

# PESTICIDE USAGE IN NORTHERN IRELAND

Survey Report 313

## Northern Ireland Arable Crops 2022

A National Statistics Publication



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# PESTICIDE USAGE SURVEY REPORT 313

## ARABLE CROPS IN NORTHERN IRELAND 2022

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ISBN 1-908471-29-1

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**The County Regions of Northern Ireland**

## SUMMARY

This is the seventeenth survey of pesticide usage practices on arable crops in Northern Ireland. Information on all aspects of pesticide usage was collected from 71 holdings throughout the province, representing 9% of the total area of arable crops grown ([Table 1](#)). Quantitative data has been adjusted to provide estimates of total pesticide usage.

The total area of arable crops grown in Northern Ireland in 2022 was 34,756 hectares ([Table 2](#)). This represented a decrease of 4% compared to that recorded in 2020 and a 44% reduction compared to that recorded in the first pesticide usage survey of the arable sector, in 1990. Approximately 48% of the arable cropping area in 2022 was in County Down, 26% in County Londonderry, 14% in County Antrim, 9% in County Armagh and 3% in County Tyrone. There was no significant area of arable cropping in County Fermanagh.

A total of 247 products, comprising 110 active substances were recorded in use on field crops in this survey compared with 307 products and 105 active substances used in 2020. No fallow, organic, undersown 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 2022. The total weight of pesticide active substances applied to arable crops in 2022 decreased from 106,968 kilogrammes in 2020 to 92,551 kilogrammes, representing a 13% decrease from 2020 and a 24% decrease from 2018.

Spring barley represented 37% of the area of crops grown ([Table 3](#)) and accounted for 29% of the total area of arable crops treated ([Table 5](#)) and 19% of the weight of pesticides applied ([Table 6](#)). Since 2012, the area of spring wheat crops grown decreased by 35% whilst during the same period the area of winter barley crops grown increased by 49%.

Compared with 2020, the area of arable crops treated with fungicides decreased by 6% and 31% of the total weight applied. Winter wheat received the most fungicide treatments, accounting for 37% of the fungicide-treated area and 39% of the weight applied. The organic compound and multi-site fungicide, folpet, was the most frequently applied to cereal crops, in particular winter wheat, winter barley and spring barley.

Herbicide and desiccant applications decreased by 2% of both the area treated and weight applied when compared with 2020. The broad-spectrum systemic herbicide and crop desiccant, glyphosate, was the most frequently applied, mainly to spring barley and maincrop potatoes, and accounted for 18% of all herbicide and desiccant applications and 42% of the weight applied.



Insecticide applications increased by 17% when compared with 2020, although the weight applied decreased by 29%. The pyrethroid insecticides lambda-cyhalothrin and esfenvalerate accounted for 57% and 37% of the area treated and 38% and 18% of the weight applied, respectively. Spring barley received 36% of all insecticide applications, which were used exclusively for 'aphids' and 'general insect control'. Flonicamid, a relatively unique pyridine insecticide which acts as a feeding disruptor, was used on seed potatoes and winter barley, also for 'aphids' and 'general insect control'.

Following a significant rise in molluscicide use in 2020, mainly due to an increase of applications to maincrop potatoes, the area treated with this pesticide type has decreased by 71% and the weight applied by 86%. Maincrop potatoes continue to be the primary crop treated with molluscicides, accounting for 92% of both the area treated and weight applied. Ferric phosphate was the only molluscicide recorded during this reporting period, with 'slugs' given as the only reason for use.

Growth regulator applications increased by 10% of the area treated and 9% of the weight applied when compared to 2020. The principal growth regulators used were chlormequat and trinexapac-ethyl which is consistent with previous surveys conducted between 2006 and 2020. Growth regulators were applied primarily to spring barley, winter barley and winter wheat, collectively accounting for 91% of the area treated and 84% of the weight applied.

Although seed treatment applications decreased by 9% of the treated area when compared with 2020, the weight applied increased by 88%, mainly due to the variation in seed volume and seed treatment application rates for different crops. The phenylpyrrole fungicide seed treatment, fludioxonil, accounted for 61% of the seed-treated area and 24% of the weight of seed treatments applied. Conversely, the systemic fungicide flutalonil accounted for 4% of the area treated with seed treatments and 43% of the weight applied.

Adjuvants, foliar feeds, trace elements and other treatments not classified as plant protection products are included in this report due to their extensive use in arable crop cultivation and production.

Potato crops comprised 10% of the area of arable crops grown in Northern Ireland in 2022, accounting for 20% of the total pesticide-treated area (Tables [3](#) & [5](#)) and 29% of the weight of all pesticides applied. Potato crops comprised 11% of seed and 89% maincrop potatoes. No first or second early potato crops were recorded during this survey period. Potatoes accounted for 30% of the area treated with fungicides and 40% of the weight of fungicides

applied. Herbicides and desiccants applied to potato crops represented 17% of the area treated and 30% of the weight of this pesticide group. Potato crops received more pesticide treatments than any other arable crop ([Table 7](#)).

In previous years, data relating to post-harvest potato storage methods and quantities were collected. Unfortunately, due to difficulties with data collection following the Covid-19 pandemic, it has not been possible to collect these data with any reliability and they have therefore been omitted from this report. Comparison data for potato storage from previous years is included in [Tables 33-35](#).

The full list of active substances recorded in 2022 are in [Tables 8 & 9](#) and the list of fifty of the most commonly used substances (including 'other treatments') and prioritised by application area and weight applied, is provided in [Tables 10 & 11](#).

## DEFINITIONS AND NOTES

- 'Grown area' refers to the actual planted area of crop.
- 'Basic area treated' refers to the grown area x the percentage area receiving a treatment.
- 'Total area treated' 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 treated x number of spray applications = spray hectares (spha).
- 'Reasons for use' refers to the reasons given by each 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 kilogrammes (kg).
- '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. 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, 2022 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. Please also note previous comments regarding limitations with collection and analysis of data on pesticide use on post-harvest potato storage in 2020 and 2022.
- 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.
- 'Burn-off' is a term used to describe the application of pre-harvest herbicides, also referred to as 'Desiccation'.
- 'Sealer' refers to pre-emergent herbicides which prevent weed seed germination.
- Log<sup>10</sup> scales have been used in Figures [15](#) and [16](#) to assist data visualization as the difference between measures is comparatively large.

## 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://pusstats.fera.co.uk/home>

<https://www.sasa.gov.uk/pesticides/pesticide-usage/pesticide-usage-survey-reports>

This is the seventeenth 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), 2014 (Withers *et al.*, 2015), 2016 (Lavery *et al.*, 2017), 2018 (Lavery *et al.*, 2019) and 2020 (Lavery *et al.*, 2021). In addition, the trend in pesticide use in Northern Ireland arable crops from 1992-2016 has been reviewed by Jess *et al.*, (2018). Data from previous surveys are also 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 were selected from each of the six counties based on the total area of arable crops grown, using data from the Northern Ireland Agricultural Census, June 2021 (Anon., 2022) and Basic Farm Payment Scheme data (unpublished). However, due to sampling procedures and the distribution of arable crops in Northern Ireland, no holdings were contacted in County Fermanagh. The arable crops surveyed comprised the following: barley; wheat; oats; oilseed rape; beans and potatoes.

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. Data were collected from 71 holdings, which were contacted between February and May 2023.

Restrictions and precautions resulting from the Covid-19 pandemic have severely impacted our capability to conduct the survey programme. In particular, we have been unable to complete personal interviews, relying on telephone and electronic correspondence, which is not always convenient to participants. This has resulted in incomplete or missing data, making trends and comparisons over time difficult. However, we are pleased that despite these drawbacks, we were able to present the report in a timely manner.

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 to the 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.

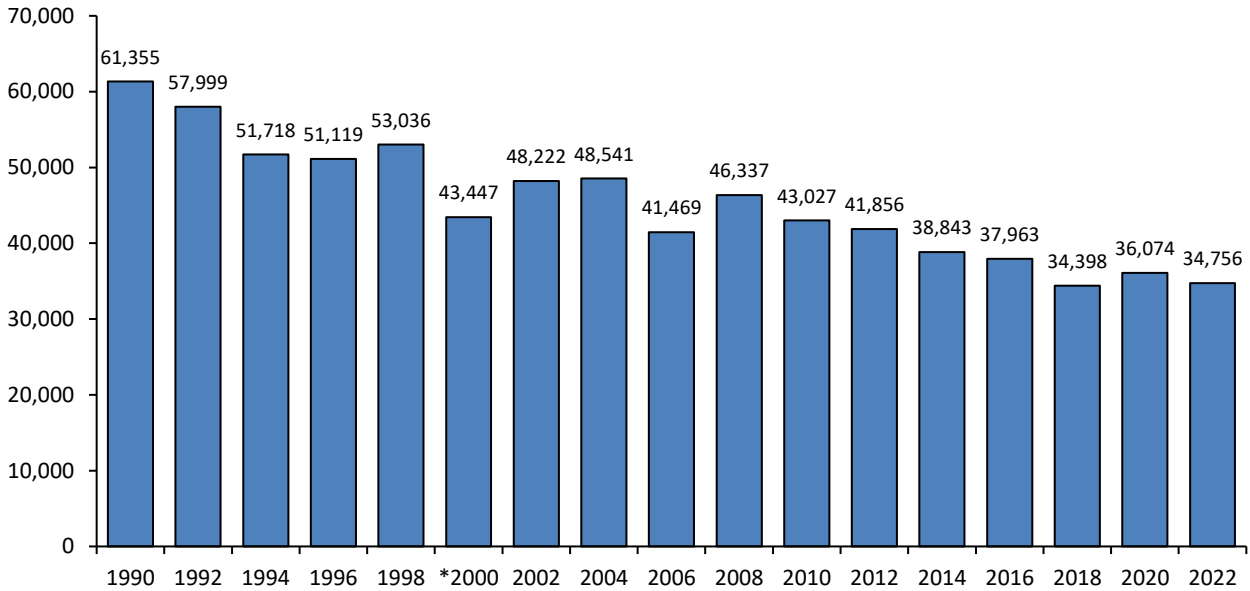
During analysis, the sample data were raised to the total population level, using raising factors calculated from the ratio of the number of farms sampled to the number of farms in the population, within each region and size group. A further adjustment factor corrected the data in accordance with the areas of arable crops published in the Northern Ireland Agricultural Census, June 2021 (Anon., 2022).

The total number of farms in each size group and the number of farms sampled are shown in [Table 1](#).

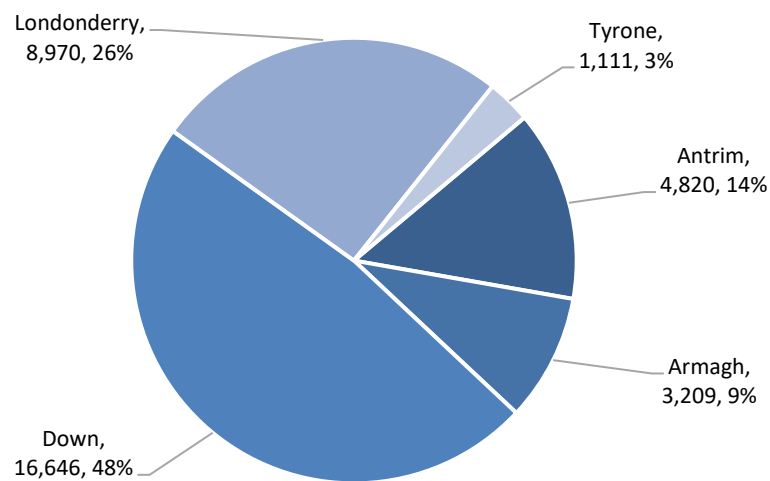
The collected data were entered using a structured query language (SQL) relational database programme. Validated data were downloaded for analysis using IBM SPSS Statistics Version 25 software.

## Crops

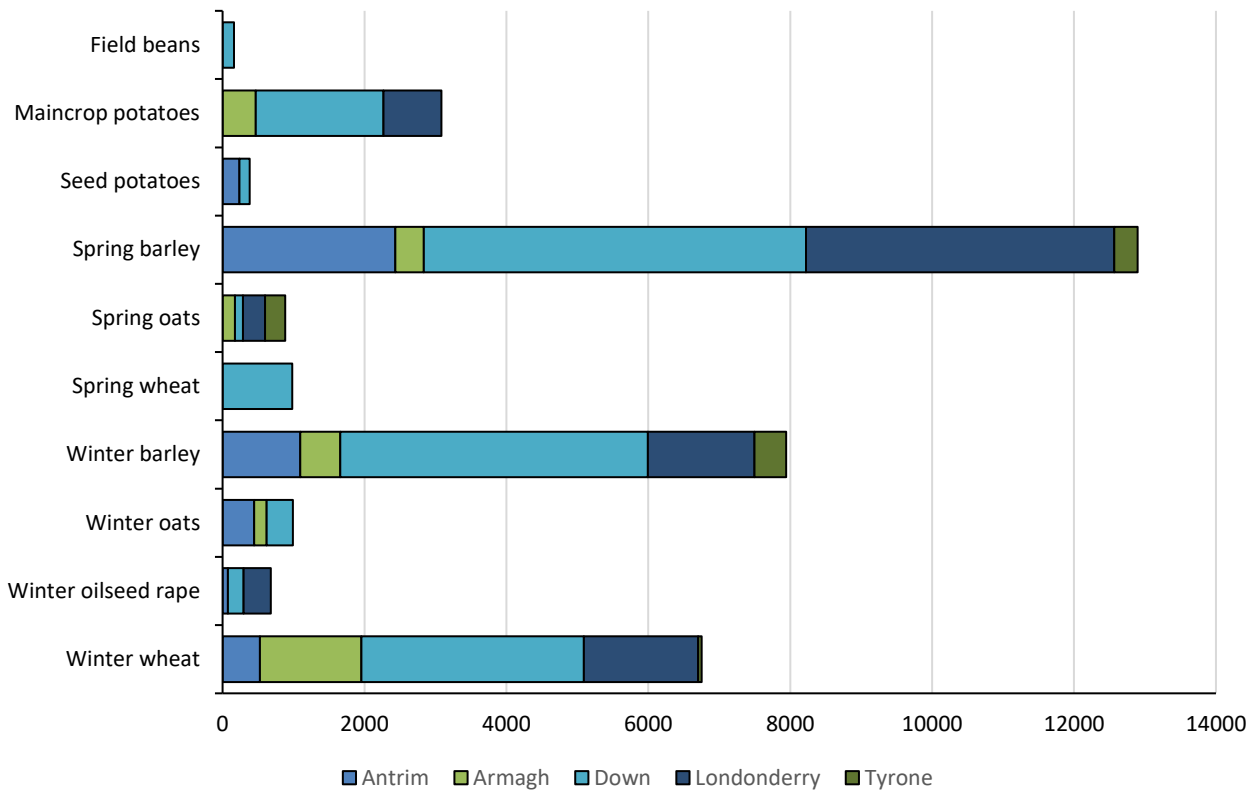
Information was collected on field beans, maincrop potatoes, seed potatoes, spring barley, spring oats, spring wheat, winter barley, winter oats, winter oilseed rape and winter wheat. (Table 2). Data on pesticide usage were collected from 71 holdings which accounted for 9% of the total area of arable crops grown in Northern Ireland in 2022, representing 175 crops and 1,712 treatments.



