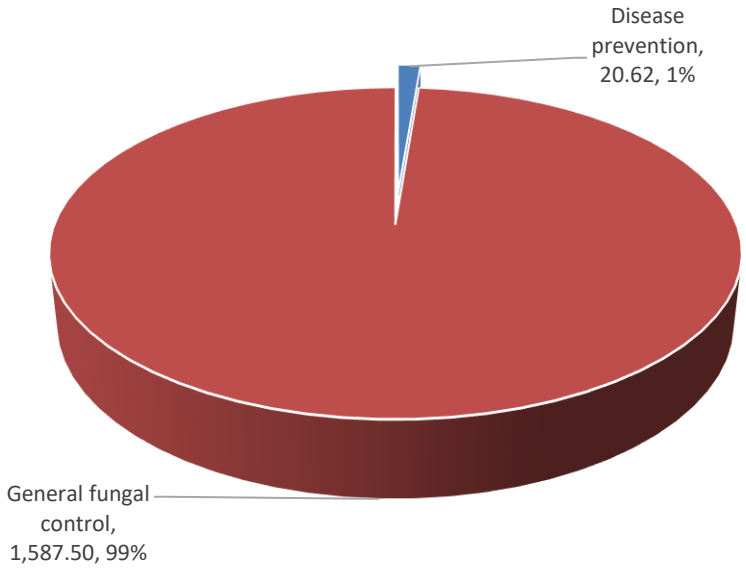


Fungicides – winter oilseed rape

- Basic area treated: 542 hectares
- Total area treated: 1,608 spray hectares
- Weight of active substances applied: 227 kilogrammes
- 100% of the area grown treated with fungicides
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Tebuconazole	356	236	65	22
Prothioconazole/tebuconazole	320	280	65	20
Prothioconazole	277	209	25	17
Metconazole	221	221	8	14
Difenoconazole	136	136	9	8

Figure 87: Winter oilseed rape: reasons for fungicide use (spha), 2016.

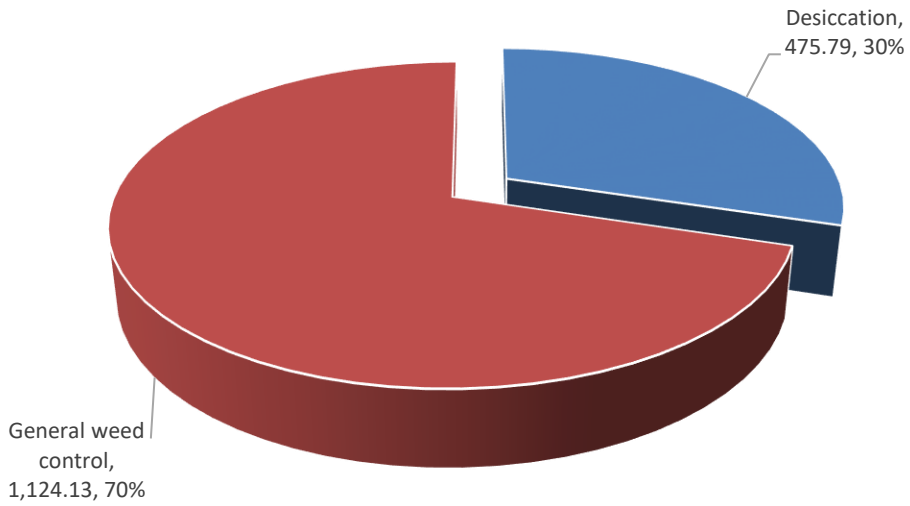


Herbicides & desiccants – winter oilseed rape

- Basic area treated: 542 hectares
- Total area treated: 1,600 spray hectares
- Weight of active substances applied: 1,073 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Glyphosate	476	476	517	30
Propyzamide	339	339	243	21
Clopyralid/picloram	263	263	29	16
Dimethenamid-P/metazachlor/quinmerac	230	230	225	14
Ethametsulfuron-methyl	120	120	2	7

Figure 88: Winter oilseed rape: reasons for herbicide & desiccant use (spha), 2016.



Insecticides – winter oilseed rape

- Basic area treated: 154 hectares
- Total area treated: 154 spray hectares
- Weight of active substances applied: 1 kilogramme
- 28% of the area grown treated with insecticides
- All applications were for general insect control
- The active substances applied were:

Active substance	Total treated area	Basic treated area	Quantity applied	% of the treated
Lambda-cyhalothrin	120	120	1	78
Alpha-cypermethrin	34	34	<1	22

Growth regulators – winter oilseed rape

- Basic area treated: 256 hectares
- Total area treated: 256 spray hectares
- Weight of active substances applied: 57 kilogrammes
- 47% of the area grown treated with growth regulators
- All applications were for growth regulation
- The active substances applied were:

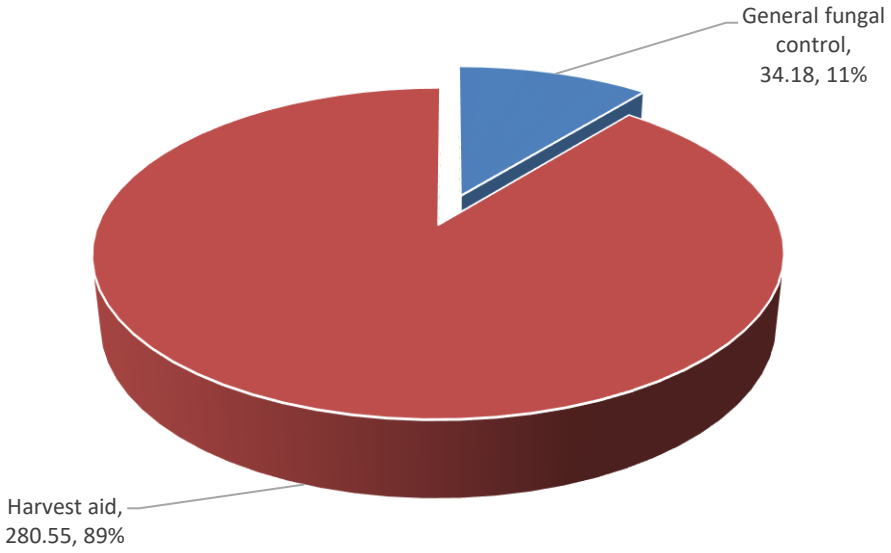
Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Mepiquat chloride/metconazole	137	137	27	53
Unknown growth regulator	120	120	30	47

Other treatment – winter oilseed rape

- Basic area treated: 315 hectares
- Total area treated: 315 spray hectares
- Weight of active substances applied: 225 kilogrammes
- 58% of the area grown treated with growth regulators
- All reasons for use were given as growth regulation
- The only active substance applied was:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Synthetic latex	315	315	225	100

Figure 89: Winter oilseed rape: reasons for other treatment use (spha), 2016.



Pesticide usage on spring oilseed rape:

- 10 hectares of spring oilseed rape grown in Northern Ireland
- 29 treated hectares
- 19 kilogrammes applied
- 100% of the area of spring oilseed rape crops grown received a pesticide treatment
- Spring oilseed rape crops received on average 1 fungicide and 2 herbicide applications
- Due to small areas these figures should be treated with caution

Figure 90: Comparison of the areas of winter oilseed rape crops grown in Northern Ireland (ha), 1990 - 2016.

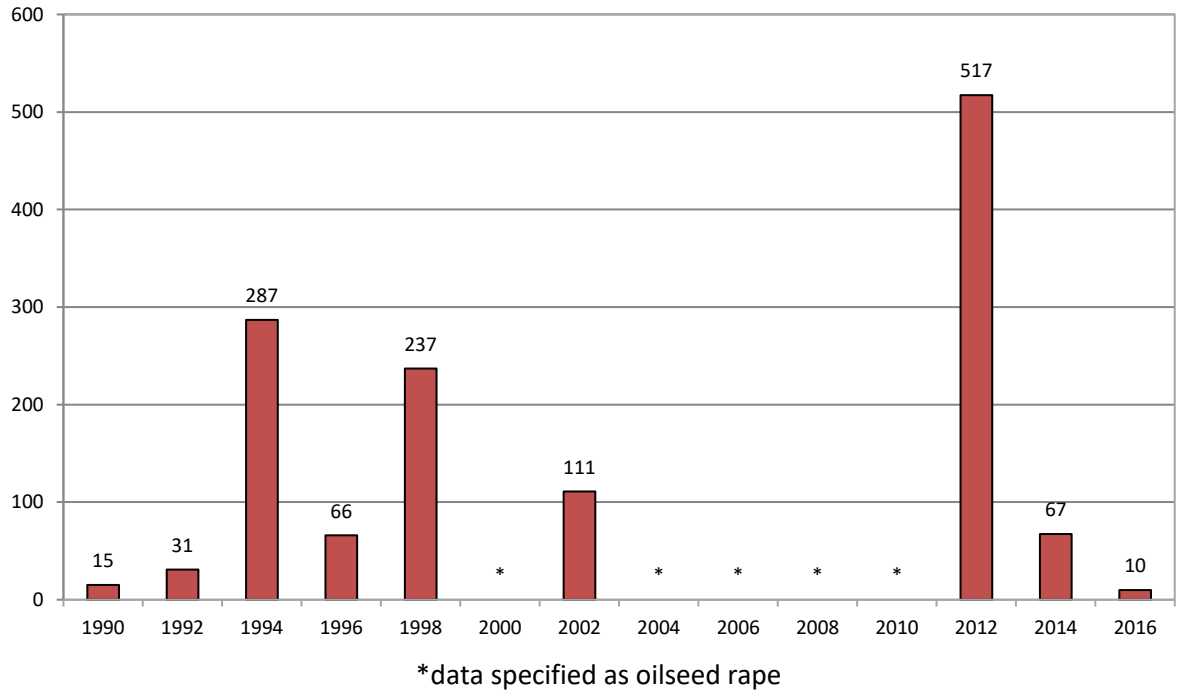


Figure 90: Pesticide usage (spha) on spring oilseed rape crops in Northern Ireland, 2016.

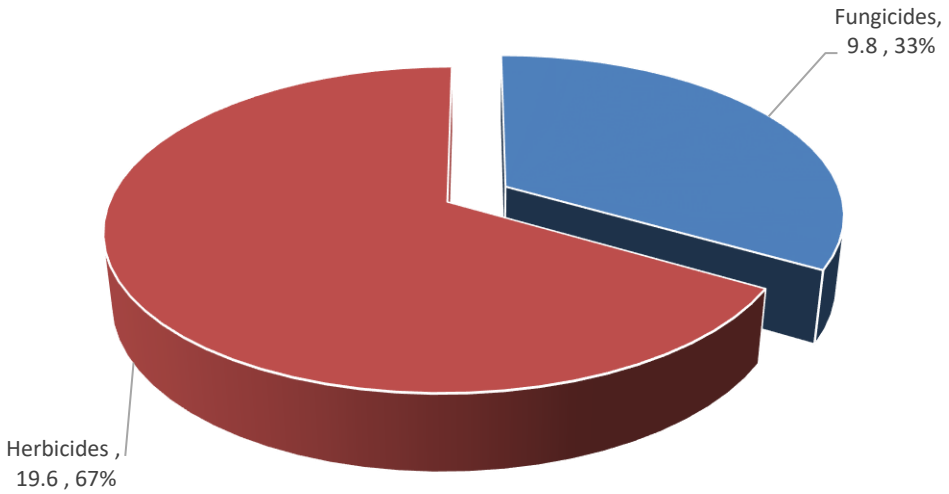


Figure 91: Weight of pesticides (kg) applied to spring oilseed rape crops in Northern Ireland, 2016.

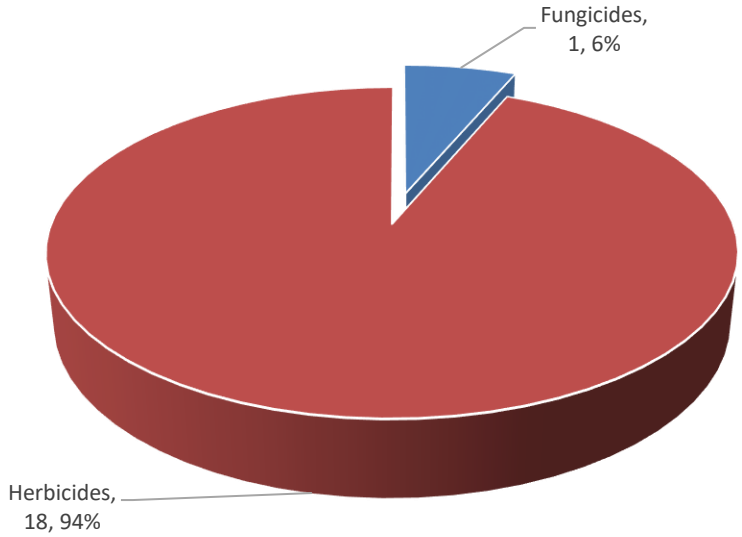
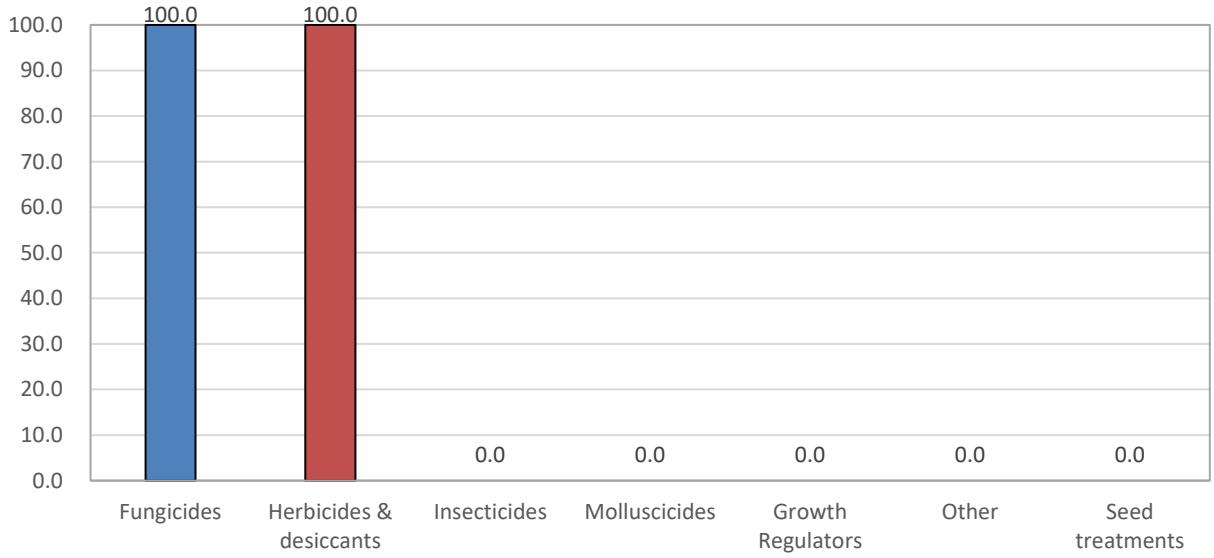


Figure 92: Proportional area (%) of spring oilseed rape crops treated with each pesticide type in Northern Ireland, 2016.



Fungicides – spring oilseed rape

- Basic area treated: 9.8 hectares
- Total area treated: 9.8 spray hectares
- Weight of active substances applied: 1 kilogramme
- 100% of the area grown treated with fungicides
- All fungicide applications were for disease prevention
- The only active substance applied was:

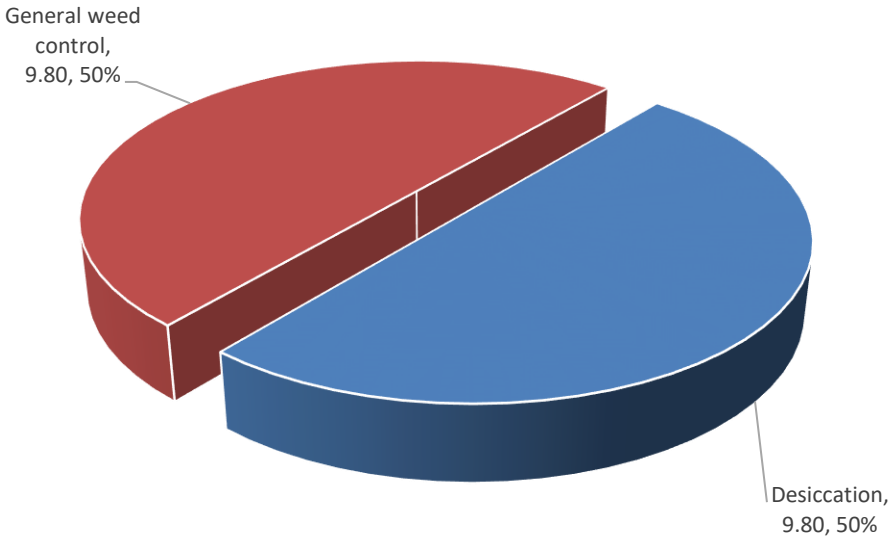
Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Prothioconazole	10	10	1	100

Herbicides & desiccants – spring oilseed rape

- Basic area treated: 9.8 hectares
- Total area treated: 19.6 spray hectares
- Weight of active substances applied: 18 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- The only active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Glyphosate	10	10	11	50
Metazachlor	10	10	7	50

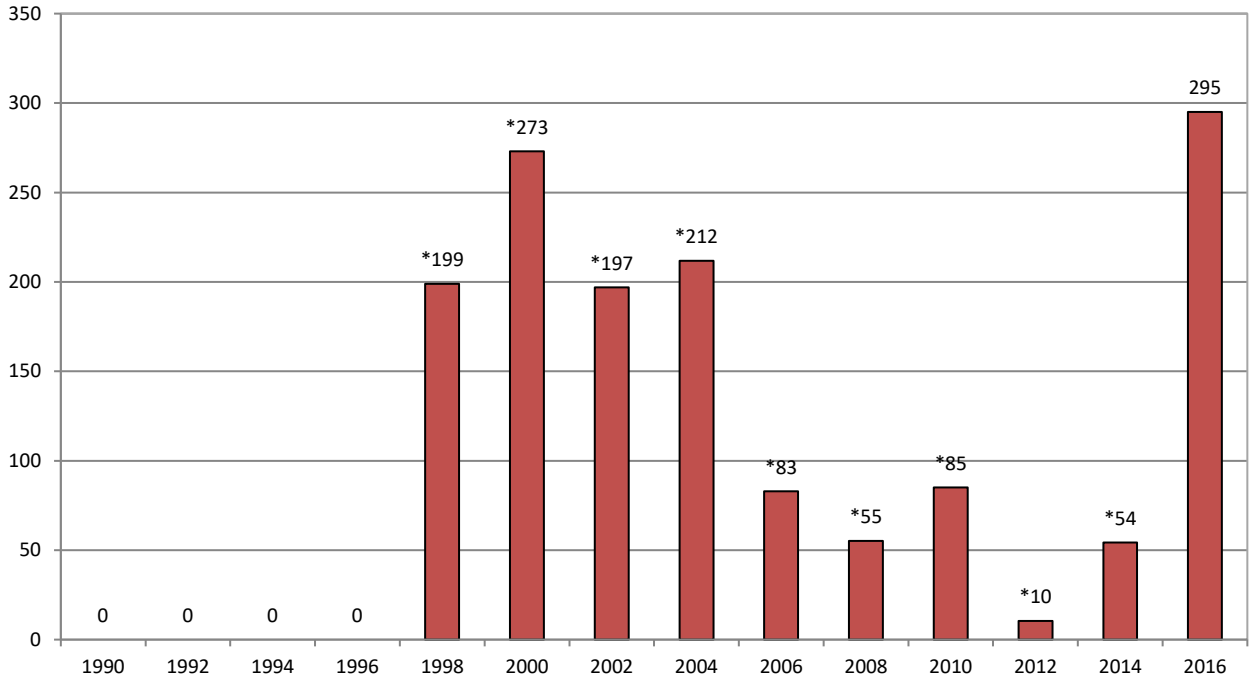
Figure 93: Spring oilseed rape: reasons for herbicide & desiccant use (spha), 2016.



Pesticide usage on field beans:

- 295 hectares of field beans grown in Northern Ireland
- 1,419 treated hectares
- 816 kilogrammes applied
- 100% of the area of field bean crops grown received a pesticide treatment
- Field bean crops received on average 1.8 fungicide, 2.42 herbicide and 1.4 insecticide applications

Figure 94: Comparison of the areas of field bean crops grown in Northern Ireland (ha), 1990 - 2016.



*also contain pea crops. Only field beans recorded in 2016

Figure 95: Regional distribution of field bean crops grown in Northern Ireland (ha), 2016.

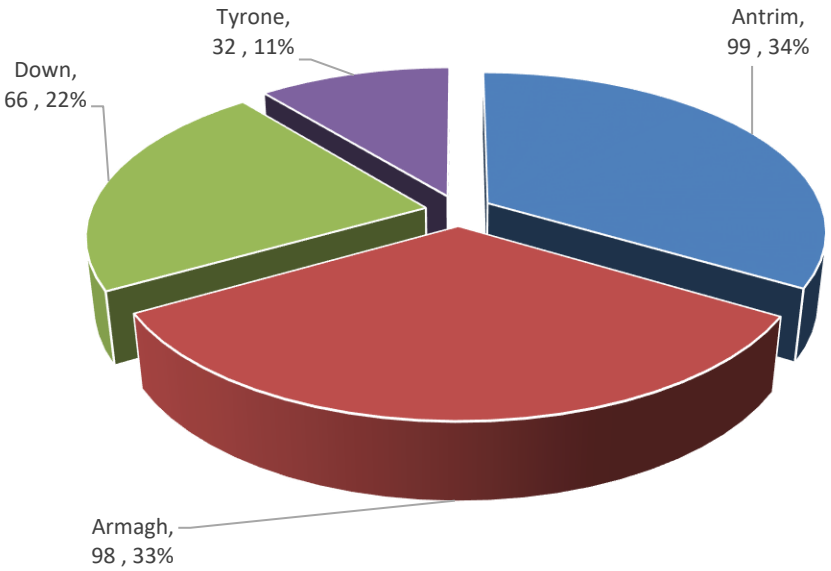


Figure 96: Pesticide usage (spha) on field bean crops in Northern Ireland, 2016.

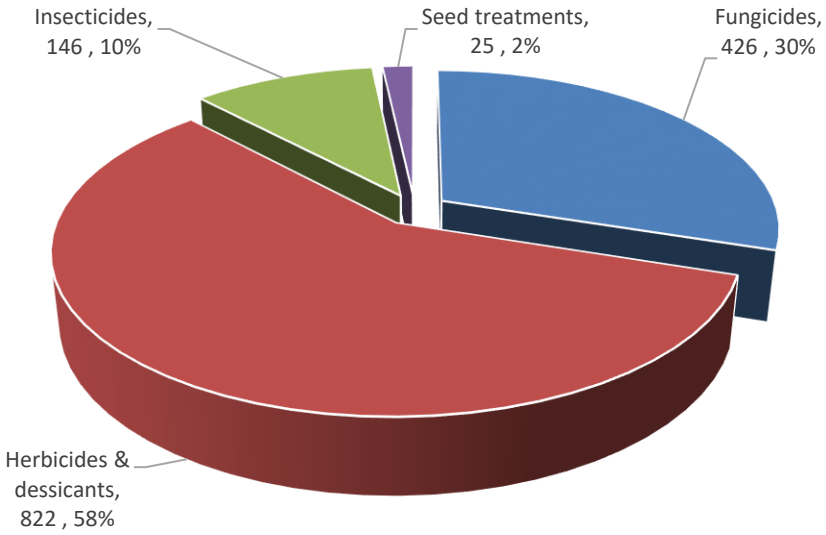


Figure 97: Weight of pesticides (kg) applied to field bean crops in Northern Ireland, 2016.

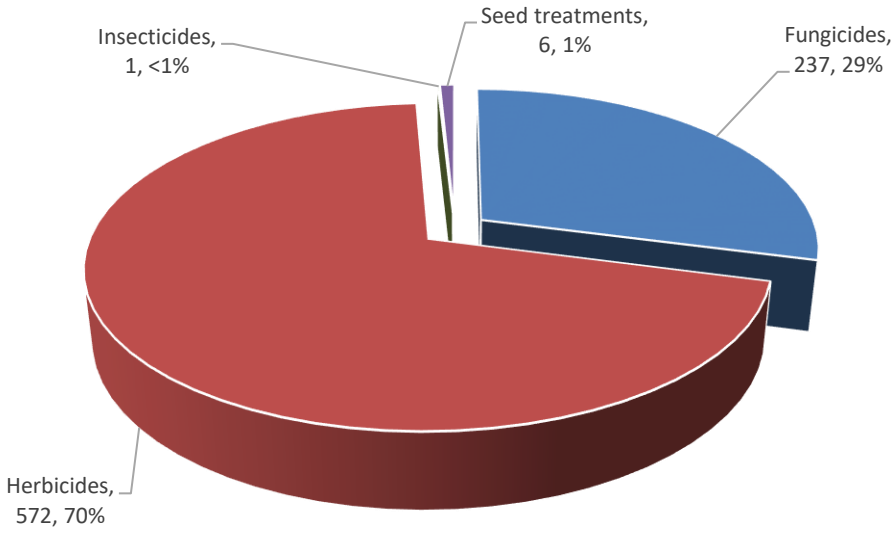
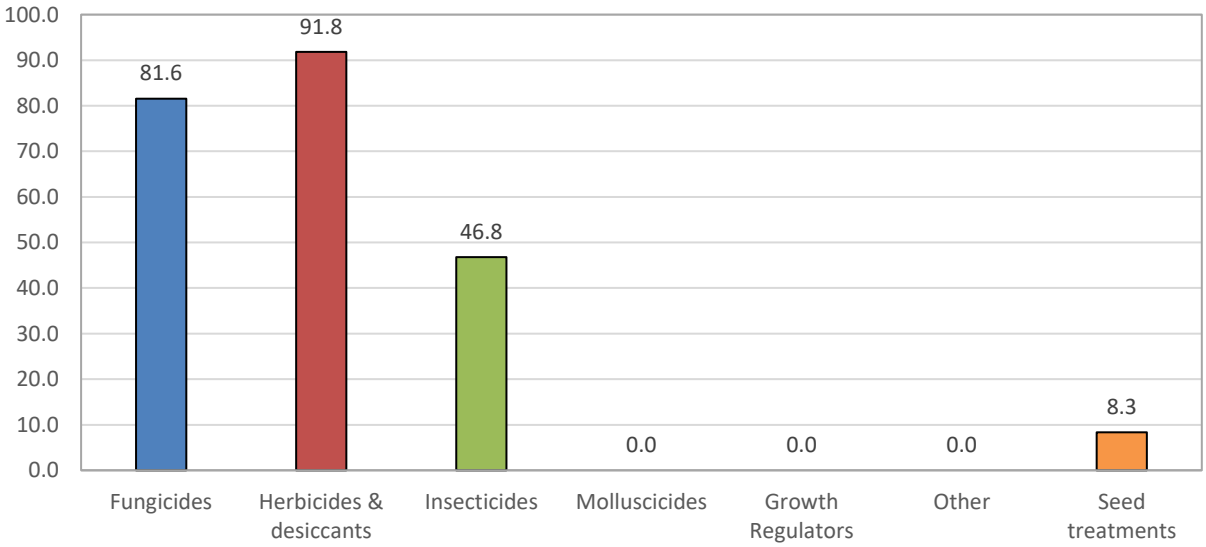


Figure 98: Proportional area (%) of field bean crops treated with each pesticide type in Northern Ireland, 2016.

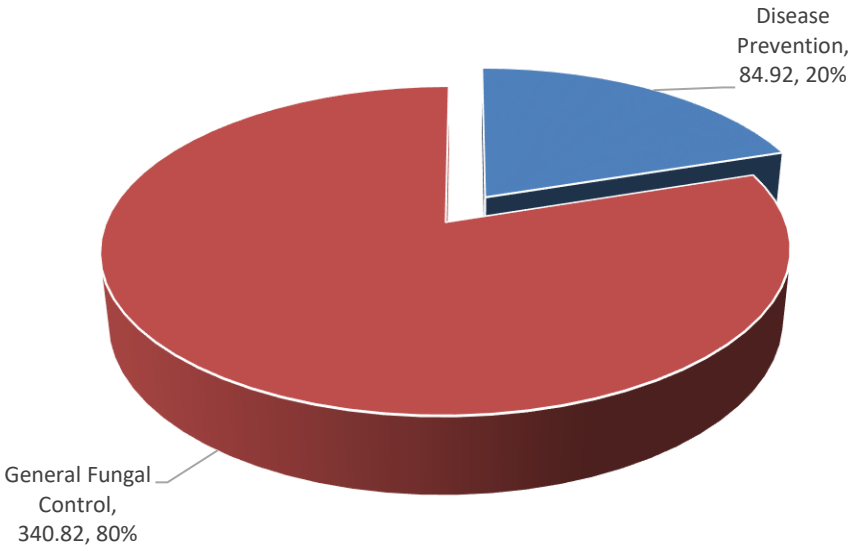


Fungicides – field beans

- Basic area treated: 241 hectares
- Total area treated: 426 spray hectares
- Weight of active substances applied: 237 kilogrammes
- 82% of the area grown treated with fungicides
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Chlorothalonil/cyproconazole	304	166	212	71
Tebuconazole	79	79	17	19
Azoxystrobin	42	42	8	10

Figure 99: Field beans: reasons for fungicide use (spha), 2016.

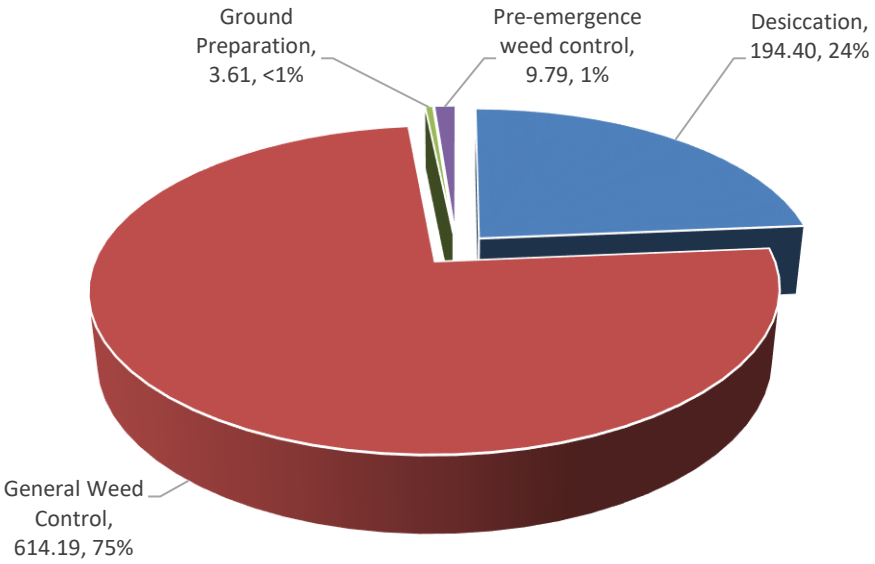


Herbicides & desiccants – field beans

- Basic area treated: 271 hectares
- Total area treated: 822 spray hectares
- Weight of active substances applied: 572 kilogrammes
- 92% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Glyphosate	296	198	199	36
Pendimethalin	150	150	193	18
Bentazone	135	116	109	16
Propaquizafop	98	98	1	12
Tepraloxydim	60	60	5	7

Figure 100: Field beans: reasons for herbicide & desiccant use (spha), 2016.