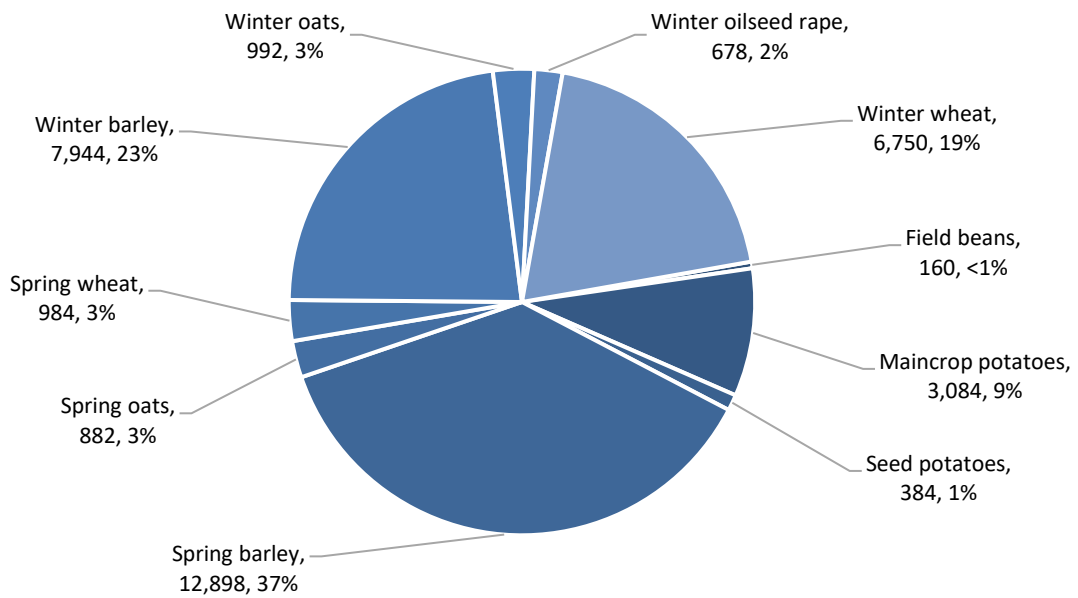
**Figure 1:** Total area (ha) of arable crops grown in Northern Ireland from 1990 - 2022. \*Potatoes not included in 2000 data.



**Figure 2:** Regional distribution (ha) and proportion (%) of arable crops grown in Northern Ireland, 2022.

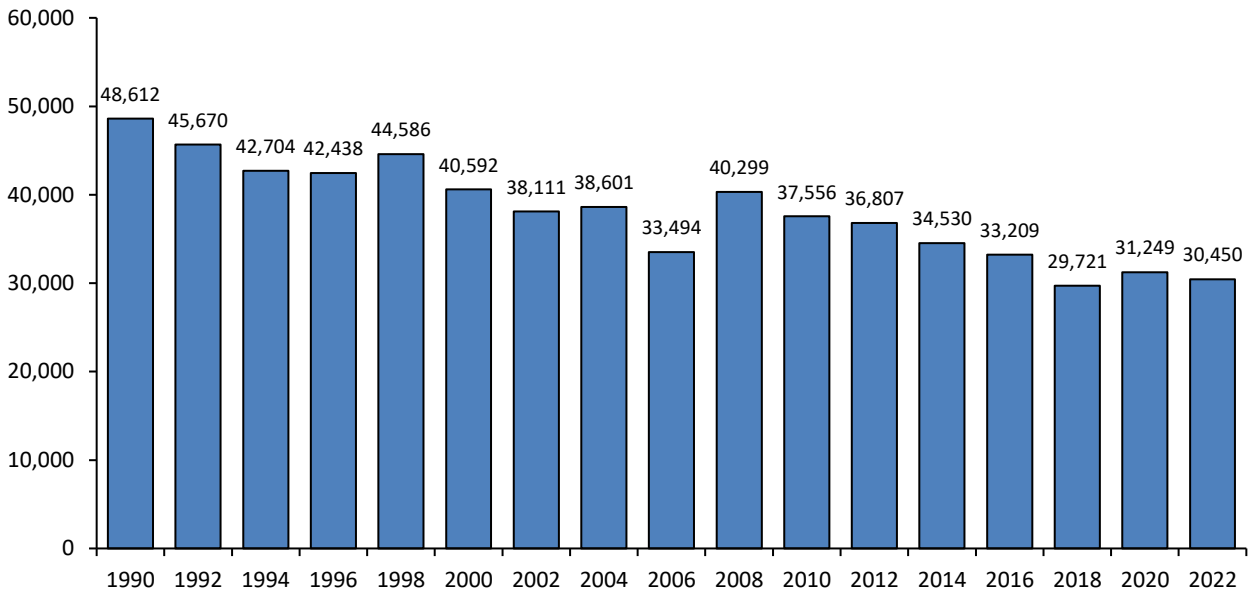


**Figure 3:** Regional distribution (ha) of individual arable crops grown in Northern Ireland, 2022.

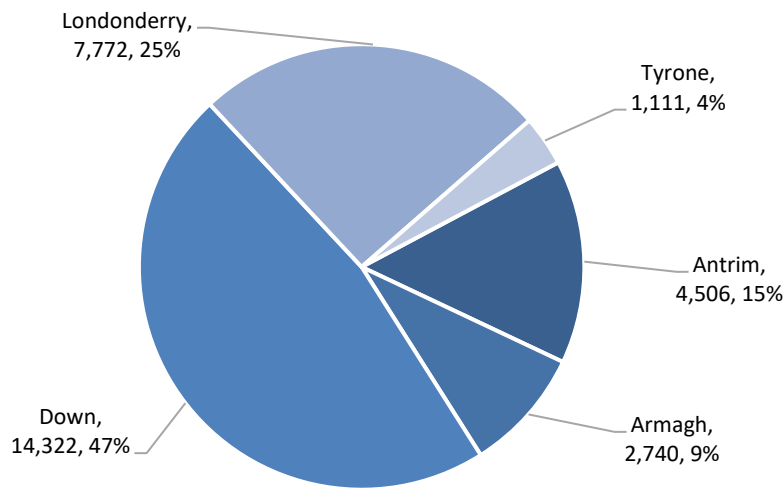


**Figure 4:** Area (ha) and proportion (%) of individual crops grown in Northern Ireland, 2022.

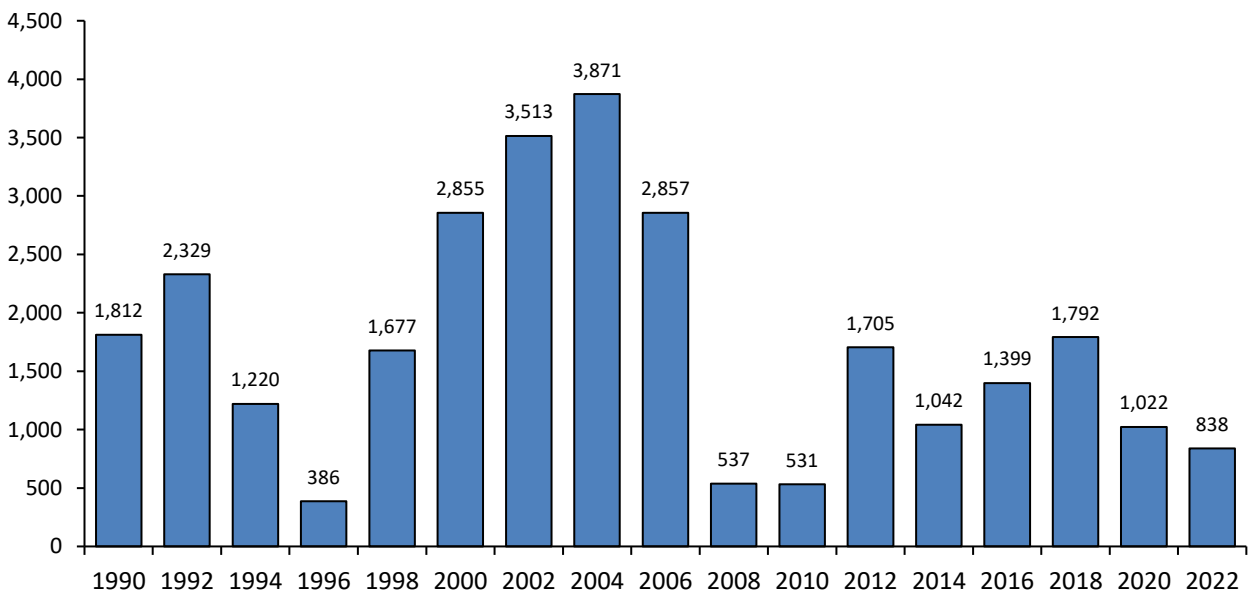




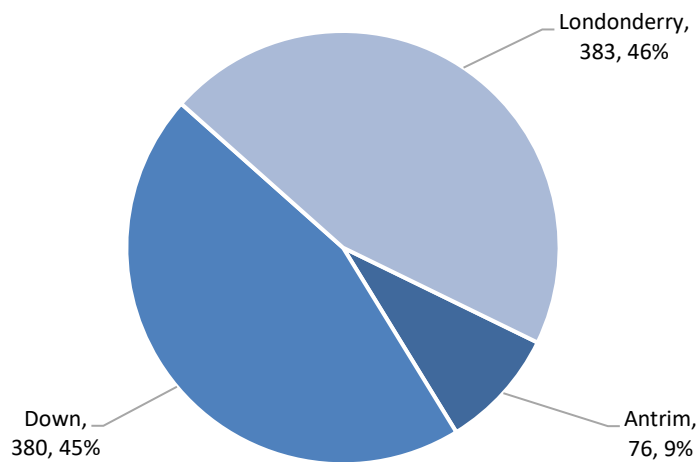
**Figure 5:** Total area (ha) of cereal crops grown in Northern Ireland from 1990 - 2022.



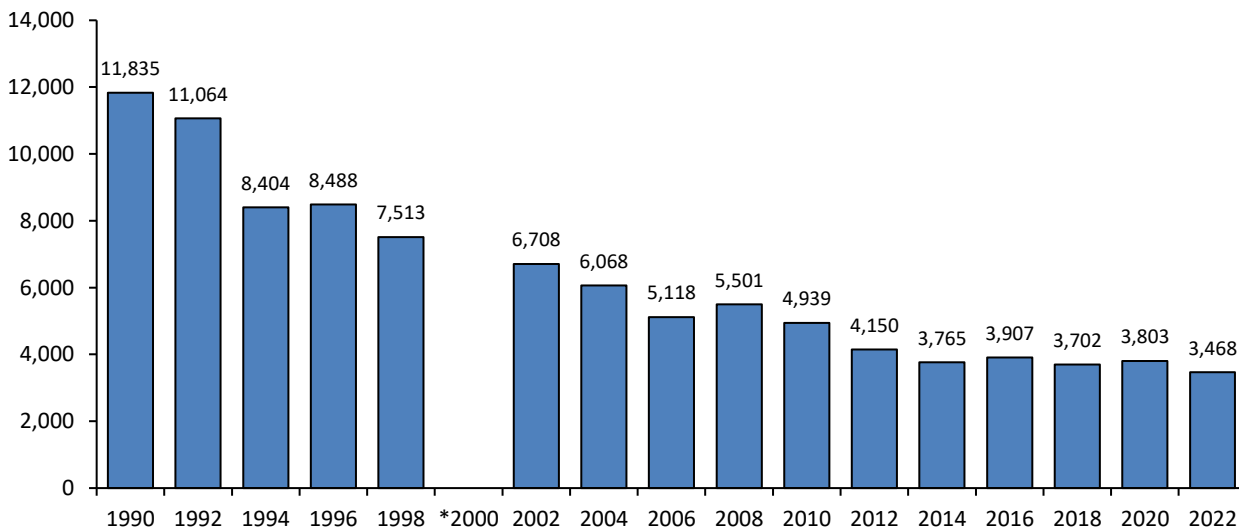
**Figure 6:** Regional distribution (ha) and proportion (%) of cereal crops grown in Northern Ireland, 2022.



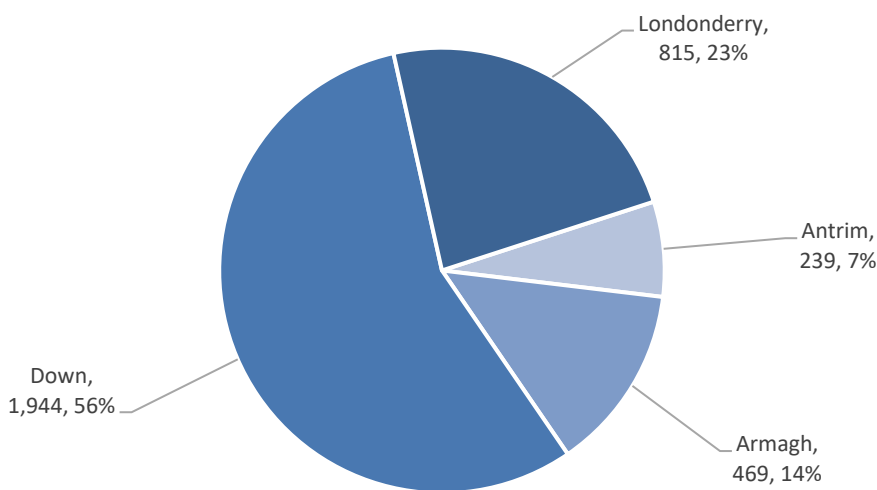
**Figure 7:** Total area (ha) of other arable crops grown in Northern Ireland from 1990-2022.