Insecticides – field beans

- Basic area treated: 138 hectares
- Total area treated: 147 spray hectares
- Weight of active substances applied: 1 kilogramme
- 47% of the area grown treated with insecticides
- All applications were for general insect control
- The only active substance applied was:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Lambda-cyhalothrin	146	138	1	100

Seed treatments – field beans

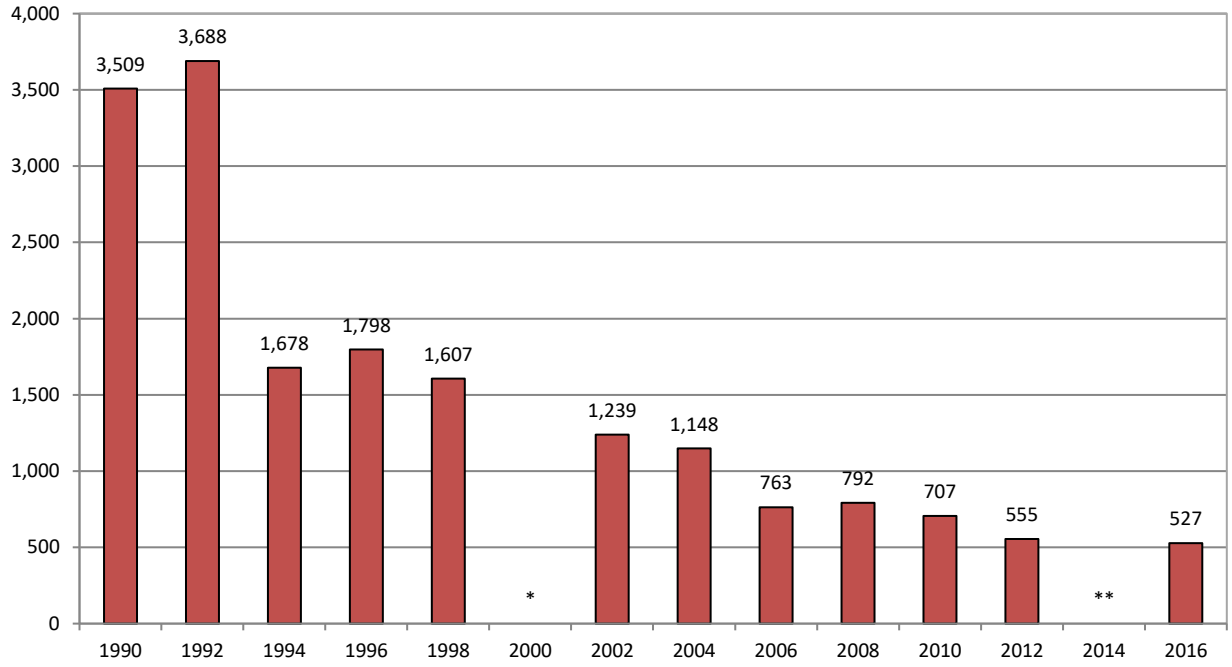
- Basic area treated: 25 hectares
- Total area treated: 25 spray hectares
- Weight of active substances applied: 6 kilogrammes
- 8% of the area grown treated with seed treatments
- The only active substance applied was:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Lambda-cyhalothrin	146	138	1	100

Pesticide usage on seed potatoes:

- 527 hectares of seed potatoes grown in Northern Ireland
- 9,637 treated hectares
- 6,961 kilogrammes applied
- 100% of the area of seed potato crops grown received a pesticide treatment
- Seed potato crops received on average 13.7 fungicide, 3.9 herbicide and 2.67 insecticide applications

Figure 101: Comparison of the areas of seed potato crops grown in Northern Ireland (ha), 1990 - 2016.



*Potatoes not included in 2000 data. **Seed potatoes included with maincrop ware potatoes

Figure 102: Regional distribution of seed potato crops grown in Northern Ireland (ha), 2016.

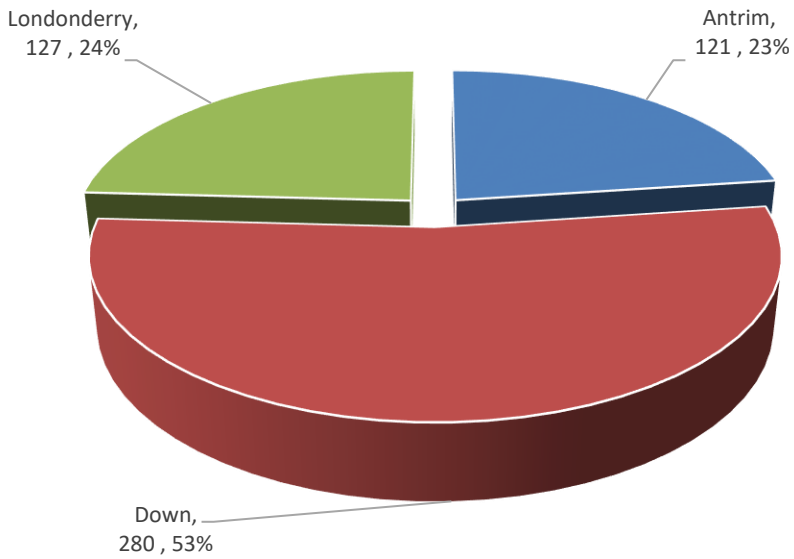


Figure 103: Pesticide usage (spha) on seed potato crops in Northern Ireland, 2016.

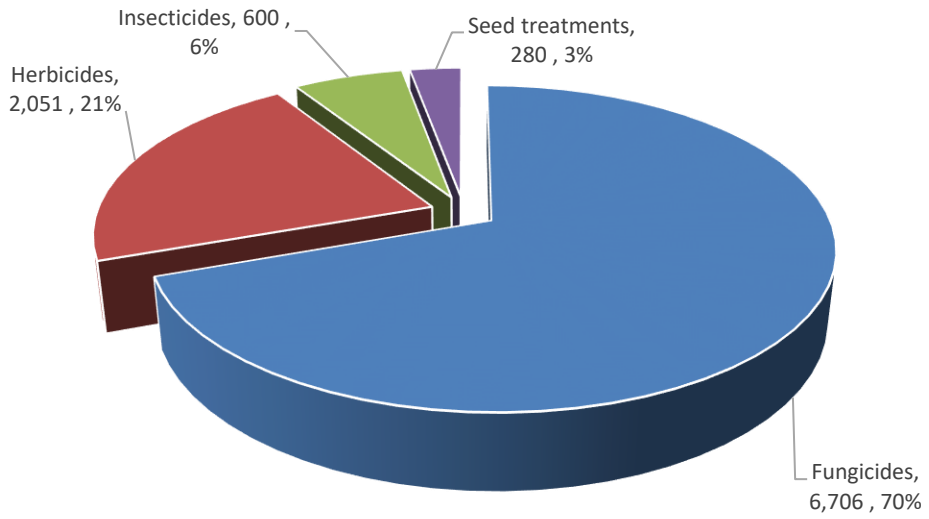


Figure 104: Weight of pesticides (kg) applied to seed potato crops in Northern Ireland, 2016.

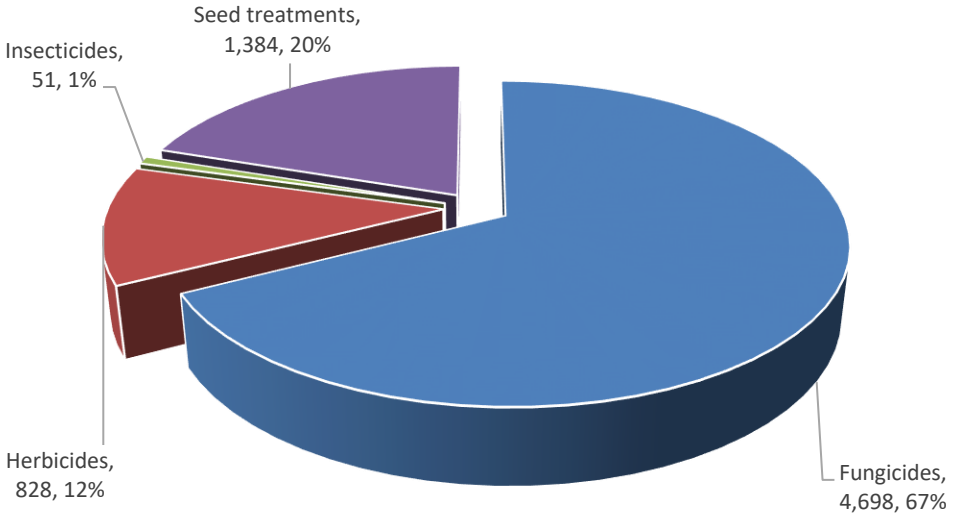
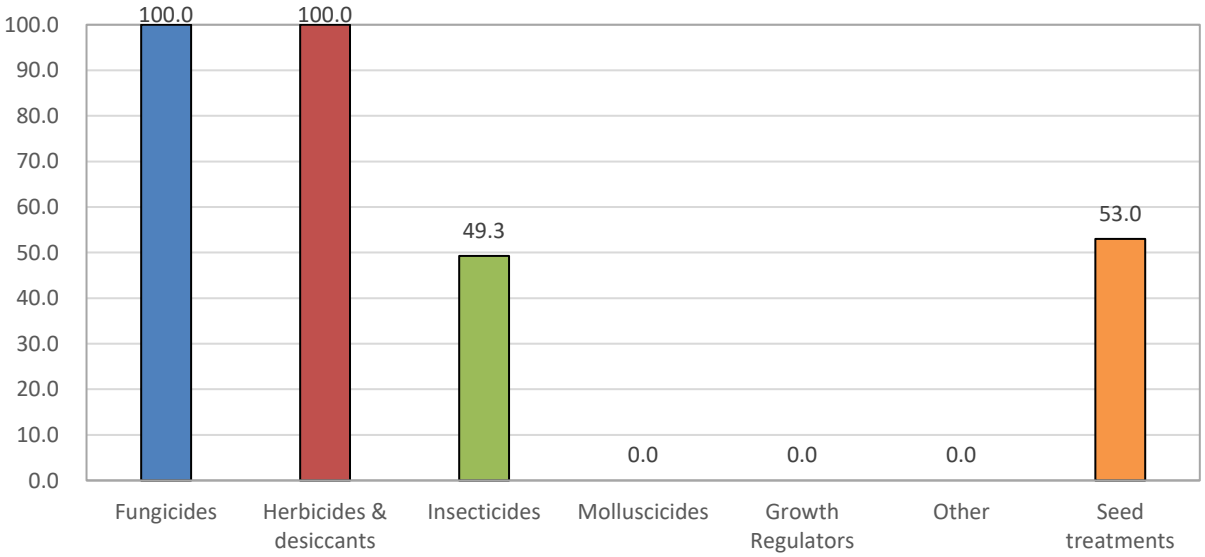


Figure 105: Proportional area (%) of seed potato crops treated with each pesticide type in Northern Ireland, 2016.



Fungicides – seed potatoes

- Basic area treated: 527 hectares
- Total area treated: 6,706 spray hectares
- Weight of active substances applied: 4,698 kilogrammes
- 100% of the area grown treated with fungicides.
- All fungicide applications were to control late blight
- The most commonly applied active substances were:

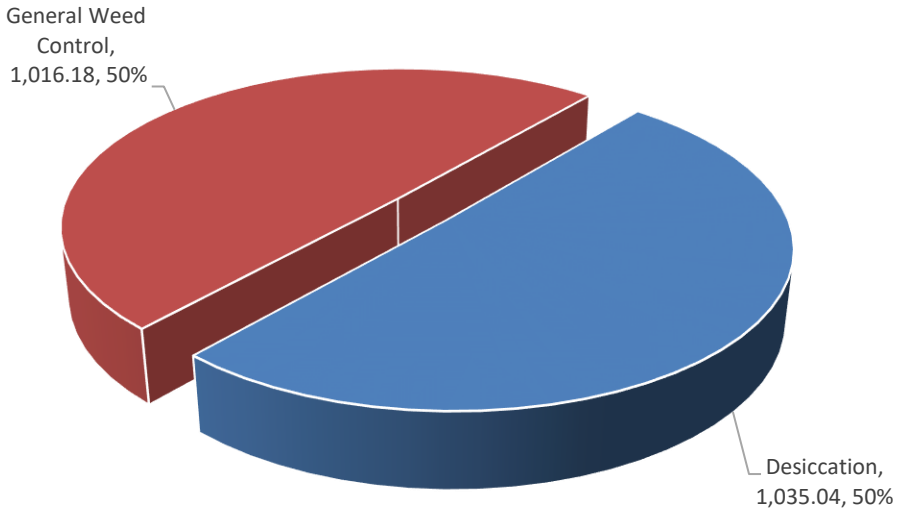
Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Fluopicolide/propamocarb hydrochloride	1,668	527	1,835	25
Fluazinam	1,307	527	236	19
Cyazofamid	994	387	80	15
Ametoctradin/dimethomorph	520	260	207	8
Benthiavalicarb-isopropyl/mancozeb	480	260	519	7

Herbicides & desiccants – seed potatoes

- Basic area treated: 527 hectares
- Total area treated: 2,051 spray hectares
- Weight of active substances applied: 828 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Diquat	1,075	527	342	52
Metribuzin	527	527	297	26
Rimsulfuron	127	127	2	6
Carfentrazone-ethyl	121	121	7	6
Linuron	121	121	71	6

Figure 106: Seed potatoes: reasons for herbicide & desiccant use (spha), 2016.

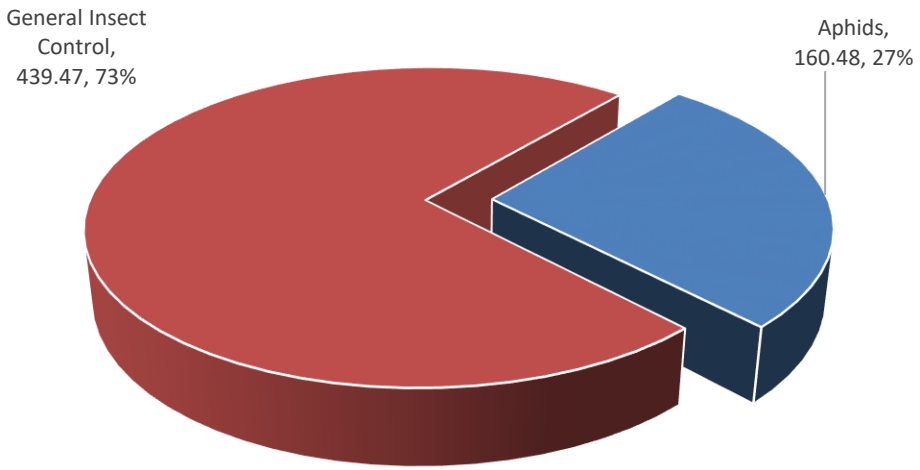


Insecticides – seed potatoes

- Basic area treated: 260 hectares
- Total area treated: 600 spray hectares
- Weight of active substances applied: 51 kilogrammes
- 49% of the area grown treated with insecticides
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Flonicamid	520	260	39	87
Pymetrozine	80	40	12	13

Figure 107: Seed potatoes: reasons for insecticide use (spha), 2016.



Seed treatments – seed potatoes

- Basic area treated: 280 hectares
- Total area treated: 280 spray hectares
- Weight of active substances applied: 1,384 kilogrammes
- 53% of the area grown was sown with treated seed
- The only active substance applied was Imazalil/pencycuron

Other treatments – seed potatoes

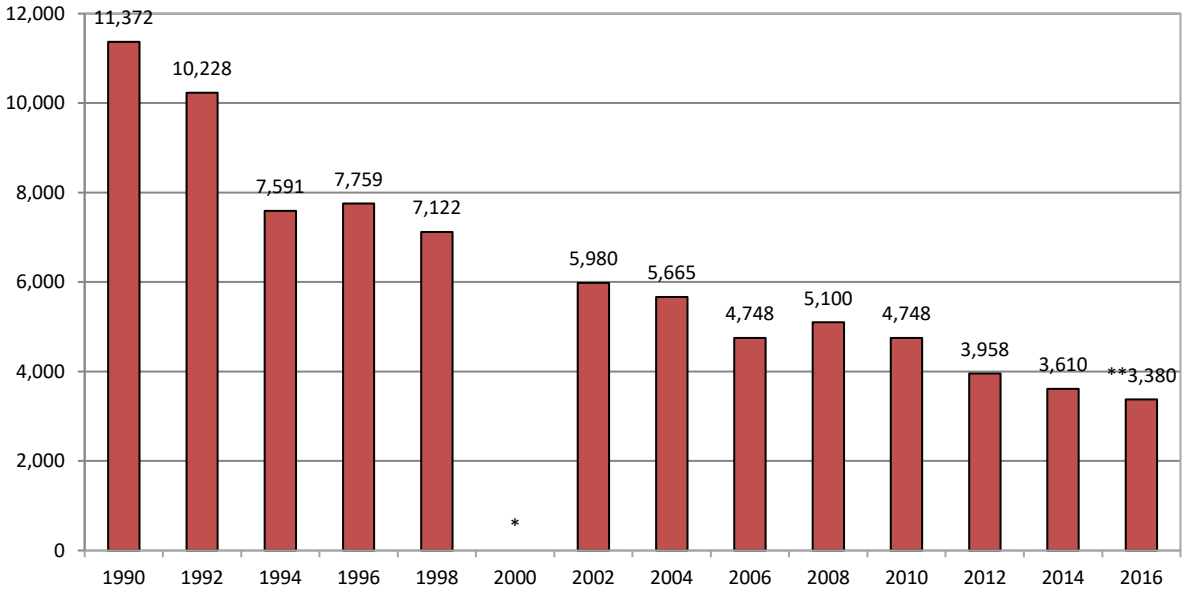
Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Unspecified seed treatment*	239	239	1,357	86

**Unspecified seed treatment refers to active ingredients which could not be verified.*

Pesticide usage on ware potatoes (early and maincrop):

- 3,380 hectares of ware potatoes grown in Northern Ireland
- 54,573 treated hectares
- 29,863 kilogrammes applied
- 100% of the area of ware potato crops grown received a pesticide treatment
- Ware potato crops received on average 11.29 fungicide, 3.77 herbicide and 1.5 insecticide and 2 molluscicide applications

Figure 108: Comparison of the areas of ware potato crops grown in Northern Ireland (ha), 1990 - 2016.



*Potatoes not included in 2000 data. **Seed potatoes not included with ware potatoes

Figure 109: Regional distribution of ware potato crops grown in Northern Ireland (ha), 2016.

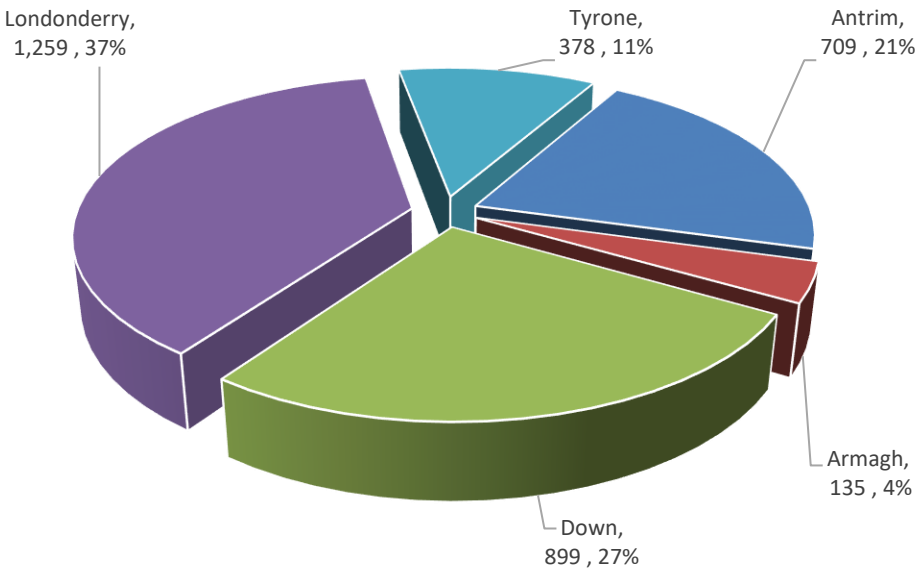


Figure 110: Pesticide usage (spha) on ware potato crops in Northern Ireland, 2016.

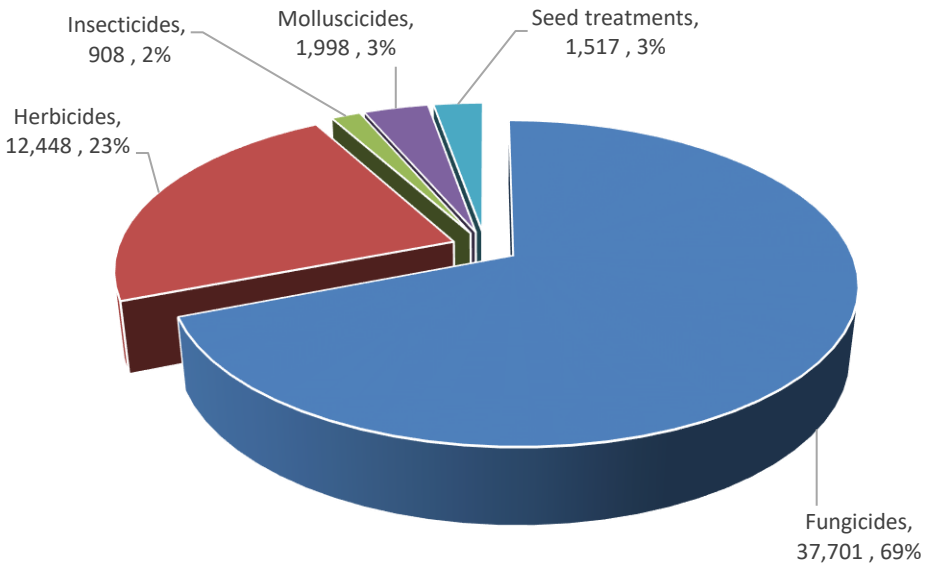


Figure 111 Weight of pesticides (kg) applied to ware potato crops in Northern Ireland, 2016.

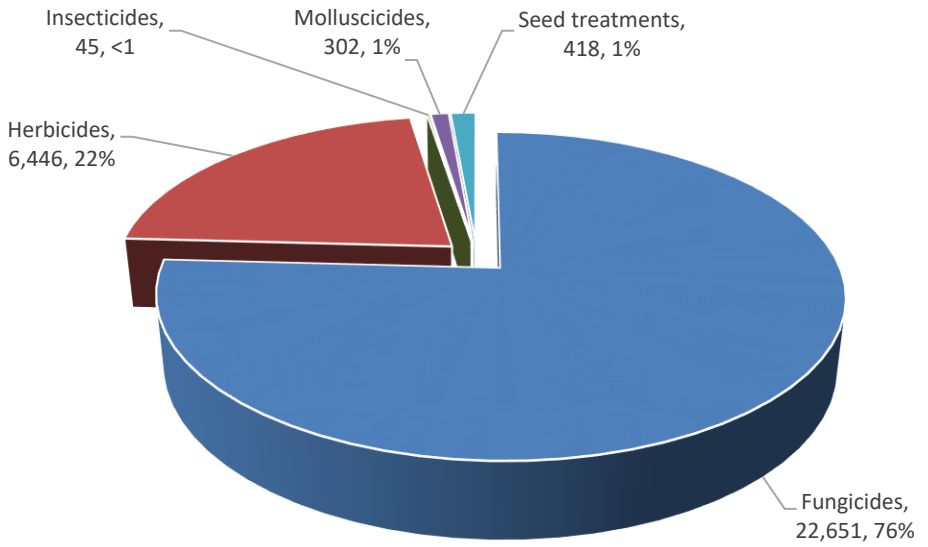
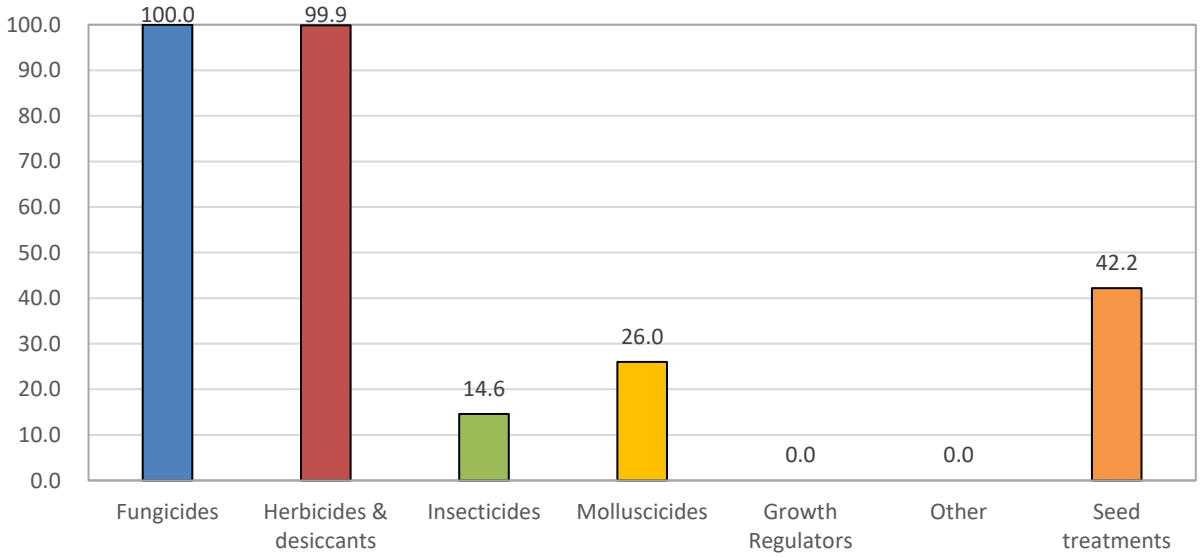


Figure 112: Proportional area (%) of ware potato crops treated with each pesticide type in Northern Ireland, 2016.

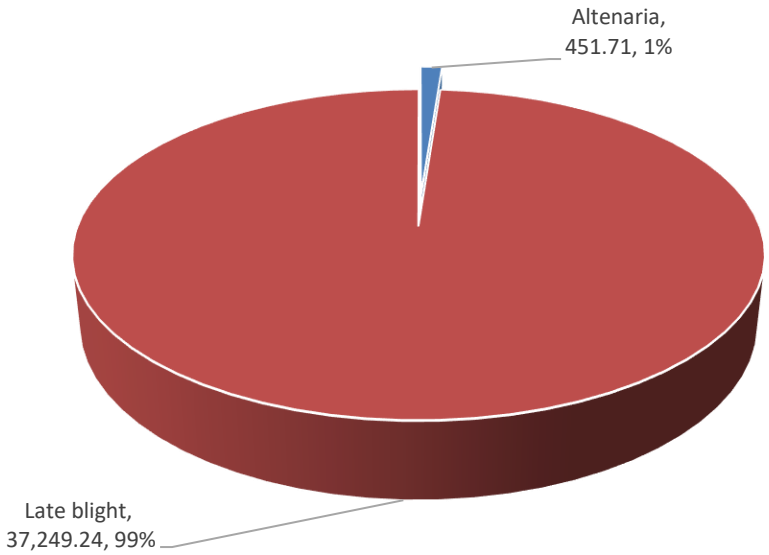


Fungicides – ware potatoes

- Basic area treated: 3,380 hectares
- Total area treated: 37,701 spray hectares
- Weight of active substances applied: 22,600 kilogrammes
- 100% of the area grown treated with fungicides
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Fluazinam	10,195	2,830	1,996	27
Fluopicolide/propamocarb hydrochloride	5,260	2,297	5,754	14
Mandipropamid	3,993	2,068	595	11
Cyazofamid	3,956	2,293	303	11
Fenamidone/propamocarb hydrochloride	2,947	1,719	2,497	8

Figure 113: Ware potatoes: reasons for fungicide use (spha), 2016.

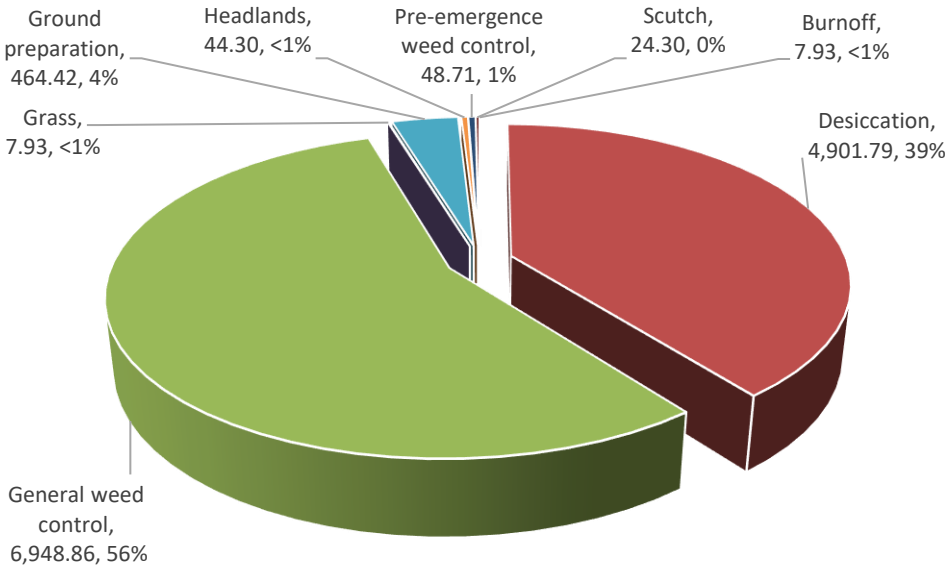


Herbicides & desiccants – ware potatoes

- Basic area treated: 3,376 hectares
- Total area treated: 12,448 spray hectares
- Weight of active substances applied: 6,430 kilogrammes
- 99.9% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Diquat	6,358	3,205	2,707	51
Metribuzin	2,299	2,306	1,159	18
Glyphosate	1,091	897	1,053	9
Carfentrazone-ethyl	845	845	49	7
Linuron	719	719	363	6

Figure 114: Ware potatoes: reasons for herbicide & desiccant use (spha), 2016.

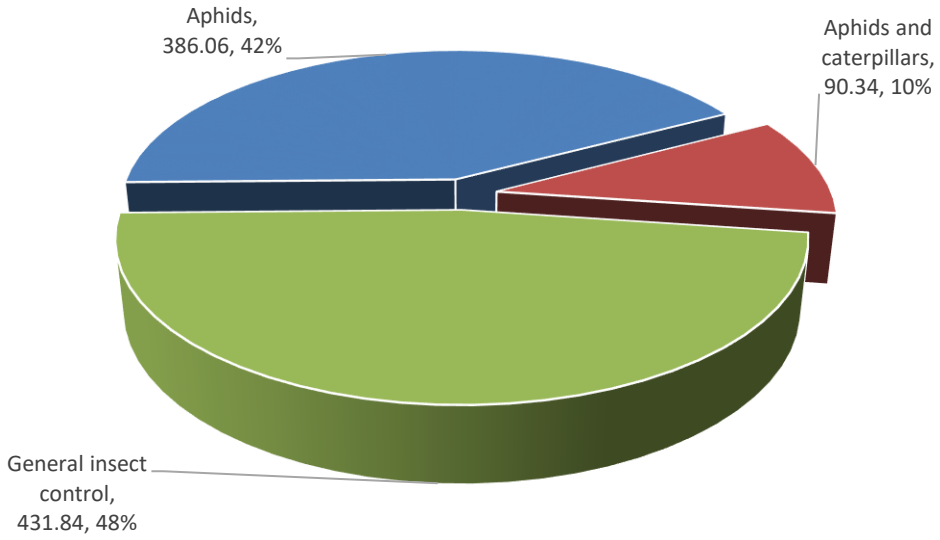


Insecticides – ware potatoes

- Basic area treated: 492 hectares
- Total area treated: 908 spray hectares
- Weight of active substances applied: 45 kilogrammes
- 14.6% of the area grown treated with insecticides
- The active substances applied were:

Active substance	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kgs)**	**% of the treated area (spha)**
Lambda-cyhalothrin	498	308	3	55
Pirimicarb	191	191	27	21
Thiacloprid	90	90	9	10
Flonicamid	90	45	7	10
Esfenvalerate	39	39	<1	4

Figure 115: Ware potatoes: reasons for insecticide use (spha), 2016.