**Figure 8:** Regional distribution (ha) and proportion (%) of other arable crops grown in Northern Ireland, 2022.

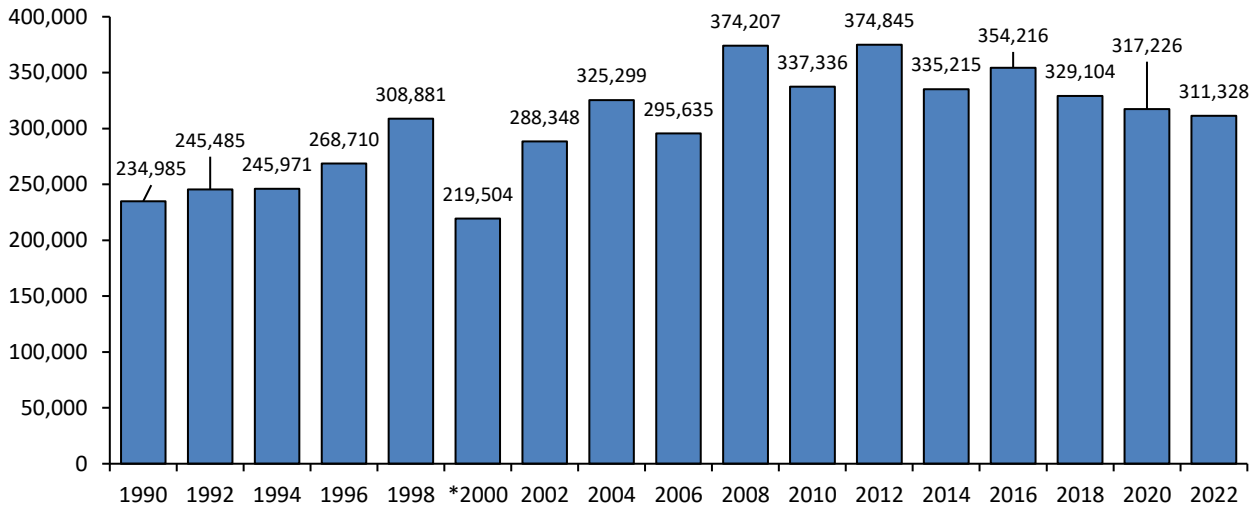


**Figure 9:** Total area (ha) of potato crops grown in Northern Ireland from 1990 - 2022. \*No data available for 2000.

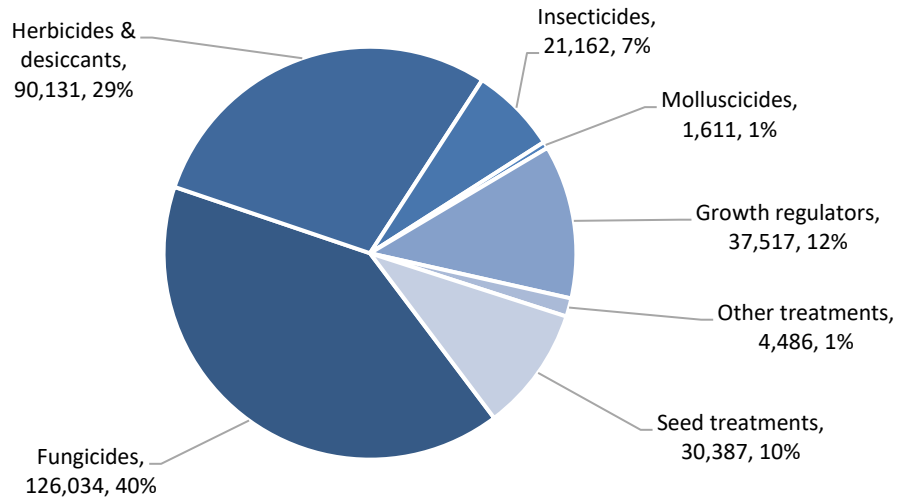


**Figure 10:** Regional distribution (ha) and proportion (%) of potato crops grown in Northern Ireland, 2022.

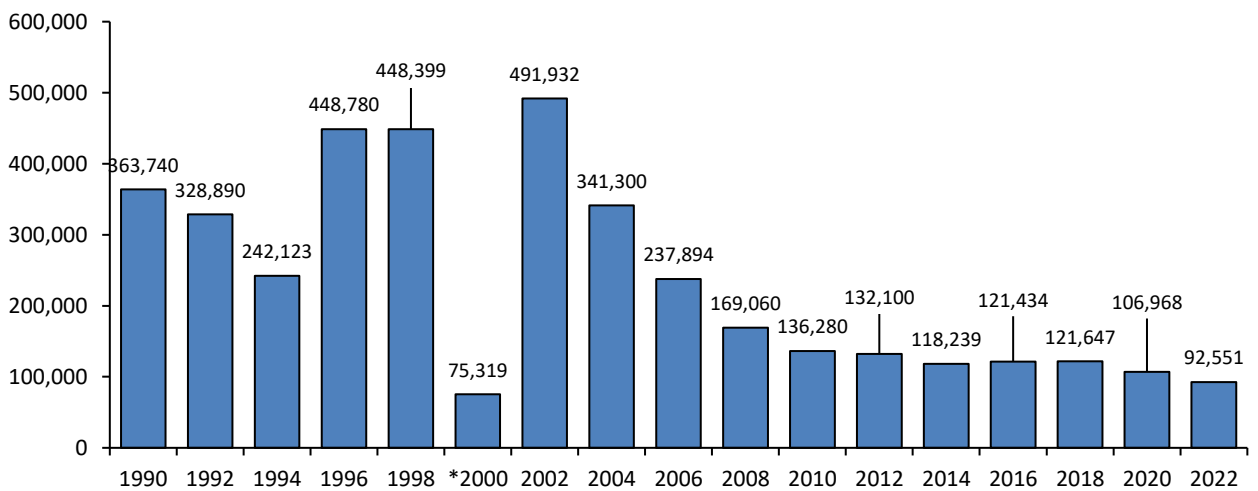
## Pesticide usage on crops



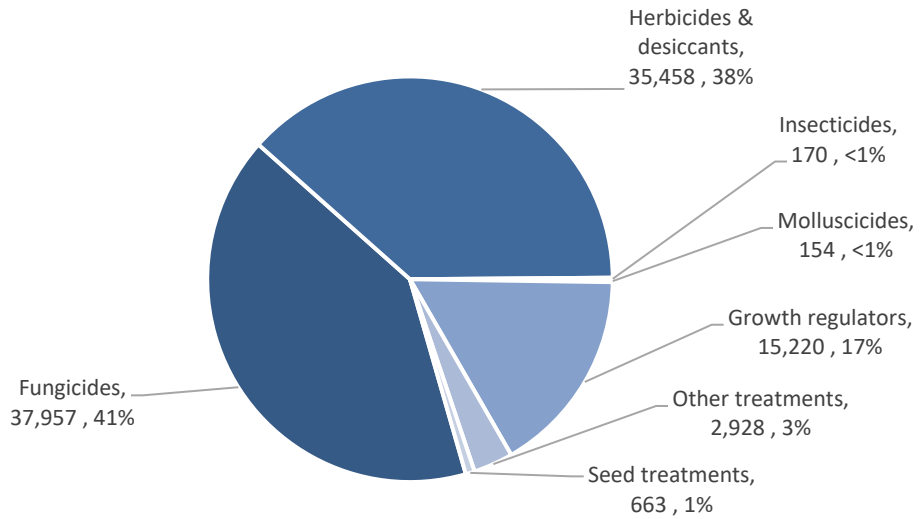
**Figure 11:** Total area (spha) of arable crops treated in Northern Ireland from 1990-2022. \*Potatoes not included in 2000 data.



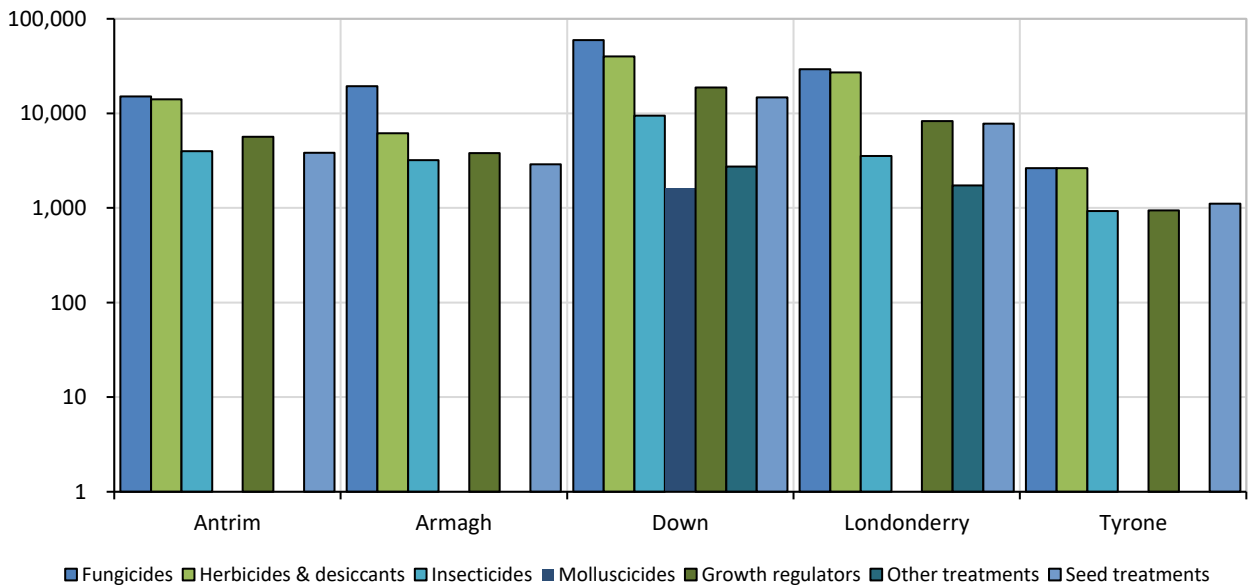
**Figure 12:** Area (spha) and proportion (%) of arable crops treated with each pesticide type in Northern Ireland, 2022.



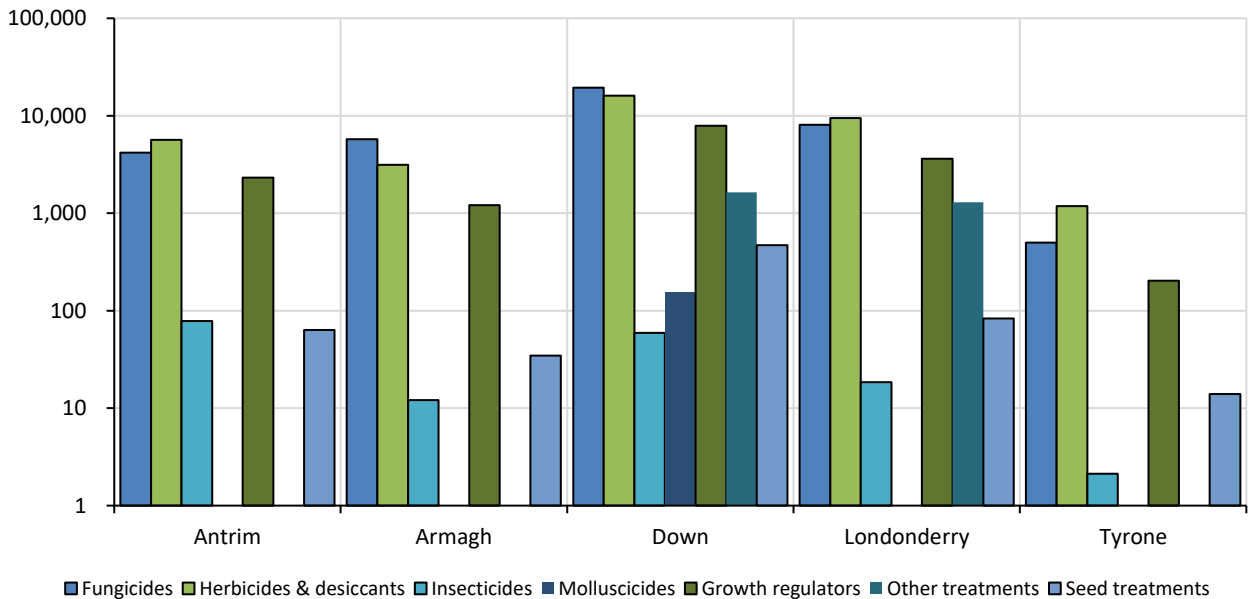
**Figure 13:** Total weight (kg) of pesticides applied to arable crops in Northern Ireland from 1990-2022. \*Potatoes not included in 2000 data.



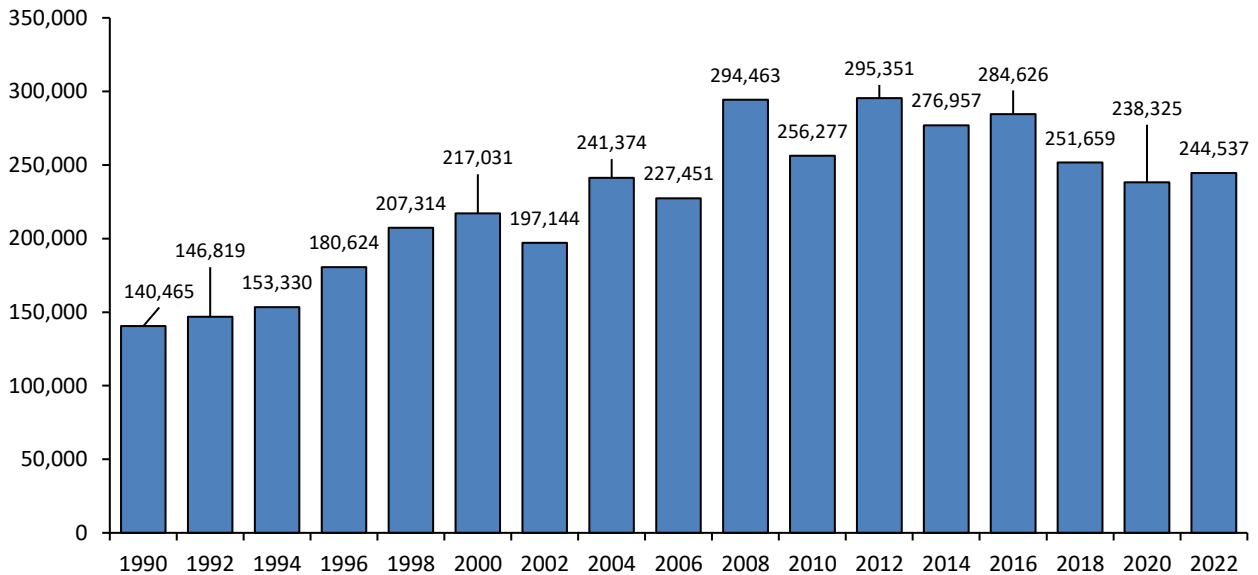
**Figure 14:** Weight (kg) and proportion (%) of each pesticide type applied to arable crops in Northern Ireland, 2022.



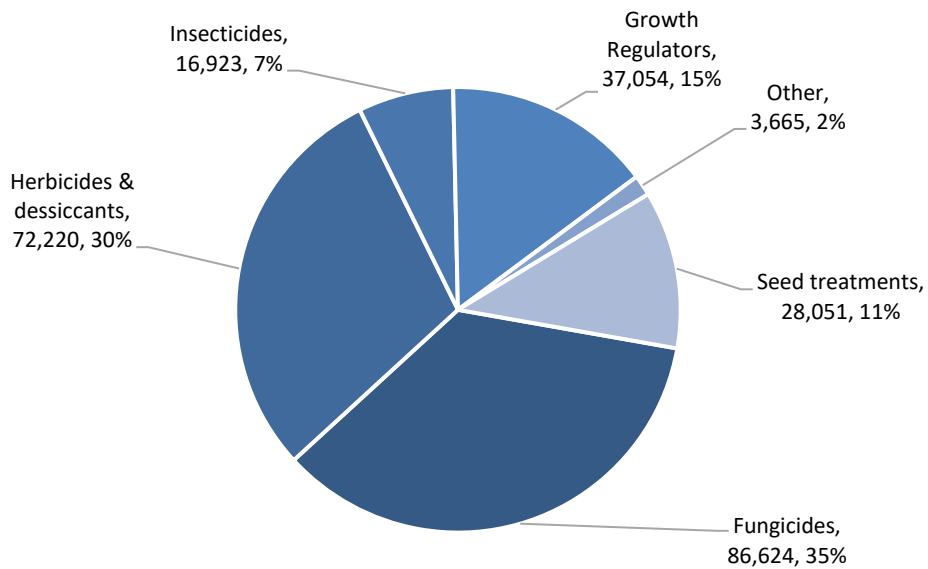
**Figure 15:** Area (spha [ $\log^{10}$ ]) of arable crops treated with each pesticide type in Northern Ireland, 2022, by region.



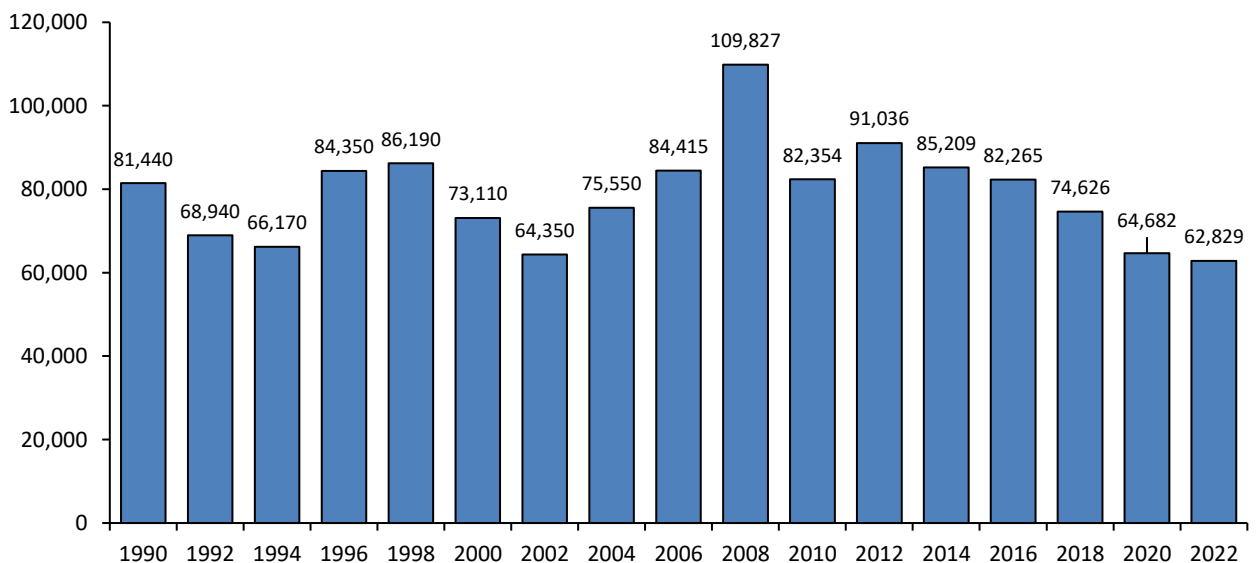
**Figure 16:** Weight (kg [ $\log^{10}$ ]) of each pesticide type applied to arable crops in Northern Ireland, 2022, by region.