Molluscicides – ware potatoes

- Basic area treated: 878 hectares
- Total area treated: 1,998 spray hectares
- Weight of active substances applied: 302 kilogrammes
- 26% of the area grown treated with molluscicides
- All molluscicide applications were for slugs
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Metaldehyde	1,744	842	253	87
Ferric phosphate	218	218	45	11
Methiocarb	36	36	4	2

Seed treatments – ware potatoes

- Basic area treated: 1,427 hectares
- Total area treated: 1,517 spray hectares
- Weight of active substances applied: 413 kilogrammes
- 42.2% of the area grown was sown with treated seed
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Pencycuron	559	559	332	37
Imazalil	207	207	5	14
Flutolanil	162	162	48	11
Fludioxonil	119	119	7	8

Other treatments – ware potatoes

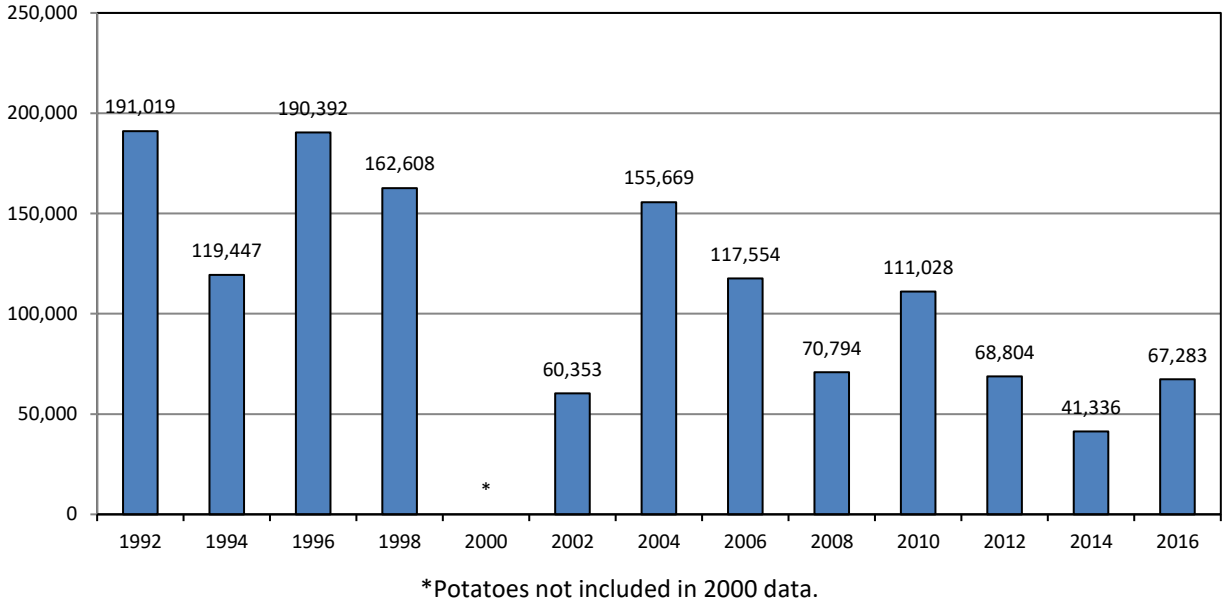
Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the treated area (spha)
Unspecified seed treatment*	419	419	N/K	28

**Unspecified seed treatment refers to active ingredients which could not be verified.*

Potato storage:

- 67,283 tonnes of potatoes stored
- The majority are stored in Counties Antrim, Down and Londonderry
- 2,652 tonnes of stored potatoes received a storage treatment

Figure 116: Comparison of the quantities (t) of potatoes stored in Northern Ireland (ha), 1990 - 2016.



*Potatoes not included in 2000 data.

Figure 117: Potato storage: estimated quantity (t) of potatoes stored in each region in Northern Ireland (ha), 2016.

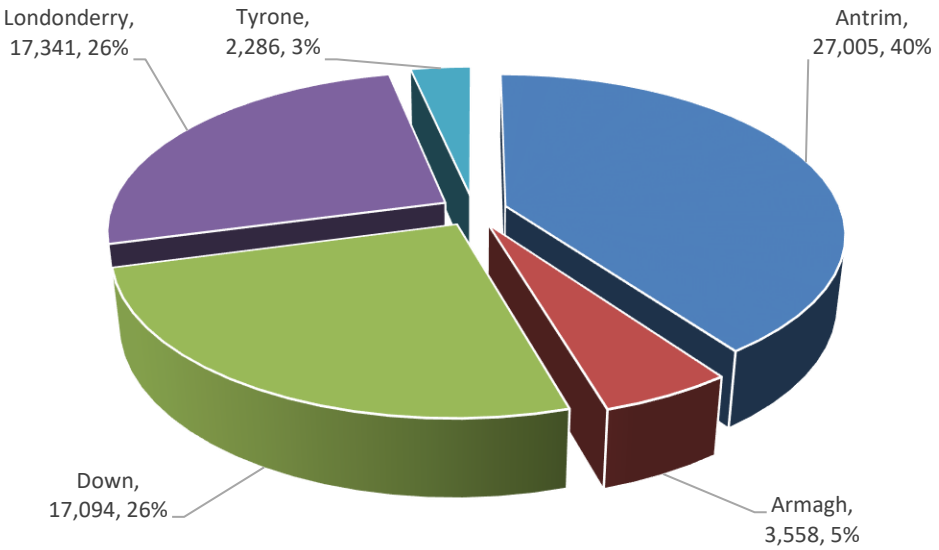


Figure 118: Potato storage: estimated quantity (t) of ware potatoes stored in each region in Northern Ireland, 2016.

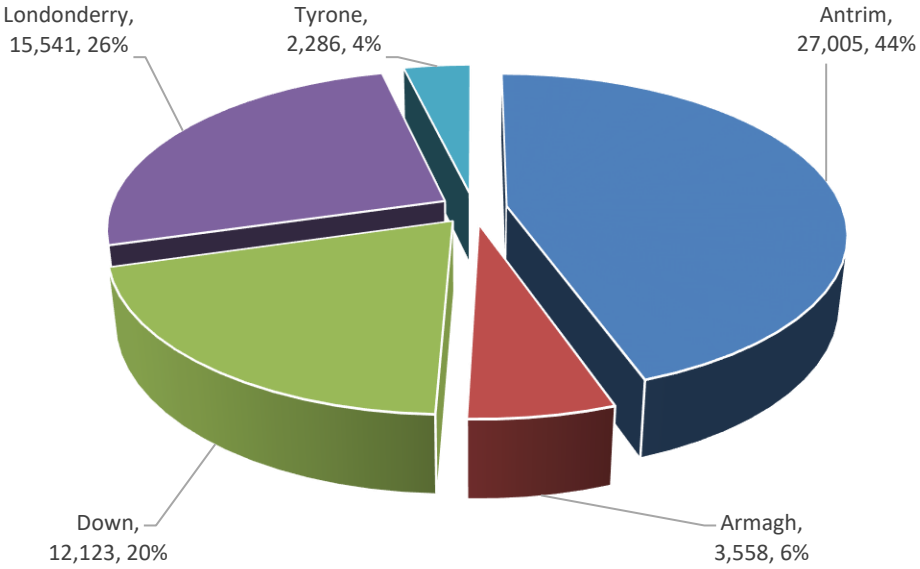


Figure 119: Potato storage: estimated quantity (t) of seed potatoes stored in each region in Northern Ireland, 2016.

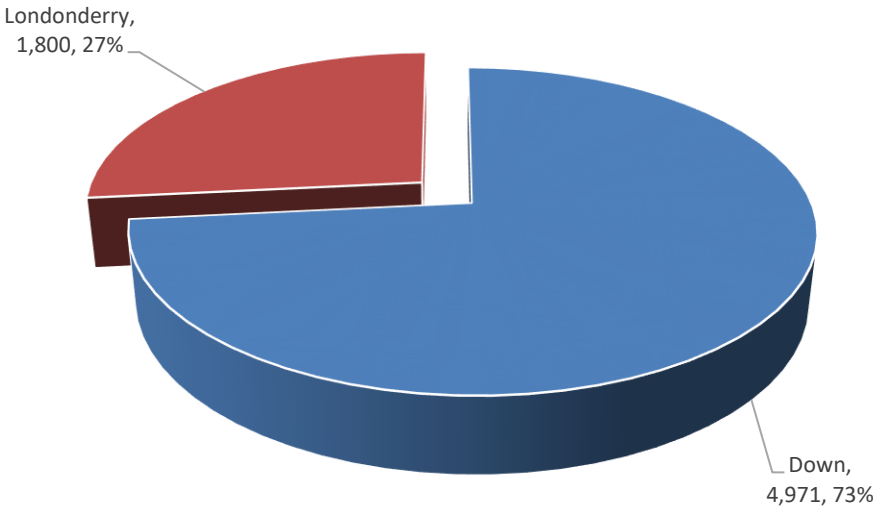


Figure 120: Potato storage: type of storage building used and quantities (t) of potatoes stored in Northern Ireland, 2016.

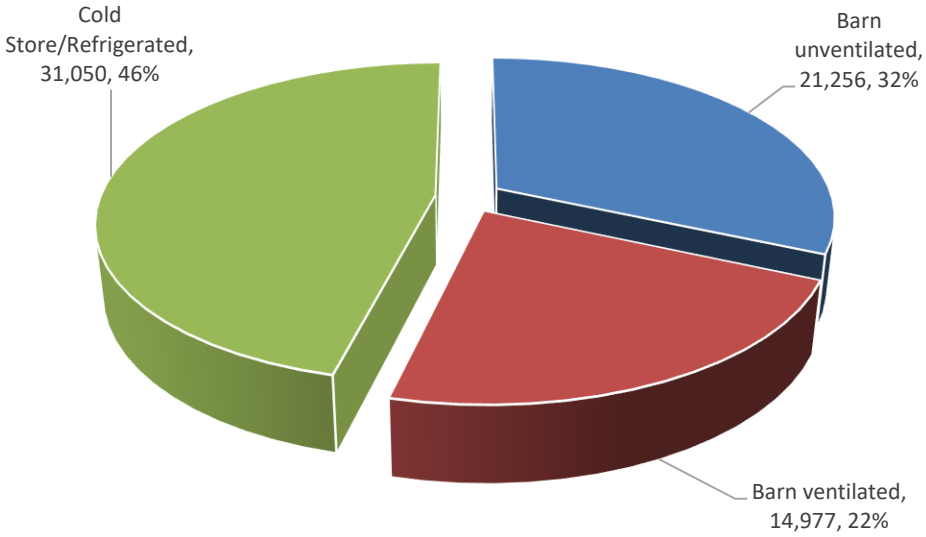


Figure 121: Potato storage: type of storage method used and quantities (t) of potatoes stored in Northern Ireland, 2016.

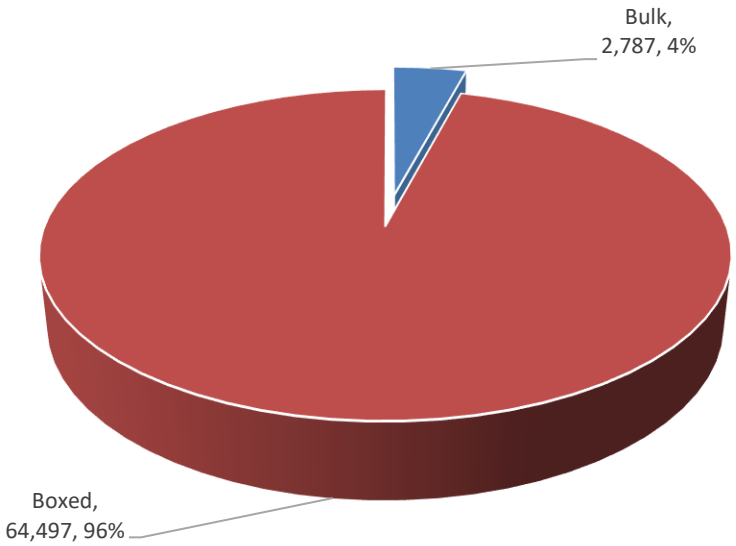


Table 1: **Number of farms in each size class with arable crops in the Northern Ireland June 2016 census and the number of samples from each class.**

	Size group (hectares)													
	< 5		5< 10		10 < 20		20 < 50		50 < 100		100+		Total	
County	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	Holdings in size group	Holdings sampled
Antrim	189	5	119	1	77	8	61	14	18	12	3	4	467	44
Armagh	66	3	58	0	42	2	25	5	4	2	5	1	200	13
Down	371	8	202	7	193	15	137	26	60	32	19	7	982	95
Londonderry	212	2	131	8	109	6	62	14	24	7	14	9	552	46
Tyrone	111	2	61	1	41	7	27	4	8	5	1	0	249	19
Northern Ireland	**949**	20	**571**	17	**462**	38	**312**	63	**114**	58	**42**	21	**2,450**	217

Table 2: **Total grown area (ha), total surveyed area (ha), number of crops surveyed and percentage of crops surveyed in Northern Ireland, 2016 .**

Crop	Total grown area (ha)	Surveyed area (ha)	Number of crops surveyed	Percentage of crops surveyed
Field beans	295.5	107.0	13	36%
Rye	118.6	23.9	2	20%
Seed Potatoes	527.4	78.2	10	15%
Spring Barley	14,476.0	2,953.5	194	20%
Spring Oats	1,422.7	229.1	25	16%
Spring Oil Seed Rape	9.8	6.1	1	62%
Spring Wheat	706.6	174.1	16	25%
Undersown Barley	231.5	6.5	1	3%
Undersown Oats	15.2	7.0	1	46%
Ware potatoes	3,380.3	961.8	52	30%
Winter Barley	7,628.1	2,647.1	154	35%
Winter Oats	819.3	278.1	19	34%
Winter Oil Seed Rape	542.3	273.7	13	50%
Winter Wheat	7,909.0	2,501.6	142	32%
All crops	**38,082.2**	**10,247.7**	**643**	**27%**

Table 3: **Estimated area (hectares) of arable crops grown regionally in Northern Ireland, 2016 .**

	County					
Crop	**Antrim**	**Armagh**	**Down**	**Londonderry**	**Tyrone**	**Northern Ireland**
Field beans	99	98	66	.	32	295
Rye	.	.	.	.	119	119
Seed potatoes	121	.	280	127	.	527
Spring Barley	2,413	631	7,863	2,712	857	14,476
Spring Oats	246	368	652	.	156	1,423
Spring Oil Seed Rape	10	.	.	.	.	10
Spring Wheat	217	94	190	194	11	707
Undersown Barley	.	.	232	.	.	232
Undersown Oats	.	.	.	15	.	15
Ware potatoes	709	135	899	1,259	378	3,380
Winter Barley	1,690	287	2,842	1,906	902	7,628
Winter Oats	124	207	129	354	6	819
Winter Oil Seed Rape	104	.	107	332	.	542
Winter Wheat	1,360	762	3,294	2,121	372	7,909
All crops	**7,092**	**2,583**	**16,554**	**9,019**	**2,834**	**38,082**

Table 4a: **Estimated area (spray hectares) of arable crops treated regionally with each pesticide type in Northern Ireland, 2016 .**

	County					
Pesticide type	**Antrim**	**Armagh**	**Down**	**Londonderry**	**Tyrone**	**Northern Ireland**
Fungicides	27,813	11,664	64,468	39,043	11,634	154,623
Herbicides & desiccants	19,800	9,194	44,551	27,418	6,278	107,240
Insecticides	2,808	2,259	10,460	3,674	857	20,058
Molluscicides	917	447	711	449	188	2,712
Growth regulators	6,530	2,843	16,006	8,268	2,624	36,271
Other	.	.	59	256	.	315
Seed treatments	6,237	1,932	15,462	6,832	2,534	32,997
All active ingredients	**64,105**	**28,339**	**151,716**	**85,940**	**24,116**	**354,216**

Table 4b: **Estimated weight (kilograms) of active ingredients applied to arable crops regionally with each pesticide type in Northern Ireland, 2016 .**

	County					
Pesticide type	**Antrim**	**Armagh**	**Down**	**Londonderry**	**Tyrone**	**Northern Ireland**
Fungicides	12,194	3,308	21,332	15,206	4,535	56,576
Herbicides & desiccants	7,942	2,761	18,296	10,893	2,384	42,275
Insecticides	25	78	157	83	16	358
Molluscicides	191	11	97	40	26	365
Growth regulators	3,034	991	9,441	3,647	1,116	18,230
Other	.	.	43	182	.	225
Seed treatments	444	100	2,208	478	176	3,405
All active ingredients	**23,830**	**7,249**	**51,573**	**30,530**	**8,252**	**121,434**

Table 5: **The total area (spray hectares) and the basic area (hectares), (in parentheses), of arable crops treated with each pesticide type in Northern Ireland, 2016.**

	Pesticide type															
	Fungicides		Herbicides & dessicants		Insecticides		Molluscicides		Growth Regulators		Other		Seed treatments		All pesticides	
Crop	Sp ha	(ha)	Sp ha	(ha)	Sp ha	(ha)	Sp ha	(ha)	Sp ha	(ha)	Sp ha	(ha)	Sp ha	(ha)	Sp ha	(ha)
Field beans	425.7	240.6	822.0	270.9	146.5	138.0	-	-	-	-	-	-	24.6	24.6	1,418.8	674.1
Seed Potatoes	6,706.2	527.4	2,051.2	527.4	600.0	259.9	-	-	-	-	-	-	279.5	279.5	9,636.9	1,594.1
Spring Barley	30,189.6	11,836.8	37,505.1	13,926.9	7,645.4	6,930.9	122.7	61.4	10,670.7	8,925.4	-	-	11,862.2	11,820.3	97,995.7	53,501.7
Spring Oats	1,790.4	870.6	2,512.6	1,148.1	444.5	444.5	39.8	39.8	719.4	642.8	-	-	889.0	889.0	6,395.7	4,034.8
Spring Oil Seed Rape	9.8	9.8	19.6	9.8	-	-	-	-	-	-	-	-	-	-	29.4	19.6
Spring Wheat	1,725.5	668.9	1,507.5	668.9	483.2	439.8	-	-	659.8	523.6	-	-	579.3	579.3	4,955.2	2,880.6
Undersown Barley	-	-	463.0	231.5	-	-	-	-	231.5	231.5	-	-	231.5	231.5	926.0	694.5
Undersown Oats	121.6	15.2	-	-	-	-	-	-	60.8	15.2	-	-	15.2	15.2	197.6	45.6
Ware Potatoes	37,701.0	3,380.3	12,448.3	3,376.3	908.2	492.3	1,998.0	877.6	-	-	-	-	1,517.0	1,426.7	54,572.5	9,553.1
Winter Barley	27,387.3	7,396.4	21,603.6	7,510.3	3,532.7	2,993.1	74.2	74.2	11,086.8	6,237.2	-	-	7,581.3	7,256.3	71,265.9	31,467.6
Winter Oats	2,854.2	819.3	2,014.5	787.0	106.8	106.8	29.8	29.8	1,020.2	812.9	-	-	699.3	699.3	6,724.7	3,255.2
Winter Oil Seed Rape	1,608.1	542.3	1,599.9	542.3	153.9	153.9	-	-	256.3	256.3	314.7	314.7	-	-	3,933.0	1,809.5
Winter Wheat	44,103.5	7,837.6	24,692.6	7,811.3	6,036.9	4,453.7	447.8	447.8	11,565.5	7,151.0	-	-	9,318.6	7,215.7	96,164.9	34,917.1
Total	**154,622.9**	**34,145.2**	**107,239.9**	**36,810.6**	**20,058.0**	**16,412.9**	**2,712.5**	**1,530.7**	**36,271.0**	**24,795.9**	**314.7**	**314.7**	**32,997.5**	**30,437.5**	**354,216.3**	**144,447.5**

Table 6: **Total quantities (kilograms) of each pesticide type used on arable crops in Northern Ireland, 2016.**

	Pesticide type							
Pesticide type	**Fungicides**	**Herbicides & desiccants**	**Insecticides**	**Molluscicides**	**Growth Regulators**	**Other**	**Seed treatments**	**All pesticides**
Field beans	237.3	571.5	1.0	.	.	.	6.0	816.0
Seed Potatoes	4,698.2	827.7	51.4	.	.	.	1,384.0	6,961.2
Spring Barley	8,541.5	11,550.3	85.1	12.5	5,390.0	.	303.6	25,883.0
Spring Oats	419.0	545.8	2.4	.	303.6	.	15.4	1,286.5
Spring Oil Seed Rape	1.2	17.8	.	.	.	.	.	19.1
Spring Wheat	554.8	312.2	2.2	.	323.5	.	22.8	1,215.5
Undersown Barley	.	232.6	.	.	179.4	.	2.2	414.2
Undersown Oats	22.5	.	.	.	36.2	.	.	58.8
Ware Potatoes	22,599.8	6,429.9	45.0	302.4	.	.	412.5	29,789.6
Winter Barley	7,607.8	10,142.2	78.9	24.5	4,345.8	.	542.5	22,741.7
Winter Oats	519.3	613.8	0.5	5.8	383.8	.	83.5	1,606.7
Winter Oil Seed Rape	226.7	1,073.4	0.9	.	56.9	224.6	.	1,582.6
Winter Wheat	11,148.1	9,958.2	91.1	19.1	7,210.8	.	632.2	29,059.5
Total	**56,576.2**	**42,275.4**	**358.3**	**364.6**	**18,230.0**	**224.6**	**3,405.2**	**121,434.3**

Table 7: **The propotional area (%) of each crop treated with pesticides and the mean number of spray applictions (spp apps) in Northern Ireland, 2016.**

	Pesticide type															
	Fungicides		Herbicides & desiccants		Insecticides		Molluscicides		Growth Regulators		Other		Seed treatments		All pesticides	
Crop	(%)	sp apps	(%)	sp apps	(%)	sp apps	(%)	sp apps	(%)	sp apps	(%)	sp apps	(%)	sp apps	(%)	sp apps
Field beans	81.6	1.80	91.8	2.42	46.8	1.40	.	.	.	.	.	.	8.3	1.00	100.0	1.96
Seed Potatoes	100.0	13.70	100.0	3.90	49.3	2.67	.	.	.	.	.	.	53.0	1.00	100.0	6.96
Spring Barley	81.8	2.63	96.2	2.70	47.9	1.15	0.4	2.00	61.7	1.31	.	.	81.7	1.01	99.4	1.89
Spring Oats	61.2	2.00	80.7	2.19	31.2	1.00	2.8	1.00	45.2	1.23	.	.	62.5	1.00	81.8	1.59
Spring Oil Seed Rape	100.0	1.00	100.0	2.00	.	.	.	.	.	.	.	.	.	.	100.0	1.50
Spring Wheat	94.7	2.71	94.7	2.57	62.2	1.10	.	.	74.1	1.27	.	.	82.0	1.00	97.2	1.79
Undersown Barley	.	.	100.0	2.00	.	.	.	.	100.0	1.00	.	.	100.0	1.00	100.0	1.33
Undersown Oats	100.0	8.00	.	.	.	.	.	.	100.0	4.00	.	.	100.0	1.00	100.0	4.33
Ware Potatoes	100.0	11.29	99.9	3.77	14.6	1.50	26.0	2.00	.	.	.	.	42.2	1.03	100.0	5.48
Winter Barley	97.0	3.67	98.5	2.97	39.2	1.23	1.0	1.00	81.8	1.70	.	.	95.1	1.04	100.0	2.26
Winter Oats	100.0	3.05	96.1	2.53	13.0	1.00	3.6	1.00	99.2	1.39	.	.	85.4	1.00	100.0	1.99
Winter Oil Seed Rape	100.0	2.31	100.0	2.77	28.4	1.00	.	.	47.3	1.00	58.0	1.00	.	.	100.0	2.05
Winter Wheat	99.1	5.26	98.8	2.78	56.3	1.29	5.7	1.00	90.4	1.68	.	.	91.2	1.22	100.0	2.59
Total	**89.7**	**4.52**	**96.7**	**2.89**	**43.1**	**1.24**	**4.0**	**1.68**	**65.1**	**1.55**	**0.8**	**1.00**	**79.9**	**1.07**	**98.7**	**2.48**

Table 8: **Estimated area (spray hectares) of arable crops treated with pesticide formulations in Northern Ireland, 2016.**

	Crop type												
Pesticide group & active substance	**Field beans**	**Seed potatoes**	**Spring barley**	**Spring oats**	**Spring oil seed rape**	**Spring wheat**	**Undersown oats**	**Ware potatoes**	**Winter barley**	**Winter oats**	**Winter oil seed rape**	**Winter wheat**	**All crops**
Fungicides													
Ametoctradin/dimethomorph		519.71	.	.	.	.	.	2,085.12	.	.	.	.	2,604.83
Azoxystrobin	42.22	.	.	63.73	.	.	.	218.21	104.98	236.64	120.08	1,835.37	2,621.23
Benthiavalicarb-isopropyl/mancozeb		479.59	.	.	.	.	.	1,316.89	.	.	.	.	1,796.48
Bixafen/fluoxastrobin/prothioconazole		.	34.71	.	.	43.36	.	.	22.56	.	.	552.33	652.96
Bixafen/prothioconazole		.	2,272.61	32.37	.	32.67	.	.	2,894.60	.	.	1,739.21	6,971.46
Bixafen/prothioconazole/spiroxamine		.	.	.	.	.	.	.	.	.	.	71.44	71.44
Boscalid		.	.	.	.	.	.	.	.	.	119.72	.	119.72
Boscalid/epoxiconazole		.	265.05	.	.	75.12	.	.	275.16	12.72	.	900.37	1,528.43
Boscalid/metconazole		.	.	.	.	.	.	.	.	.	34.18	.	34.18
Chlorothalonil		.	7,845.55	117.55	.	454.82	15.20	.	7,552.80	68.63	.	8,759.81	24,814.35
Chlorothalonil/cyproconazole	304.27	.	465.56	.	.	.	.	.	484.10	.	.	557.31	1,811.24
Chlorothalonil/cyproconazole/propiconazole		.	813.21	.	.	107.71	.	.	534.30	.	.	538.56	1,993.79
Chlorothalonil/penthiopyrad		.	1,317.50	.	.	114.41	.	.	533.33	.	.	2,617.82	4,583.06
Chlorothalonil/picoxystrobin		.	435.54	.	.	.	.	.	.	.	.	.	435.54
Chlorothalonil/proquinazid		.	39.94	.	.	43.36	.	.	48.34	.	.	43.48	175.12
Chlorothalonil/tebuconazole		.	.	.	.	.	.	.	.	.	.	200.16	200.16
Cyazofamid		993.82	.	.	.	.	.	3,956.26	.	.	.	.	4,950.08
Cymoxanil		219.74	.	.	.	.	.	1,333.68	.	.	.	.	1,553.42
Cymoxanil/mancozeb		361.91	.	.	.	.	.	2,021.84	.	.	.	.	2,383.75
Cymoxanil/propamocarb hydrochloride		120.64	.	.	.	.	.	912.32	.	.	.	.	1,032.96
Cymoxanil/zoxamide		.	.	.	.	.	.	213.54	.	.	.	.	213.54
Cyproconazole/penthiopyrad		.	.	.	.	.	.	.	.	.	.	393.49	393.49
Cyproconazole/propiconazole		.	40.53	.	.	.	.	.	97.67	.	.	.	138.20
Cyprodinil		.	1,251.66	.	.	.	30.40	.	740.69	.	.	34.87	2,057.61
Cyprodinil/isopyrazam		.	1,522.81	.	.	.	.	.	1,702.76	.	.	.	3,225.57
Cyprodinil/picoxystrobin		.	351.43	.	.	.	15.20	.	216.63	.	.	8.60	591.85
Difenoconazole		.	.	.	.	.	.	.	.	.	136.24	.	136.24
Dimethomorph/fluazinam		.	.	.	.	.	.	238.04	.	.	.	.	238.04
Dimethomorph/mancozeb		420.93	.	.	.	.	.	2,448.22	.	.	.	.	2,869.16
Epoxiconazole		.	1,631.29	377.48	.	231.81	.	.	1,070.85	464.79	.	3,989.08	7,765.31
Epoxiconazole/fenpropimorph		.	880.50	.	.	16.09	.	.	190.31	.	.	97.14	1,184.04
Epoxiconazole/fenpropimorph/kresoxim-methyl		.	234.18	88.22	.	113.34	.	.	268.37	32.31	.	132.76	869.18
Epoxiconazole/fenpropimorph/metrafenone		.	.	127.81	.	.	.	.	.	706.20	.	.	834.01
Epoxiconazole/fenpropimorph/pyraclostrobin		.	54.89	.	.	.	.	.	.	.	.	85.32	140.21

Table 8 contd: **Estimated area (spray hectares) of arable crops treated with pesticide formulations in Northern Ireland, 2016.**

	Crop type												
Pesticide group & active substance	**Field beans**	**Seed potatoes**	**Spring barley**	**Spring oats**	**Spring oil seed rape**	**Spring wheat**	**Undersown oats**	**Ware potatoes**	**Winter barley**	**Winter oats**	**Winter oil seed rape**	**Winter wheat**	**All crops**
Fungicides													
Epoxiconazole/fluxapyroxad		.	156.76	.	.	.	.	.	376.72	.	.	1,503.39	2,036.86
Epoxiconazole/fluxapyroxad/pyraclostrobin		.	41.42	.	.	.	.	.	338.76	.	.	672.45	1,052.63
Epoxiconazole/isopyrazam		.	.	.	.	.	.	.	.	.	.	118.43	118.43
Epoxiconazole/metconazole		.	122.66	.	.	10.53	.	.	29.04	.	.	1,856.36	2,018.58
Epoxiconazole/prochloraz		.	239.22	.	.	11.40	.	.	86.95	.	.	.	337.58
Fenamidone/propamocarb hydrochloride		414.38	.	.	.	.	.	2,946.72	.	.	.	.	3,361.10
Fenpropimorph		.	929.31	461.68	.	.	30.40	.	1,575.72	245.06	.	1,003.94	4,246.11
Fenpropimorph/flusilazole		.	.	.	.	.	.	.	13.57	.	.	.	13.57
Fenpropimorph/pyraclostrobin		.	.	.	.	.	.	.	.	20.38	.	.	20.38
Fluazinam		1,307.32	.	.	.	.	.	10,201.80	.	.	.	.	11,509.12
Fluopicolide/propamocarb hydrochloride		1,668.06	.	.	.	.	.	5,272.92	.	.	.	.	6,940.98
Fluoxastrobin/prothioconazole		.	1,468.95	12.92	.	16.09	.	.	1,301.25	.	24.78	235.97	3,059.96
Fluoxastrobin/prothioconazole/trifloxystrobin		.	176.61	.	.	43.36	.	.	174.37	.	.	.	394.35
Fluxapyroxad		.	583.47	.	.	32.21	.	.	251.37	.	.	521.26	1,388.31
Fluxapyroxad/metconazole		.	.	.	.	.	.	.	.	.	.	518.29	518.29
Folpet		.	16.89	.	.	.	.	.	.	.	.	85.96	102.85
Isopyrazam		.	16.89	.	.	.	.	.	14.54	.	.	.	31.42
Mancozeb		39.37	.	.	.	.	.	529.61	.	.	.	138.98	707.95
Mandipropamid		160.76	.	.	.	.	.	4,005.77	.	.	.	.	4,166.53
Metconazole		.	.	.	.	.	.	.	61.38	.	220.77	148.58	430.73
Penthiopyrad		.	197.30	.	.	.	.	.	684.96	.	.	2,656.10	3,538.35
Penthiopyrad/picoxystrobin		.	.	.	.	.	.	.	.	.	.	48.70	48.70
Prochloraz/tebuconazole		.	76.00	.	.	95.99	.	.	31.86	.	.	352.03	555.88
Proquinazid		.	.	73.27	.	41.77	.	.	190.68	427.32	.	783.02	1,516.06
Prothioconazole		.	3,309.93	43.06	9.80	219.82	30.40	.	3,264.75	132.67	276.79	3,479.78	10,767.00
Prothioconazole/spiroxamine		.	288.35	.	.	.	.	.	402.96	.	.	.	691.31
Prothioconazole/tebuconazole		.	293.34	.	.	21.68	.	.	208.31	11.89	319.62	3,305.71	4,160.55
Prothioconazole/trifloxystrobin		.	1,747.73	.	.	.	.	.	1,460.91	.	.	239.60	3,448.24
Pyraclostrobin		.	358.86	253.27	.	.	.	.	78.02	429.12	.	280.78	1,400.04
Quinoxyfen		.	.	.	.	.	.	.	.	.	.	32.00	32.00
Tebuconazole	79.25	.	507.33	138.99	.	.	.	.	.	66.43	355.93	3,565.05	4,712.98
Trifloxystrobin		.	201.61	.	.	.	.	.	51.89	.	.	.	253.50
Unknown fungicide		.	.	.	.	.	.	.	51.89	.	.	.	51.89
All fungicides	**425.74**	**6,706.21**	**30,189.58**	**1,790.36**	**9.80**	**1,725.51**	**121.60**	**37,700.95**	**27,387.32**	**2,854.16**	**1,608.12**	**44,103.51**	**154,622.86**

Table 8 contd: **Estimated area (spray hectares) of arable crops treated with pesticide formulations in Northern Ireland, 2016.**

	Crop type												
Pesticide group & active substance	**Field beans**	**Seed potatoes**	**Spring barley**	**Spring oats**	**Spring oil seed rape**	**Spring wheat**	**Undersown barley**	**Ware potatoes**	**Winter barley**	**Winter oats**	**Winter oil seed rape**	**Winter wheat**	**All crops**
Herbicides & desiccants													
2,4-DB	.	.	121.80	7.82	.	.	231.50	.	.	.	.	.	361.12
Amidosulfuron	.	.	59.35	.	.	.	.	.	106.71	.	.	.	166.07
Amidosulfuron/iodosulfron-methyl-sodium	.	.	.	.	.	.	.	.	.	.	.	229.76	229.76
Aminopyralid/propyzamide	.	.	.	.	.	.	.	.	.	.	23.94	.	23.94
Aminopyralid/triclopyr	.	.	10.58	.	.	.	.	.	.	.	.	.	10.58
Bentazone	134.89	.	.	.	.	.	.	.	.	.	.	.	134.89
Bromoxynil/ioxynil	.	.	93.69	.	.	.	.	.	.	.	.	.	93.69
Carfentrazone-ethyl	.	120.64	.	.	.	.	.	845.07	.	.	.	.	965.70
Carfentrazone-ethyl/flupyrsulfron-methyl	.	.	.	.	.	.	.	.	.	6.38	.	.	6.38
Chlorotoluron/diflufenican	.	.	.	.	.	.	.	.	421.09	.	.	28.00	449.09
Chlorotoluron/diflufenican/pendimethalin	.	.	129.90	.	.	.	.	.	139.18	.	.	.	269.08
Clopyralid/florasulam/fluroxypyr	.	.	105.69	.	.	41.77	.	.	83.00	.	.	.	230.46
Clopyralid/picloram	.	.	.	.	.	.	.	.	.	.	263.28	.	263.28
Dicamba/MCPA/mecoprop-P	.	.	491.47	79.64	.	.	.	.	62.30	.	.	84.04	717.45
Dicamba/mecoprop-P	.	.	1,891.08	63.73	.	41.23	.	.	172.71	.	.	.	2,168.75
Diflufenican	.	.	626.86	.	.	75.56	.	.	3,250.67	66.43	.	1,698.35	5,717.87
Diflufenican/flufenacet	.	.	676.98	.	.	32.21	.	.	2,130.34	145.46	.	1,015.79	4,000.77
Diflufenican/flufenacet/flurtamone	.	.	.	.	.	.	.	.	297.33	.	.	516.13	813.45
Diflufenican/iodosulfron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	.	.	.	.	12.92	.	.	3,306.38	3,319.30
Diflufenican/isoproturon	.	.	42.32	.	.	.	.	.	.	.	.	.	42.32
Diflufenican/metsulfuron-methyl	.	.	170.35	.	.	.	.	.	.	.	.	.	170.35
Dimethenamid-P/metazachlor/quinmerac	.	.	.	.	.	.	.	.	.	.	229.50	.	229.50
Diquat	28.24	1,075.16	85.17	.	.	.	.	6,357.52	38.68	.	.	.	7,584.77
Ethametsulfuron-methyl	.	.	.	.	.	.	.	.	.	.	119.72	.	119.72
Florasulam	.	.	224.86	241.45	.	.	.	.	.	.	.	.	466.32
Florasulam/fluroxypyr	.	.	1,744.38	83.22	.	75.12	.	.	484.23	64.15	.	1,442.49	3,893.59
Florasulam/pyroxsulam	.	.	.	.	.	86.71	.	.	.	.	.	402.55	489.26
Fluazifop-P-butyl	.	.	.	.	.	.	.	.	.	.	52.26	.	52.26
Flufenacet/metribuzin	.	.	.	.	.	.	.	95.22	.	.	.	.	95.22
Flufenacet/pendimethalin	.	.	202.80	.	.	43.36	.	.	2,930.72	.	.	2,343.37	5,520.25
Flupyrsulfuron-methyl	.	.	.	.	.	.	.	.	24.06	.	.	48.25	72.30
Flupyrsulfuron-methyl/thifensulfuron-methyl	.	.	.	.	.	.	.	.	.	196.40	.	.	196.40
Fluroxypyr	.	.	4,147.28	434.39	.	340.56	.	.	1,338.55	271.47	.	2,605.39	9,137.63
Fluroxypyr/triclopyr	.	.	216.82	.	.	.	.	.	.	.	.	.	216.82
Glyphosate	296.31	40.12	7,553.03	213.44	9.80	116.90	.	1,090.64	5,585.09	708.19	475.79	5,474.87	21,564.18
Imazamox/pendimethalin	41.96	.	.	.	.	.	.	.	.	.	.	.	41.96

Table 8 contd: **Estimated area (spray hectares) of arable crops treated with pesticide formulations in Northern Ireland, 2016.**

	Crop type												
Pesticide group & active substance	**Field beans**	**Seed potatoes**	**Spring barley**	**Spring oats**	**Spring oil seed rape**	**Spring wheat**	**Undersown barley**	**Ware potatoes**	**Winter barley**	**Winter oats**	**Winter oil seed rape**	**Winter wheat**	**All crops**
Herbicides & desiccants													
Iodosulfron-methyl-sodium	.	.	1,449.69	.	.	.	.	.	.	.	.	34.87	1,484.55
Iodosulfron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	.	.	.	.	14.54	.	.	537.82	552.36
Isoproturon	.	.	54.37	.	.	.	.	.	83.00	.	.	.	137.37
Linuron	12.14	120.64	.	.	.	.	.	719.02	.	.	.	.	851.80
MCPA	.	.	594.14	39.82	.	.	.	.	.	.	.	.	633.97
Mecoprop-P	.	.	2,851.80	262.98	.	.	.	.	477.75	191.05	.	1,698.66	5,482.24
Metazachlor	.	.	.	.	9.80	.	.	.	104.98	.	.	95.67	210.45
Metazachlor/quinmerac	.	.	.	.	.	.	.	.	.	.	24.78	.	24.78
Metribuzin	.	527.36	.	.	.	.	.	2,305.87	.	.	.	.	2,833.23
Metsulfuron-methyl	.	.	3,567.75	652.29	.	149.34	.	.	476.06	.	.	662.24	5,507.67
Metsulfuron-methyl/thifensulfuron-methyl	.	.	1,467.00	.	.	127.76	.	.	92.22	196.40	.	535.98	2,419.36
Metsulfuron-methyl/tribenuron-methyl	.	.	4,604.98	315.45	.	45.91	.	.	446.52	168.55	.	165.37	5,746.78
Pendimethalin	150.15	.	153.94	.	.	.	.	.	224.66	.	.	263.55	792.30
Pendimethalin/picolinafen	.	.	346.24	7.32	.	30.35	.	.	715.30	.	.	302.71	1,401.93
Pinoxaden	.	.	2,153.71	.	.	179.83	.	.	1,447.85	.	.	585.42	4,366.82
Propaquizafop	97.98	.	.	39.82	.	.	.	118.01	.	.	71.32	.	327.13
Propyzamide	.	.	.	.	.	.	.	.	.	.	339.31	.	339.31
Prosulfocarb	.	40.12	202.91	.	.	.	.	595.63	359.31	.	.	324.60	1,522.57
Rimsulfuron	.	127.19	.	.	.	.	.	321.30	.	.	.	.	448.48
Tepraloxydim	60.32	.	.	.	.	.	.	.	.	.	.	.	60.32
Thifensulfuron-methyl	.	.	61.36	.	.	.	.	.	.	.	.	.	61.36
Thifensulfuron-methyl/tribenuron-methyl	.	.	1,138.21	63.43	.	120.90	.	.	83.82	.	.	290.30	1,696.66
Tribenuron-methyl	.	.	264.60	7.82	.	.	231.50	.	.	.	.	.	503.92
All herbicides & desiccants	**821.99**	**815.31**	**18,910.70**	**1,388.93**	**9.80**	**654.08**	**231.50**	**4,059.82**	**4,526.01**	**556.00**	**435.42**	**5,497.19**	**37,906.76**

Table 8 contd: **Estimated area (spray hectares) of arable crops treated with pesticide formulations in Northern Ireland, 2016.**

	Crop type										
Pesticide group & active substance	**Field beans**	**Seed potatoes**	**Spring barley**	**Spring oats**	**Spring wheat**	**Ware potatoes**	**Winter barley**	**Winter oats**	**Winter oil seed rape**	**Winter wheat**	**All crops**
Insecticides											
Alpha-cypermethrin	.	.	.	.	.	.	.	.	34.18	.	34.18
Chlorpyrifos	.	.	103.55	.	.	.	231.71	.	.	.	335.27
Cypermethrin	.	.	185.99	.	10.99	.	9.21	.	.	.	206.19
Deltamethrin	.	.	104.77	185.09	.	.	.	.	.	.	289.86
Dimethoate	.	.	.	.	.	.	.	.	.	287.06	287.06
Esfenvalerate	.	.	4,754.72	32.37	260.32	39.33	1,861.51	.	.	2,629.18	9,577.42
Flonicamid	.	519.71	.	.	.	89.73	.	.	.	.	609.44
Lambda-cyhalothrin	146.48	.	2,496.32	227.06	211.85	498.00	1,430.28	106.77	119.72	3,090.21	8,326.69
Pirimicarb	.	.	.	.	.	190.83	.	.	.	30.44	221.27
Pymetrozine	.	80.24	.	.	.	.	.	.	.	.	80.24
Thiacloprid	.	.	.	.	.	90.34	.	.	.	.	90.34
All insecticides	**146.48**	**599.95**	**7,645.36**	**444.52**	**483.16**	**908.25**	**3,532.71**	**106.77**	**153.90**	**6,036.89**	**20,057.98**
Molluscicides											
Ferric phosphate	.	.	61.36	.	.	218.21	.	29.83	.	40.31	349.72
Metaldehyde	.	.	61.36	39.82	.	1,743.75	74.23	.	.	407.53	2,326.69
Methiocarb	.	.	.	.	.	36.05	.	.	.	.	36.05
All molluscicides	**.**	**.**	**122.72**	**39.82**	**.**	**1,998.01**	**74.23**	**29.83**	**.**	**447.85**	**2,712.46**

Table 8 contd: **Estimated area (spray hectares) of arable crops treated with pesticide formulations in Northern Ireland, 2016.**

	Crop type									
Pesticide group & active substance	**Spring barley**	**Spring oats**	**Spring wheat**	**Undersown barley**	**Undersown oats**	**Winter barley**	**Winter oats**	**Winter oil seed rape**	**Winter wheat**	**All crops**
Growth regulators										
2-chloroethylphosphonic acid	773.45	.	52.64	.	.	1,460.80	.	.	1,161.90	3,448.79
Chlormequat	5,803.61	362.15	340.77	231.50	30.40	4,671.19	432.97	.	6,463.11	18,335.70
Chlormequat chloride	.	.	.	.	.	41.31	.	.	.	41.31
Chlormequat with choline chloride	.	.	.	.	.	78.45	.	.	28.70	107.15
Chlormequat/imazaquin	.	.	.	.	.	.	.	.	560.61	560.61
Ethephon	6.31	.	.	.	.	.	.	.	.	6.31
Mepiquat chloride/metconazole	.	.	.	.	.	.	.	136.60	.	136.60
Mepiquat chloride/prohexadione-calcium	560.43	49.84	.	.	.	903.17	64.87	.	502.07	2,080.37
Trinexapac-ethyl	3,526.92	307.37	266.36	.	30.40	3,931.89	522.33	.	2,849.14	11,434.41
Unknown growth regulator	.	.	.	.	.	.	.	119.72	.	119.72
All growth regulators	**10,670.72**	**719.36**	**659.77**	**231.50**	**60.80**	**11,086.81**	**1,020.17**	**256.32**	**11,565.52**	**36,270.97**
Other active substances										
Synthetic latex	.	.	.	.	.	.	.	314.73	.	314.73
All other active substances	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**314.73**	**.**	**314.73**

Table 8 contd: **Estimated area (spray hectares) of arable crops treated with pesticide formulations in Northern Ireland, 2016.**

	Crop type											
Pesticide group & active substance	**Field beans**	**Seed potatoes**	**Spring barley**	**Spring oats**	**Spring wheat**	**Undersown barley**	**Undersown oats**	**Ware potatoes**	**Winter barley**	**Winter oats**	**Winter wheat**	**All crops**
Seed treatments												
Carboxin/thiram	.	.	344.58	7.82	41.77	.	.	.	.	172.67	407.72	974.56
Clothianidin/prothioconazole	.	.	488.55	56.78	.	.	.	.	4,666.18	451.78	3,773.29	9,436.57
Fludioxonil	.	.	6,565.31	792.01	237.43	231.50	15.20	119.02	612.04	32.28	688.07	9,292.87
Fluopyram/prothioconazole/tebuconazole	.	.	707.91	.	29.83	.	.	.	515.90	.	578.08	1,831.73
Fluquinconazole	.	.	.	.	.	.	.	.	48.45	.	43.58	92.04
Flutolanil	.	.	.	.	.	.	.	162.37	.	.	.	162.37
Imazalil	.	.	.	.	.	.	.	207.37	.	.	.	207.37
Imazalil/pencycuron	.	40.12	.	.	.	.	.	26.22	.	.	.	66.34
Imazalil/thiabendazole	.	.	.	.	.	.	.	24.33	.	.	.	24.33
Pencycuron	.	.	.	.	.	.	.	558.93	.	.	.	558.93
Prochloraz/triticonazole	.	.	3,526.69	32.37	270.26	.	.	.	1,186.11	42.62	1,285.26	6,343.30
Prothioconazole	.	.	168.26	.	.	.	.	.	277.40	.	342.00	787.66
Silthiofam	.	.	60.87	.	.	.	.	.	275.18	.	2,200.56	2,536.60
Thiram	24.60	.	.	.	.	.	.	.	.	.	.	24.60
Unknown seed treatment	.	239.42	.	.	.	.	.	418.76	.	.	.	658.18
All seed treatments	**24.60**	**279.54**	**11,862.17**	**888.98**	**579.28**	**231.50**	**15.20**	**1,517.00**	**7,581.26**	**699.35**	**9,318.57**	**32,997.45**

Table 9: **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland, 2016.**

	Crop type												
Pesticide group & active substance	**Field beans**	**Seed potatoes**	**Spring barley**	**Spring oats**	**Spring oil seed rape**	**Spring wheat**	**Undersown oats**	**Ware potatoes**	**Winter barley**	**Winter oats**	**Winter oil seed rape**	**Winter wheat**	**All crops**
Fungicides													
Ametoctradin/dimethomorph	.	206.74	.	.	.	.	.	873.40	.	.	.	.	1,080.14
Azoxystrobin	8.44	.	.	11.95	.	.	.	163.66	21.00	29.58	15.01	257.90	507.53
Benthiavalicarb-isopropyl/mancozeb	.	519.04	.	.	.	.	.	1,501.86	.	.	.	.	2,020.90
Bixafen/fluoxastrobin/prothioconazole	.	.	3.02	.	.	3.30	.	.	5.36	.	.	74.15	85.82
Bixafen/prothioconazole	.	.	318.81	4.21	.	6.91	.	.	457.43	.	.	348.00	1,135.36
Bixafen/prothioconazole/spiroxamine	.	.	.	.	.	.	.	.	.	.	.	38.56	38.56
Boscalid	.	.	.	.	.	.	.	.	.	.	29.93	.	29.93
Boscalid/epoxiconazole	.	.	59.97	.	.	21.16	.	.	200.18	3.82	.	313.93	599.06
Boscalid/metconazole	.	.	.	.	.	.	.	.	.	.	6.27	.	6.27
Chlorothalonil	.	.	3,588.56	50.68	.	205.77	9.50	.	3,416.09	10.29	.	3,990.37	11,271.27
Chlorothalonil/cyproconazole	211.69	.	269.97	.	.	.	.	.	255.09	.	.	302.59	1,039.33
Chlorothalonil/cyproconazole/propiconazole	.	.	553.68	.	.	105.02	.	.	334.73	.	.	256.18	1,249.60
Chlorothalonil/penthiopyrad	.	.	517.62	.	.	47.96	.	.	283.13	.	.	1,539.40	2,388.12
Chlorothalonil/picoxystrobin	.	.	260.73	.	.	.	.	.	.	.	.	.	260.73
Chlorothalonil/proquinazid	.	.	15.73	.	.	3.98	.	.	16.07	.	.	17.12	52.91
Chlorothalonil/tebuconazole	.	.	.	.	.	.	.	.	.	.	.	117.74	117.74
Cyazofamid	.	79.51	.	.	.	.	.	302.89	.	.	.	.	382.40
Cymoxanil	.	10.99	.	.	.	.	.	107.37	.	.	.	.	118.36
Cymoxanil/mancozeb	.	524.76	.	.	.	.	.	2,979.81	.	.	.	.	3,504.57
Cymoxanil/propamocarb hydrochloride	.	108.57	.	.	.	.	.	883.61	.	.	.	.	992.19
Cymoxanil/zoxamide	.	.	.	.	.	.	.	63.42	.	.	.	.	63.42
Cyproconazole/penthiopyrad	.	.	.	.	.	.	.	.	.	.	.	82.79	82.79
Cyproconazole/propiconazole	.	.	5.53	.	.	.	.	.	18.02	.	.	.	23.55
Cyprodinil	.	.	266.59	.	.	.	2.42	.	85.42	.	.	3.45	357.89
Cyprodinil/isopyrazam	.	.	493.06	.	.	.	.	.	554.09	.	.	.	1,047.16
Cyprodinil/picoxystrobin	.	.	48.23	.	.	.	1.62	.	28.81	.	.	3.27	81.92
Difenoconazole	.	.	.	.	.	.	.	.	.	.	8.52	.	8.52
Dimethomorph/fluazinam	.	.	.	.	.	.	.	71.41	.	.	.	.	71.41
Dimethomorph/mancozeb	.	749.60	.	.	.	.	.	4,040.12	.	.	.	.	4,789.72
Epoxiconazole	.	.	123.75	29.97	.	21.88	.	.	85.53	27.84	.	393.29	682.25
Epoxiconazole/fenpropimorph	.	.	274.17	.	.	5.97	.	.	71.09	.	.	21.76	372.99
Epoxiconazole/fenpropimorph/kresoxim-methyl	.	.	93.48	27.98	.	47.52	.	.	84.09	14.79	.	40.73	308.60
Epoxiconazole/fenpropimorph/metrafenone	.	.	.	67.26	.	.	.	.	.	238.49	.	.	305.74
Epoxiconazole/fenpropimorph/pyraclostrobin	.	.	20.39	.	.	.	.	.	.	.	.	47.55	67.94

Table 9 contd: **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland, 2016.**

	Crop type												
Pesticide group & active substance	**Field beans**	**Seed potatoes**	**Spring barley**	**Spring oats**	**Spring oil seed rape**	**Spring wheat**	**Undersown oats**	**Ware potatoes**	**Winter barley**	**Winter oats**	**Winter oil seed rape**	**Winter wheat**	**All crops**
Fungicides													
Epoxiconazole/fluxapyroxad	.	.	17.50	.	.	.	.	.	35.41	.	.	230.96	283.87
Epoxiconazole/fluxapyroxad/pyraclostrobin	.	.	10.73	.	.	.	.	.	86.65	.	.	181.99	279.37
Epoxiconazole/isopyrazam	.	.	.	.	.	.	.	.	.	.	.	25.17	25.17
Epoxiconazole/metconazole	.	.	6.57	.	.	0.86	.	.	3.35	.	.	159.34	170.12
Epoxiconazole/prochloraz	.	.	88.66	.	.	3.24	.	.	25.00	.	.	.	116.90
Fenamidone/propamocarb hydrochloride	.	372.94	.	.	.	.	.	2,496.61	.	.	.	.	2,869.55
Fenpropimorph	.	.	214.84	149.64	.	.	6.04	.	329.92	84.36	.	294.71	1,079.51
Fenpropimorph/flusilazole	.	.	.	.	.	.	.	.	5.81	.	.	.	5.81
Fenpropimorph/pyraclostrobin	.	.	.	.	.	.	.	.	.	6.78	.	.	6.78
Fluazinam	.	235.55	.	.	.	.	.	1,995.84	.	.	.	.	2,231.40
Fluopicolide/propamocarb hydrochloride	.	1,834.86	.	.	.	.	.	5,754.46	.	.	.	.	7,589.32
Fluoxastrobin/prothioconazole	.	.	269.78	3.19	.	2.38	.	.	271.78	.	4.08	47.78	599.00
Fluoxastrobin/prothioconazole/trifloxystrobin	.	.	24.59	.	.	5.20	.	.	36.28	.	.	.	66.07
Fluxapyroxad	.	.	22.17	.	.	1.68	.	.	8.02	.	.	32.05	63.93
Fluxapyroxad/metconazole	.	.	.	.	.	.	.	.	.	.	.	53.84	53.84
Folpet	.	.	8.44	.	.	.	.	.	.	.	.	42.98	51.43
Isopyrazam	.	.	1.06	.	.	.	.	.	0.91	.	.	.	1.96
Mancozeb	.	31.49	.	.	.	.	.	770.45	.	.	.	123.39	925.34
Mandipropamid	.	24.11	.	.	.	.	.	594.83	.	.	.	.	618.95
Metconazole	.	.	.	.	.	.	.	.	2.73	.	8.31	9.06	20.09
Penthiopyrad	.	.	33.73	.	.	.	.	.	115.19	.	.	500.42	649.34
Penthiopyrad/picoxystrobin	.	.	.	.	.	.	.	.	.	.	.	14.61	14.61
Prochloraz/tebuconazole	.	.	45.07	.	.	38.15	.	.	6.37	.	.	94.48	184.08
Proquinazid	.	.	.	2.93	.	1.09	.	.	5.75	14.93	.	12.17	36.87
Prothioconazole	.	.	357.02	6.24	1.21	27.48	2.96	.	365.07	18.96	24.93	371.45	1,175.33
Prothioconazole/spiroxamine	.	.	65.83	.	.	.	.	.	89.28	.	.	.	155.10
Prothioconazole/tebuconazole	.	.	46.41	.	.	5.20	.	.	17.79	1.14	64.94	604.46	739.95
Prothioconazole/trifloxystrobin	.	.	287.81	.	.	.	.	.	242.23	.	.	46.96	577.00
Pyraclostrobin	.	.	49.85	47.56	.	.	.	.	19.51	59.94	.	19.30	196.15
Quinoxyfen	.	.	.	.	.	.	.	.	.	.	.	3.95	3.95
Tebuconazole	17.14	.	54.60	17.37	.	.	.	.	.	8.35	64.78	430.28	592.52
Trifloxystrobin	.	.	23.58	.	.	.	.	.	3.89	.	.	.	27.48
Unknown fungicide	.	.	.	.	.	.	.	.	20.75	.	.	.	20.75
All fungicides	**237.27**	**4,698.17**	**8,541.55**	**418.98**	**1.21**	**554.76**	**22.54**	**22,599.75**	**7,607.82**	**519.27**	**226.75**	**11,148.12**	**56,576.19**

Table 9 contd: **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland, 2016.**

	Crop type												
Pesticide group & active substance	Field beans	Seed potatoes	Spring barley	Spring oats	Spring oil seed rape	Spring wheat	Undersown barley	Ware potatoes	Winter barley	Winter oats	Winter oil seed rape	Winter wheat	All crops
Herbicides & desiccants													
2,4-DB	.	.	109.01	8.13	.	.	231.50	.	.	.	.	.	348.64
Amidosulfuron	.	.	0.19	.	.	.	.	.	3.16	.	.	.	3.36
Amidosulfuron/iodosulfron-methyl-sodium	.	.	.	.	.	.	.	.	.	.	.	4.30	4.30
Aminopyralid/propyzamide	.	.	.	.	.	.	.	.	.	.	18.18	.	18.18
Aminopyralid/triclopyr	.	.	5.71	.	.	.	.	.	.	.	.	.	5.71
Bentazone	109.02	.	.	.	.	.	.	.	.	.	.	.	109.02
Bromoxynil/ioxynil	.	.	37.48	.	.	.	.	.	.	.	.	.	37.48
Carfentrazone-ethyl	.	7.24	.	.	.	.	.	48.92	.	.	.	.	56.16
Carfentrazone-ethyl/flupyrsulfron-methyl	.	.	.	.	.	.	.	.	.	0.19	.	.	0.19
Chlorotoluron/diflufenican	.	.	.	.	.	.	.	.	470.69	.	.	35.00	505.69
Chlorotoluron/diflufenican/pendimethalin	.	.	114.11	.	.	.	.	.	143.74	.	.	.	257.86
Clopyralid/florasulam/fluroxypyr	.	.	15.84	.	.	9.42	.	.	30.30	.	.	.	55.55
Clopyralid/picloram	.	.	.	.	.	.	.	.	.	.	28.74	.	28.74
Dicamba/MCPA/mecoprop-P	.	.	179.20	65.89	.	.	.	.	16.01	.	.	21.60	282.69
Dicamba/mecoprop-P	.	.	1,098.20	43.59	.	28.07	.	.	144.87	.	.	.	1,314.73
Diflufenican	.	.	36.83	.	.	5.13	.	.	295.73	3.48	.	141.04	482.20
Diflufenican/flufenacet	.	.	106.18	.	.	5.91	.	.	389.97	24.17	.	166.76	693.00
Diflufenican/flufenacet/flurtamone	.	.	.	.	.	.	.	.	66.90	.	.	158.07	224.97
Diflufenican/iodosulfron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	.	.	.	.	0.29	.	.	191.04	191.33
Diflufenican/isoproturon	.	.	15.69	.	.	.	.	.	.	.	.	.	15.69
Diflufenican/metsulfuron-methyl	.	.	4.05	.	.	.	.	.	.	.	.	.	4.05
Dimethenamid-P/metazachlor/quinmerac	.	.	.	.	.	.	.	.	.	.	224.97	.	224.97
Diquat	16.82	341.64	8.52	.	.	.	.	2,707.34	2.32	.	.	.	3,076.64
Ethametsulfuron-methyl	.	.	.	.	.	.	.	.	.	.	1.80	.	1.80
Florasulam	.	.	0.83	1.32	.	.	.	.	.	.	.	.	2.15
Florasulam/fluroxypyr	.	.	135.04	6.55	.	6.34	.	.	41.82	3.48	.	105.06	298.29
Florasulam/pyroxsulam	.	.	.	.	.	1.95	.	.	.	.	.	7.71	9.67
Fluazifop-P-butyl	.	.	.	.	.	.	.	.	.	.	4.57	.	4.57
Flufenacet/metribuzin	.	.	.	.	.	.	.	79.03	.	.	.	.	79.03
Flufenacet/pendimethalin	.	.	102.61	.	.	62.43	.	.	2,992.47	.	.	2,043.69	5,201.19
Flupyrsulfuron-methyl	.	.	.	.	.	.	.	.	0.24	.	.	0.48	0.72
Flupyrsulfuron-methyl/thifensulfuron-methyl	.	.	.	.	.	.	.	.	.	1.96	.	.	1.96
Fluroxypyr	.	.	595.13	61.92	.	60.60	.	.	213.33	38.75	.	373.71	1,343.45
Fluroxypyr/triclopyr	.	.	65.05	.	.	.	.	.	.	.	.	.	65.05
Glyphosate	199.40	45.13	5,652.18	153.98	10.58	85.82	.	1,053.42	3,787.76	415.45	516.80	4,555.72	16,476.23
Imazamox/pendimethalin	42.78	.	.	.	.	.	.	.	.	.	.	.	42.78

Table 9 contd: **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland, 2016.**

	Crop type												
Pesticide group & active substance	**Field beans**	**Seed potatoes**	**Spring barley**	**Spring oats**	**Spring oil seed rape**	**Spring wheat**	**Undersown barley**	**Ware potatoes**	**Winter barley**	**Winter oats**	**Winter oil seed rape**	**Winter wheat**	**All crops**
Herbicides & desiccants													
Iodosulfron-methyl-sodium	.	.	9.15	.	.	.	.	.	.	.	.	0.33	9.49
Iodosulfron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	.	.	.	.	0.27	.	.	10.07	10.33
Isoproturon	.	.	27.18	.	.	.	.	.	103.75	.	.	.	130.93
Linuron	5.46	70.57	.	.	.	.	.	362.70	.	.	.	.	438.73
MCPA	.	.	310.00	32.25	.	.	.	.	.	.	.	.	342.26
Mecoprop-P	.	.	1,951.18	154.68	.	.	.	.	279.81	117.27	.	1,092.96	3,595.90
Metazachlor	.	.	.	.	7.26	.	.	.	41.99	.	.	23.92	73.18
Metazachlor/quinmerac	.	.	.	.	.	.	.	.	.	.	27.29	.	27.29
Metribuzin	.	297.28	.	.	.	.	.	1,159.18	.	.	.	.	1,456.47
Metsulfuron-methyl	.	.	19.62	3.07	.	0.67	.	.	2.73	.	.	2.20	28.29
Metsulfuron-methyl/thifensulfuron-methyl	.	.	57.09	.	.	6.31	.	.	4.84	4.56	.	16.09	88.89
Metsulfuron-methyl/tribenuron-methyl	.	.	50.18	5.67	.	0.42	.	.	3.56	4.51	.	1.97	66.30
Pendimethalin	192.53	.	150.68	.	.	.	.	.	190.44	.	.	280.59	814.24
Pendimethalin/picolinafen	.	.	326.73	7.38	.	30.59	.	.	376.25	.	.	175.23	916.18
Pinoxaden	.	.	67.16	.	.	7.23	.	.	47.90	.	.	18.32	140.62
Propaquizafop	0.98	.	.	0.36	.	.	.	12.98	.	.	7.93	.	22.26
Propyzamide	.	.	.	.	.	.	.	.	.	.	243.07	.	243.07
Prosulfocarb	.	64.19	267.23	.	.	.	.	1,002.79	488.53	.	.	530.61	2,353.35
Rimsulfuron	.	1.59	.	.	.	.	.	3.55	.	.	.	.	5.14
Tepraloxydim	4.52	.	.	.	.	.	.	.	.	.	.	.	4.52
Thifensulfuron-methyl	.	.	1.14	.	.	.	.	.	.	.	.	.	1.14
Thifensulfuron-methyl/tribenuron-methyl	.	.	29.83	1.02	.	1.30	.	.	2.51	.	.	1.74	36.40
Tribenuron-methyl	.	.	1.31	<0.05	.	.	1.10	.	.	.	.	.	2.41
All herbicides & desiccants	**203.50**	**433.64**	**3,268.48**	**204.43**	**7.26**	**46.52**	**1.10**	**2,541.20**	**1,542.60**	**126.33**	**278.29**	**2,154.02**	**10,807.37**

Table 9 contd: **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland, 2016.**

	Crop type										
Pesticide group & active substance	**Field beans**	**Seed potatoes**	**Spring barley**	**Spring oats**	**Spring wheat**	**Ware potatoes**	**Winter barley**	**Winter oats**	**Winter oil seed rape**	**Winter wheat**	**All crops**
Insecticides											
Alpha-cypermethrin	.	.	.	.	.	.	.	.	0.34	.	0.34
Chlorpyrifos	.	.	49.71	.	.	.	63.21	.	.	.	112.92
Cypermethrin	.	.	3.82	.	0.14	.	0.23	.	.	.	4.19
Deltamethrin	.	.	0.57	1.11	.	.	.	.	.	.	1.68
Dimethoate	.	.	.	.	.	.	.	.	.	61.43	61.43
Esfenvalerate	.	.	18.54	0.12	0.97	0.10	7.24	.	.	9.99	36.97
Flonicamid	.	39.38	.	.	.	6.73	.	.	.	.	46.11
Lambda-cyhalothrin	0.85	.	12.42	1.14	1.06	2.80	8.19	0.53	0.60	15.43	43.02
Pirimicarb	.	.	.	.	.	26.72	.	.	.	4.26	30.98
Pymetrozine	.	12.04	.	.	.	.	.	.	.	.	12.04
Thiacloprid	.	.	.	.	.	8.67	.	.	.	.	8.67
All insecticides	**0.85**	**51.42**	**85.06**	**2.37**	**2.17**	**45.01**	**78.88**	**0.53**	**0.94**	**91.11**	**358.33**
Molluscicides											
Ferric phosphate	.	.	4.37	.	.	45.37	.	5.76	.	8.38	63.88
Metaldehyde	.	.	8.10	0.37	.	253.44	24.50	.	.	10.76	297.16
Methiocarb	.	.	.	.	.	3.61	.	.	.	.	3.61
All molluscicides	**.**	**.**	**12.47**	**0.37**	**.**	**302.41**	**24.50**	**5.76**	**.**	**19.14**	**364.65**

Table 9 contd: **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland, 2016.**

	Crop type									
Pesticide group & active substance	**Spring barley**	**Spring oats**	**Spring wheat**	**Undersown barley**	**Undersown oats**	**Winter barley**	**Winter oats**	**Winter oil seed rape**	**Winter wheat**	**All crops**
Growth regulators										
2-chloroethylphosphonic acid	112.94	.	7.43	.	.	300.93	.	.	202.63	623.93
Chlormequat	4,982.74	273.94	298.88	179.41	31.92	3,466.95	328.80	.	6,431.76	15,994.40
Chlormequat chloride	.	.	.	.	.	77.46	.	.	.	77.46
Chlormequat with choline chloride	.	.	.	.	.	104.36	.	.	41.17	145.53
Chlormequat/imazaquin	.	.	.	.	.	.	.	.	259.63	259.63
Ethephon	1.52	.	.	.	.	.	.	.	.	1.52
Mepiquat chloride/metconazole	.	.	.	.	.	.	.	27.02	.	27.02
Mepiquat chloride/prohexadione-calcium	120.92	11.96	.	.	.	166.83	22.70	.	124.61	447.03
Trinexapac-ethyl	171.88	17.66	17.20	.	4.26	229.30	32.28	.	150.97	623.55
Unknown growth regulator	.	.	.	.	.	.	.	29.93	.	29.93
All growth regulators	**5,389.99**	**303.56**	**323.51**	**179.41**	**36.18**	**4,345.83**	**383.79**	**56.95**	**7,210.77**	**18,229.98**
Other active substances										
Synthetic latex	.	.	.	.	.	.	.	224.56	.	224.56
All other active substances	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**224.56**	**.**	**224.56**