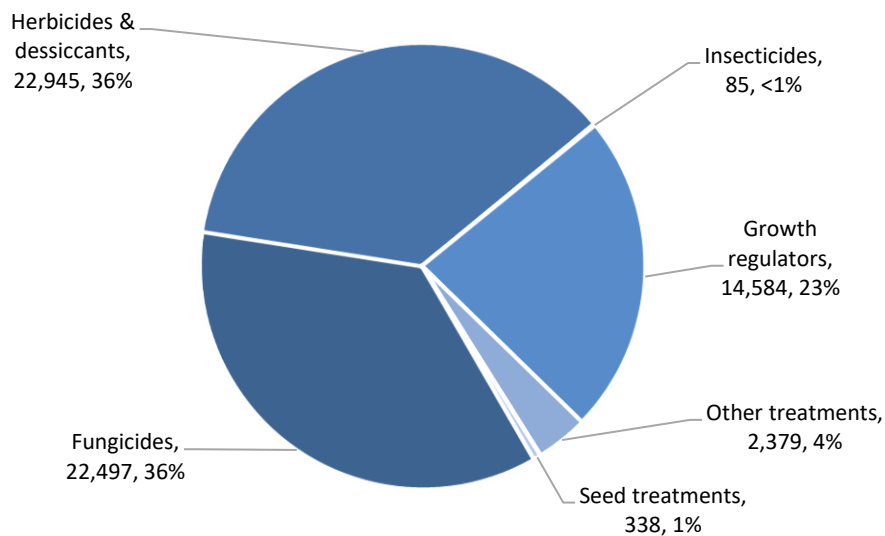
**Figure 17:** Total area (spha) of cereal crops treated in Northern Ireland from 1990-2022.



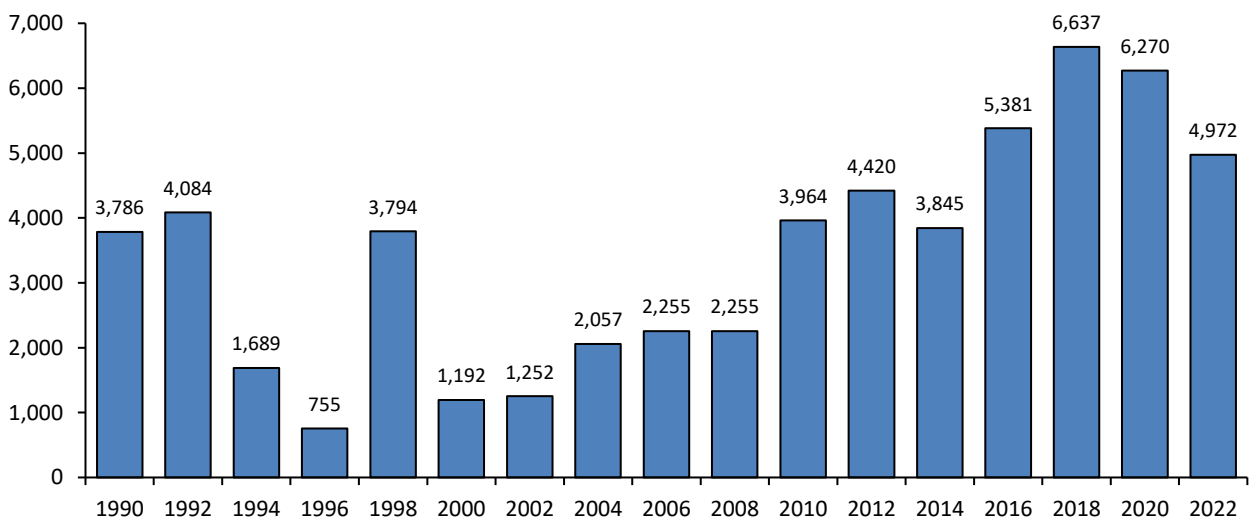
**Figure 18:** Area (spha) and proportion (%) of cereal crops treated with each pesticide type in Northern Ireland, 2022.



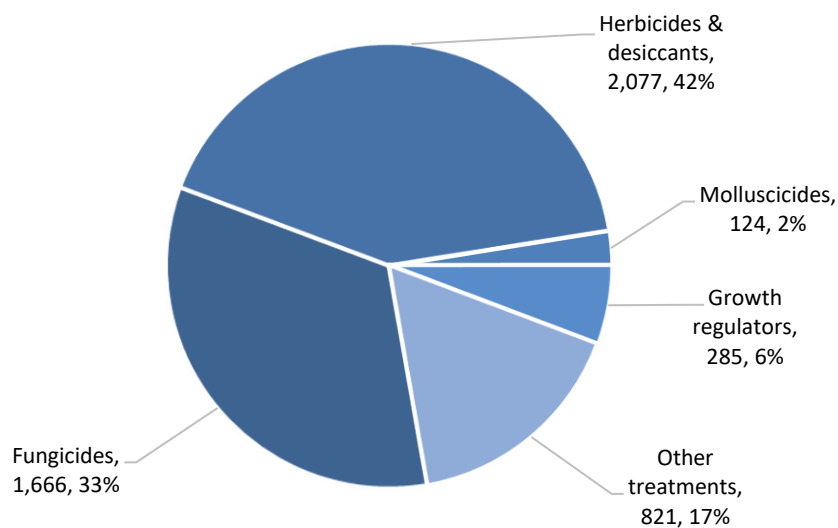
**Figure 19:** Total weight (kg) of pesticides applied to cereal crops in Northern Ireland from 1990-2022.



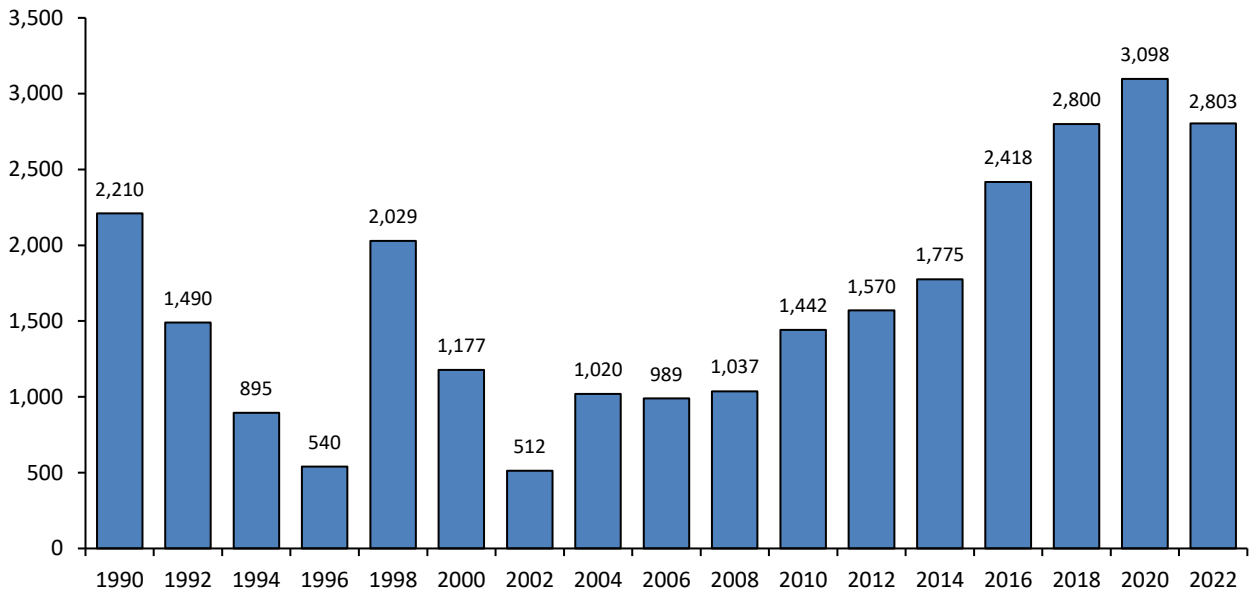
**Figure 20:** Weight (kg) and proportion (%) of each pesticide type applied to cereal crops in Northern Ireland, 2022.



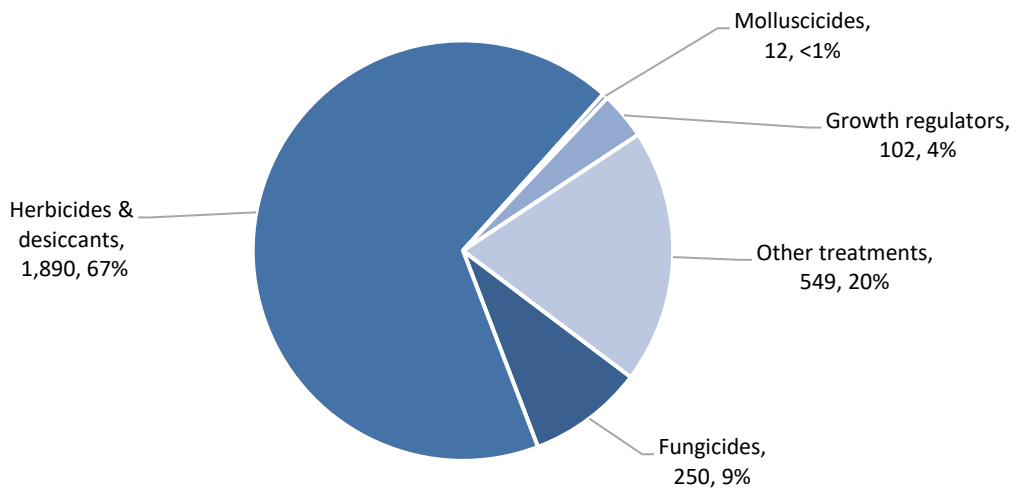
**Figure 21:** Total area (spha) of other arable crops treated in Northern Ireland from 1990-2022.



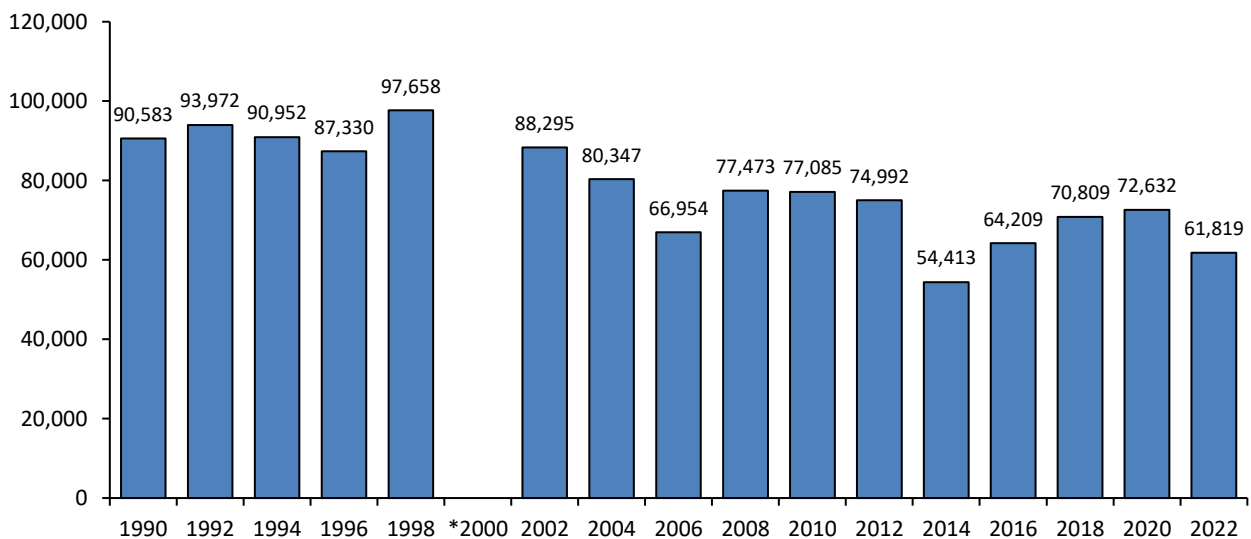
**Figure 22:** Area (spha) and proportion (%) of other arable crops treated with each pesticide type in Northern Ireland, 2022.



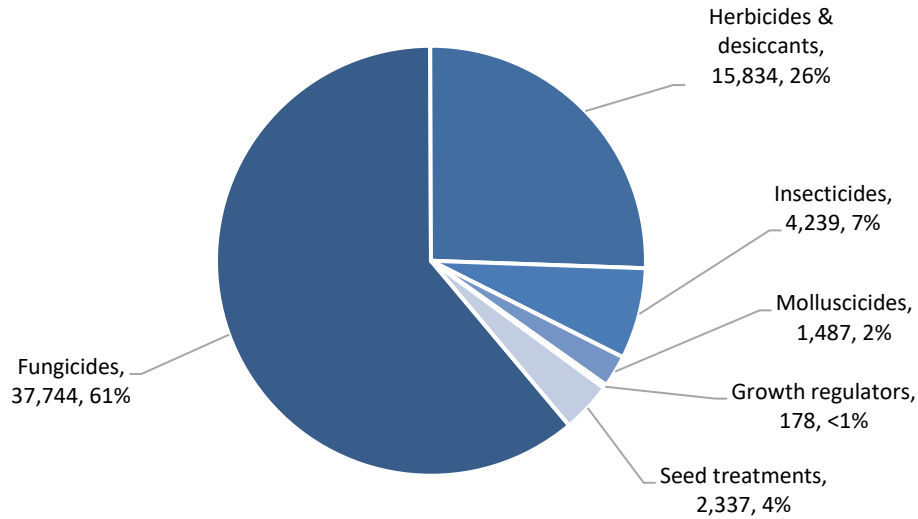
**Figure 23:** Total weight (kg) of pesticides applied to other arable crops in Northern Ireland from 1990-2022.



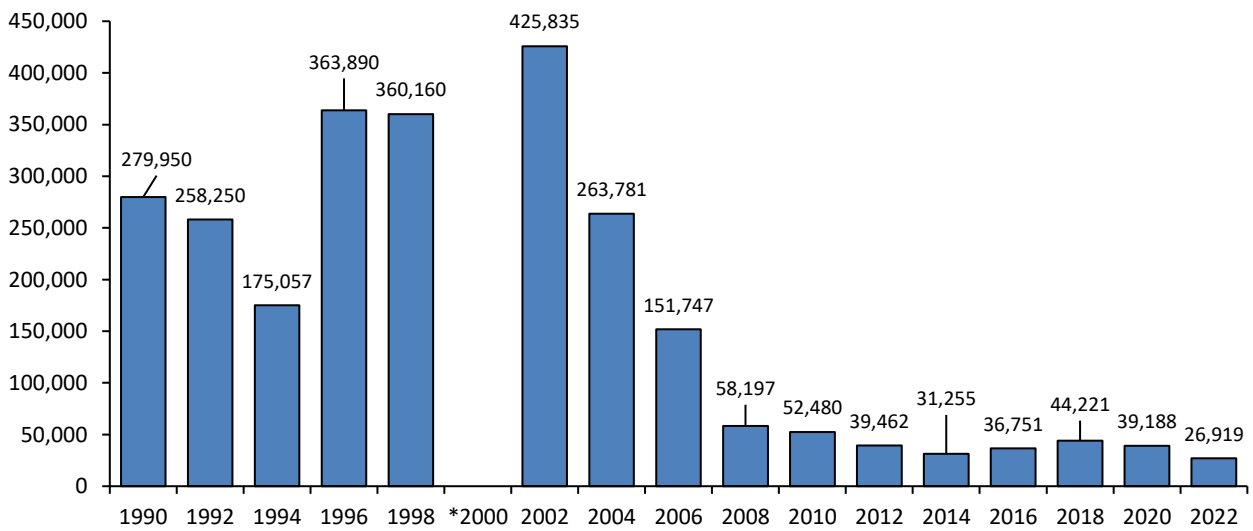
**Figure 24:** Weight (kg) and proportion (%) of each pesticide type applied to other arable crops in Northern Ireland, 2022.