Table 9 contd: **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland, 2016.**

	Crop type											
Pesticide group & active substance	**Field beans**	**Seed potatoes**	**Spring barley**	**Spring oats**	**Spring wheat**	**Undersown barley**	**Undersown oats**	**Ware potatoes**	**Winter barley**	**Winter oats**	**Winter wheat**	**All crops**
Seed treatments												
Carboxin/thiram	.	.	69.33	1.25	11.02	.	.	.	.	39.05	85.39	206.05
Clothianidin/prothioconazole	.	.	51.97	5.92	.	.	.	.	472.90	43.23	391.13	965.16
Fludioxonil	.	.	59.04	7.25	2.24	2.18	0.10	7.35	5.23	0.28	5.69	89.36
Fluopyram/prothioconazole/tebuconazole	.	.	12.35	.	0.52	.	.	.	8.63	.	9.47	30.97
Fluquinconazole	.	.	.	.	.	.	.	.	6.86	.	6.17	13.04
Flutolanil	.	.	.	.	.	.	.	47.99	.	.	.	47.99
Imazalil	.	.	.	.	.	.	.	5.41	.	.	.	5.41
Imazalil/pencycuron	.	26.49	.	.	.	.	.	17.31	.	.	.	43.80
Imazalil/thiabendazole	.	.	.	.	.	.	.	2.70	.	.	.	2.70
Pencycuron	.	.	.	.	.	.	.	331.73	.	.	.	331.73
Prochloraz/triticonazole	.	.	105.37	0.96	9.06	.	.	.	32.97	0.96	36.50	185.83
Prothioconazole	.	.	2.97	.	.	.	.	.	4.15	.	6.13	13.25
Silthiofam	.	.	2.54	.	.	.	.	.	11.76	.	91.70	106.00
Thiram	6.39	.	.	.	.	.	.	.	.	.	.	6.39
Unknown seed treatment	.	1,357.46	.	.	.	.	.	N/K	.	.	.	1,357.46
All seed treatments	**6.39**	**1,383.95**	**303.58**	**15.39**	**22.84**	**2.18**	**0.10**	**412.51**	**542.50**	**83.53**	**632.19**	**3,405.16**

Table 10: **The fifty active substances most extensively used on arable crops in Northern Ireland, 2016, ranked by area treated (spray hectares).**

	Active substance	*Treated area (sp ha)*
1	Chlorothalonil	34,013.26
2	Prothioconazole	30,217.26
3	Glyphosate	23,021.45
4	Chlormequat	18,896.31
5	Epoxiconazole	17,885.25
6	Diflufenican	14,782.25
7	Metsulfuron-methyl	13,844.17
8	Fluroxypyr	13,478.50
9	Fluazinam	11,747.17
10	Trinexapac-ethyl	11,434.41
11	Propamocarb hydrochloride	11,335.04
12	Flufenacet	10,429.69
13	Tebuconazole	9,629.57
14	Esfenvalerate	9,577.42
15	Penthiopyrad	8,563.61
16	Mecoprop-P	8,368.44
17	Lambda-cyhalothrin	8,326.69
18	Pendimethalin	8,025.51
19	Tribenuron-methyl	7,947.36
20	Mancozeb	7,757.34
21	Bixafen	7,695.86
22	Diquat	7,584.77
23	Fenpropimorph	7,307.50
24	Fluopicolide	6,940.98
25	Cyprodinil	5,875.03
26	Dimethomorph	5,712.03
27	Iodosulfron-methyl-sodium	5,585.98
28	Cymoxanil	5,183.66
29	Florasulam	5,079.62
30	Fluxapyroxad	4,996.09
31	Cyazofamid	4,950.08
32	Thifensulfuron-methyl	4,373.78
33	Pinoxaden	4,366.82
34	Cyproconazole	4,336.71
35	Mandipropamid	4,166.53
36	Fluoxastrobin	4,107.27
37	Trifloxystrobin	4,096.08
38	Mesosulfuron-methyl	3,871.66
39	2-chloroethylphosphonic acid	3,448.79
40	Isopyrazam	3,375.42
41	Fenamidone	3,361.10
42	Metconazole	3,001.78
43	Metribuzin	2,928.45
44	Dicamba	2,886.20
45	Azoxystrobin	2,621.23
46	Pyraclostrobin	2,613.27
47	Ametoctradin	2,604.83
48	Metaldehyde	2,326.69
49	Mepiquat chloride	2,216.97
50	Propiconazole	2,131.99

Table 11: **The fifty active substances most extensively used on arable crops in Northern Ireland, 2016, ranked by weight (kilograms).**

	Active substance	*Quantity (kg)*
1	Glyphosate	17,493.15
2	Chlormequat	16,253.46
3	Chlorothalonil	15,234.11
4	Mancozeb	10,491.91
5	Propamocarb hydrochloride	10,172.61
6	Pendimethalin	6,194.02
7	Mecoprop-P	4,831.88
8	Prothioconazole	3,369.54
9	Diquat	3,076.64
10	Prosulfocarb	2,353.35
11	Fluazinam	2,267.10
12	Fenpropimorph	1,704.21
13	Fluroxypyr	1,692.53
14	Epoxiconazole	1,588.81
15	Flufenacet	1,564.63
16	Metribuzin	1,489.79
17	Penthiopyrad	1,398.12
18	Unknown seed (trt)	1,357.46
19	Cyprodinil	1,192.33
20	Tebuconazole	1,038.53
21	Dimethomorph	982.76
22	Diflufenican	892.64
23	Clothianidin	804.30
24	Fluopicolide	689.94
25	2-chloroethylphosphonic acid	623.93
26	Trinexapac-ethyl	623.55
27	Mandipropamid	618.95
28	Ametoctradin	617.22
29	Chlorotoluron	593.65
30	MCPA	528.73
31	Azoxystrobin	507.53
32	Fenamidone	478.26
33	Cymoxanil	475.52
34	Linuron	438.73
35	Mepiquat chloride	406.81
36	Cyazofamid	382.40
37	Pencycuron	373.57
38	Prochloraz	353.73
39	2,4-DB	348.64
40	Pyraclostrobin	342.68
41	Fluoxastrobin	338.60
42	Boscalid	336.19
43	Bixafen	318.76
44	Fluxapyroxad	313.62
45	Metaldehyde	297.16
46	Trifloxystrobin	295.52
47	Isopyrazam	293.99
48	Cyproconazole	261.19
49	Propyzamide	261.03
50	Synthetic latex	224.56

Table 12: **Spring barley: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment						
Pesticide group and active substance	**Disease Prevention**	**General Disease Control**	**General Fungal Control**	**Mildew/ Rhynchosporium**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides							
Bixafen/fluoxastrobin/prothioconazole	.	.	34.71	.	34.71	34.71	3.02
Bixafen/prothioconazole	333.42	89.51	1,849.68	.	2,272.61	2,050.71	318.81
Boscalid/epoxiconazole	56.30	.	208.76	.	265.05	265.05	59.97
Chlorothalonil	1,520.99	270.50	5,982.62	71.44	7,845.55	6,786.75	3,588.56
Chlorothalonil/cyproconazole	265.95	.	199.60	.	465.56	465.56	269.97
Chlorothalonil/cyproconazole/propiconazole	208.93	.	604.28	.	813.21	764.17	553.68
Chlorothalonil/penthiopyrad	92.76	.	1,224.74	.	1,317.50	1,247.41	517.62
Chlorothalonil/picoxystrobin	.	.	435.54	.	435.54	435.54	260.73
Chlorothalonil/proquinazid	.	.	39.94	.	39.94	39.94	15.73
Cyproconazole/propiconazole	.	.	40.53	.	40.53	20.27	5.53
Cyprodinil	.	38.02	1,213.64	.	1,251.66	995.40	266.59
Cyprodinil/isopyrazam	267.46	127.58	1,127.76	.	1,522.81	1,376.91	493.06
Cyprodinil/picoxystrobin	224.39	.	127.04	.	351.43	311.78	48.23
Epoxiconazole	221.59	.	1,409.70	.	1,631.29	1,561.20	123.75
Epoxiconazole/fenpropimorph	148.63	.	731.87	.	880.50	880.50	274.17
Epoxiconazole/fenpropimorph/kresoxim-methyl	.	.	234.18	.	234.18	234.18	93.48
Epoxiconazole/fenpropimorph/pyraclostrobin	.	.	54.89	.	54.89	54.89	20.39
Epoxiconazole/fluxapyroxad	47.29	.	109.47	.	156.76	156.76	17.50
Epoxiconazole/fluxapyroxad/pyraclostrobin	.	.	41.42	.	41.42	41.42	10.73
Epoxiconazole/metconazole	.	63.48	59.18	.	122.66	122.66	6.57
Epoxiconazole/prochloraz	.	41.42	197.80	.	239.22	239.22	88.66
Fenpropimorph	351.02	63.48	514.82	.	929.31	929.31	214.84
Fluoxastrobin/prothioconazole	170.35	.	1,298.60	.	1,468.95	1,236.03	269.78
Fluoxastrobin/prothioconazole/trifloxystrobin	.	63.48	113.14	.	176.61	176.61	24.59
Fluxapyroxad	49.10	.	534.38	.	583.47	583.47	22.17
Folpet	16.89	.	.	.	16.89	16.89	8.44
Isopyrazam	.	.	16.89	.	16.89	16.89	1.06
Penthiopyrad	54.89	.	142.41	.	197.30	177.03	33.73
Prochloraz/tebuconazole	.	.	76.00	.	76.00	76.00	45.07

Table 12 contd: **Spring barley: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment						
Pesticide group and active substance	**Disease Prevention**	**General Disease Control**	**General Fungal Control**	**Mildew/ Rhynchosporium**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides							
Prothioconazole	553.02	.	2,685.48	71.44	3,309.93	2,961.74	357.02
Prothioconazole/spiroxamine	33.78	.	254.57	.	288.35	271.46	65.83
Prothioconazole/tebuconazole	103.58	.	189.75	.	293.34	293.34	46.41
Prothioconazole/trifloxystrobin	437.62	.	1,310.11	.	1,747.73	1,620.26	287.81
Pyraclostrobin	164.17	.	194.68	.	358.86	358.86	49.85
Tebuconazole	.	.	507.33	.	507.33	452.44	54.60
Trifloxystrobin	.	.	201.61	.	201.61	201.61	23.58
All fungicides	**5,322.12**	**757.46**	**23,967.12**	**142.88**	**30,189.58**	**.**	**8,541.55**

Table 12 contd: **Spring barley: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment																	
Pesticide group and active substance	**Cleavers**	**Dessication**	**Docks**	**Docks And Thistles**	**End rigs**	**General Weed Control**	**Grass**	**Ground Preparation**	**Headlands**	**Nettles**	**Pre-emergence weed control**	**Stubble Treatment**	**Volunteer Potatoes**	**Wild Oats**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides & dessicants																	
2,4-DB	.	.	.	.	.	121.80	.	.	.	.	.	.	.	.	121.80	121.80	109.01
Amidosulfuron	59.35	.	.	.	.	.	.	.	.	.	.	.	.	.	59.35	59.35	0.19
Aminopyralid/triclopyr	.	.	.	.	.	.	.	10.58	.	.	.	.	.	.	10.58	10.58	5.71
Bromoxynil/ioxynil	.	.	.	.	.	93.69	.	.	.	.	.	.	.	.	93.69	93.69	37.48
Chlorotoluron/diflufenican/pendimethalin	.	.	.	.	.	129.90	.	.	.	.	.	.	.	.	129.90	129.90	114.11
Clopyralid/florasulam/fluroxypyr	.	.	.	.	.	105.69	.	.	.	.	.	.	.	.	105.69	105.69	15.84
Dicamba/MCPA/mecoprop-P	.	.	.	.	.	491.47	.	.	.	.	.	.	.	.	491.47	274.65	179.20
Dicamba/mecoprop-P	.	.	.	.	.	1,891.08	.	.	.	.	.	.	.	.	1,891.08	1,891.08	1,098.20
Diflufenican	.	.	.	.	.	626.86	.	.	.	.	.	.	.	.	626.86	626.86	36.83
Diflufenican/flufenacet	.	.	.	.	.	662.62	.	14.36	.	.	.	.	.	.	676.98	676.98	106.18
Diflufenican/isoproturon	.	.	.	.	.	42.32	.	.	.	.	.	.	.	.	42.32	42.32	15.69
Diflufenican/metsulfuron-methyl	.	.	.	.	.	170.35	.	.	.	.	.	.	.	.	170.35	170.35	4.05
Diquat	.	.	.	.	.	.	.	85.17	.	.	.	.	.	.	85.17	85.17	8.52
Florasulam	.	.	.	.	.	224.86	.	.	.	.	.	.	.	.	224.86	224.86	0.83
Florasulam/fluroxypyr	25.39	.	.	.	.	1,693.66	.	.	.	.	.	.	25.33	.	1,744.38	1,718.99	135.04
Flufenacet/pendimethalin	.	.	.	.	.	202.80	.	.	.	.	.	.	.	.	202.80	147.78	102.61
Fluroxypyr	.	.	.	.	.	4,147.28	.	.	.	.	.	.	.	.	4,147.28	3,921.37	595.13
Fluroxypyr/triclopyr	.	.	216.82	.	.	.	.	.	.	.	.	.	.	.	216.82	216.82	65.05
Glyphosate	.	4,976.25	.	.	153.00	578.82	.	1,304.31	92.89	193.95	25.39	228.43	.	.	7,553.03	6,674.88	5,652.18
Iodosulfron-methyl-sodium	.	.	.	.	.	1,318.21	131.48	.	.	.	.	.	.	.	1,449.69	1,386.21	9.15
Isoproturon	.	.	.	.	.	.	54.37	.	.	.	.	.	.	.	54.37	54.37	27.18
MCPA	.	.	.	.	.	594.14	.	.	.	.	.	.	.	.	594.14	594.14	310.00
Mecoprop-P	.	.	.	.	.	2,767.16	84.63	.	.	.	.	.	.	.	2,851.80	2,724.85	1,951.18
Metsulfuron-methyl	.	.	.	.	.	3,567.75	.	.	.	.	.	.	.	.	3,567.75	3,567.75	19.62
Metsulfuron-methyl/thifensulfuron-methyl	.	.	.	74.06	.	1,392.94	.	.	.	.	.	.	.	.	1,467.00	1,467.00	57.09
Metsulfuron-methyl/tribenuron-methyl	.	.	.	.	.	4,604.98	.	.	.	.	.	.	.	.	4,604.98	4,344.80	50.18
Pendimethalin	.	.	.	.	.	153.94	.	.	.	.	.	.	.	.	153.94	153.94	150.68
Pendimethalin/picolinafen	.	.	.	.	.	265.90	.	.	.	.	80.34	.	.	.	346.24	346.24	326.73
Pinoxaden	.	.	.	.	.	295.79	.	.	.	.	.	.	.	1,857.92	2,153.71	2,153.71	67.16
Prosulfocarb	.	.	.	.	.	202.91	.	.	.	.	.	.	.	.	202.91	202.91	267.23
Thifensulfuron-methyl	.	.	.	.	.	61.36	.	.	.	.	.	.	.	.	61.36	61.36	1.14
Thifensulfuron-methyl/tribenuron-methyl	.	.	.	.	.	1,138.21	.	.	.	.	.	.	.	.	1,138.21	1,138.21	29.83
Tribenuron-methyl	.	.	.	.	.	264.60	.	.	.	.	.	.	.	.	264.60	264.60	1.31
All herbicides & dessicants	**84.74**	**4,976.25**	**216.82**	**74.06**	**153.00**	**27,811.10**	**270.48**	**1,414.42**	**92.89**	**193.95**	**105.73**	**228.43**	**25.33**	**1,857.92**	**37,505.12**	**.**	**11,550.31**

Table 12 contd: **Spring barley: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment					
Pesticide group and active substance	**Aphids**	**Cereal Aphids**	**General Insect Control**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Insecticides						
Chlorpyrifos	.	.	103.55	103.55	103.55	49.71
Cypermethrin	120.36	65.63	.	185.99	185.99	3.82
Deltamethrin	.	63.97	40.80	104.77	104.77	0.57
Esfenvalerate	959.35	1,576.43	2,218.94	4,754.72	4,283.89	18.54
Lambda-cyhalothrin	287.25	847.30	1,361.77	2,496.32	2,252.72	12.42
All insecticides	**1,366.96**	**2,553.34**	**3,725.06**	**7,645.36**	**.**	**85.06**

	Reason for treatment					
Pesticide group and active substance	**Growth Regulation**	**Seed Treatment**	**Slugs**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Growth Regulators						
2-chloroethylphosphonic acid	773.45	.	.	773.45	773.45	112.94
Chlormequat	5,803.61	.	.	5,803.61	5,638.51	4,982.74
Ethephon	6.31	.	.	6.31	6.31	1.52
Mepiquat chloride/prohexadione-calcium	560.43	.	.	560.43	520.78	120.92
Trinexapac-ethyl	3,526.92	.	.	3,526.92	3,463.04	171.88
All growth regulators	**10,670.72**	**.**	**.**	**10,670.72**	**.**	**5,389.99**
Molluscicides						
Ferric phosphate	.	.	61.36	61.36	61.36	4.37
Metaldehyde	.	.	61.36	61.36	61.36	8.10
All molluscicides	**.**	**.**	**122.72**	**122.72**	**.**	**12.47**
Seed treatments						
Carboxin/thiram	.	344.58	.	344.58	344.58	69.33
Clothianidin/prothioconazole	.	488.55	.	488.55	488.55	51.97
Fludioxonil	.	6,565.31	.	6,565.31	6,565.31	59.04
Fluopyram/prothioconazole/tebuconazole	.	707.91	.	707.91	707.91	12.35
Prochloraz/triticonazole	.	3,526.69	.	3,526.69	3,526.69	105.37
Prothioconazole	.	168.26	.	168.26	168.26	2.97
Silthiofam	.	60.87	.	60.87	60.87	2.54
All seed treatments	**.**	**11,862.17**	**.**	**11,862.17**	**.**	**303.58**

Table 13: **Undersown barley: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment					
Pesticide group and active substance	**Growth Regulation**	**Seed Treatment**	**General weed control**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides & dessicants						
2,4-DB	.	.	231.50	231.50	231.50	231.50
Tribenuron-methyl	.		231.50	231.50	231.50	1.10
All herbicides & dessicants	**.**	**.**	**463.00**	**463.00**	**231.50**	**179.41**
Growth Regulators						
Chlormequat	231.50	.	.	231.50	231.50	179.41
All growth regulators	**231.50**	**.**	**.**	**231.50**	**231.50**	**179.41**
Seed treatments						
Fludioxonil	.	231.50	.	231.50	231.50	2.18
All seed treatments	**.**	**231.50**	**.**	**231.50**	**231.50**	**2.18**

Table 14: **Winter barley: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment					
Pesticide group and active substance	**Disease Prevention**	**General Disease Control**	**General Fungal Control**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides						
Azoxystrobin	.	.	104.98	104.98	104.98	21.00
Bixafen/fluoxastrobin/prothioconazole	22.56	.	.	22.56	22.56	5.36
Bixafen/prothioconazole	573.40	70.90	2,250.30	2,894.60	2,420.56	457.43
Boscalid/epoxiconazole	33.52	.	241.65	275.16	275.16	200.18
Chlorothalonil	1,797.18	270.59	5,485.03	7,552.80	5,390.30	3,416.09
Chlorothalonil/cyproconazole	.	.	484.10	484.10	484.10	255.09
Chlorothalonil/cyproconazole/propiconazole	.	.	534.30	534.30	410.77	334.73
Chlorothalonil/penthiopyrad	57.43	.	475.90	533.33	533.33	283.13
Chlorothalonil/proquinazid	22.56	.	25.78	48.34	48.34	16.07
Cyproconazole/propiconazole	.	.	97.67	97.67	48.83	18.02
Cyprodinil	225.19	.	515.50	740.69	740.69	85.42
Cyprodinil/isopyrazam	274.13	12.89	1,415.74	1,702.76	1,514.64	554.09
Cyprodinil/picoxystrobin	.	.	216.63	216.63	108.31	28.81
Epoxiconazole	168.54	.	902.31	1,070.85	1,019.28	85.53
Epoxiconazole/fenpropimorph	.	.	190.31	190.31	190.31	71.09
Epoxiconazole/fenpropimorph/kresoxim-methyl	54.50	101.78	112.09	268.37	268.37	84.09
Epoxiconazole/fluxapyroxad	116.17	.	260.55	376.72	376.72	35.41
Epoxiconazole/fluxapyroxad/pyraclostrobin	253.78	.	84.98	338.76	338.76	86.65
Epoxiconazole/metconazole	16.11	.	12.92	29.04	29.04	3.35
Epoxiconazole/prochloraz	.	86.95	.	86.95	86.95	25.00
Fenpropimorph	724.95	.	850.77	1,575.72	1,575.72	329.92
Fenpropimorph/flusilazole	.	.	13.57	13.57	13.57	5.81
Fluoxastrobin/prothioconazole	334.54	.	966.71	1,301.25	1,162.90	271.78
Fluoxastrobin/prothioconazole/trifloxystrobin	.	.	174.37	174.37	174.37	36.28
Fluxapyroxad	197.34	.	54.03	251.37	251.37	8.02
Isopyrazam	.	.	14.54	14.54	14.54	0.91
Metconazole	61.38	.	.	61.38	61.38	2.73
Penthiopyrad	.	12.89	672.06	684.96	469.23	115.19
Prochloraz/tebuconazole	.	.	31.86	31.86	31.86	6.37
Proquinazid	.	.	190.68	190.68	190.68	5.75
Prothioconazole	727.24	12.89	2,524.62	3,264.75	2,638.06	365.07
Prothioconazole/spiroxamine	48.34	.	354.62	402.96	402.96	89.28
Prothioconazole/tebuconazole	19.34	.	188.97	208.31	208.31	17.79
Prothioconazole/trifloxystrobin	377.60	14.83	1,068.48	1,460.91	1,301.17	242.23
Pyraclostrobin	.	.	78.02	78.02	78.02	19.51
Trifloxystrobin	.	.	51.89	51.89	51.89	3.89
Unkown fungicide	.	.	51.9	51.9	51.9	20.8
All fungicides	**6,105.78**	**583.73**	**20,697.82**	**27,387.32**	**.**	**7,607.82**

Table 14 contd: **Winter barley: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment												
Pesticide group and active substance	**Chickweed**	**Dessication**	**General Weed Control**	**Grass**	**Ground Preparation**	**Headlands**	**Pre-emergence weed control**	**Sealer**	**Stubble Treatment**	**Wild Oats**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides & dessicants													
Amidosulfuron	.	.	106.71	.	.	.	.	.	.	.	106.71	106.71	3.16
Chlorotoluron/diflufenican	.	.	421.09	.	.	.	.	.	.	.	421.09	421.09	470.69
Chlorotoluron/diflufenican/pendimethalin	.	.	139.18	.	.	.	.	.	.	.	139.18	139.18	143.74
Clopyralid/florasulam/fluroxypyr	.	.	83.00	.	.	.	.	.	.	.	83.00	83.00	30.30
Dicamba/MCPA/mecoprop-P	.	.	62.30	.	.	.	.	.	.	.	62.30	62.30	16.01
Dicamba/mecoprop-P	.	.	172.71	.	.	.	.	.	.	.	172.71	172.71	144.87
Diflufenican	.	.	2,945.08	81.27	.	.	192.02	32.30	.	.	3,250.67	3,250.67	295.73
Diflufenican/flufenacet	.	.	2,061.25	69.10	.	.	.	.	.	.	2,130.34	2,130.34	389.97
Diflufenican/flufenacet/flurtamone	.	.	168.79	.	.	.	128.53	.	.	.	297.33	297.33	66.90
Diflufenican/iodosulfron-methyl-sodium/mesosulfuron-methyl	.	.	12.92	.	.	.	.	.	.	.	12.92	12.92	0.29
Diquat	.	.	38.68	.	.	.	.	.	.	.	38.68	38.68	2.32
Florasulam/fluroxypyr	.	.	484.23	.	.	.	.	.	.	.	484.23	484.23	41.82
Flufenacet/pendimethalin	.	.	2,559.48	205.99	64.46	.	68.49	32.30	.	.	2,930.72	2,930.72	2,992.47
Flupyrsulfuron-methyl	.	.	24.06	.	.	.	.	.	.	.	24.06	24.06	0.24
Fluroxypyr	.	.	1,297.23	41.31	.	.	.	.	.	.	1,338.55	1,258.41	213.33
Glyphosate	.	4,471.07	386.28	.	496.31	45.12	13.57	.	67.76	104.98	5,585.09	4,862.43	3,787.76
Iodosulfron-methyl-sodium/mesosulfuron-methyl	.	.	14.54	.	.	.	.	.	.	.	14.54	14.54	0.27
Isoproturon	.	.		83.00	.	.	.	.	.	.	83.00	83.00	103.75
Mecoprop-P	65.39	.	412.36	.	.	.	.	.	.	.	477.75	477.75	279.81
Metazachlor	.	.	104.98	.	.	.	.	.	.	.	104.98	104.98	41.99
Metsulfuron-methyl	.	.	476.06	.	.	.	.	.	.	.	476.06	418.04	2.73
Metsulfuron-methyl/thifensulfuron-methyl	.	.	92.22	.	.	.	.	.	.	.	92.22	92.22	4.84
Metsulfuron-methyl/tribenuron-methyl	.	.	446.52	.	.	.	.	.	.	.	446.52	446.52	3.56
Pendimethalin	.	.	224.66	.	.	.	.	.	.	.	224.66	224.66	190.44
Pendimethalin/picolinafen	51.89	.	539.89	.	.	.	123.53	.	.	.	715.30	715.30	376.25
Pinoxaden	.	.	447.23	.	.	63.80	.	.	.	936.82	1,447.85	1,447.85	47.90
Prosulfocarb	.	.	359.31	.	.	.	.	.	.	.	359.31	359.31	488.53
Thifensulfuron-methyl/tribenuron-methyl	.	.	83.82	.	.	.	.	.	.	.	83.82	83.82	2.51
All herbicides & dessicants	**117.28**	**4,471.07**	**14,164.56**	**480.68**	**560.77**	**108.92**	**526.15**	**64.61**	**67.76**	**1,041.81**	**21,603.58**	**.**	**10,142.19**

Table 14 contd: **Winter barley: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment									
Pesticide group and active substance	**Aphids**	**Barley yellow dwarf virus**	**Cereal aphids**	**General insect control**	**Growth Regulation**	**Seed Treatment**	**Slugs**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Growth Regulators										
2-chloroethylphosphonic acid	.	.	.	.	1,460.80	.	.	1,460.80	1,460.80	300.93
Chlormequat	.	.	.	.	4,671.19	.	.	4,671.19	4,089.99	3,466.95
Chlormequat chloride	.	.	.	.	41.31	.	.	41.31	41.31	77.46
Chlormequat with choline chloride	.	.	.	.	78.45	.	.	78.45	78.45	104.36
Mepiquat chloride/prohexadione-calcium	.	.	.	.	903.17	.	.	903.17	794.86	166.83
Trinexapac-ethyl	.	.	.	.	3,931.89	.	.	3,931.89	3,538.90	229.30
All growth regulators	**.**	**.**	**.**	**.**	**11,086.81**	**.**	**.**	**11,086.81**	**.**	**4,345.83**
Molluscicides										
Metaldehyde	.	.	.	.	.	.	74.23	74.23	74.23	24.50
All molluscicides	**.**	**.**	**.**	**.**	**.**	**.**	**74.23**	**74.23**	**74.23**	**24.50**
Insecticides										
Chlorpyrifos	.	.	.	231.71	.	.	.	231.71	231.71	63.21
Cypermethrin	9.21	.	.	.	.	.	.	9.21	9.21	0.23
Esfenvalerate	640.99	86.95	366.69	766.87	.	.	.	1,861.51	1,529.55	7.24
Lambda-cyhalothrin	.	.	391.84	1,038.44	.	.	.	1,430.28	1,274.24	8.19
All insecticides	**650.20**	**86.95**	**758.53**	**2,037.03**	**.**	**.**	**.**	**3,532.71**	**.**	**78.88**
Seed treatments										
Clothianidin/prothioconazole	.	.	.	.	.	4,666.18	.	4,666.18	4,666.18	472.90
Fludioxonil	.	.	.	.	.	612.04	.	612.04	612.04	5.23
Fluopyram/prothioconazole/tebuconazole	.	.	.	.	.	515.90	.	515.90	515.90	8.63
Fluquinconazole	.	.	.	.	.	48.45	.	48.45	48.45	6.86
Prochloraz/triticonazole	.	.	.	.	.	1,186.11	.	1,186.11	1,184.82	32.97
Prothioconazole	.	.	.	.	.	277.40	.	277.40	277.40	4.15
Silthiofam	.	.	.	.	.	275.18	.	275.18	275.18	11.76
All seed treatments	**.**	**.**	**.**	**.**	**.**	**7,581.26**	**.**	**7,581.26**	**.**	**542.50**

Table 15: **Spring wheat: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment				
Pesticide group and active substance	**Disease prevention**	**General fungal control**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides					
Bixafen/fluoxastrobin/prothioconazole	.	43.36	43.36	43.36	3.30
Bixafen/prothioconazole	10.99	21.68	32.67	32.67	6.91
Boscalid/epoxiconazole	.	75.12	75.12	75.12	21.16
Chlorothalonil	41.77	413.05	454.82	344.91	205.77
Chlorothalonil/cyproconazole/propiconazole	.	107.71	107.71	107.71	105.02
Chlorothalonil/penthiopyrad	.	114.41	114.41	84.59	47.96
Chlorothalonil/proquinazid	.	43.36	43.36	43.36	3.98
Epoxiconazole	41.77	190.05	231.81	190.58	21.88
Epoxiconazole/fenpropimorph	.	16.09	16.09	16.09	5.97
Epoxiconazole/fenpropimorph/kresoxim-methyl	60.70	52.64	113.34	82.99	47.52
Epoxiconazole/metconazole	.	10.53	10.53	10.53	0.86
Epoxiconazole/prochloraz	.	11.40	11.40	11.40	3.24
Fluoxastrobin/prothioconazole	.	16.09	16.09	16.09	2.38
Fluoxastrobin/prothioconazole/trifloxystrobin	.	43.36	43.36	43.36	5.20
Fluxapyroxad	.	32.21	32.21	32.21	1.68
Prochloraz/tebuconazole	.	95.99	95.99	95.99	38.15
Proquinazid	41.77	.	41.77	41.77	1.09
Prothioconazole	.	219.82	219.82	109.91	27.48
Prothioconazole/tebuconazole	.	21.68	21.68	21.68	5.20
All fungicides	**196.99**	**1,528.52**	**1,725.51**	**.**	**554.76**

Table 15 contd: **Spring wheat: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment								
Pesticide group and active substance	**Dessication**	**General weed control**	**Ground preparation**	**Pre-emergence weed control**	**Stubble treatment**	**Wild oats**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides & dessicants									
Clopyralid/florasulam/fluroxypyr	.	41.77	.	.	.	.	41.77	41.77	9.42
Dicamba/mecoprop-P	.	41.23	.	.	.	.	41.23	41.23	28.07
Diflufenican	.	75.56	.	.	.	.	75.56	75.56	5.13
Diflufenican/flufenacet	.	32.21	.	.	.	.	32.21	32.21	5.91
Florasulam/fluroxypyr	.	75.12	.	.	.	.	75.12	75.12	6.34
Florasulam/pyroxsulam	.	86.71	.	.	.	.	86.71	43.36	1.95
Flufenacet/pendimethalin	.	43.36	.	.	.	.	43.36	43.36	62.43
Fluroxypyr	.	340.56	.	.	.	.	340.56	340.56	60.60
Glyphosate	52.03	.	54.35	.	10.53	.	116.90	116.90	85.82
Metsulfuron-methyl	.	149.34	.	.	.	.	149.34	149.34	0.67
Metsulfuron-methyl/thifensulfuron-methyl	.	127.76	.	.	.	.	127.76	127.76	6.31
Metsulfuron-methyl/tribenuron-methyl	.	45.91	.	.	.	.	45.91	45.91	0.42
Pendimethalin/picolinafen	.	.	.	30.35	.	.	30.35	30.35	30.59
Pinoxaden	.	107.71	.	.	.	72.11	179.83	179.83	7.23
Thifensulfuron-methyl/tribenuron-methyl	.	120.90	.	.	.	.	120.90	120.90	1.30
All herbicides & dessicants	**52.03**	**1,288.13**	**54.35**	**30.35**	**10.53**	**72.11**	**1,507.50**	**.**	**312.18**

Table 15 contd: **Spring wheat: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment							
Pesticide group and active substance	**Aphids**	**Cereal aphids**	**General insect control**	**Growth Regulation**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Growth Regulators								
2-chloroethylphosphonic acid	.	.	.	52.64	.	52.64	52.64	7.43
Chlormequat	.	.	.	340.77	.	340.77	340.77	298.88
Trinexapac-ethyl	.	.	.	266.36	.	266.36	224.60	17.20
All growth regulators	**.**	**.**	**.**	**659.77**	**.**	**659.77**	**.**	**323.51**
Insecticides								
Cypermethrin	.	10.99	.	.	.	10.99	10.99	0.14
Esfenvalerate	.	41.77	218.55	.	.	260.32	216.96	0.97
Lambda-cyhalothrin	29.83	52.64	129.39	.	.	211.85	211.85	1.06
All insecticides	**29.83**	**105.39**	**347.94**	**.**	**.**	**483.16**	**.**	**2.17**
Seed treatments								
Carboxin/thiram	.	.	.	.	41.77	41.77	41.77	11.02
Fludioxonil	.	.	.	.	237.43	237.43	237.43	2.24
Fluopyram/prothioconazole/tebuconazole	.	.	.	.	29.83	29.83	29.83	0.52
Prochloraz/triticonazole	.	.	.	.	270.26	270.26	270.26	9.06
All seed treatments	**.**	**.**	**.**	**.**	**579.28**	**579.28**	**.**	**22.84**

Table 16: **Winter wheat: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment						
Pesticide group and active substance	Disease prevention	Ear wash	General disease control	General fungal control	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
Fungicides							
Azoxystrobin	60.01	.	151.67	1,623.69	1,835.37	1,726.48	257.90
Bixafen/fluoxastrobin/prothioconazole	.	.	43.58	508.75	552.33	552.33	74.15
Bixafen/prothioconazole	296.03	.	52.18	1,391.00	1,739.21	1,346.38	348.00
Bixafen/prothioconazole/spiroxamine	.	.	.	71.44	71.44	71.44	38.56
Boscalid/epoxiconazole	181.31	.	.	719.06	900.37	860.70	313.93
Chlorothalonil	1,342.21	.	479.81	6,937.78	8,759.81	5,584.91	3,990.37
Chlorothalonil/cyproconazole	.	.	.	557.31	557.31	557.31	302.59
Chlorothalonil/cyproconazole/propiconazole	56.53	.	.	482.03	538.56	442.29	256.18
Chlorothalonil/penthiopyrad	28.16	.	125.24	2,464.42	2,617.82	1,856.17	1,539.40
Chlorothalonil/proquinazid	.	.	.	43.48	43.48	43.48	17.12
Chlorothalonil/tebuconazole	.	.	.	200.16	200.16	135.80	117.74
Cyproconazole/penthiopyrad	58.27	.	.	335.22	393.49	393.49	82.79
Cyprodinil	.	.	.	34.87	34.87	34.87	3.45
Cyprodinil/picoxystrobin	.	.	.	8.60	8.60	8.60	3.27
Epoxiconazole	382.00	.	223.11	3,383.97	3,989.08	2,776.02	393.29
Epoxiconazole/fenpropimorph	54.48	.	.	42.66	97.14	97.14	21.76
Epoxiconazole/fenpropimorph/kresoxim-methyl	.	.	.	132.76	132.76	132.76	40.73
Epoxiconazole/fenpropimorph/pyraclostrobin	.	85.32	.	.	85.32	85.32	47.55
Epoxiconazole/fluxapyroxad	785.40	.	.	717.99	1,503.39	1,485.13	230.96
Epoxiconazole/fluxapyroxad/pyraclostrobin	169.08	.	.	503.37	672.45	672.45	181.99
Epoxiconazole/isopyrazam	.	.	.	118.43	118.43	118.43	25.17
Epoxiconazole/metconazole	.	.	.	1,856.36	1,856.36	1,314.31	159.34
Fenpropimorph	54.48	.	121.76	827.70	1,003.94	907.97	294.71
Fluoxastrobin/prothioconazole	.	.	.	235.97	235.97	168.14	47.78
Fluxapyroxad	28.16	.	.	493.10	521.26	521.26	32.05
Fluxapyroxad/metconazole	.	.	43.58	474.71	518.29	518.29	53.84
Folpet	.	.	.	85.96	85.96	85.96	42.98
Mancozeb	.	.	13.22	125.76	138.98	138.98	123.39
Metconazole	.	.	.	148.58	148.58	148.58	9.06
Penthiopyrad	92.70	.	158.75	2,404.65	2,656.10	1,771.77	500.42
Penthiopyrad/picoxystrobin	.	.	.	48.70	48.70	48.70	14.61
Prochloraz/tebuconazole	.	.	.	352.03	352.03	352.03	94.48
Proquinazid	.	.	.	783.02	783.02	783.02	12.17
Prothioconazole	182.10	.	.	3,297.68	3,479.78	2,482.93	371.45
Prothioconazole/tebuconazole	564.22	.	107.62	2,633.88	3,305.71	2,972.60	604.46
Prothioconazole/trifloxystrobin	94.54	.	.	145.05	239.60	239.60	46.96
Pyraclostrobin	.	.	.	280.78	280.78	280.78	19.30
Quinoxyfen	.	.	.	32.00	32.00	32.00	3.95
Tebuconazole	155.67	.	151.52	3,257.85	3,565.05	2,981.37	430.28
All fungicides	**4,585.35**	**85.32**	**1,672.05**	**37,760.78**	**44,103.51**	**.**	**11,148.12**

Table 16 contd: **Winter wheat: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment														
Pesticide group and active substance	**Broadleaved weeds**	**Burnoff**	**Dessication**	**General Weed Control**	**Grass**	**Ground Preparation**	**Groundsel**	**Headlands**	**Pre-emergence weed control**	**Sealer**	**Stubble Treatment**	**Wild oats**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides & dessicants															
Amidosulfuron/iodosulfron-methyl-sodium	.	.	.	229.76	.	.	.	.	.	.	.	.	229.76	229.76	4.30
Chlorotoluron/diflufenican	.	.	.	28.00	.	.	.	.	.	.	.	.	28.00	28.00	35.00
Dicamba/MCPA/mecoprop-P	.	.	.	84.04	.	.	.	.	.	.	.	.	84.04	84.04	21.60
Diflufenican	.	.	.	1,575.60	22.81	.	.	.	78.15	21.79	.	.	1,698.35	1,698.35	141.04
Diflufenican/flufenacet	.	.	.	996.86	18.93	.	.	.	.	.	.	.	1,015.79	1,015.79	166.76
Diflufenican/flufenacet/flurtamone	.	.	.	256.00	.	.	.	.	260.13	.	.	.	516.13	516.13	158.07
Diflufenican/iodosulfron-methyl-sodium/mesosulfuron-methyl	.	.	.	3,260.62	.	.	.	.	.	.	.	45.76	3,306.38	3,306.38	191.04
Florasulam/fluroxypyr	40.31	.	.	1,367.06	.	.	35.12	.	.	.	.	.	1,442.49	1,442.49	105.06
Florasulam/pyroxsulam	.	.	.	402.55	.	.	.	.	.	.	.	.	402.55	402.55	7.71
Flufenacet/pendimethalin	.	.	.	2,249.85	22.81	32.18	.	.	16.75	21.79	.	.	2,343.37	1,935.84	2,043.69
Flupyrsulfuron-methyl	.	.	.	48.25	.	.	.	.	.	.	.	.	48.25	48.25	0.48
Fluroxypyr	.	.	.	2,605.39	.	.	.	.	.	.	.	.	2,605.39	2,298.63	373.71
Glyphosate	.	108.13	4,260.46	267.40	.	668.52	.	30.44	107.70	.	32.23	.	5,474.87	4,974.71	4,555.72
Iodosulfron-methyl-sodium	.	.	.	34.87	.	.	.	.	.	.	.	.	34.87	34.87	0.33
Iodosulfron-methyl-sodium/mesosulfuron-methyl	.	.	.	497.51	40.31	.	.	.	.	.	.	.	537.82	500.13	10.07
Mecoprop-P	.	.	.	1,698.66	.	.	.	.	.	.	.	.	1,698.66	1,698.66	1,092.96
Metazachlor	.	.	.	95.67	.	.	.	.	.	.	.	.	95.67	95.67	23.92
Metsulfuron-methyl	.	.	.	662.24	.	.	.	.	.	.	.	.	662.24	662.24	2.20
Metsulfuron-methyl/thifensulfuron-methyl	.	.	.	535.98	.	.	.	.	.	.	.	.	535.98	535.98	16.09
Metsulfuron-methyl/tribenuron-methyl	.	.	.	165.37	.	.	.	.	.	.	.	.	165.37	165.37	1.97
Pendimethalin	.	.	.	263.55	.	.	.	.	.	.	.	.	263.55	263.55	280.59
Pendimethalin/picolinafen	.	.	.	241.30	.	.	.	.	61.41	.	.	.	302.71	302.71	175.23
Pinoxaden	.	.	.	541.94	.	.	.	.	.	.	.	43.48	585.42	585.42	18.32
Prosulfocarb	.	.	.	324.60	.	.	.	.	.	.	.	.	324.60	324.60	530.61
Thifensulfuron-methyl/tribenuron-methyl	.	.	.	290.30	.	.	.	.	.	.	.	.	290.30	290.30	1.74
All herbicides & dessicants	**40.31**	**108.13**	**4,260.46**	**18,723.35**	**104.86**	**700.70**	**35.12**	**30.44**	**524.13**	**43.58**	**32.23**	**89.25**	**24,692.57**	**.**	**9,958.21**

Table 16 contd: **Winter wheat: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment								
Pesticide group and active substance	**Aphids**	**Cereal aphids**	**General insect control**	**Growth Regulation**	**Seed Treatment**	**Slugs**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Growth Regulators									
2-chloroethylphosphonic acid	.	.	.	1,161.90	.	.	1,161.90	1,161.90	202.63
Chlormequat	.	.	.	6,463.11	.	.	6,463.11	5,367.17	6,431.76
Chlormequat with choline chloride	.	.	.	28.70	.	.	28.70	28.70	41.17
Chlormequat/imazaquin	.	.	.	560.61	.	.	560.61	349.41	259.63
Mepiquat chloride/prohexadione-calcium	.	.	.	502.07	.	.	502.07	502.07	124.61
Trinexapac-ethyl	.	.	.	2,849.14	.	.	2,849.14	2,525.82	150.97
All growth regulators	**.**	**.**	**.**	**11,565.52**	**.**	**.**	**11,565.52**	**.**	**7,210.77**
Molluscicides									
Ferric phosphate	.	.	.	.	.	40.31	40.31	40.31	8.38
Metaldehyde	.	.	.	.	.	407.53	407.53	407.53	10.76
All molluscicides	**.**	**.**	**.**	**.**	**.**	**447.85**	**447.85**	**.**	**19.14**

Table 16 contd: **Winter wheat: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment								
Pesticide group and active substance	**Aphids**	**Cereal aphids**	**General insect control**	**Growth Regulation**	**Seed Treatment**	**Slugs**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Insecticides									
Dimethoate	94.40	179.44	13.22	.	.	.	287.06	287.06	61.43
Esfenvalerate	1,226.73	666.69	735.76	.	.	.	2,629.18	1,953.54	9.99
Lambda-cyhalothrin	141.32	652.98	2,295.91	.	.	.	3,090.21	2,227.90	15.43
Pirimicarb	30.44			.	.	.	30.44	30.44	4.26
All insecticides	**1,492.89**	**1,499.11**	**3,044.89**	**.**	**.**	**.**	**6,036.89**	**.**	**91.11**
Seed treatments									
Carboxin/thiram	.	.	.	.	407.72	.	407.72	407.72	85.39
Clothianidin/prothioconazole	.	.	.	.	3,773.29	.	3,773.29	3,773.29	391.13
Fludioxonil	.	.	.	.	688.07	.	688.07	688.07	5.69
Fluopyram/prothioconazole/tebuconazole	.	.	.	.	578.08	.	578.08	578.08	9.47
Fluquinconazole	.	.	.	.	43.58	.	43.58	43.58	6.17
Prochloraz/triticonazole	.	.	.	.	1,285.26	.	1,285.26	1,285.26	36.50
Prothioconazole	.	.	.	.	342.00	.	342.00	342.00	6.13
Silthiofam	.	.	.	.	2,200.56	.	2,200.56	2,109.90	91.70
All seed treatments	**.**	**.**	**.**	**.**	**9,318.57**	**.**	**9,318.57**	**.**	**632.19**

Table 17: **Spring oats: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment									
Pesticide group and active substance	**Dessication**	**Disease prevention**	**General disease control**	**General fungal control**	**General weed control**	**Ground preparation**	**Pre-emergence weed control**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides										
Azoxystrobin	.	.	.	63.73	.	.	.	63.73	63.73	11.95
Bixafen/prothioconazole	.	.	.	32.37	.	.	.	32.37	32.37	4.21
Chlorothalonil	.	.	.	117.55	.	.	.	117.55	85.18	50.68
Epoxiconazole	.	.	56.37	321.12	.	.	.	377.48	377.48	29.97
Epoxiconazole/fenpropimorph/kresoxim-methyl	.	14.64	.	73.58	.	.	.	88.22	57.16	27.98
Epoxiconazole/fenpropimorph/metrafenone	.	35.25	.	92.56	.	.	.	127.81	87.99	67.26
Fenpropimorph	.	.	56.37	405.31	.	.	.	461.68	461.68	149.64
Fluoxastrobin/prothioconazole	.	.	.	12.92	.	.	.	12.92	12.92	3.19
Proquinazid	.	.	.	73.27	.	.	.	73.27	73.27	2.93
Prothioconazole	.	43.06	.	.	.	.	.	43.06	21.53	6.24
Pyraclostrobin	.	157.08	56.37	39.82	.	.	.	253.27	253.27	47.56
Tebuconazole	.	138.99	.	.	.	.	.	138.99	138.99	17.37
All fungicides	**.**	**389.03**	**169.10**	**1,232.23**	**.**	**.**	**.**	**1,790.36**	**.**	**418.98**

Table 17 contd: **Spring oats: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment									
Pesticide group and active substance	**Dessication**	**Disease prevention**	**General disease control**	**General fungal control**	**General weed control**	**Ground preparation**	**Pre-emergence weed control**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides & dessicants										
2,4-DB	.	.	.	.	7.82	.	.	7.82	7.82	8.13
Dicamba/MCPA/mecoprop-P	.	.	.	.	79.64	.	.	79.64	39.82	65.89
Dicamba/mecoprop-P	.	.	.	.	63.73	.	.	63.73	63.73	43.59
Florasulam	.	.	.	.	241.45	.	.	241.45	241.45	1.32
Florasulam/fluroxypyr	.	.	.	.	83.22	.	.	83.22	83.22	6.55
Fluroxypyr	.	.	.	.	434.39	.	.	434.39	434.39	61.92
Glyphosate	200.52	.	.	.	.	12.92	.	213.44	213.44	153.98
MCPA	.	.	.	.	39.82	.	.	39.82	39.82	32.25
Mecoprop-P	.	.	.	.	262.98	.	.	262.98	262.98	154.68
Metsulfuron-methyl	.	.	.	.	652.29	.	.	652.29	652.29	3.07
Metsulfuron-methyl/tribenuron-methyl	.	.	.	.	315.45	.	.	315.45	315.45	5.67
Pendimethalin/picolinafen	.	.	.	.	.	.	7.32	7.32	7.32	7.38
Propaquizafop	.	.	.	.	39.82	.	.	39.82	39.82	0.36
Thifensulfuron-methyl/tribenuron-methyl	.	.	.	.	63.43	.	.	63.43	63.43	1.02
Tribenuron-methyl	.	.	.	.	7.82	.	.	7.82	7.82	0.04
All herbicides & dessicants	**200.52**	**.**	**.**	**.**	**2,291.87**	**12.92**	**7.32**	**2,512.63**	**.**	**545.84**

Table 17 contd: **Spring oats: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment							
Pesticide group and active substance	**Aphids**	**General insect control**	**Growth Regulation**	**Seed Treatment**	**Slugs**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Growth Regulators								
Chlormequat	.	.	362.15	.	.	362.15	362.15	273.94
Mepiquat chloride/prohexadione-calcium	.	.	49.84	.	.	49.84	49.84	11.96
Trinexapac-ethyl	.	.	307.37	.	.	307.37	294.45	17.66
All growth regulators	**.**	**.**	**719.36**	**.**	**.**	**719.36**	**.**	**303.56**
Molluscicides								
Metaldehyde	.	.	.	.	39.82	39.82	39.82	0.37
All molluscicides	**.**	**.**	**.**	**.**	**39.82**	**39.82**	**.**	**0.37**
Insecticides								
Deltamethrin	.	185.09	.	.	.	185.09	185.09	1.11
Esfenvalerate	.	32.37	.	.	.	32.37	32.37	0.12
Lambda-cyhalothrin	203.32	23.74	.	.	.	227.06	227.06	1.14
All insecticides	**203.32**	**241.20**	**.**	**.**	**.**	**444.52**	**.**	**2.37**
Seed treatments								
Carboxin/thiram	.	.	.	7.82	.	7.82	7.82	1.25
Clothianidin/prothioconazole	.	.	.	56.78	.	56.78	56.78	5.92
Fludioxonil	.	.	.	792.01	.	792.01	792.01	7.25
Prochloraz/triticonazole	.	.	.	32.37	.	32.37	32.37	0.96
All seed treatments	**.**	**.**	**.**	**888.98**	**.**	**888.98**	**.**	**15.39**

Table 18: **Undersown oats: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment					
Pesticide group and active substance	**General fungal control**	**Growth Regulation**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides						
Chlorothalonil	15.20	.	.	15.20	15.20	9.50
Cyprodinil	30.40	.	.	30.40	15.20	2.42
Cyprodinil/picoxystrobin	15.20	.	.	15.20	15.20	1.62
Fenpropimorph	30.40	.	.	30.40	15.20	6.04
Prothioconazole	30.40	.	.	30.40	15.20	2.96
All fungicides	**121.60**	**.**	**.**	**121.60**	**.**	**22.54**
Growth Regulators						
Chlormequat	.	30.40	.	30.40	15.20	31.92
Trinexapac-ethyl	.	30.40	.	30.40	15.20	4.26
All growth regulators	**.**	**60.80**	**.**	**60.80**	**.**	**36.18**
Seed treatments						
Fludioxonil	.	.	15.20	15.20	15.20	0.10
All seed treatments	**.**	**.**	**15.20**	**15.20**	**.**	**0.10**

Table 19: **Winter oats: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment								
Pesticide group and active substance	**Dessication**	**Disease prevention**	**General disease control**	**General fungal control**	**General weed control**	**Ground preparation**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides									
Azoxystrobin	.	.	.	236.64	.	.	236.64	154.55	29.58
Boscalid/epoxiconazole	.	.	.	12.72	.	.	12.72	12.72	3.82
Chlorothalonil	.	.	.	68.63	.	.	68.63	34.31	10.29
Epoxiconazole	.	.	.	464.79	.	.	464.79	351.16	27.84
Epoxiconazole/fenpropimorph/kresoxim-methyl	.	11.89	.	20.41	.	.	32.31	22.10	14.79
Epoxiconazole/fenpropimorph/metrafenone	.	.	.	706.20	.	.	706.20	261.26	238.49
Fenpropimorph	.	.	.	245.06	.	.	245.06	191.19	84.36
Fenpropimorph/pyraclostrobin	.	20.38	.	.	.	.	20.38	20.38	6.78
Proquinazid	.	.	.	427.32	.	.	427.32	254.65	14.93
Prothioconazole	.	47.62	42.52	42.52	.	.	132.67	66.33	18.96
Prothioconazole/tebuconazole	.	11.89	.	.	.	.	11.89	11.89	1.14
Pyraclostrobin	.	60.05	.	369.07	.	.	429.12	429.12	59.94
Tebuconazole	.	60.05	.	6.38	.	.	66.43	66.43	8.35
All fungicides	**.**	**211.90**	**42.52**	**2,599.75**	**.**	**.**	**2,854.16**	**.**	**519.27**

Table 19 contd: **Winter oats: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment								
Pesticide group and active substance	**Dessication**	**Disease prevention**	**General disease control**	**General fungal control**	**General weed control**	**Ground preparation**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides & dessicants									
Carfentrazone-ethyl/flupyrsulfron-methyl	.	.	.	.	6.38	.	6.38	6.38	0.19
Diflufenican	.	.	.	.	66.43	.	66.43	66.43	3.48
Diflufenican/flufenacet	.	.	.	.	145.46	.	145.46	145.46	24.17
Florasulam/fluroxypyr	.	.	.	.	64.15	.	64.15	64.15	3.48
Flupyrsulfuron-methyl/thifensulfuron-methyl	.	.	.	.	196.40	.	196.40	196.40	1.96
Fluroxypyr	.	.	.	.	271.47	.	271.47	271.47	38.75
Glyphosate	406.74	.	.	.	196.40	105.06	708.19	603.14	415.45
Mecoprop-P	.	.	.	.	191.05	.	191.05	191.05	117.27
Metsulfuron-methyl/thifensulfuron-methyl	.	.	.	.	196.40	.	196.40	196.40	4.56
Metsulfuron-methyl/tribenuron-methyl	.	.	.	.	168.55	.	168.55	168.55	4.51
All herbicides & dessicants	**406.74**	**.**	**.**	**.**	**1,502.66**	**105.06**	**2,014.46**	**.**	**613.83**

Table 19 contd: **Winter oats: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment							
Pesticide group and active substance	**Cereal aphids**	**General insect control**	**Growth Regulation**	**Seed Treatment**	**Slugs**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Growth Regulators								
Chlormequat	.	.	432.97	.	.	432.97	403.13	328.80
Mepiquat chloride/prohexadione-calcium	.	.	64.87	.	.	64.87	64.87	22.70
Trinexapac-ethyl	.	.	522.33	.	.	522.33	438.54	32.28
All growth regulators	**.**	**.**	**1,020.17**	**.**	**.**	**1,020.17**	**.**	**383.79**
Molluscicides								
Ferric phosphate	.	.	.	.	29.83	29.83	29.83	5.76
All molluscicides	**.**	**.**	**.**	**.**	**29.83**	**29.83**	**.**	**5.76**
Insecticides								
Lambda-cyhalothrin	29.83	76.93	.	.	.	106.77	106.77	0.53
All insecticides	**29.83**	**76.93**	**.**	**.**	**.**	**106.77**	**.**	**0.53**
Seed treatments								
Carboxin/thiram	.	.	.	172.67	.	172.67	172.67	39.05
Clothianidin/prothioconazole	.	.	.	451.78	.	451.78	451.78	43.23
Fludioxonil	.	.	.	32.28	.	32.28	32.28	0.28
Prochloraz/triticonazole	.	.	.	42.62	.	42.62	42.62	0.96
All seed treatments	**.**	**.**	**.**	**699.35**	**.**	**699.35**	**.**	**83.53**

Table 20: **Winter oilseed rape: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment						
Pesticide group and active substance	**Dessication**	**Disease prevention**	**General fungal control**	**General weed control**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides							
Azoxystrobin	.	.	120.08	.	120.08	120.08	15.01
Boscalid	.	.	119.72	.	119.72	119.72	29.93
Boscalid/metconazole	.	.	34.18	.	34.18	34.18	6.27
Difenoconazole	.	.	136.24	.	136.24	136.24	8.52
Fluoxastrobin/prothioconazole	.	.	24.78	.	24.78	24.78	4.08
Metconazole	.	.	220.77	.	220.77	220.77	8.31
Prothioconazole	.	20.62	256.17	.	276.79	208.56	24.93
Prothioconazole/tebuconazole	.	.	319.62	.	319.62	279.71	64.94
Tebuconazole	.	.	355.93	.	355.93	236.22	64.78
All fungicides	**.**	**20.62**	**1,587.50**	**.**	**1,608.12**	**.**	**226.75**
Herbicides & dessicants							
Aminopyralid/propyzamide	.	.	.	23.94	23.94	23.94	18.18
Clopyralid/picloram	.	.	.	263.28	263.28	263.28	28.74
Dimethenamid-P/metazachlor/quinmerac	.	.	.	229.50	229.50	229.50	224.97
Ethametsulfuron-methyl	.	.	.	119.72	119.72	119.72	1.80
Fluazifop-P-butyl	.	.	.	52.26	52.26	52.26	4.57
Glyphosate	475.79	.	.	.	475.79	475.79	516.80
Metazachlor/quinmerac	.	.	.	24.78	24.78	24.78	27.29
Propaquizafop	.	.	.	71.32	71.32	71.32	7.93
Propyzamide	.	.	.	339.31	339.31	339.31	243.07
All herbicides & dessicants	**475.79**	**.**	**.**	**1,124.13**	**1,599.92**	**.**	**1,073.36**

Table 20 contd: **Winter oilseed rape: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment						
Pesticide group and active substance	**General fungal control**	**General insect control**	**Growth Regulation**	**Harvest aid**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Growth Regulators							
Mepiquat chloride/metconazole	.	.	136.60	.	136.60	136.60	27.02
Unknown growth regulator	.	.	119.72	.	119.72	119.72	29.93
All growth regulators	**.**	**.**	**256.32**	**.**	**256.32**	**.**	**56.95**
Insecticides							
Alpha-cypermethrin	.	34.18	.	.	34.18	34.18	0.34
Lambda-cyhalothrin	.	119.72	.	.	119.72	119.72	0.60
All insecticides	**.**	**153.90**	**.**	**.**	**153.90**	**.**	**0.94**
Other							
Synthetic latex	34.18	.	.	280.55	314.73	314.73	224.56
All other treatments	**34.18**	**.**	**.**	**280.55**	**314.73**	**.**	**224.56**

Table 21: **Spring oilseed rape: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment					
Pesticide group and active substance	**Dessication**	**Disease prevention**	**General weed control**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides						
Prothioconazole	.	9.80	.	9.80	9.80	1.21
All fungicides	**.**	**9.80**	**.**	**9.80**	**.**	**1.21**
Herbicides & dessicants						
Glyphosate	9.80	.	.	9.80	9.80	10.58
Metazachlor	.	.	9.80	9.80	9.80	7.26
All herbicides & dessicants	**9.80**	**.**	**9.80**	**19.60**	**.**	**17.85**

Table 22: **Field beans: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reasons for treatment										
Pesticide group and active substance	**Dessication**	**Disease Prevention**	**General Fungal Control**	**General Insect Control**	**General Weed Control**	**Ground Preparation**	**Pre-emergence weed control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides											
Azoxystrobin	.	.	42.22	.	.	.	.	.	42.22	42.22	8.44
Chlorothalonil/cyproconazole	.	80.06	224.20	.	.	.	.	.	304.27	166.26	211.69
Tebuconazole	.	4.86	74.39	.	.	.	.	.	79.25	79.25	17.14
All fungicides	**.**	**84.92**	**340.82**	**.**	**.**	**.**	**.**	**.**	**425.74**	**.**	**237.27**
Herbicides											
Bentazone	.	.	.	.	134.89	.	.	.	134.89	116.44	109.02
Diquat	28.24	.	.	.	.	.	.	.	28.24	28.24	16.82
Glyphosate	166.16	.	.	.	130.15	.	.	.	296.31	198.33	199.40
Imazamox/pendimethalin	.	.	.	.	32.17	.	9.79	.	41.96	41.96	42.78
Linuron	.	.	.	.	12.14	.	.	.	12.14	12.14	5.46
Pendimethalin	.	.	.	.	146.54	3.61	.	.	150.15	150.15	192.53
Propaquizafop	.	.	.	.	97.98	.	.	.	97.98	97.98	0.98
Tepraloxydim	.	.	.	.	60.32	.	.	.	60.32	60.32	4.52
All herbicides	**194.40**	**.**	**.**	**.**	**614.19**	**3.61**	**9.79**	**.**	**821.99**	**.**	**571.51**
Insecticides											
Lambda-cyhalothrin	.	.	.	146.48	.	.	.	.	146.48	138.01	0.85
All insecticides	**.**	**.**	**.**	**146.48**	**.**	**.**	**.**	**.**	**146.48**	**.**	**0.85**
Seed treatments											
Thiram	.	.	.	.	.	.	.	24.60	24.60	24.60	6.39
All seed treatments	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**24.60**	**24.60**	**.**	**6.39**

Table 23: **Ware potatoes (early & maincrop): pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reasons for treatment				
Pesticide group and active substance	**Altenaria**	**Blight**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides					
Ametoctradin/dimethomorph	.	2,085.12	2,085.12	1,196.12	873.40
Azoxystrobin	.	218.21	218.21	218.21	163.66
Benthiavalicarb-isopropyl/mancozeb	90.34	1,226.55	1,316.89	737.63	1,501.86
Cyazofamid	.	3,956.26	3,956.26	2,293.46	302.89
Cymoxanil	90.34	1,243.34	1,333.68	840.73	107.37
Cymoxanil/mancozeb	90.34	1,931.50	2,021.84	1,125.38	2,979.81
Cymoxanil/propamocarb hydrochloride	.	912.32	912.32	524.32	883.61
Cymoxanil/zoxamide	.	213.54	213.54	106.77	63.42
Dimethomorph/fluazinam	.	238.04	238.04	119.02	71.41
Dimethomorph/mancozeb	90.34	2,357.88	2,448.22	1,288.72	4,040.12
Fenamidone/propamocarb hydrochloride	90.34	2,856.38	2,946.72	1,718.57	2,496.61
Fluazinam	.	10,201.80	10,195.33	2,830.28	1,995.84
Fluopicolide/propamocarb hydrochloride	.	5,272.92	5,259.97	2,297.23	5,754.46
Mancozeb	.	529.61	529.61	332.58	770.45
Mandipropamid	.	4,005.77	3,992.82	2,068.21	594.83
All fungicides	**451.71**	**37,249.24**	**37,668.58**	**.**	**22,599.75**

Table 23 contd: **Ware potatoes (early & maincrop): pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reasons for treatment										
Pesticide group and active substance	**Burnoff**	**Dessication**	**General weed control**	**Grass**	**Ground preparation**	**Headlands**	**Pre-emergence weed control**	**Scutch**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides & dessicants											
Carfentrazone-ethyl	.	845.07	.	.	.	.	.	.	845.07	845.07	48.92
Diquat	7.93	4,056.73	2,292.86	.	.	.	.	.	6,357.52	3,205.42	2,707.34
Flufenacet/metribuzin	.	.	95.22	.	.	.	.	.	95.22	95.22	79.03
Glyphosate	.	.	533.20	.	464.42	44.30	48.71	.	1,090.64	896.87	1,053.42
Linuron	.	.	719.02	.	.	.	.	.	719.02	719.02	362.70
Metribuzin	.	.	2,297.93	7.93	.	.	.	.	2,299.39	2,305.87	1,159.18
Propaquizafop	.	.	93.71	.	.	.	.	24.30	118.01	118.01	12.98
Prosulfocarb	.	.	595.63	.	.	.	.	.	595.63	595.63	1,002.79
Rimsulfuron	.	.	321.30	.	.	.	.	.	321.30	321.30	3.55
All herbicides & dessicants	**7.93**	**4,901.79**	**6,948.86**	**7.93**	**464.42**	**44.30**	**48.71**	**24.30**	**12,441.79**	**.**	**6,429.91**

Table 23 contd: **Ware potatoes (early & maincrop): pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reason for treatment							
Pesticide group and active substance	**Aphids**	**Aphids and caterpillars**	**General insect control**	**Seed Treatment**	**Slugs**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Insecticides								
Esfenvalerate	39.33	.	.	.	.	39.33	39.33	0.10
Flonicamid	.	.	89.73	.	.	89.73	44.87	6.73
Lambda-cyhalothrin	65.56	90.34	342.11	.	.	498.00	307.57	2.80
Pirimicarb	190.83	.	.	.	.	190.83	190.83	26.72
Thiacloprid	90.34	.	.	.	.	90.34	90.34	8.67
All insecticides	**386.06**	**90.34**	**431.84**	**.**	**.**	**908.25**	**.**	**45.01**
Molluscicides								
Ferric phosphate					218.21	218.21	218.21	45.37
Metaldehyde					1,743.75	1,743.75	841.57	253.44
Methiocarb					36.05	36.05	36.05	3.61
All molluscicides	**.**	**.**	**.**	**.**	**1,998.01**	**1,998.01**	**.**	**302.41**
Seed treatments								
Fludioxonil	.	.	.	119.02	.	119.02	119.02	7.35
Flutolanil	.	.	.	162.37	.	162.37	162.37	47.99
Imazalil	.	.	.	207.37	.	207.37	207.37	5.41
Imazalil/pencycuron	.	.	.	26.22	.	26.22	26.22	17.31
Imazalil/thiabendazole	.	.	.	24.33	.	24.33	24.33	2.70
Pencycuron	.	.	.	558.93	.	558.93	558.93	331.73
Unspecified seed treatment*	.	.	.	418.76	.	418.76	418.76	N/K
All seed treatments	**.**	**.**	**.**	**1,517.00**	**.**	**1,517.00**	**.**	**412.51**

Unspecified seed treatment refers to active ingredients which could not be verified.