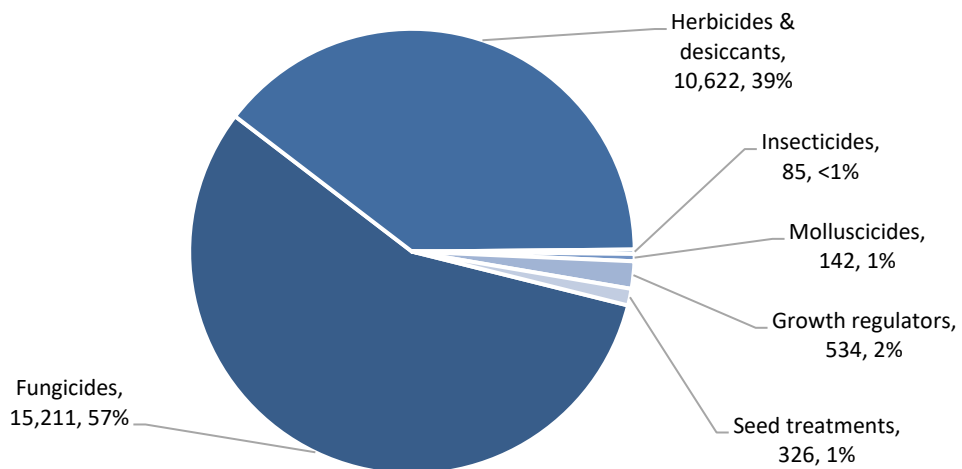
**Figure 25:** Total area (spha) of potato crops treated in Northern Ireland from 1990-2022.  
\*No potato data for 2000.



**Figure 26:** Area (spha) and proportion (%) of potato crops treated with each pesticide type in Northern Ireland, 2022.



**Figure 27:** Total weight (kg) of pesticides applied to potato crops in Northern Ireland from 1990-2022. \*No potato data for 2000.

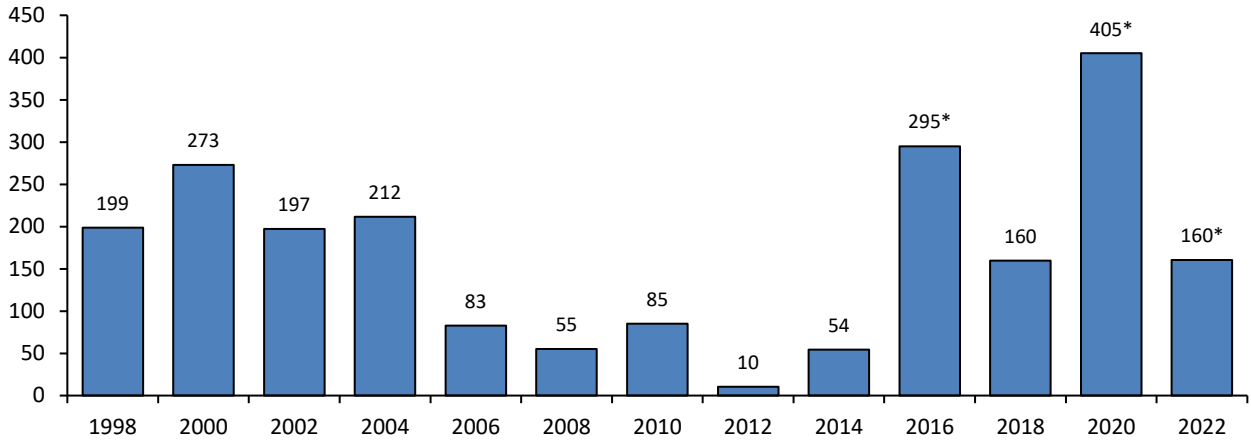


**Figure 28:** Weight (kg) and proportion (%) of each pesticide type applied to potato crops in Northern Ireland, 2022.

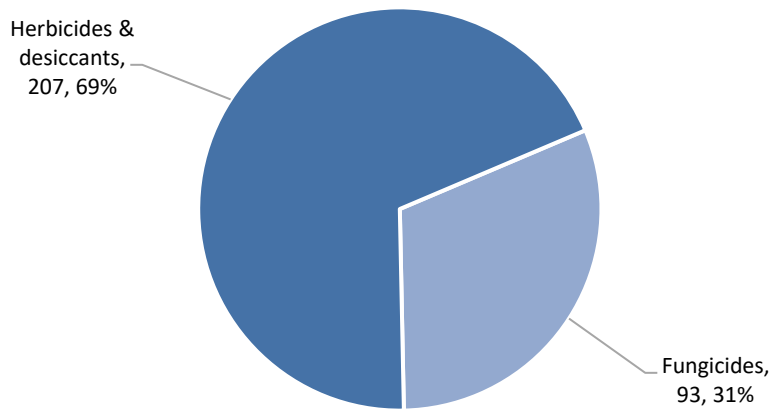


## Pesticide usage on Field beans (Tables 3, 5, 6, 7, 8, 9 & 12)

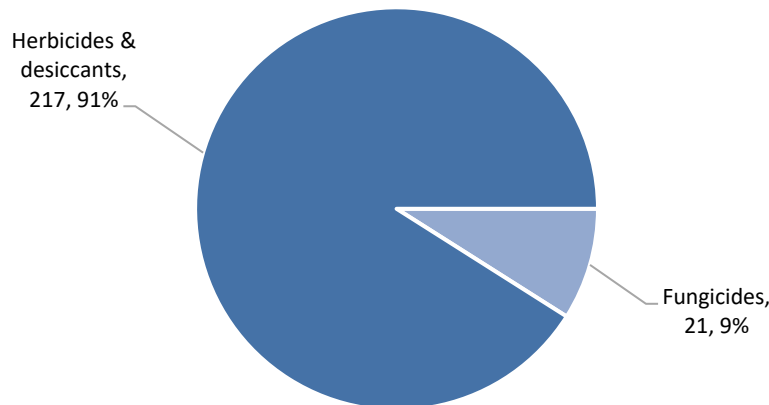
- 160 hectares of field beans grown in Northern Ireland
- 300 treated hectares
- 238 kilogrammes applied
- Beans only recorded in County Down during this survey period
- 100% of the area of field bean crops grown received a pesticide treatment
- Field bean crops received on average 2 fungicide and 1 herbicide application



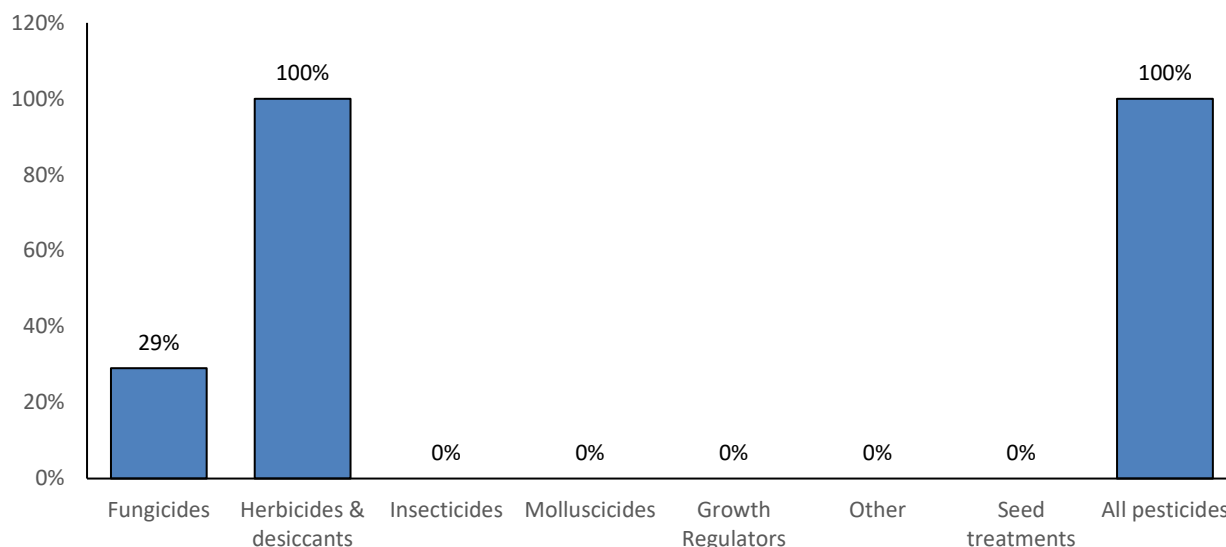
**Figure 29:** Total area (ha) of pea and bean crops grown in Northern Ireland from 1998 to 2022. \*Only beans recorded in 2016, 2020 and 2022.



**Figure 30:** Area (spha) and proportion (%) of field bean crops treated with each pesticide type in Northern Ireland, 2022.



**Figure 31:** Weight (kg) and proportion (%) of each pesticide type applied to field bean crops in Northern Ireland, 2022.



**Figure 32:** Proportional area (%) of field bean crops treated with each pesticide type in Northern Ireland, 2022.

### **Fungicides – field beans**

- Basic treated area: 47 hectares
- Total treated area: 93 spray hectares
- Quantity applied: 21 kilogrammes
- 29% of the area grown treated with fungicides
- The only reason given for use was ‘general disease control’
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total fungicide-treated area (spha)
Boscalid/pyraclostrobin	47	47	16	50
Tebuconazole	47	47	6	50

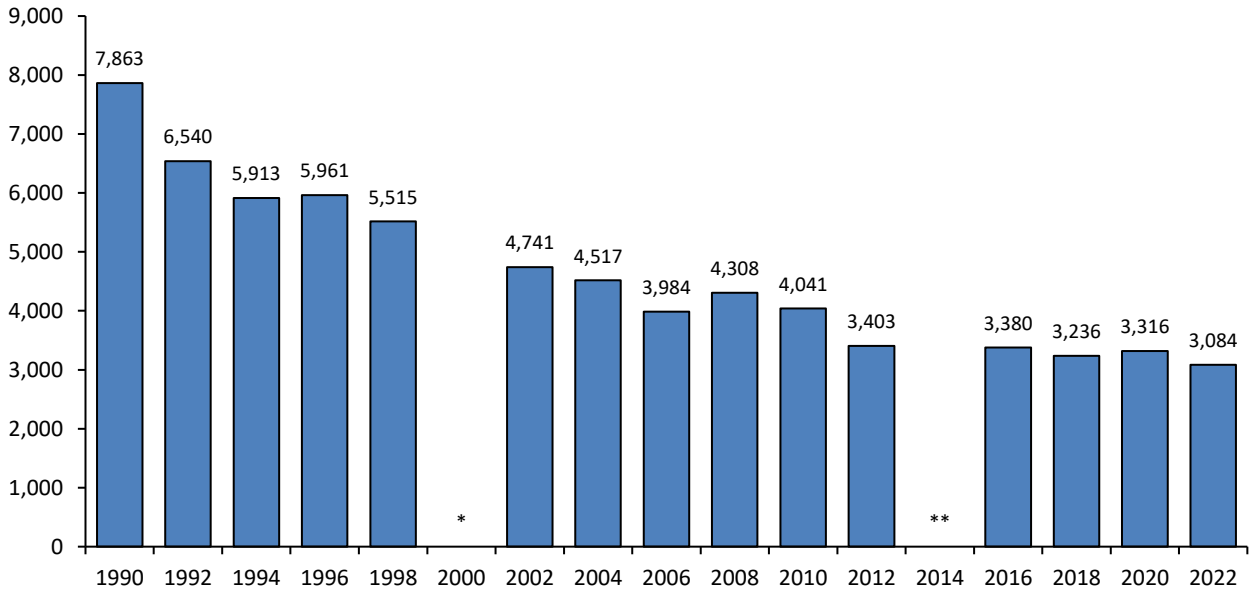
### **Herbicides & desiccants – field beans**

- Basic treated area: 160 hectares
- Total treated area: 207 spray hectares
- Quantity applied: 217 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- The sole reason for use was ‘general weed control’
- The active substances applied were:

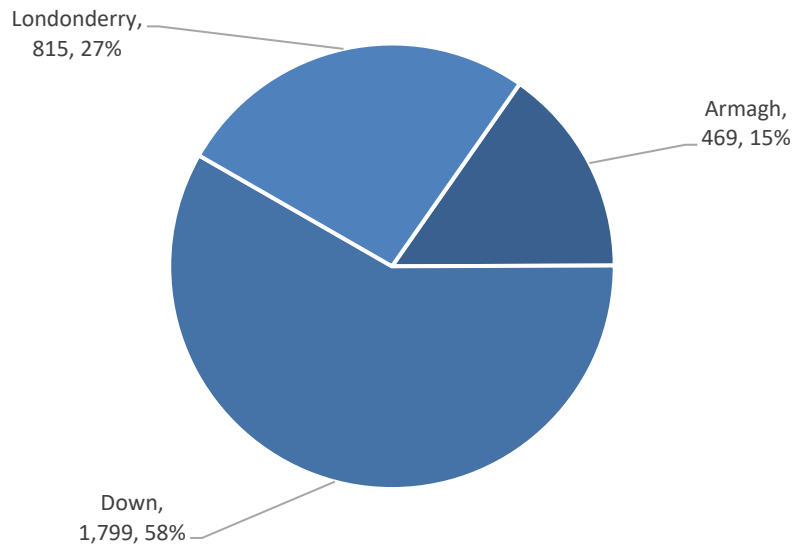
Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total herbicide-treated area (spha)
Imazamox/pendimethalin	114	114	136	55
Glyphosate	47	47	21	23
Pendimethalin	47	47	59	23

## Pesticide usage on Maincrop potatoes (Tables 3, 5, 6, 7, 8, 9 & 13)

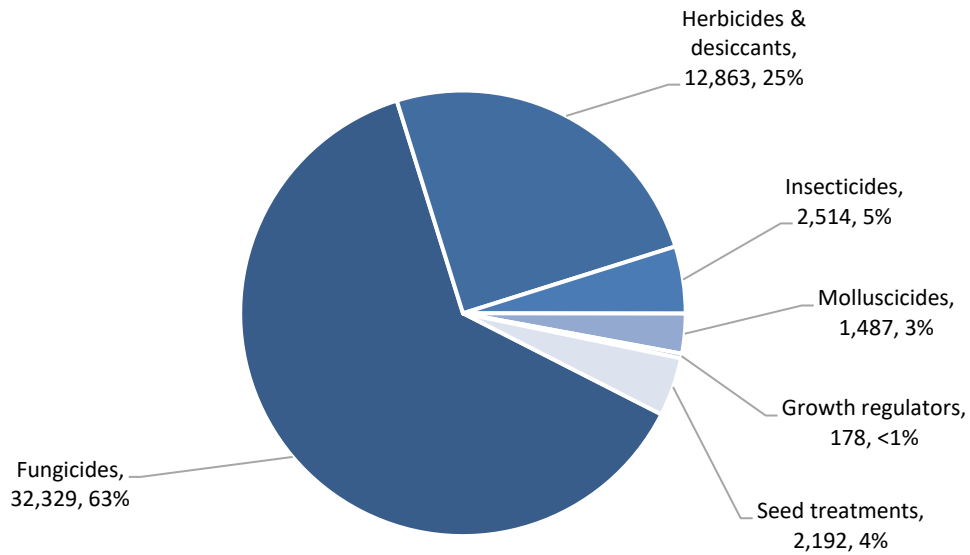
- 3,084 hectares of maincrop potatoes grown in Northern Ireland
- 51,564 treated hectares
- 22,330 kilogrammes applied
- 100% of the area of maincrop potatoes grown received a pesticide treatment
- Maincrop potato crops received on average 11 fungicide, 3 herbicide, 1 insecticide, 1 molluscicide, 1 growth regulator and 1 seed treatment application



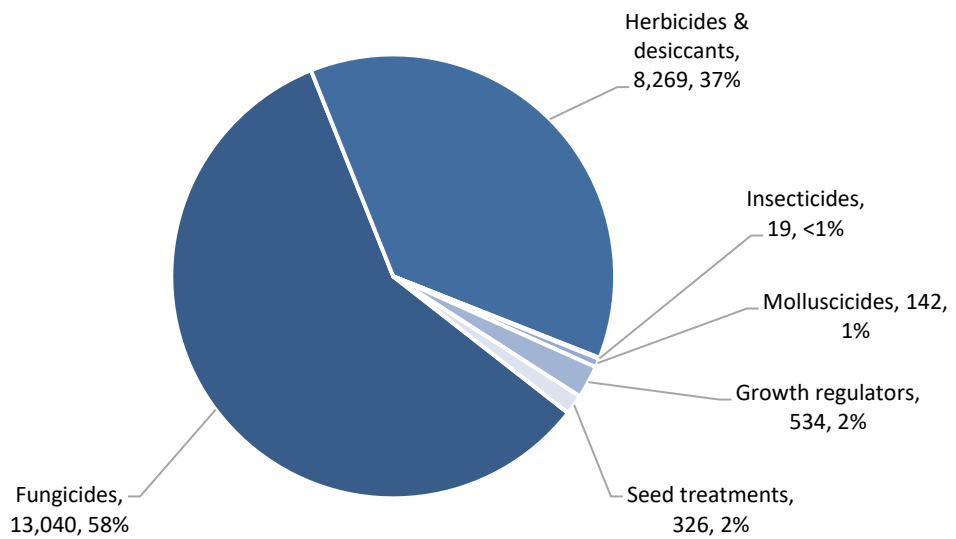
**Figure 33:** Total area (ha) of maincrop potatoes grown in Northern Ireland from 1990 to 2022. \*No potato data for 2000. \*\*No maincrop potato data for 2014.