Table 24: **Seed potatoes: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reasons for treatment					
Pesticide group and active substance	**Blight**	**Dessication**	**General Weed Control**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides						
Ametoctradin/dimethomorph	519.71	.	.	519.71	259.86	206.74
Benthiavalicarb-isopropyl/mancozeb	479.59	.	.	479.59	259.86	519.04
Cyazofamid	993.82	.	.	993.82	387.04	79.51
Cymoxanil	219.74	.	.	219.74	219.74	10.99
Cymoxanil/mancozeb	361.91	.	.	361.91	120.64	524.76
Cymoxanil/propamocarb hydrochloride	120.64	.	.	120.64	120.64	108.57
Dimethomorph/mancozeb	420.93	.	.	420.93	146.87	749.60
Fenamidone/propamocarb hydrochloride	414.38	.	.	414.38	267.51	372.94
Fluazinam	1,307.32	.	.	1,307.32	527.36	235.55
Fluopicolide/propamocarb hydrochloride	1,668.06	.	.	1,668.06	527.36	1,834.86
Mancozeb	39.37	.	.	39.37	19.68	31.49
Mandipropamid	160.76	.	.	160.76	160.76	24.11
All fungicides	**6,706.21**	**.**	**.**	**6,706.21**	**.**	**4,698.17**
Herbicides & dessicants						
Carfentrazone-ethyl	.	120.64	.	120.64	120.64	7.24
Diquat	.	914.41	160.76	1,075.16	527.36	341.64
Glyphosate	.	.	40.12	40.12	40.12	45.13
Linuron	.	.	120.64	120.64	120.64	70.57
Metribuzin	.	.	527.36	527.36	527.36	297.28
Prosulfocarb	.	.	40.12	40.12	40.12	64.19
Rimsulfuron	.	.	127.19	127.19	127.19	1.59
All herbicides & dessicants	**.**	**1,035.04**	**1,016.18**	**2,051.22**	**.**	**827.65**

Table 24 contd: **Seed potatoes: pesticide-treated area (spray-hectares), basic treated area (hectares), weights of pesticides applied (kilograms) and reason for use.**

	Reasons for treatment					
Pesticide group and active substance	**Aphids**	**General Insect Control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Insecticides						
Flonicamid	80.24	439.47	.	519.71	259.86	39.38
Pymetrozine	80.24	.	.	80.24	40.12	12.04
All insecticides	**160.48**	**439.47**	**.**	**599.95**	**.**	**51.42**
Seed treatments						
Imazalil/pencycuron	.	.	40.12	40.12	40.12	26.49
Unspecified seed treatment*	.	.	239.42	239.42	239.42	1,357.46
All seed treatments	**.**	**.**	**279.54**	**279.54**	**.**	**1,383.95**

Unspecified seed treatment refers to active ingredients which could not be verified.

Table 25: Comparison of the area of arable crops grown (hectares) in Northern Ireland, 1990-2016.

	Survey year													
Crop	**1990**	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Cereals														
Spring barley	29,893	24,729	20,890	21,256	23,066	23,901	22,658	21,959	17,573	18,742	16,967	19,702	16,417	14,476
Undersown barley	5,800	5,759	6,542	4,875	4,035	3,532	1,876	599	654	803	591	508	430	232
Winter barley	3,670	5,721	5,832	7,166	7,720	5,194	3,922	4,535	4,599	6,149	6,767	5,323	6,709	7,628
Spring wheat	348	136	32	129	400	863	1,428	1,523	1,517	1,552	1,686	1,500	604	707
Undersown wheat	27	.	42	.	.	.	.	.	.	.	58	48	.	.
Winter wheat	5,827	6,839	6,952	6,543	6,745	4,125	5,807	7,111	7,203	10,553	9,151	7,846	7,894	7,909
Spring oats	2,220	1,257	953	858	978	1,920	804	903	991	778	1,441	1,441	1,341	1,423
Undersown oats	117	221	337	130	102	25	20	234	71	.	49	193	98	15
Winter oats	673	1,008	1,125	1,481	1,523	967	1,547	1,556	875	1,640	841	246	648	819
All cereals	**48,575**	**45,670**	**42,704**	**42,438**	**44,569**	**40,528**	**38,062**	**38,420**	**33,482**	**40,217**	**37,551**	**36,807**	**34,140**	**38,082**
Other arable crops														
Spring oilseed rape	15	31	287	66	237	.	111	.	.	.	.	517	67	10
Winter oilseed rape	891	1,032	323	127	502	.	.	.	.	.	.	290	427	542
All oilseed rape *	906	1,063	610	193	739	131	111	255	471	439	446	807	494	552
Hemp	.	.	.	.	.	.	.	.	.	40	.	.	.	.
Linseed	.	158	.	.	.	.	14	.	.	2	.	.	.	.
Maize	.	45	.	.	.	.	.	.	.	.	.	.	.	.
Peas & beans	.	.	.	.	199	273	197	212	83	55	85	10	54	295***
Triticale	37	.	.	.	17	64	49	182	12	82	5	.	390	.
Lupins	.	.	.	.	.	.	67	10	19	.	.	.	.	.
Camelina	.	.	.	.	.	.	.	.	.	.	.	81	.	.
Set-aside	.	.	.	.	.	2,451	3,013	3,394	2,284	.	.	.	.	.
All other arable crops	**943**	**1,266**	**610**	**193**	**954**	**2,919**	**3,451**	**4,053**	**2,869**	**619**	**536**	**898**	**938**	**847**
Potatoes														
Seed potatoes	3,509	3,688	1,678	1,798	1,607	.	1,239	1,148	763	792	707	555	.	527
Early potatoes	463	836	813	729	391	.	728	403	370	401	191	192	155	.
Maincrop potatoes	7,863	6,540	5,913	5,961	5,515	.	4,741	4,517	3,984	4,308	4,041	3,403	.	3,380
Maincrop & seed potatoes	11,372	10,228	7,591	7,759	7,122	.	5,980	5,665	4,748	5,100	4,748	3,958	3,610	3,907
All potatoes	**11,835**	**11,064**	**8,404**	**8,488**	**7,513**	**.**	**6,708**	**6,068**	**5,118**	**5,501**	**4,939**	**4,150**	**3,765**	**3,907**
All crops	**61,353**	**58,000**	**51,718**	**51,119**	**53,036**	**43,447**	**48,221**	**48,541**	**41,469**	**46,337**	**43,026**	**41,856**	**38,843**	**42,836**

*** both winter & spring oilseed rape** ****excluding potatoes** *****excluding peas**

Table 25 contd: **Comparison of the area of arable crops grown (hectares) in Northern Ireland, 1990-2016.**

	Differences between:												
Crop	**2016- 90**	**2016- 92**	**2016- 94**	**2016- 96**	**2016- 98**	**2016- 00**	**2016- 02**	**2016- 04**	**2016- 06**	**2016- 08**	**2016- 10**	**2016- 12**	**2016- 14**
Cereals													
Spring barley	-52%	-41%	-31%	-32%	-37%	-39%	-36%	-34%	-18%	-23%	-15%	-27%	-12%
Undersown barley	-96%	-96%	-96%	-95%	-94%	-93%	-88%	-61%	-65%	-71%	-61%	-54%	-46%
Winter barley	108%	33%	31%	6%	-1%	47%	94%	68%	66%	24%	13%	43%	14%
Spring wheat	103%	420%	2109%	447%	77%	-18%	-50%	-54%	-53%	-54%	-58%	-53%	17%
Undersown wheat	.	.	.	.	.	.	.	.	.	.	.	.	.
Winter wheat	36%	16%	14%	21%	17%	92%	36%	11%	10%	-25%	-14%	1%	0%
Spring oats	-36%	13%	49%	66%	46%	-26%	77%	58%	44%	83%	-1%	-1%	6%
Undersown oats	-87%	-93%	-96%	-88%	-85%	-41%	-25%	-94%	-79%	.	-69%	-92%	-85%
Winter oats	22%	-19%	-27%	-45%	-46%	-15%	-47%	-47%	-6%	-50%	-3%	233%	26%
All cereals	-22%	-17%	-11%	-10%	-15%	-6%	0%	-1%	14%	-5%	1%	3%	12%
Other arable crops													
Spring oilseed rape	-33%	-68%	-97%	-85%	-96%	.	-91%	.	.	.	.	-98%	-85%
Winter oilseed rape	-39%	-47%	68%	327%	8%	.	.	.	.	.	.	87%	27%
All oilseed rape *	-39%	-48%	-10%	186%	-25%	321%	397%	116%	17%	26%	24%	-32%	12%
Hemp	.	.	.	.	.	.	.	.	.	.	.	.	.
Linseed	.	.	.	.	.	.	.	.	.	.	.	.	.
Maize	.	.	.	.	.	.	.	.	.	.	.	.	.
Peas & beans	.	.	.	.	48%	8%	50%	39%	256%	435%	247%	2748%	443%
Triticale	.	.	.	.	.	.	.	.	.	.	.	.	.
Lupins	.	.	.	.	.	.	.	.	.	.	.	.	.
Camelina	.	.	.	.	.	.	.	.	.	.	.	.	.
Set-aside	.	.	.	.	.	.	.	.	.	.	.	.	.
All other arable crops	-10%	-33%	39%	339%	-11%	-71%	-75%	-79%	-70%	37%	58%	-6%	-10%
	.	.	.	.	.	.	.	.	.	.	.	.	.
Potatoes													
Seed potatoes	-85%	-86%	-69%	-71%	-67%	.	-57%	-54%	-31%	-33%	-25%	-5%	.
Early potatoes	.	.	.	.	.	.	.	.	.	.	.	.	.
Maincrop potatoes	-57%	-48%	-43%	-43%	-39%	.	-29%	-25%	-15%	-22%	-16%	-1%	.
Maincrop & seed potatoes	-66%	-62%	-49%	-50%	-45%	.	-35%	-31%	-18%	-23%	-18%	-1%	8%
All potatoes	-67%	-65%	-54%	-54%	-48%	.	-42%	-36%	-24%	-29%	-21%	-6%	4%
All crops	-30%	-26%	-17%	-16%	-19%	-1%	-11%	-12%	3%	-8%	0%	2%	10%

Table 26: **The area (spray hectares) of arable crops treated with pesticides in Northern Ireland, 1990-2016.**

	Survey year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides	102,594	106,290	114,972	121,833	141,099	.	127,435	139,474	123,125	159,738	147,957	157,255	140,704	154,623
Herbicides & desiccants	75,130	76,444	72,725	81,027	91,193	.	86,597	104,539	94,148	116,029	102,211	113,487	105,371	107,240
Insecticides														
Carbamates	.	*111*	*167*	*520*	*297*	.	*594*	*592*	*30*	*558*	*59*	*112*	*140*	*221*
Organochlorines	.	*79*	*255*	*222*	.	.	.	.	.	.	.	.	.	
Organophosphates	*1,472*	*2,454*	*2,124*	*3,085*	*1,587*	.	*1,265*	*2,423*	*1,818*	*1,164*	*1,163*	*2,405*	*2,736*	*622*
Pyrethroids	*2,895*	*2,800*	*3,267*	*7,706*	*17,084*	.	*18,164*	*26,973*	*25,055*	*35,936*	*26,467*	*26,827*	*20,711*	*18,525*
Azomethine	.	.	.	.	.	.	.	*673*	*71*	.	.	*272*	.	
Neonicotinoid	.	.	.	.	.	.	.	.	*96*	.	*78*	*274*	.	*609*
Feeding blocker	.	.	.	.	.	.	.	.	.	*252*	*77*	*66*	*101*	
Mixed Formulations	.	.	.	.	.	.	.	*581*	*96*	.	*129*	.	.	
Unknown insecticides	*465*	*694*	*207*	*815*	*1,238*	.	.	*180*	*89*	.	.	*74*	.	*80*
All insecticides	4,831	6,138	6,020	12,348	20,206	.	20,023	31,421	27,255	37,910	27,974	30,030	23,689	20,058
Molluscicides	834	871	243	434	1,123	.	1,926	337	1,237	1,277	816	3,642	1,387	2,712
Growth regulators	8,681	10,594	12,836	13,953	19,049	.	17,445	16,559	19,572	22,408	23,983	31,670	31,265	36,271
Other	.	.	.	.	.	.	.	.	.	89	210	664	633	315
Mixed formulations	233	186	134	137	128	.	86	.	.	.	.	.	.	.
Seed treatments	42,683	44,961	39,026	38,979	36,083	.	34,636	32,968	30,298	36,756	34,184	38,098	32,167	32,997
All pesticides	**234,985**	**245,485**	**245,971**	**268,710**	**308,881**	**.**	**288,348**	**325,299**	**295,635**	**374,207**	**337,336**	**374,845**	**335,215**	**354,216**
Area grown (ha)	61,355	57,999	51,718	51,119	53,036	.	48,222	48,541	41,469	46,337	43,027	41,823	38,843	38,082

Table 26 contd: **Comparison of the area (spray hectares) of arable crops treated in Northern Ireland, 1990-2016.**

	Differences between:												
	2016- 90	2016- 92	2016- 94	2016- 96	2016- 98	2016- 00	2016- 02	2016- 04	2016- 06	2016- 08	2016- 10	2016- 12	2016- 14
Pesticide type	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha
Fungicides	51%	45%	34%	27%	10%	.	21%	11%	26%	-3%	5%	-2%	10%
Herbicides & desiccants	43%	40%	47%	32%	18%	.	24%	3%	14%	-8%	5%	-6%	2%
Insecticides													
Carbamates	.	99%	32%	-57%	-26%	.	-63%	-63%	638%	-60%	275%	98%	58%
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	-58%	-75%	-71%	-80%	-61%	.	-51%	-74%	-66%	-47%	-46%	-74%	-77%
Pyrethroids	540%	562%	467%	140%	8%	.	2%	-31%	-26%	-48%	-30%	-31%	-11%
Azomethine	.	.	.	.	.	.	.	.	.	.	.	.	.
Neonicotinoid	.	.	.	.	.	.	.	.	.	.	.	.	.
Feeding blocker	.	.	.	.	.	.	.	.	.	-100%	-100%	-100%	-100%
Mixed Formulations	.	.	.	.	.	.	.	.	.	.	.	.	.
Unknown insecticides	.	.	.	.	.	.	.	.	.	.	.	.	.
All insecticides	315%	227%	233%	62%	-1%	.	0%	-36%	-26%	-47%	-28%	-33%	-15%
Molluscicides	225%	211%	1016%	524%	142%	.	41%	704%	119%	112%	232%	-26%	96%
Growth regulators	318%	242%	183%	160%	90%	.	108%	119%	85%	62%	51%	15%	16%
Other	.	.	.	.	.	.	.	.	.	254%	50%	-53%	-50%
Mixed formulations	.	.	.	.	.	.	.	.	.	.	.	.	.
Seed treatments	-23%	-27%	-15%	-15%	-9%	.	-5%	0%	9%	-10%	-3%	-13%	3%
All pesticides	51%	44%	44%	32%	15%	.	23%	9%	20%	-5%	5%	-6%	6%
Area grown (ha)	-38%	-34%	-26%	-26%	-28%	.	-21%	-22%	-8%	-18%	-11%	-9%	-2%

Table 27: **The quantity (tonnes) of pesticides applied to arable crops in Northern Ireland, 1990-2016.**

	Survey year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**
Fungicides	97.57	101.76	90.99	94.22	91.06	.	85.20	71.13	67.26	77.32	67.88	58.70	53.19	56.58
Herbicides & desiccants	253.62	212.36	133.57	336.33	337.65	.	390.98	254.62	152.13	71.58	50.75	52.12	45.69	42.28
Insecticides														
Carbamates	.	*0.02*	*0.02*	*0.07*	*0.04*	.	*0.08*	*0.08*	*0.004*	*0.075*	*0.008*	*0.01571*	*0.01823*	*0.03098*
Organochlorines	.	*0.09*	*0.29*	*0.23*	.	.	.	.	.	.	.	.	.	.
Organophosphates	*0.68*	*0.80*	*0.85*	*1.51*	*0.87*	.	*0.57*	*1.07*	*1.373*	*0.786*	*0.733*	*1.29359*	*1.92897*	*0.17435*
Pyrethroids	*0.05*	*0.05*	*0.07*	*0.15*	*0.19*	.	*0.20*	*0.20*	*0.163*	*0.295*	*0.163*	*0.19192*	*0.1029*	*0.09486*
Azomethine	.	.	.	.	.	.	.	*0.10*	*0.005*	.	.	*0.0433*	.	.
Neonicotinoid	.	.	.	.	.	.	.	.	*0.009*	.	*0.006*	*0.02114*	.	*0.04611*
Feeding blocker	.	.	.	.	.	.	.	.	.	*0.02*	*0.006*	*0.00528*	*0.00811*	.
Mixed Formulations	.	.	.	.	.	.	.	*0.05*	*0.016*	.	*0.01*	.	.	.
Unknown insecticides	.	.	.	.	.	.	.	*0.01*	.	.	.	*0.06*	.	*0.01204*
All insecticides	0.72	0.96	1.23	1.95	1.10	.	0.85	1.51	1.57	1.18	0.93	1.63	2.09	0.36
Molluscicides	0.33	0.27	0.12	0.09	0.17	.	0.34	0.06	0.28	0.17	0.12	0.30	0.13	0.36
Growth regulators	10.60	9.35	10.86	12.84	14.43	.	11.61	11.70	12.63	17.00	14.33	16.59	14.76	18.23
Other	.	.	.	.	.	.	.	.	.	0.014	0.180	0.244	0.351	0.225
Mixed formulations	0.51	0.41	0.29	0.30	0.28	.	0.13	.	.	.	.	.	.	.
Seed treatments	0.38*	3.77	5.06	3.03	3.71	.	2.82	2.28	4.03	1.82	2.09	2.52	2.02	3.41
All pesticides	***363.74***	***328.89***	***242.12***	***448.78***	***448.40***	***.***	***491.93***	***341.30***	***237.89***	***169.06***	***136.28***	***132.10***	***118.24***	***121.43***
Area grown (ha)	61,355	57,999	51,718	51,119	53,036	.	48,222	48,541	41,469	46,337	43,027	41,823	38,843	38,082

Table 27 contd: **Comparison of quantity (tonnes) of pesticides applied to arable crops in Northern Ireland, 1990-2016.**

	Differences between:												
	2016- 90	2016- 92	2016- 94	2016- 96	2016- 98	2016- 00	2016- 02	2016- 04	2016- 06	2016- 08	2016- 10	2016- 12	2016- 14
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	-42%	-44%	-38%	-40%	-38%	.	-34%	-20%	-16%	-27%	-17%	-4%	6%
Herbicides & desiccants	-83%	-80%	-68%	-87%	-87%	.	-89%	-83%	-72%	-41%	-17%	-19%	-7%
Insecticides													
Carbamates	.	55%	48%	-56%	-13%	.	-61%	-61%	674%	-59%	287%	97%	70%
Organochlorines													.
Organophosphates	-74%	-78%	-79%	-88%	-80%	.	-69%	-84%	-87%	-78%	-76%	-87%	-91%
Pyrethroids	90%	90%	37%	-37%	-50%	.	-53%	-52%	-42%	-68%	-42%	-51%	-8%
Azomethine	.	.	.	.	.	.	.	.	.	.	.	.	.
Neonicotinoid	.	.	.	.	.	.	.	.	.	.	.	.	.
Feeding blocker	.	.	.	.	.	.	.	.	.	.	.	.	.
Mixed Formulations	.	.	.	.	.	.	.	.	.	.	.	.	.
Unknown insecticides	.	.	.	.	.	.	.	.	.	.	.	.	.
All insecticides	191%	118%	70%	7%	91%	.	145%	39%	33%	78%	125%	28%	-83%
Molluscicides	10%	35%	208%	307%	111%	.	8%	508%	28%	116%	204%	23%	172%
Growth regulators	72%	95%	68%	42%	26%	.	57%	56%	44%	7%	27%	10%	24%
Other	.	.	.	.	.	.	.	.	.	1504%	25%	-8%	-36%
Mixed formulations	.	.	.	.	.	.	.	.	.	.	.	.	.
Seed treatments	.	-10%	-33%	12%	-8%	.	21%	49%	-15%	87%	63%	35%	69%
All pesticides	***-67%***	***-63%***	***-50%***	***-73%***	***-73%***	***.***	***-75%***	***-64%***	***-49%***	***-28%***	***-11%***	***-8%***	***3%***
Area grown (ha)	-38%	-34%	-26%	-26%	-28%	.	-21%	-22%	-8%	-18%	-11%	-9%	-2%

Table 28: **The area (spray hectares) of cereal crops treated with pesticides in Northern Ireland, 1990-2016.**

	Survey year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides	33,741	37,584	42,517	56,880	64,171	63,739	60,230	86,173	77,686	106,805	91,054	105,304	101,785	108,172
Herbicides & desiccants	52,342	52,872	56,201	63,072	72,911	71,281	69,752	82,884	77,378	95,133	83,268	94,335	90,806	90,299
Insecticides														
Carbamates	*.*	*88*	*167*	*493*	*249*	*.*	*182*	*120*	*.*	*127*	*59*	*.*	*140*	*30*
Organochlorines	*.*	*79*	*255*	*222*	*.*	*.*	*.*	*.*	*.*	*.*	*.*	*.*	*.*	*.*
Organophosphates	*1,164*	*2,359*	*1,857*	*2,447*	*1,440*	*3,773*	*1,140*	*2,058*	*1,751*	*1,164*	*1,164*	*2,405*	*2,483*	*622*
Pyrethroids	*2,381*	*2,670*	*3,267*	*7,047*	*16,481*	*23,617*	*16,709*	*24,258*	*23,328*	*34,701*	*24,909*	*26,036*	*19,500*	*17,597*
Unknown insecticides	*465*	*694*	*207*	*816*	*1,207*	*2,290*	*.*	*114*	*89*	*.*	*.*	*74*	*.*	*.*
All insecticides	4,010	5,890	5,754	11,028	19,377	29,681	18,031	26,550	25,168	35,991	26,132	28,515	22,123	18,249
Molluscicides	24	.	27	168	129	833	305	223	307	493	324	466	442	714
Growth regulators	8,607	10,509	12,836	13,953	18,998	17,237	17,330	16,476	19,559	22,386	23,927	31,660	31,172	36,015
Other	.	.	.	.	.	.	.	.	.	89	.	425	162	.
Seed treatments	41,739	39,958	35,995	35,525	31,728	34,260	31,494	29,069	27,353	33,567	31,572	34,646	30,468	31,176
All pesticides	***140,465***	***146,819***	***153,330***	***180,624***	***207,314***	***217,031***	***197,144***	***241,374***	***227,451***	***294,463***	***256,277***	***295,351***	***276,957***	***284,626***
Area grown (ha)	48,575	45,670	42,703	42,438	44,570	40,528	38,062	38,420	33,482	40,217	37,551	36,807	34,140	33,327

Table 28 contd: **Comparison of the area (spray hectares) of cereal crops treated in Northern Ireland, 1990-2016.**

	Differences between:												
	2016- 90	2016- 92	2016- 94	2016- 96	2016- 98	2016- 00	2016- 02	2016- 04	2016- 06	2016- 08	2016- 10	2016- 12	2016- 14
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides	221%	188%	154%	90%	69%	70%	80%	26%	39%	1%	19%	3%	6%
Herbicides & desiccants	73%	71%	61%	43%	24%	27%	29%	9%	17%	-5%	8%	-4%	-1%
Insecticides													
Carbamates	.	-65%	-82%	-94%	-88%	.	-83%	-75%	.	-76%	-48%	.	-78%
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	-47%	-74%	-66%	-75%	-57%	-84%	-45%	-70%	-64%	-47%	-47%	-74%	-75%
Pyrethroids	639%	559%	439%	150%	7%	-25%	5%	-27%	-25%	-49%	-29%	-32%	-10%
Unknown insecticides	.	.	.	.	.	.	.	.	.	.	.	.	.
All insecticides	355%	210%	217%	65%	-6%	-39%	1%	-31%	-27%	-49%	-30%	-36%	-18%
Molluscicides	2877%	.	2546%	325%	454%	-14%	134%	220%	133%	45%	121%	53%	62%
Growth regulators	318%	243%	181%	158%	90%	109%	108%	119%	84%	61%	51%	14%	16%
Other	.	.	.	.	.	.	.	.	.	.	.	.	.
Seed treatments	-25%	-22%	-13%	-12%	-2%	-9%	-1%	7%	14%	-7%	-1%	-10%	2%
All pesticides	***103%***	***94%***	***86%***	***58%***	***37%***	***31%***	***44%***	***18%***	***25%***	***-3%***	***11%***	***-4%***	***3%***
Area grown (ha)	-31%	-27%	-22%	-21%	-25%	-18%	-12%	-13%	0%	-17%	-11%	-9%	-2%

Table 29: **The quantity (tonnes) of pesticides applied to cereal crops in Northern Ireland, 1990-2016.**

	Survey year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**
Fungicides	14.97	18.43	14.96	24.52	22.82	13.32	15.18	19.15	20.21	32.17	27.62	31.11	30.84	28.81
Herbicides & desiccants	55.07	39.43	35.67	42.87	46.26	41.68	35.35	42.21	48.77	58.48	38.28	40.34	36.70	33.36
Insecticides														
Carbamates	.	*0.01*	*0.02*	*0.07*	0.03	.	0.03	*0.012*	.	0.014	0.008	.	0.018	0.004
Organochlorines	.	*0.09*	*0.29*	*0.23*	.	.	.	.	.	.	.	.	.	.
Organophosphates	*0.51*	*0.68*	*0.49*	1.24	0.74	2.51	0.56	*0.948*	*1.200*	*0.785*	*0.733*	*1.294*	*1.731*	*0.174*
Pyrethroids	*0.04*	*0.04*	*0.07*	*0.13*	*0.19*	*0.26*	*0.19*	*0.178*	*0.157*	*0.275*	*0.148*	*0.187*	*0.096*	*0.082*
Unknown insecticides	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All insecticides	0.55	0.83	0.88	1.66	0.96	2.75	0.78	1.14	1.36	1.08	0.89	1.54	1.85	0.26
Molluscicides	0.01	.	0.01	0.04	0.02	0.14	0.06	0.04	0.04	0.07	0.03	0.04	0.05	0.06
Growth regulators	10.51	9.32	10.86	12.84	14.41	12.87	11.61	11.64	12.62	16.93	14.16	16.55	14.48	18.17
Other	.	.	.	.	.	.	.	.	.	0.01	.	0.04	0.004	.
Seed treatments	0.33	0.94	3.80	2.41	1.72	2.34	1.57	1.35	1.42	1.09	1.37	1.40	12.81	1.60
All pesticides	***81.44***	***68.94***	***66.17***	***84.35***	***86.19***	***73.11***	***64.35***	***75.55***	***84.41***	***109.83***	***82.35***	***91.04***	***85.21***	***82.27***
Area grown (ha)	48,575	45,670	42,703	42,438	44,570	40,528	38,062	38,420	33,482	40,217	37,551	36,807	34,140	33,327

Table 29 contd: **Comparison of quantity (tonnes) of pesticides applied to cereal crops in Northern Ireland, 1990-2016.**

	Differences between:												
	2016- 90	2016- 92	2016- 94	2016- 96	2016- 98	2016- 00	2016- 02	2016- 04	2016- 06	2016- 08	2016- 10	2016- 12	2016- 14
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	92%	56%	93%	18%	26%	116%	90%	50%	43%	-10%	4%	-7%	-7%
Herbicides & desiccants	-39%	-15%	-6%	-22%	-28%	-20%	-6%	-21%	-32%	-43%	-13%	-17%	-9%
Insecticides													
Carbamates	.	-57%	-80%	-94%	-85%	.	-83%	-64%	.	-70%	-47%	.	-77%
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	-66%	-74%	-64%	-86%	-76%	-93%	-69%	-82%	-85%	-78%	-76%	-87%	-90%
Pyrethroids	104%	104%	18%	-37%	-58%	-69%	-58%	-54%	-48%	-70%	-45%	-56%	-15%
Unknown insecticides	.	.	.	.	.	.	.	.	.	.	.	.	.
All insecticides	236%	123%	111%	11%	93%	-33%	138%	62%	36%	72%	107%	20%	-86%
Molluscicides	519%	.	867%	55%	272%	-56%	-4%	55%	44%	-10%	121%	66%	21%
Growth regulators	73%	95%	67%	42%	26%	41%	57%	56%	44%	7%	28%	10%	26%
Other	.	.	.	.	.	.	.	.	.	.	.	.	.
Seed treatments	386%	70%	-58%	-34%	-7%	-32%	2%	19%	13%	48%	17%	14%	-87%
All pesticides	***1%***	***19%***	***24%***	***-2%***	***-5%***	***13%***	***28%***	***9%***	***-3%***	***-25%***	***0%***	***-10%***	***-3%***
Area grown (ha)	-31%	-27%	-22%	-21%	-25%	-18%	-12%	-13%	0%	-17%	-11%	-9%	-2%

Table 30: **The area (spray hectares) of oilseed rape crops treated with pesticides in Northern Ireland, 1990-2016.**

	Survey year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides	467	525	86	226	664	244	70	238	646	737	1,337	1,265	1,245	1,618
Herbicides & desiccants	1,603	1,343	597	292	1,171	366	194	448	970	972	1,054	1,694	1,227	1,620
Insecticides														
Carbamates	.	.	.	.	*28.6*	.	.	.	.	.	.	*13*	.	.
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	.	*67*	*180*	*25*	*5.4*	.	.	.	.	.	.	.	.	.
Pyrethroids	.	*131*	.	.	*190*	.	*49*	*55*	*149*	*316*	*361*	*132*	*93*	*154*
Azomethine	.	.	.	.	*10*	.	.	.	.	.	.	.	.	.
All insecticides	.	198	180	25	234	.	49	55	149	316	361	146	93	154
Molluscicides	810	871	216	72	522	.	39	.	68	120	.	270	467	.
Growth regulators	.	84	.	.	.	.	.	.	.	.	.	.	.	256
Other	.	.	.	.	.	.	.	.	.	.	210	239	471	315
Seed treatments	906	1,063	610	140	339	123	98	106	271	22	423	786	66	.
All pesticides	***3,786***	***4,084***	***1,689***	***755***	***2,931***	***732***	***450***	***846***	***2,104***	***2,167***	***3,360***	***4,400***	***3,569***	***3,962***
Area grown (ha)	906	1,062	610	193	739	131	111	255	471	439	446	807	494	552

Table 30 contd: **Comparison of the area (spray hectares) of oilseed rape crops treated in Northern Ireland, 1990-2016.**

	Differences between:												
	2016- 90	2016- 92	2016- 94	2016- 96	2016- 98	2016- 00	2016- 02	2016- 04	2016- 06	2016- 08	2016- 10	2016- 12	2016- 14
Pesticide type	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha
Fungicides	246%	208%	1792%	616%	144%	564%	2198%	581%	150%	120%	21%	28%	30%
Herbicides & desiccants	1%	21%	171%	455%	38%	343%	736%	261%	67%	67%	54%	-4%	32%
Insecticides													
Carbamates	.	.	.	.	.	.	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	.	.	.	.	.	.	.	.	.	.	.	.	.
Pyrethroids	.	17%	.	.	-19%	.	215%	180%	3%	-51%	-57%	16%	66%
Azomethine	.	.	.	.	.	.	.	.	.	.	.	.	.
All insecticides	.	-22%	-15%	516%	-34%	.	215%	181%	3%	-51%	-57%	6%	66%
Molluscicides	.	.	.	.	.	.	.	.	.	.	.	.	.
Growth regulators	.	205%	.	.	.	.	.	.	.	.	.	.	.
Other	.	.	.	.	.	.	.	.	.	.	50%	32%	-33%
Seed treatments	.	.	.	.	.	.	.	.	.	.	.	.	.
All pesticides	***5%***	***-3%***	***135%***	***425%***	***35%***	***441%***	***781%***	***368%***	***88%***	***83%***	***18%***	***-10%***	***11%***
Area grown (ha)	-39%	-48%	-10%	186%	-25%	321%	397%	116%	17%	26%	24%	-32%	12%

Table 31: **The quantity (tonnes) of pesticides applied to oilseed rape crops in Northern Ireland, 1990-2016.**

	Survey year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**
Fungicides	0.53	0.06	0.03	0.30	0.60	0.64	0.01	0.03	0.10	0.12	0.27	0.18	0.15	0.23
Herbicides & desiccants	1.31	0.98	0.62	0.20	0.74	0.16	0.10	0.25	0.76	0.81	0.65	1.14	1.13	1.09
Insecticides														
Carbamates	.	.	.	.	*0.004*	.	.	.	.	.	.	*0.00195*	.	.
Organochlorines	.	.	.	.	*<0.001*	.	.	.	.	.	.	.	.	.
Organophosphates	.	*0.02*	*0.08*	*0.01*	*0.004*	.	.	.	.	.	.	.	.	.
Pyrethroids	.	*0.01*	.	.	*0.001*	.	*0.0001*	*0.0003*	*0.001*	*0.011*	*0.002*	*0.0008*	0.0007	0.0009
Azomethine														.
All insecticides	.	0.03	0.08	0.01	0.009	.	0.0001	0.0003	0.001	0.011	0.003	0.0027	0.0007	0.0009
Molluscicides	0.32	0.27	0.11	0.01	0.06	.	0.01	.	0.01	0.03	.	0.0224	0.0445	.
Growth regulators	.	0.04	.	.	.	.	.	.	.	.	.	.		0.06
Other	.	.	.	.	.	.	.	.	.	.	.	.	0.35	0.22
Seed treatments	0.05	0.11	0.06	0.02	0.005	.	0.01	0.002	0.005	0.001	0.007	0.0105	0.0008	.
All pesticides	***2.21***	***1.49***	***0.90***	***0.54***	***1.41***	***0.81***	***0.13***	***0.28***	***0.88***	***0.96***	***1.11***	***1.55***	***1.67***	***1.60***
Area grown (ha)	906	1,062	610	193	739	131	111	255	471	439	446	807	494	552

Table 31 contd: **Comparison of quantity (tonnes) of pesticides applied to oilseed rape crops in Northern Ireland, 1990-2016.**

	Differences between:												
	2016- 90	2016- 92	2016- 94	2016- 96	2016- 98	2016- 00	2016- 02	2016- 04	2016- 06	2016- 08	2016- 10	2016- 12	2016- 14
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	-57%	280%	589%	-24%	-62%	-64%	1816%	660%	121%	97%	-16%	26%	56%
Herbicides & desiccants	-17%	11%	77%	446%	48%	582%	1015%	336%	44%	35%	68%	-4%	-4%
Insecticides													
Carbamates	.	.	.	.	.	.	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	.	.	.	.	.	.	.	.	.	.	.	.	.
Pyrethroids	.	-91%	.	.	-14%	.	841%	214%	-22%	-91%	-53%	22%	37%
Azomethine													.
All insecticides	.	-97%	-99%	-91%	-90%	.	840%	248%	-22%	-91%	-69%	-65%	37%
Molluscicides	.	.	.	.	.	.	.	.	.	.	.	.	.
Growth regulators	.	42%	.	.	.	.	.	.	.	.	.	.	.
Other	.	.	.	.	.	.	.	.	.	.	.	.	-35%
Seed treatments	.	.	.	.	.	.	.	.	.	.	.	.	.
All pesticides	***-28%***	***7%***	***79%***	***197%***	***13%***	***98%***	***1094%***	***472%***	***82%***	***66%***	***45%***	***3%***	***-4%***
Area grown (ha)	-39%	-48%	-10%	186%	-25%	321%	397%	116%	17%	26%	24%	-32%	12%

Table 32: **The area (spray hectares) of pea and bean* crops treated with pesticides in Northern Ireland, 1998-2016.**

	Survey Year									
	1998	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides	314	138	302.7	676.7	19.0	8.0	296.0	.	133.2	425.7
Herbicides & desiccants	444	199	241.1	321.5	120.0	63.0	137.0	20.7	98.7	822.0
Insecticides										
Carbamates	*19*	*18.3*	*54.2*	.	.	.	.	.		.
Organochlorines	.	.	.	.	.	.	.	.		.
Organophosphates	*22*	.	.	.	.	.	.	.		.
Pyrethroids	*64*	.	*66.1*	*197.20*	*12.00*	*8.00*	*99.00*	.	44.4	146.5
All insecticides	105	18.3	120.3	197.2	12.00	8.00	99.00	.	44.4	146.5
Seed treatments	.	105	137.9	15.1	.	8	72	.	.	24.6
All pesticides	***863***	***459.9***	***802***	***1,210.5***	***151.0***	***88.0***	***604.0***	***20.7***	***276.3***	***1,418.8***
Area grown (ha)	199	273	197	212	763	55	85	10	54	295

Only beans recorded in 2016

Table 32 contd: **Comparison of the area (spray hectares) of pea and bean* crops treated in Northern Ireland, 1998-2016.**

	Differences between:								
	2016- 98	2016- 00	2016- 02	2016- 04	2016- 06	2016- 08	2016- 10	2016- 12	2016- 14
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides	36%	208%	41%	-37%	2141%	5222%	44%	.	220%
Herbicides & desiccants	85%	314%	241%	156%	585%	1205%	500%	3867%	733%
Insecticides									
Carbamates	.	.	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.
Organophosphates	.	.	.	.	.	.	.	.	.
Pyrethroids	129%	.	122%	-26%	1121%	1731%	48%	.	230%
All insecticides	40%	700%	22%	-26%	1121%	1731%	48%	.	230%
Seed treatments	.	.	.	.	.	.	.	.	.
All pesticides	***64%***	***209%***	***77%***	***17%***	***840%***	***1512%***	***135%***	***6748%***	***413%***
Area grown (ha)	48%	8%	50%	40%	-61%	437%	248%	2855%	447%

Only beans recorded in 2016

Table 33: **The quantity (tonnes) of pesticides applied to pea and bean* crops in Northern Ireland, 1990-2016.**

	Survey Year									
	1998	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**
Fungicides	0.20	0.05	0.1055	0.540	0.009	0.006	0.180	.	0.025	0.237
Herbicides & desiccants	0.41	0.20	0.2545	0.197	0.098	0.062	0.132	0.018	0.078	0.572
Insecticides										
Carbamates	*0.003*	*0.005*	*0.003*	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.	.
Organophosphates	*0.002*	.	.	.	.	.	.	.	.	.
Pyrethroids	*0.001*	.	*0.0002*	*0.001*	*0.0001*	*<0.0001*	*<0.0001*	.	0.0003	0.0008
All insecticides	0.006	0.005	0.0032	0.001	0.0001	<0.0001	<0.0001	.	0.0003	0.0010
Seed treatments	.	0.112	0.015	0.002	.	0.005	0.018	.	.	0.006
All pesticides	***0.614***	***0.367***	***0.3782***	***0.740***	***0.107***	***0.073***	***0.334***	***0.018***	***0.103***	***0.816***
Area grown (ha)	199	273	197	212	83	55	85	10	54	295

Only beans recorded in 2016

Table 33 contd: **Comparison of quantity (tonnes) of pesticides applied to pea and bean* crops in Northern Ireland, 1990-2016.**

	Differences between:								
	2016- 98	2016- 00	2016- 02	2016- 04	2016- 06	2016- 08	2016- 10	2016- 12	2016- 14
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	19%	343%	125%	-56%	2536%	3855%	32%	.	852%
Herbicides & desiccants	40%	191%	125%	191%	483%	822%	333%	3070%	632%
Insecticides									
Carbamates	.	.	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.
Organophosphates	.	.	.	.	.	.	.	.	.
Pyrethroids	-15%	.	323%	-15%	746%	.	.	.	156%
All insecticides	-83%	-80%	-69%	0%	900%	.	.	.	203%
Seed treatments	.	.	.	.	.	.	.	.	.
All pesticides	***33%***	***122%***	***116%***	***10%***	***662%***	***1018%***	***144%***	***4426%***	***690%***
Area grown (ha)	48%	8%	50%	40%	257%	437%	248%	2855%	447%

Only beans recorded in 2016

Table 34: **The area (spray hectares) of potato crops treated with pesticides in Northern Ireland, 1990-2016.**

	Survey Year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides	68,384	68,178	72,369	64,727	75,933	.	66,810	52,149	45,397	52,189	55,289	50,685	37,541	44,407
Herbicides & desiccants	21,146	21,819	15,927	17,663	16,616	.	14,852	19,839	15,971	19,843	17,753	17,356	13,239	14,499
Insecticides														
Carbamates	.	*23*	.	*28*	.	.	*357*	*473*	*30*	*431*	.	98		*191*
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	253	.
Organophosphates	*308*	*28*	*88*	*612*	*123*	.	*125*	*365*	*55*	.	.	.		.
Pyrethroids	*512*	.	.	*656*	*353*	.	*1,340*	*2,408*	*1,553*	*913*	*1,094*	*438*	*1,074*	*628*
Azomethine	.	.	.	.	.	.	.	*673*	*71*	.	.	*272*		.
Neonicotinoid	.	.	.	.	.	.	.	.	*96*	.	*78*	*274*		*609*
Feeding blocker	.	.	.	.	.	.	.	.	.	*252*	*77*	*66*	*101*	.
Mixed Formulations	.	.	.	.	.	.	.	*581*	*96*	.	*129*	.		.
Unknown insecticides	.	.	*14*	.	*20*	.	.	*66*	.	.	.	.		*80*
All insecticides	820	51	102	1,295	492	.	1,823	4,565	1,900	1,595	1,379	1,369	1,428	1,508
Molluscicides	.	.	.	195	472	.	1,581	114	930	664	491	2,906	479	1,998
Growth regulators	233	186	134	137	128	.	86	.	.	.	.	.	.	.
Mixed formulations	.	.	.	.	.	.	72	.	.	23	56	10	93	.
Seed treatments	*	3,738	2,420	3,314	4,017	.	3,071	3,679	2,756	3,158	2,117	2,666	1,632	1,797
All pesticides	***90,583***	***93,972***	***90,952***	***87,330***	***97,658***	***.***	***88,295***	***80,347***	***66,954***	***77,473***	***77,085***	***74,992***	***54,413***	***64,209***
Area grown (ha)	11,835	11,064	8,404	8,488	7,513	.	6,708	6,068	5,118	5,501	4,940	4,150	3,765	3,908

**** Seed treatments not recorded***

Table 34 contd: **Comparison of the area (spray hectares) of potato crops treated in Northern Ireland, 1990-2016.**

	Differences between:												
	2016- 90	2016- 92	2016- 94	2016- 96	2016- 98	2016- 00	2016- 02	2016- 04	2016- 06	2016- 08	2016- 10	2016- 12	2016- 14
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides		-35%	-39%	-31%	-42%	.	-34%	-15%	-2%	-15%	-20%	-12%	18%
Herbicides & desiccants	-31%	-34%	-9%	-18%	-13%	.	-2%	-27%	-9%	-27%	-18%	-16%	10%
Insecticides													
Carbamates	.	.	.	.	.		.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	-100%
Organophosphates	.	.	.	.	.	.	.	.	.	.	.	.	.
Pyrethroids	23%	.	.	-4%	78%	.	-53%	-74%	-60%	-31%	-43%	43%	-42%
Azomethine	.	.	.	.	.	.	.	.	.	.	.	.	.
Neonicotinoid	.	.	.	.	.	.	.	.	535%	.	681%	123%	.
Feeding blocker	.	.	.	.	.	.	.	.	.	.	.	.	-100%
Mixed Formulations						.							.
Unknown insecticides						.							.
All insecticides	74%	2701%	1307%	10%	190%	.	-22%	-69%	-25%	-10%	4%	4%	6%
Molluscicides	.	.	.	925%	324%	.	26%	1653%	115%	201%	307%	-31%	317%
Growth regulators	.	.	.	.	.	.	.	.	.	.	.	.	.
Mixed formulations	.	.	.	.	.	.	.	.	.	.	.	.	.
Seed treatments	.	-52%	-26%	-46%	-55%	.	-42%	-51%	-35%	-43%	-15%	-33%	10%
All pesticides	***-29%***	***-32%***	***-29%***	***-26%***	***-34%***	***.***	***-27%***	***-20%***	***-4%***	***-17%***	***-17%***	***-14%***	***18%***
Area grown (ha)	-67%	-65%	-54%	-54%	-48%	.	-42%	-36%	-24%	-29%	-21%	-6%	4%

Table 35: **The quantity (tonnes) of pesticides applied to potato crops in Northern Ireland, 1990-2016.**

	Survey year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**
Fungicides	82.07	83.28	76.00	69.41	67.43	.	69.90	51.33	46.93	45.02	39.80	27.40	22.18	27.30
Herbicides & desiccants	197.20	171.75	97.28	293.26	290.23	.	354.01	211.18	101.78	12.22	11.70	10.59	7.78	7.26
Insecticides														
Carbamates	.	*<0.01*	.	*<0.01*	.	.	0.05	*0.07*	*0.004*	*0.060*	.	*0.01376*		*0.02672*
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	*0.22763*	.
Organophosphates	*0.17*	*0.10*	*0.28*	*0.26*	0.12	.	0.02	*0.12*	*0.164*	.	.	.		.
Pyrethroids	*0.01*	.	.	*0.02*	*<0.01*	.	*0.01*	*0.01*	*0.006*	*0.007*	*0.010*	*0.004*	*0.006*	*0.01157*
Azomethine	.	.	.	.	.	.	.	*0.102*	*0.005*	.	.	*0.043*	.	.
Neonicotinoid	.	.	.	.	.	.	.	.	*0.010*	.	*0.006*	*0.021*	.	*0.04611*
Feeding blocker	.	.	.	.	.	.	.	.	.	*0.020*	*0.006*	*0.005*	*0.008*	.
Mixed Formulations	.	.	.	.	.	.	.	*0.051*	*0.015*	.	*0.014*	.	.	.
Unknown insecticides	.	.	.	.	.	.	.	*0.003*	.	.	.	.	.	0.01204
All insecticides	0.17	0.10	0.28	0.28	0.13	.	0.08	0.36	0.20	0.087	0.04	0.09	0.24	0.10
Molluscicides	.	.	.	0.04	0.10	.	0.26	0.02	0.23	0.07	0.09	0.24	0.04	0.30
Growth regulators	0.51	0.41	0.29	0.30	0.28	.	0.13	.	.	.	.	.		.
Mixed formulations	.	.	.	.	.	.	*0.17*	.	.	0.07	0.17	0.03	0.28	.
Seed treatments	*	2.71	1.20	0.61	*1.99*	.	*1.22*	0.90	2.60	0.73	0.70	1.11	0.74	1.80
All pesticides	***279.95***	***258.25***	***175.06***	***363.89***	***360.16***	***.***	***425.84***	***263.78***	***151.75***	***58.20***	***52.48***	***39.46***	***31.25***	***36.75***
Area grown (ha)	11,835	11,064	8,404	8,488	7,513	.	6,708	6,068	5,118	5,501	4,940	4,150	3,765	3,908

**** Seed treatments not recorded***

Table 35 contd: **Comparison of quantity (tonnes) of pesticides applied to potato crops in Northern Ireland, 1990-2016.**

	Differences between:												
	2016- 90	2016- 92	2016- 94	2016- 96	2016- 98	2016- 00	2016- 02	2016- 04	2016- 06	2016- 08	2016- 10	2016- 12	2016- 14
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides		-67%	-64%	-61%	-60%	.	-61%	-47%	-42%	-39%	-31%	0%	23%
Herbicides & desiccants	-96%	-96%	-93%	-98%	-97%	.	-98%	-97%	-93%	-41%	-38%	-31%	-7%
Insecticides													
Carbamates	.	.	.	.	.	.	-47%	-60%	568%	-55%	.	94%	.
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	-100%
Organophosphates	.	.	.	.	.	.	.	.	.	.	.	.	.
Pyrethroids	16%	.	.	-42%	.	.	39%	16%	93%	65%	16%	176%	85%
Azomethine	.	.	.	.	.	.	.	.	.	.	.	.	.
Neonicotinoid	.	.	.	.	.	.	.	.	361%	.	668%	118%	.
Feeding blocker	.	.	.	.	.	.	.	.	.	.	.	.	-100%
Mixed Formulations	.	.	.	.	.	.	.	.	.	.	.	.	.
Unknown insecticides	.	.	.	.	.	.	.	301%	.	.	.	.	.
All insecticides	-43%	-4%	-65%	-66%	-26%	.	28%	-73%	-53%	11%	168%	10%	-60%
Molluscicides	.	.	.	656%	209%	.	15%	1790%	33%	309%	236%	27%	690%
Growth regulators	.	.	.	.	.	.	.	.	.	.	.	.	.
Mixed formulations	.	.	.	.	.	.	.	.	.	.	.	.	-100%
Seed treatments	.	-34%	49%	195%	-10%	.	47%	100%	-31%	147%	158%	62%	144%
All pesticides	***-87%***	***-86%***	***-79%***	***-90%***	***-90%***	***.***	***-91%***	***-86%***	***-76%***	***-37%***	***-30%***	***-7%***	***18%***
Area grown (ha)	-67%	-65%	-54%	-54%	-48%	.	-42%	-36%	-24%	-29%	-21%	-6%	4%

Table 36: **The area (spray hectares) of seed potato crops treated with pesticides in Northern Ireland, 1990-2016.**

	Survey year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides	18,326	18,603	16,465	13,462	14,242	.	9,219	10,226	5,618	5,530	6,662	6,076	#	6,706
Herbicides & desiccants	6,535	8,118	3,784	4,035	3,363	.	2,650	4,917	2,285	3,170	2,240	2,344	#	2,051
Insecticides														
Carbamates	.	*23*	.	.	.	.	.	*365*	.	*252*	.	.	#	.
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	#	.
Organophosphates	.	*18*	.	.	*26*	.	.	*365*	.	.	.	.	#	.
Pyrethroids	*501*	.	.	*586*	*205*	.	*16*	*406*	*931*	*168*	*84*	*369*	#	.
Azomethine	.	.	.	.	.	.	.	.	.	.	.	*204*	#	.
Neonicotinoid	.	.	.	.	.	.	.	.	*39*		.	*249*	#	520
Feeding blocker	.	.	.	.	.	.	.	.	.	*252*	*77*	*65*	#	.
Mixed Formulations	.	.	.	.	.	.	.	*453*	*39*	.	*120*	.	#	.
Unknown insecticides														80
All insecticides	501	41	8	586	230	.	*16*	1,589	1,008	671	281	887	#	600
Molluscicides	.	.	.	.	66	.	*267*	.	77	160	86	71	#	.
Mixed formulations	8	.	.	.	.	.	.	.	.	.	.	.	#	.
Seed treatments	*	2,039	744	1,065	882	.	512	1,224	303	622	238	562	#	280
All pesticides	***25,370***	***28,801***	***21,000***	***19,148***	***18,783***	***.***	***12,665***	***17,956***	***9,291***	***10,153***	***9,507***	***9,940***	#	***9,637***
Area grown (ha)	3,509	3,688	1,678	1,798	1,607	.	1,239	1,148	763	792	707	555	#	527

**** Seed treatments not recorded***

 # both seed and maincrop potatoes combined in 2014

Table 37: **The quantity (tonnes) of pesticides applied to seed potato crops in Northern Ireland, 1990-2016.**

	Survey year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**
Pesticide type	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**
Fungicides	22.92	24.82	15.24	13.45	14.29	.	9.08	8.79	6.16	3.14	5.99	3.07	#	4.70
Herbicides & desiccants	127.42	100.45	41.73	146.03	148.63	.	129.71	31.62	7.38	2.88	1.41	1.48	#	0.83
Insecticides														
Carbamates	.	*<0.01*	.	.	.	.	.	*0.051*	.	*0.035*	.	.	#	.
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	#	.
Organophosphates	.	*0.06*	.	.	*<0.01*	.	.	*0.124*	.	.	.	.	#	.
Pyrethroids	*0.01*	.	.	*0.02*	*<0.01*	.	*<0.01*	*0.002*	*0.004*	*0.002*	*<0.001*	*0.002*	#	.
Azomethine	.	.	.	.	.	.	.	.	.	.	.	*0.033*	#	.
Neonicotinoid	.	.	.	.	.	.	.	.	*0.004*	.	.	*0.019*	#	*0.0394*
Feeding blocker										*0.02*	*0.006*	*0.005*	#	.
Mixed Formulations	.	.	.	.	.	.	.	*0.04*	*0.006*		*0.013*	.	#	.
Unknown insecticides														*0.0120*
All insecticides	0.01	0.06	0.03	0.02	0.01	.	<0.01	0.22	0.014	0.057	0.020	0.059	#	0.05
Molluscicides	.	.	.	.	0.01	.	0.04	.	0.02	0.01	0.01	0.003	#	.
Mixed formulations	0.02	.	.	.	.	.	.	.	.	.	.	.	#	.
Seed treatments	*	1.97	0.30	0.21	0.74	.	0.08	0.41	0.11	0.17	0.10	0.27	#	1.38
All pesticides	***150.37***	***127.30***	***57.30***	***159.70***	***163.68***	***.***	***138.91***	***41.04***	***13.67***	***6.27***	***7.52***	***4.89***	#	***6.96***
Area grown (ha)	3,509	3,688	1,678	1,798	1,607	.	1,239	1,148	763	792	707	555	#	527

**** Seed treatments not recorded***

 # both seed and maincrop potatoes combined in 2014

Table 38: **The area (spray hectares) of ware (early & maincrop) potato crops treated with pesticides in Northern Ireland, 1990-2016.**

	Survey year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016****
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides	48,021	46,325	52,198	48,176	59,998	.	52,030	39,807	37,699	44,505	47,531	43,553	#	37,701
Herbicides & desiccants	13,762	12,397	11,309	12,316	12,635	.	10,682	14,081	12,562	15,393	15,029	14,347	#	12,448
Insecticides														
Carbamates	.	.	.	.	.	.	*357.4*	*20*	*30*	*179*	.	*80.88*	#	191
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	#	.
Organophosphates	*308*	*10*	.	*549*	*32*	.	*101*	.	*30*	.	.	.	#	.
Pyrethroids	*11*	.	.	*70*	*110*	.	*1151*	*1852*	*622*	*723*	*973*	*282.06*	#	628
Azomethine	.	.	.	.	.	.	.	*642*	*71*	.	.	*67.8*	#	.
Neonicotinoid	.	.	.	.	.	.	.	.	*57*	.	*78*	*25.09*	#	90
Feeding blocker	.	.	.	.	.	.	.	*128*	*57*	.	*9*	.	#	.
Mixed Formulations	.	.	.	.	.	.	.	*66*	.	.	.	.	#	.
All insecticides	319	10	94	619	155	.	1,609	2,709	867	902	1,061	456	#	908
Molluscicides	.	.	.	195	396	.	1,108	114	853	446	385	2,754	#	1,998
Growth regulators	.	.	.	.	.	.	72	.	.	23	56	10	#	.
Mixed formulations	225	186	134	137	128	.	86	.	.	.	.	.	#	.
Seed treatments	*	1,339	1,546	1,945	2,980	.	2,078	2,243	2,306	2,209	1,811	1,974	#	1,517
All pesticides	***62,328***	***60,257***	***65,280***	***63,388***	***76,292***	**.**	***67,664***	***58,955***	***54,287***	***63,478***	***65,873***	***63,094***	#	***54,572***
Area grown (ha)	7,863	6,540	5,913	5,961	5,515	.	4,741	4,517	3,984	4,308	4,041	3,403	#	3,380

**** Seed treatments not recorded*** ***# both seed and maincrop potatoes combined in 2014*** ***** Early and maincrop potatoes combined in 2016***

Table 39: **The quantity (tonnes) of pesticides applied to ware (early & maincrop) potato crops in Northern Ireland, 1990-2016.**

	Survey year													
	1990	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016****
Pesticide type	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**
Fungicides	56.61	54.36	56.29	52.11	51.07	.	55.34	40.10	38.78	39.96	33.14	23.75	#	22.60
Herbicides & desiccants	69.27	68.21	55.01	143.18	139.86	.	191.80	155.30	92.70	8.60	9.86	8.59	#	6.43
Insecticides														
Carbamates	.	.	.	.	.	.	*0.05*	*0.003*	*0.004*	*0.025*	.	*0.011*	#	0.03
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	#	.
Organophosphates	*0.17*	*0.03*	.	*0.24*	*0.03*	.	*0.01*	.	*0.09*	.	.	.	#	.
Pyrethroids	*< 0.01*	.	.	*< 0.01*	*<0.01*	.	*<0.01*	*0.01*	*0.002*	*0.005*	*0.009*	*0.002*	#	0.01
Azomethine	.	.	.	.	.	.	.	*0.097*	*0.005*	.	.	*0.010*	#	.
Neonicotinoid	.	.	.	.	.	.	.	.	*0.006*	.	*0.006*	*0.002*	#	0.01
Feeding blocker	.	.	.	.	.	.	.	*0.014*	*0.009*	.	*0.001*	.	#	.
Mixed Formulations	.	.	.	.	.	.	.	*0.003*	.	.	.	.	#	.
All insecticides	0.17	0.03	0.25	0.24	0.04	.	0.07	0.13	0.116	0.030	0.016	0.026	#	0.05
Molluscicides	.	.	.	0.04	0.08	.	0.18	0.02	0.21	0.06	0.08	0.227	#	0.30
Growth regulators	.	.	.	.	.	.	0.1721	.	.	0.069	0.168	0.031	#	.
Mixed formulations	0.50	0.41	0.29	0.30	0.28	.	0.13	.	.	.	.	.	#	.
Seed treatments	*	0.54	0.86	0.36	1.22	.	.	0.48	2.49	0.44	0.58	0.80	#	0.41
All pesticides	***126.55***	***123.55***	***112.71***	***196.23***	***192.56***	**.**	***248.72***	***196.03***	***134.30***	***49.16***	***43.85***	***33.42***	#	***29.79***
Area grown (ha)	7,863	6,540	5,913	5,961	5,515	.	4,741	4,517	3,984	4,308	4,041	3,403	#	3,380

**** Seed treatments not recorded*** ***# both seed and maincrop potatoes combined in 2014*** ***** Early and maincrop potatoes combined in 2016***

Table 40: Estimated quantity (tonnes) of potato crops stored regionally in Northern Ireland, 2016.

Location of holding	Ware	Seed	Total
Antrim	27,005	.	27,005
Armagh	3,558	.	3,558
Down	12,123	4,971	17,094
Londonderry	15,541	1,800	17,341
Tyrone	2,286	.	2,286
Northern Ireland	***60,512***	***6,771***	***67,283***

Table 41: Type of storage building and quanity (tonnes) of potatoes stored in Northern Ireland, 2016.

Type of storage building	Ware	Seed	Total
Barn unventilated	18,085	3,171	21,256
Barn ventilated	14,977	.	14,977
Cold Store / Refrigerated	27,450	3,600	31,050
All barn stores	***60,512***	***6,771***	***67,283***

Table 42: Storage method and quanity (tonnes) of potatoes stored in Northern Ireland, 2016.

Type of storage method	Ware	Seed	Total
Bulk	2,787	.	2,787
Boxed	57,726	6,771	64,497
Total	***60,512***	***6,771***	***67,283***

Table 43: Estimated quanity (treated tonnes) of potatoes in storage receiving pesticide treatment in Northern Ireland, 2016.

Storage method	Ware	Seed	Total
Chlorpropham	384	.	384
Imazalil	.	2,043	2,043
Imazalil/thiabendazole	225	.	225
Total all pesticides	***609***	***2,043***	***2,652***

Table 44: Estimated quantities (kilogrammes) of pesticide treatments applied to stored potatoes in Northern Ireland, 2016.

Storage method	Ware	Seed	Total
Chlorpropham	6.91	.	6.91
Imazalil	.	20.43	20.43
Imazalil/thiabendazole	10.13	.	10.13
Total all pesticides	***17.04***	***20.43***	***37.47***

Table 45: Comparison of ware potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2016.

	Ware potatoes											
	1992	1994	1996	1998	2002	2004	2006	2008	2010	2012	2014	2016
Quantity stored (t)	139,570	84,868	135,933	112,675	44,322	122,348	92,914	60,855	94,771	56,073	.	60,512
Quantity treated (tt)	16,289	11,630	19,022	5,899	9,024	3,099	.	4680	9644	3,183	.	609
Quantity of pesticides (kg)	1,998	1,001	750	227	439	148	.	173	203	78	.	17
Quantity untreated (t)	123,281	73,238	116,910	106,777	35,298	119,249	92,914	56,175	85,127	52,889	.	59,903

Table 46: Comparison of seed potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2016.

	Seed potatoes											
	1992	1994	1996	1998	2002	2004	2006	2008	2010	2012	2014	2016
Quantity stored (t)	33,420	24,238	39,290	39,809	16,032	33,321	24,640	5,138	16,256	12,732	.	6,711
Quantity treated (tt)	7,536	14,950	12,915	5,628	4,029	673	76	.	.	4,951	.	2,043
Quantity of pesticides (kg)	1,052	851	480	896	48	5	0.76	.	.	139	.	20
Quantity untreated (t)	27,033	9,288	26,652	34,181	12,003	32,648	24,564	.	.	7,781	.	4,668

Table 47: Comparison of all potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2016.

	All potatoes											
	1992	1994	1996	1998	2002	2004	2006	2008	2010	2012	2014	2016
Quantity stored (t)	191,019	119,447	190,392	162,608	60,353	155,669	117,554	70,794	111,028	68,804	41,336	67,283
Quantity treated (tt)	23,825	26,580	38,624	14,051	13,053	3,772	76	4,680	9,644	8,134	.	2,652
Quantity of pesticides (kg)	3,050	1,852	1,605	1,245	488	154	1	173	203	218	.	37
Quantity untreated (t)	168,344	92,868	152,027	148,557	47,300	151,897	117,478	66,114	101,384	60,670	41,336	64,631

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Northern Ireland Pesticide Usage Survey Published Reports Appendix 1

Report No.	Report title	ISBN
99	Grassland & Fodder Crops 1989	1-855 27 079 X
105	Arable Crops 1990	1-855 27 130 3
106	Soft Fruit Crops 1990	1-855 27 149 4
109	Vegetable Crops 1991	1-855 27 137 0
110	Protected Crops 1991 (edible & ornamental)	1-855 27 283 0
111	Mushroom Crops 1991	1-855 27 150 8
117	Arable Crops 1992	1-855 27 193 1
118	Top Fruit Crops 1992	1-855 27 194 X
124	Grassland & Fodder crops 1993	1-855 27 221 0
131	Forestry 1993	1-855 27 282 2
132	Arable Crops 1994	1-855 27 314 4
139	Vegetable Crops 1995	1-855 27 346 2
140	Mushroom Crops 1995	1-855 27 347 0
146	Arable Crops 1996	1-855 27 469 8
147	Top fruit 1996	1-855 27 470 1
156	Grassland & Fodder Crops 1997	1-855 27 506 6
157	Sheep Treatments 1997	1-855 27 425 6
167	Soft Fruit 1998	1-855 27 540 6
168	Arable Crops 1998	1-855 27 536 8
169	Vegetable Crops 1999	1-855 27 561 9
170	Mushroom Crops 1999	1-855 27 549 X
177	Arable Crops 2000	1-855 27 670 4
178	Top Fruit Crops 2002	1-855 27 618 6
194	Arable Crops 2002	1-855 27 674 7
198	Grassland & Fodder Crops 2003	1-855 27 797 2
199	Hardy Nursery Stock Crops 2003	1-855 27 789 1
201	Protected Ornamental Crops 2003	1-855 27 739 5
206	Arable Crops 2004	1-855 27 833 2
207	Vegetable crops 2004	1-855 27 869 3

Report No.	Report title	ISBN
208	Grassland & Fodder Crops 2005	1-855 27 998 8
209	Sheep Treatments 2005	1-855 27 999 5
216	Arable Crops 2006	1-848 07 035 6
217	Top Fruit Crops 2006	1-848 07 019 6
218	Soft Fruit Crops 2006	1-848 07 036 3
222	Vegetable Crops 2007	1-848 07 062 2
223	Mushroom Crops 2007	1 848 07 061 5
230	Arable Crops 2008	1 848 07 135 3
231	Top Fruit Crops 2008	1-848 07 134 6
238	Grassland & Fodder Crops 2009	1-848 07 186 5
239	Hardy Nursery Stock Crops 2009	1-848 07 187 2
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241	Top Fruit Crops 2010	1-848 07 250 3
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246	Vegetable Crops 2011	1-848 07 309 8
247	Arable Crops 2012	1-848 07 404 3
248	Soft Fruit Crops 2012	1-848 07 402 6
249	Top Fruit Crops 2012	1-848 07 403 3
258	Grassland & Fodder Crops 2013	1-84807-485-9
259	Vegetable Crops 2013	1-84807-486-6
260	Arable Crops 2014	1-84807-552-8
261	Top Fruit Crops 2014	1-84807-553-5
262	Soft Fruit Crops 2014	1-84807-571-9
267	Edible Protected Crops 2015	1-84807-684-6
268	Outdoor Vegetable Crops 2015	1-84807-685-3

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