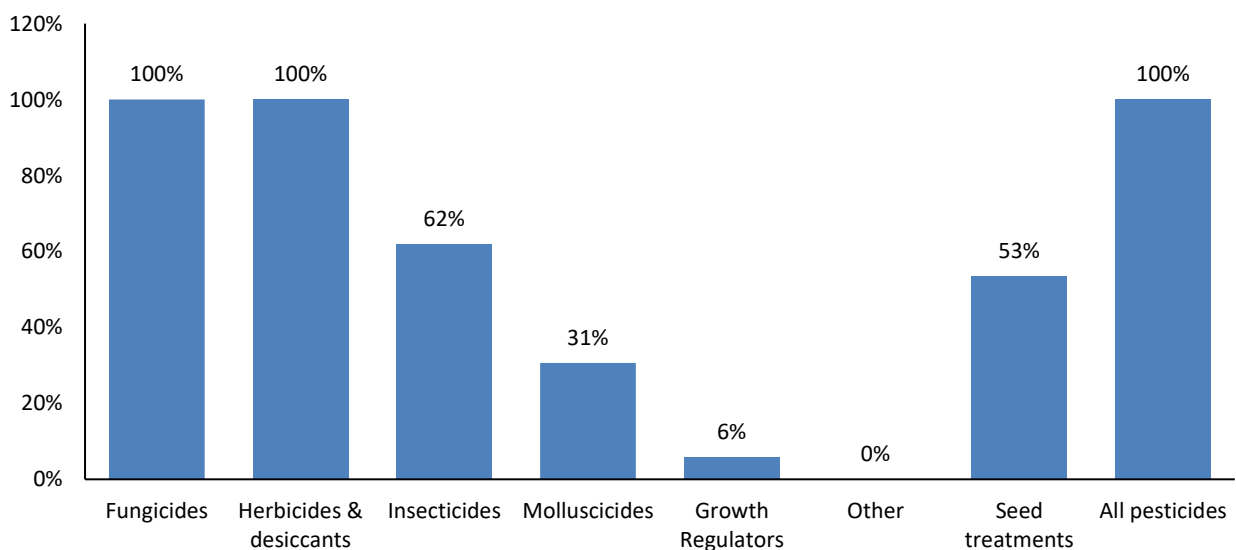
**Figure 34:** Regional distribution (ha) and proportion (%) of maincrop potatoes grown in Northern Ireland, 2022.



**Figure 35:** Area (spha) and proportion (%) of maincrop potatoes treated with each pesticide type in Northern Ireland, 2022.



**Figure 36:** Weight (kg) and proportion (%) of each pesticide type applied to maincrop potatoes in Northern Ireland, 2022.

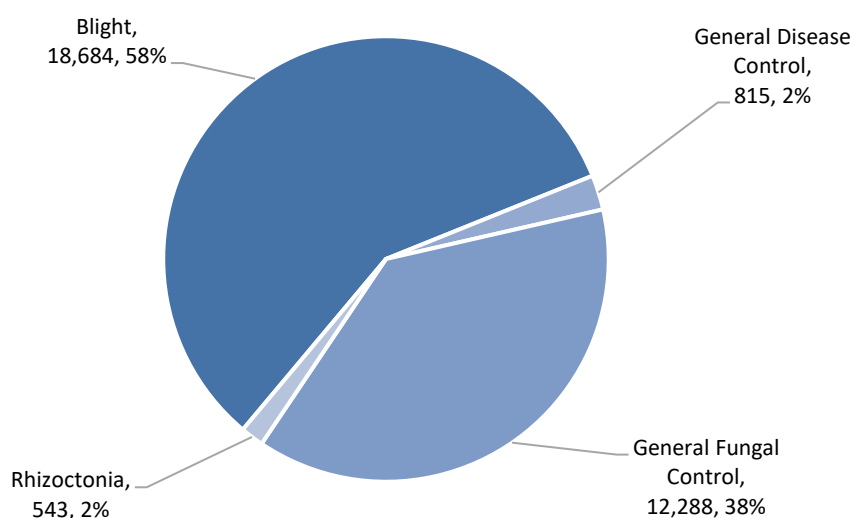


**Figure 37:** Proportional area (%) of maincrop potatoes treated with each pesticide type in Northern Ireland, 2022.

## Fungicides – maincrop potatoes

- Basic treated area: 3,084 hectares
- Total treated area: 32,329 spray hectares
- Quantity applied: 13,040 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 total fungicide-treated area (spha)
Fluopicolide/propamocarb hydrochloride	6,933	2,920	7,525	21
Benthiavalicarb/oxathiapiprolin	5,570	2,490	206	17
Cyazofamid	5,350	2,920	427	17
Amisulbrom	4,080	1,951	353	13
Mandipropamid	2,931	1,659	426	9

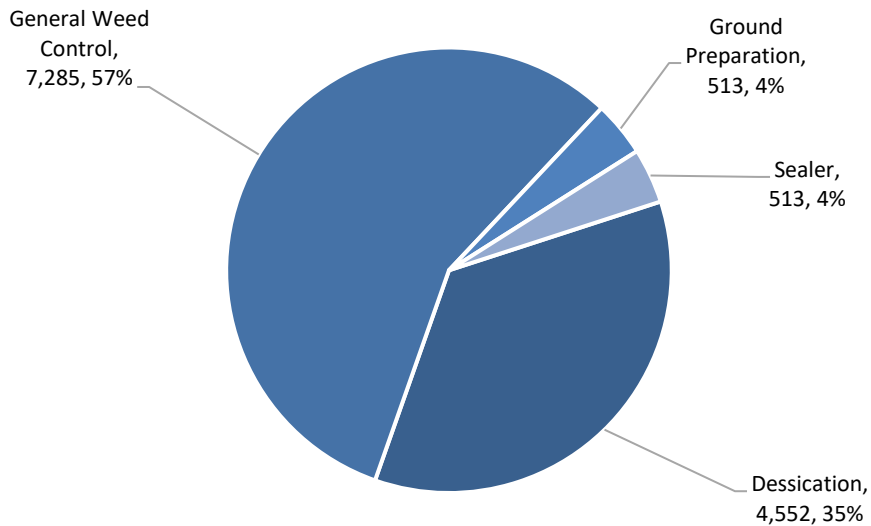


**Figure 38:** Maincrop potatoes: reasons for fungicide use (area [spha] and proportion [%] treated), 2022.

## Herbicides & desiccants – maincrop potatoes

- Basic treated area: 3,084 hectares
- Total treated area: 12,863 spray hectares
- Quantity applied: 8,269 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- The active substances applied were:

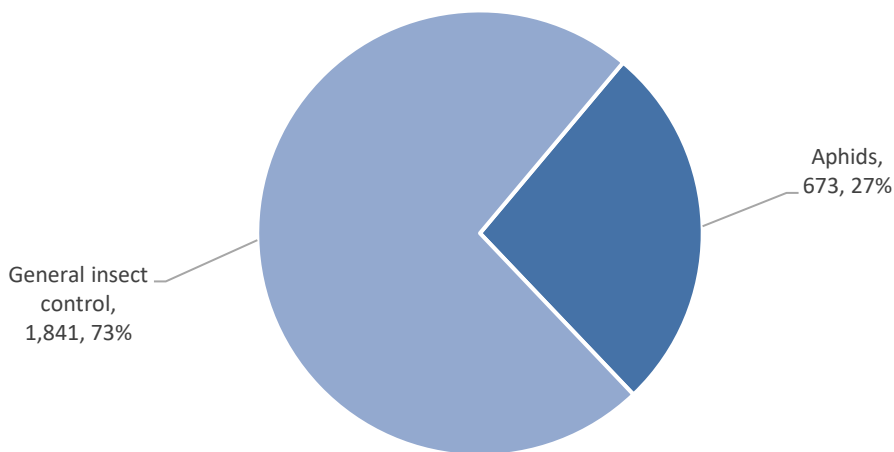
Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total herbicide-treated area (spha)
Carfentrazone-ethyl	3435	2608	175	27
Metribuzin	3084	3084	1573	24
Prosulfocarb	2286	2286	4992	18
Glyphosate	2049	2049	1481	16
Pyraflufen-ethyl	1951	1951	39	15
Propaquizafop	58	58	9	<1



**Figure 39:** Maincrop potatoes: reasons for herbicide & desiccant use (area [spha] and proportion [%] treated), 2022.

### ***Insecticides – maincrop potatoes***

- Basic treated area: 1,907 hectares
- Total treated area: 2,514 spray hectares
- Quantity applied: 19 kilogrammes
- 62% of the area grown treated with insecticides
- The only active substance applied was lambda-cyhalothrin



**Figure 40:** Maincrop potatoes: reasons for insecticide use (area [spha] and proportion [%] treated), 2022.

### ***Growth regulators – maincrop potatoes***

- Basic treated area: 178 hectares
- Total treated area: 178 spray hectares
- Quantity applied: 534 kilogrammes
- 6% of the area grown treated with growth regulators
- The only active substance applied was maleic hydrazide
- The only reason given for use was 'growth regulation'

## **Molluscicides – maincrop potatoes**

- Basic treated area: 945 hectares
- Total treated area: 1,487 spray hectares
- Quantity applied: 142 kilogrammes
- 31% of the area grown treated with molluscicides
- The only active substance applied was ferric phosphate
- The only reason given for use was 'slugs'

## **Seed treatments – maincrop potatoes**

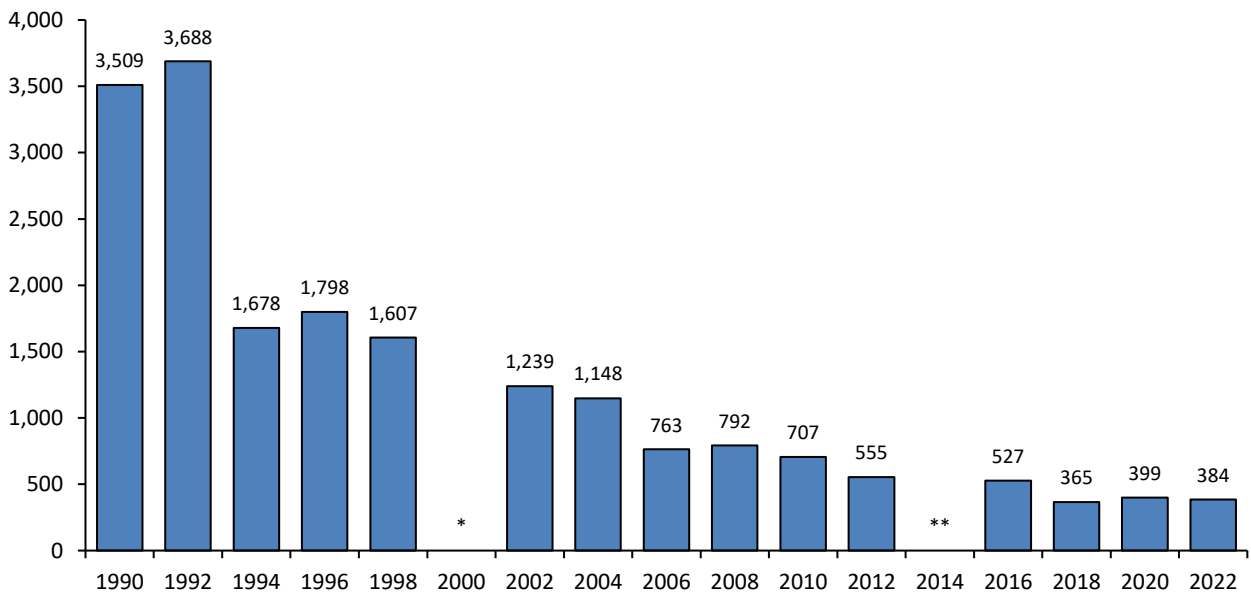
- Basic treated area: 1,649 hectares
- Total treated area: 2,192 spray hectares
- Quantity applied: 326 kilogrammes
- 53% of the area grown planted with treated seed
- The active substances applied were:

<b>Active substance</b>	<b>Total treated area (spha)</b>	<b>Basic treated area (ha)</b>	<b>Quantity applied (kgs)</b>	<b>% of the total seed treatment-treated area (spha)</b>
Flutolanil	1,056	1,056	286	48
Imazalil	878	878	40	40
Unknown seed treatment*	258	258	.	12

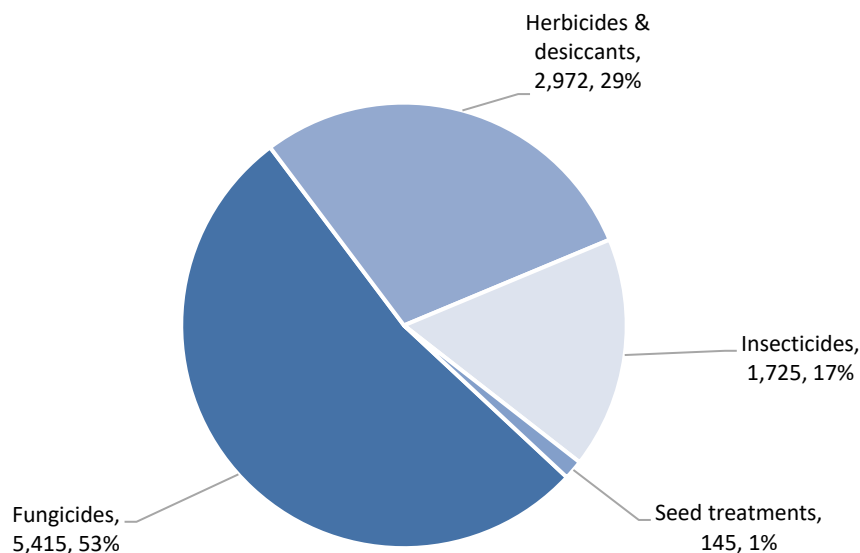
\*Quantities not available for unknown seed treatments

## Pesticide usage on Seed potatoes (Tables 3, 5, 6, 7, 8, 9 & 14)

- 384 hectares of seed potatoes grown in Northern Ireland
- 10,256 treated hectares
- 4,589 kilogrammes applied
- Seed potatoes only recorded in Antrim and Down in 2022, however, they have been grown extensively in County Londonderry during previous reporting periods
- 100% of the area of seed potato crops grown received a pesticide treatment
- Seed potato crops received on average 7 fungicide, 5 herbicide, 2 insecticide and 1 seed treatment application

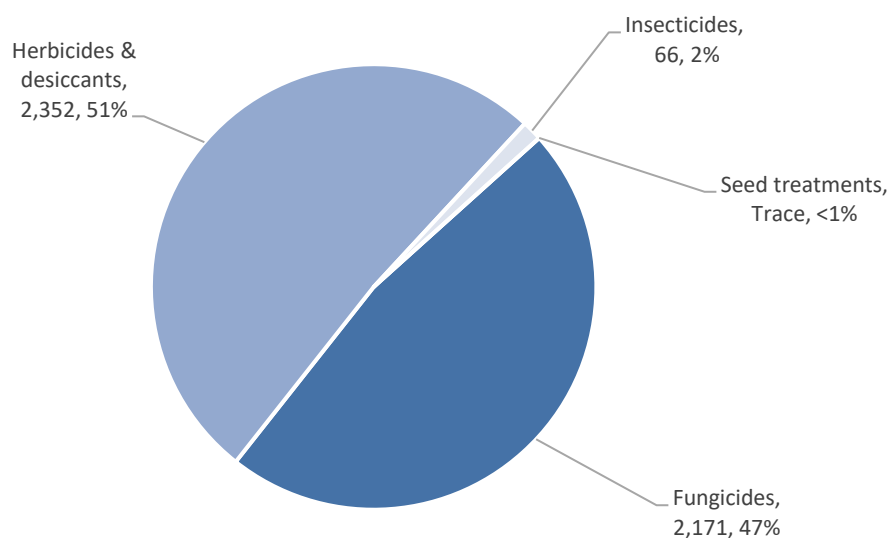


**Figure 41:** Total area (ha) of seed potato crops grown in Northern Ireland from 1990 to 2022. \*No potato data for 2000. \*\*No seed potato data for 2014.

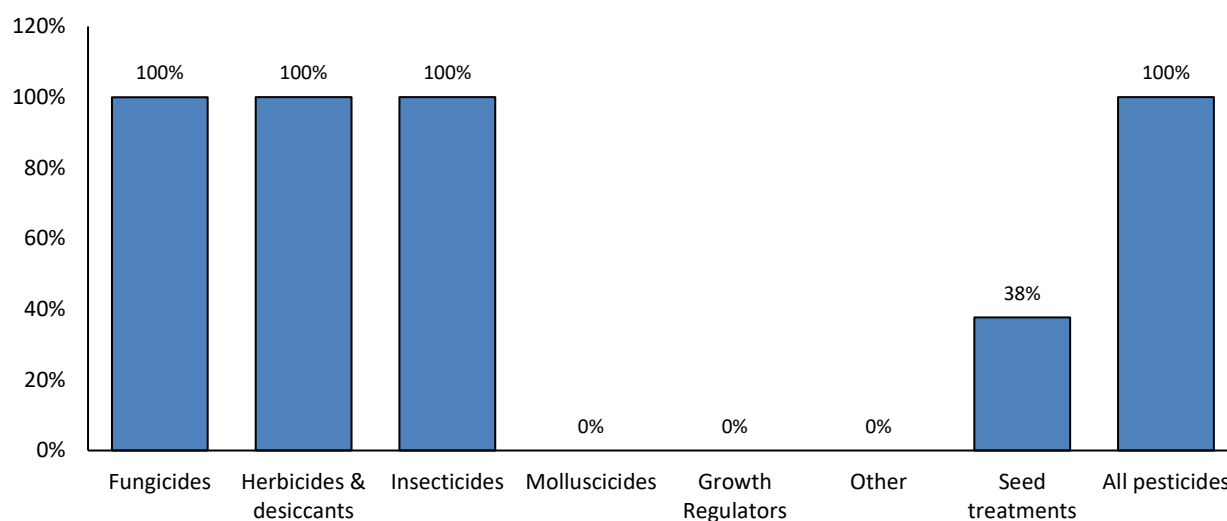


**Figure 42:** Area (spha) and proportion (%) of seed potato crops treated with each pesticide type in Northern Ireland, 2022.





**Figure 43:** Weight (kg) and proportion (%) of each pesticide type applied to seed potato crops in Northern Ireland, 2022.



**Figure 44:** Proportional area (%) of seed potato crops treated with each pesticide type in Northern Ireland, 2022.

### Fungicides – seed potatoes

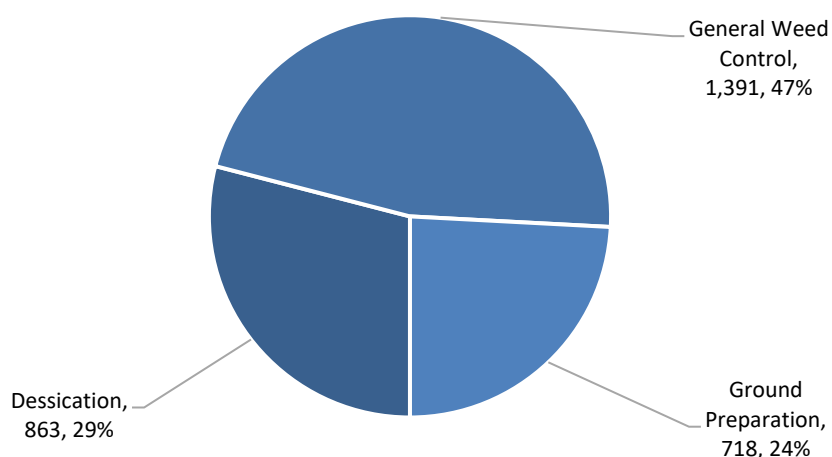
- Basic treated area: 384 hectares
- Total treated area: 5,415 spray hectares
- Quantity applied: 2,171 kilogrammes
- 100% of the area grown treated with fungicides
- The only reason given for use was 'blight'
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total herbicide-treated area (spha)
Benthiavali carb/oxathiapiprolin	1246	384	26	23
Cymoxanil/propamocarb hydrochloride	1246	384	1402	23
Amisulbrom	957	239	57	18
Cyazofamid	623	384	50	12
Fluopicolide/propamocarb hydrochloride	384	384	422	7

## Herbicides & desiccants – seed potatoes

- Basic treated area: 384 hectares
- Total treated area: 2,972 spray hectares
- Quantity applied: 2,352 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total herbicide-treated area (spha)
Glyphosate	718	239	775	24
Metribuzin	623	384	298	21
Prosulfocarb	623	384	1243	21
Carfentrazone-ethyl	528	384	26	18
Pyraflufen-ethyl	479	239	10	16



**Figure 45:** Seed potatoes: reasons for herbicide & desiccant use (area [spha] and proportion [%] treated), 2022.

## Insecticides – seed potatoes

- Basic treated area: 399 hectares
- Total treated area: 1,196 spray hectares
- Quantity applied: 151 kilogrammes
- 100% of the area grown treated with insecticides
- The only reason given for use was ‘aphids’
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total herbicide-treated area (spha)
Acetamiprid	479	239	24	28
Flonicamid	479	239	38	28
Lambda-cyhalothrin	479	239	4	28
Esfenvalerate	145	145	1	8
Unknown insecticide*	145	145	.	8

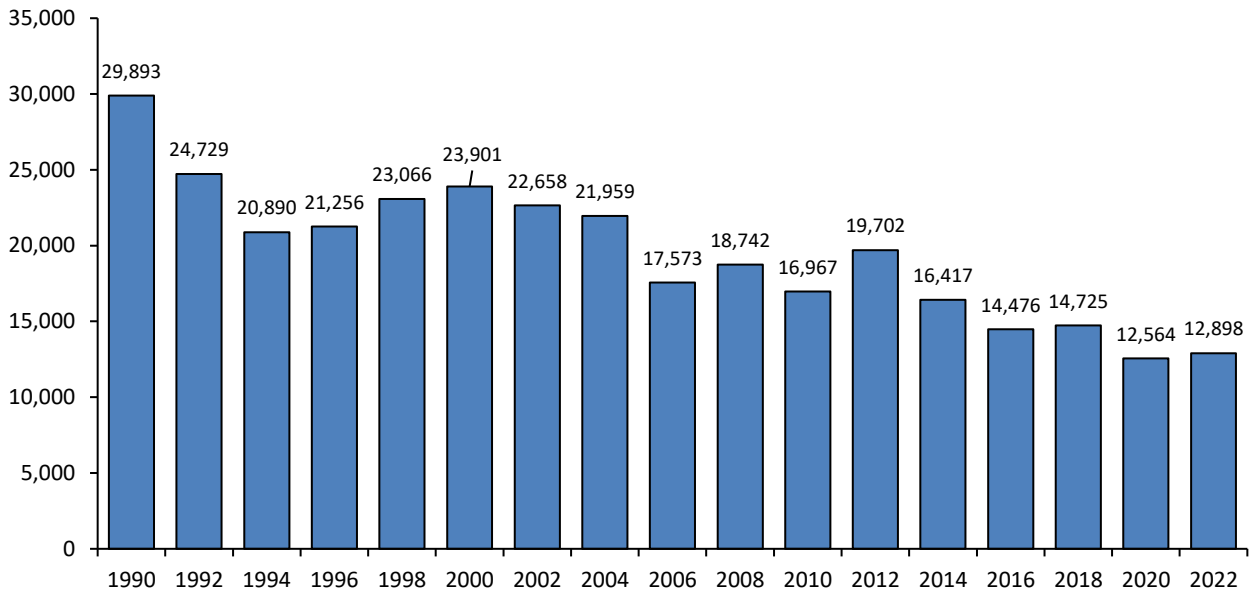
\*Quantities not available for unknown insecticides

## Seed treatments – seed potatoes

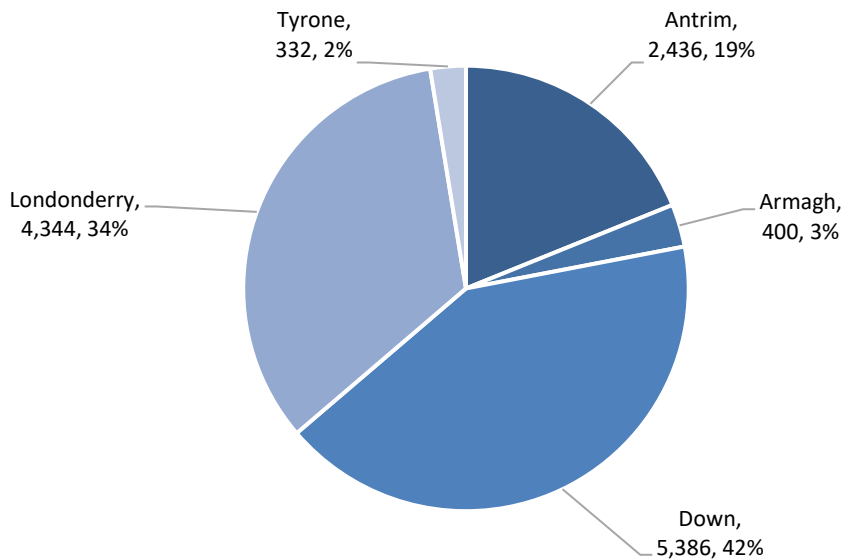
- Basic treated area: 145 hectares
- Total treated area: 145 spray hectares
- Weight of active substances applied: Trace
- 38% of the area grown received a seed treatment
- The only active substance applied was ‘Unknown seed treatment’

## Pesticide usage on Spring barley (Tables 3, 5, 6, 7, 8, 9 & 15)

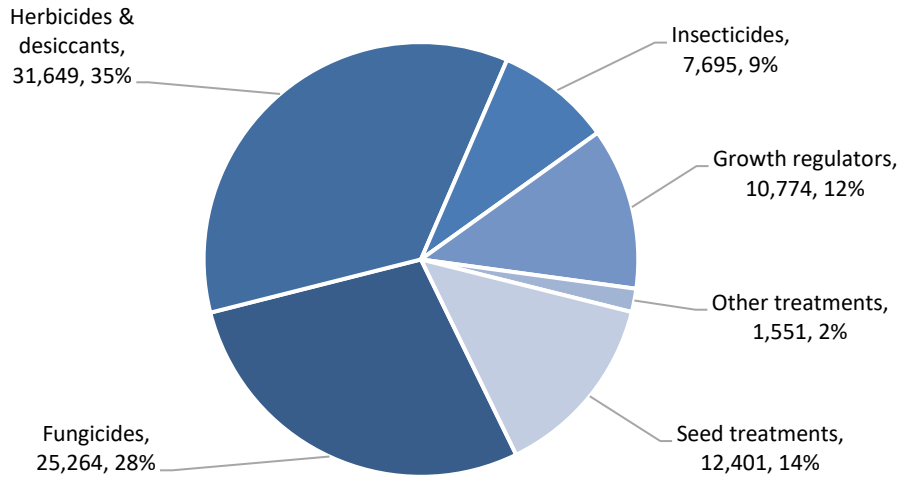
- 12,898 hectares of spring barley grown in Northern Ireland
- 89,333 treated hectares
- 18,016 kilogrammes applied
- 100% of the area of spring barley crops grown received a pesticide treatment
- Spring barley received on average 2 fungicide, 2 herbicide, 1 insecticide, 1 growth regulator, 1 other treatment and 1 seed treatment application



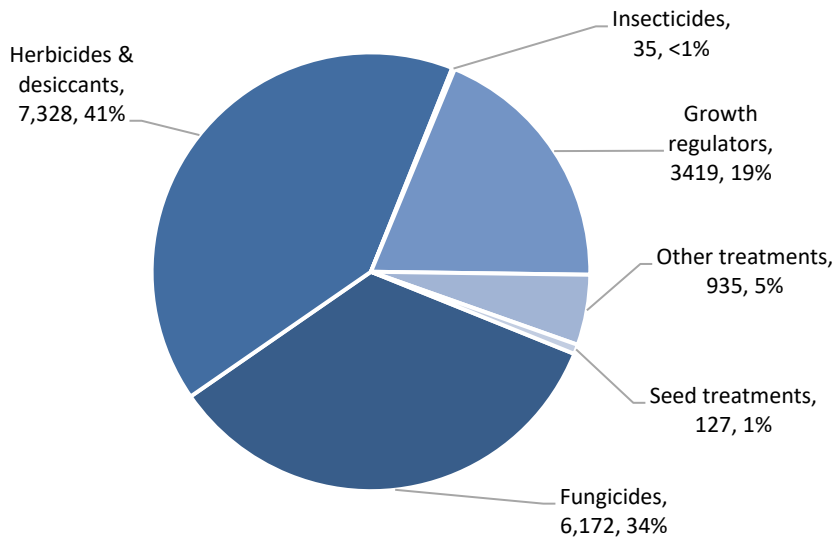
**Figure 46:** Total area (ha) of spring barley crops grown in Northern Ireland from 1990-2022.



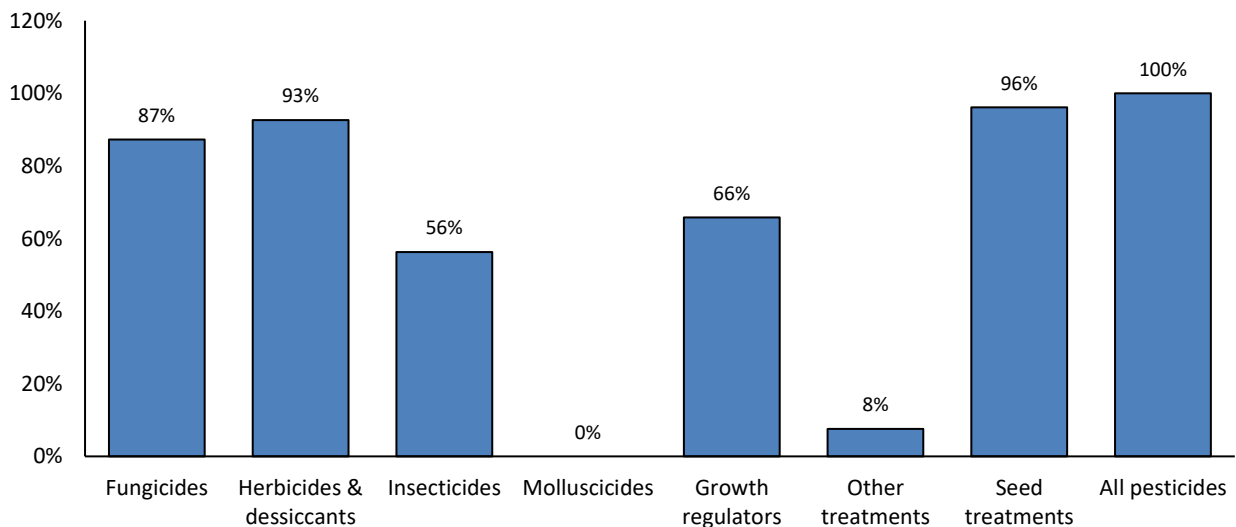
**Figure 47:** Regional distribution (ha) and proportion (%) of spring barley crops grown in Northern Ireland, 2022.



**Figure 48:** Area (spha) and proportion (%) of spring barley crops treated with each pesticide type in Northern Ireland, 2022.



**Figure 49:** Weight (kg) and proportion (%) of each pesticide type applied to spring barley crops in Northern Ireland, 2022.

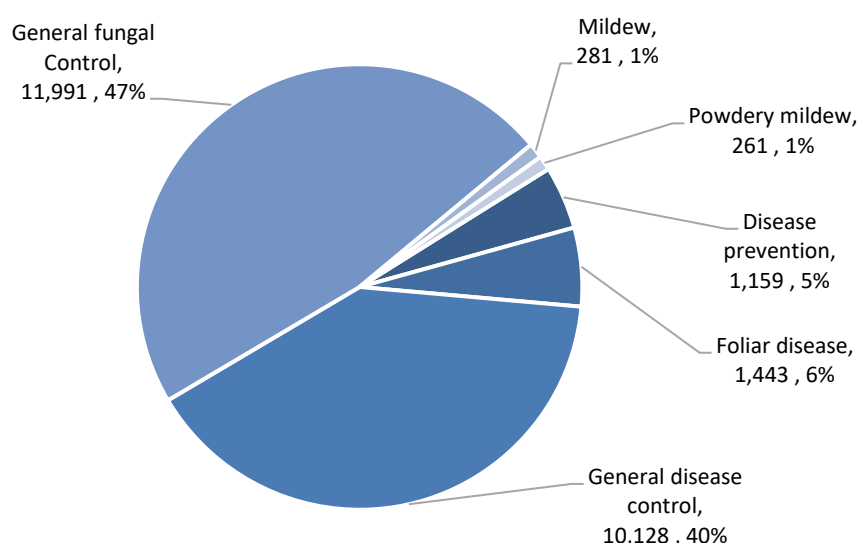


**Figure 50:** Proportional area (%) of spring barley crops treated with each pesticide type in Northern Ireland, 2022.

## Fungicides - spring barley

- Basic treated area: 11,260 hectares
- Total treated area: 25,264 spray hectares
- Quantity applied: 6,172 kilogrammes
- 87% 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 total fungicide-treated area (spha)
Folpet	4,732	4,232	2,593	19
Prothioconazole	4,081	3,925	605	16
Prothioconazole/trifloxystrobin	3,602	2,962	629	14
Bixafen/prothioconazole	3,196	2,162	545	13
Bixafen/prothioconazole/spiroxamine	1,686	1,347	678	7

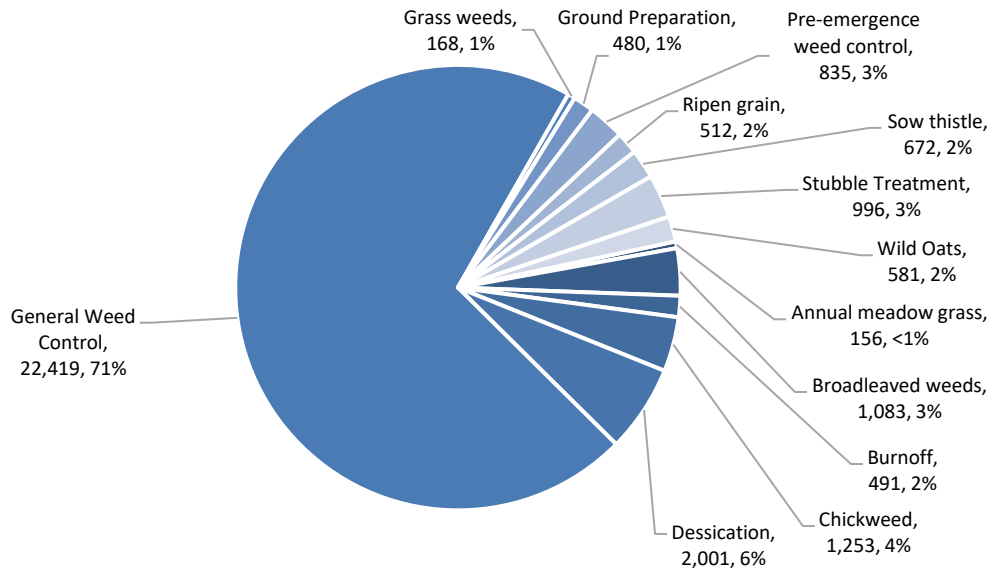


**Figure 51:** Spring barley: reasons for fungicide use (area [spha] and proportion [%] treated), 2022.

## Herbicides & desiccants - spring barley

- Basic treated area: 11,947 hectares
- Total treated area: 31,649 spray hectares
- Quantity applied: 7,328 kilogrammes
- 93% 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 total herbicide-treated area (spha)
Metsulfuron-methyl/tribenuron-methyl	4,849	4,849	42	15
Glyphosate	4,320	3,995	2,592	14
Florasulam/halaxifen-methyl	3,700	3,700	29	12
Fluroxypyr	3,562	3,562	565	11
Metsulfuron-methyl	3,434	3,434	20	11

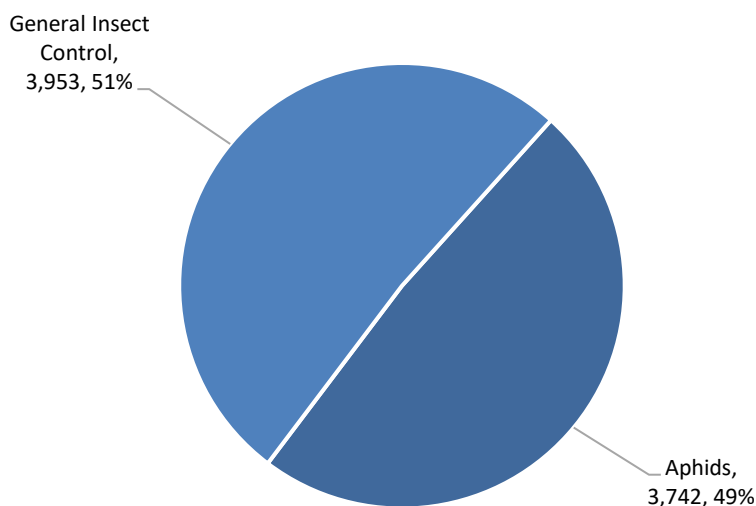


**Figure 52:** Spring barley: reasons for herbicide & desiccant use (area [spha] and proportion [%] treated), 2022.

### Insecticides - spring barley

- Basic treated area: 7,259 hectares
- Total treated area: 7,695 spray hectares
- Quantity applied: 35 kilogrammes
- 56% of the area grown treated with insecticides
- The only active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total insecticide-treated area (spha)
Lambda-cyhalothrin	4,104	4,104	20	53
Esfenvalerate	3,591	3,435	15	47



**Figure 53:** Spring barley: reasons for insecticide use (area [spha] and proportion [%] treated), 2022.

## Growth regulators - spring barley

- Basic treated area: 8,489 hectares
- Total treated area: 10,774 spray hectares
- Quantity applied: 3,419 kilogrammes
- 66% of the area grown treated with growth regulators
- The active substances applied were:

<b>Active substance</b>	<b>Total treated area (spha)</b>	<b>Basic treated area (ha)</b>	<b>Quantity applied (kgs)</b>	<b>% of the total growth regulator-treated area (spha)</b>
Trinexapac-ethyl	4,605	4,298	257	43
Chlormequat	4,055	4,055	2,817	38
2-chloroethylphosphonic acid	1,016	1,016	148	9
Mepiquat chloride/prohexadione-calcium	719	719	174	7
Prohexadione-calcium/trinexapac-ethyl	379	379	24	4

## Other treatments - spring barley

- Basic treated area: 976 hectares
- Total treated area: 1,551 spray hectares
- Quantity applied: 935 kilogrammes
- 8% of the area grown received other treatments
- Manganese and seaweed extract were the substances applied

## Seed treatments - spring barley

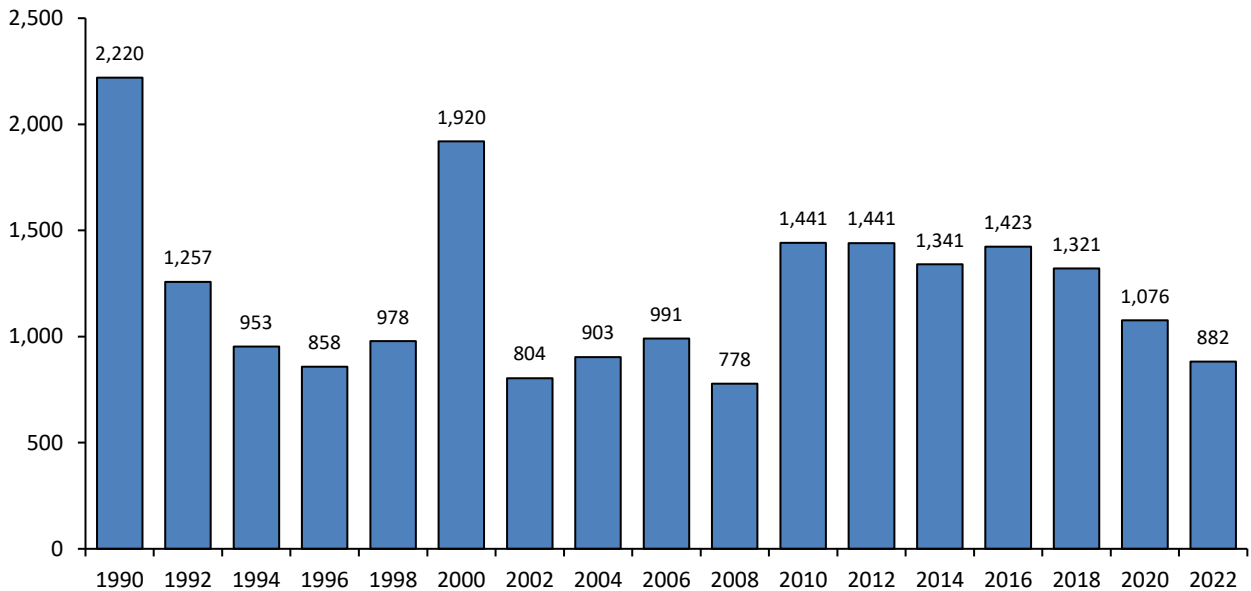
- Basic treated area: 12,401 hectares
- Total treated area: 12,401 spray hectares
- Quantity applied: 127 kilogrammes
- 96% of the area grown was sown with treated seed
- The active substances applied were:

<b>Active substance</b>	<b>Total treated area (spha)</b>	<b>Basic treated area (ha)</b>	<b>Quantity applied (kgs)</b>	<b>% of the total seed treatment-treated area (spha)</b>
Fludioxonil	9,454	9,454	87	76
Prothioconazole/tebuconazole	1,389	1,389	29	11
Unknown seed treatment*	1,039	1,039	.	8
Imazalil/ipconazole	519	519	11	4

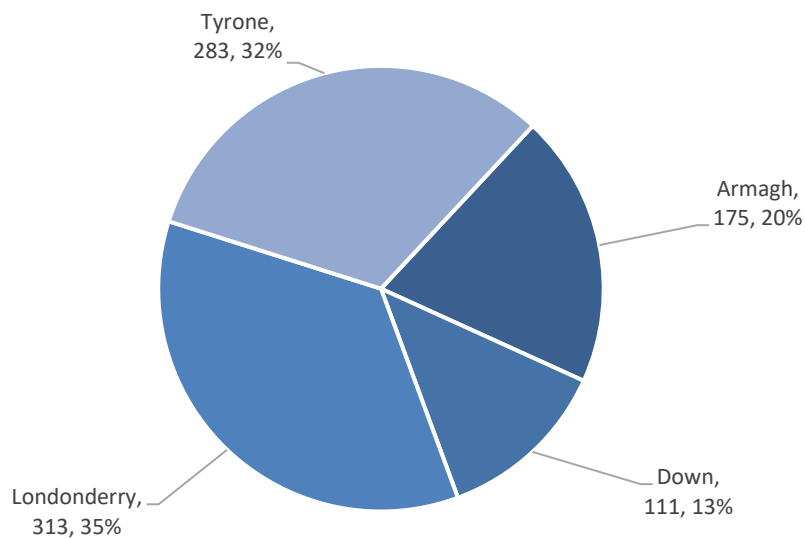
\*Quantities not available for unknown seed treatments

## Pesticide usage on Spring oats (Tables 3, 5, 6, 7, 8, 9 & 16)

- 882 hectares of spring oats grown in Northern Ireland
- 5,607 treated hectares
- 1,340 kilogrammes applied
- 100% of the area of spring oat crops grown received a pesticide treatment
- Spring oats received on average 2 fungicide, 1 herbicide, 1 insecticide, 1 growth regulator and 1 seed treatment application

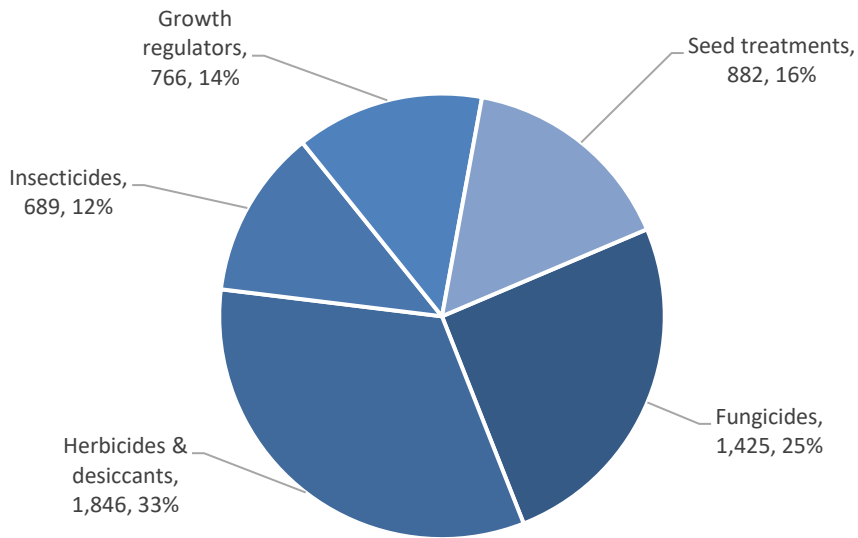


**Figure 54:** Total area (ha) of spring oat crops grown in Northern Ireland from 1990 to 2022.

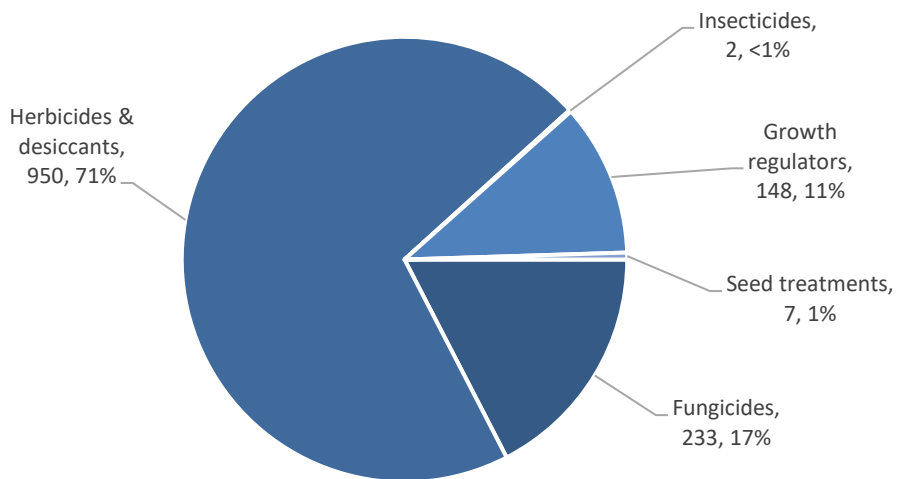


**Figure 55:** Regional distribution (ha) and proportion (%) of spring oat crops grown in Northern Ireland, 2022.

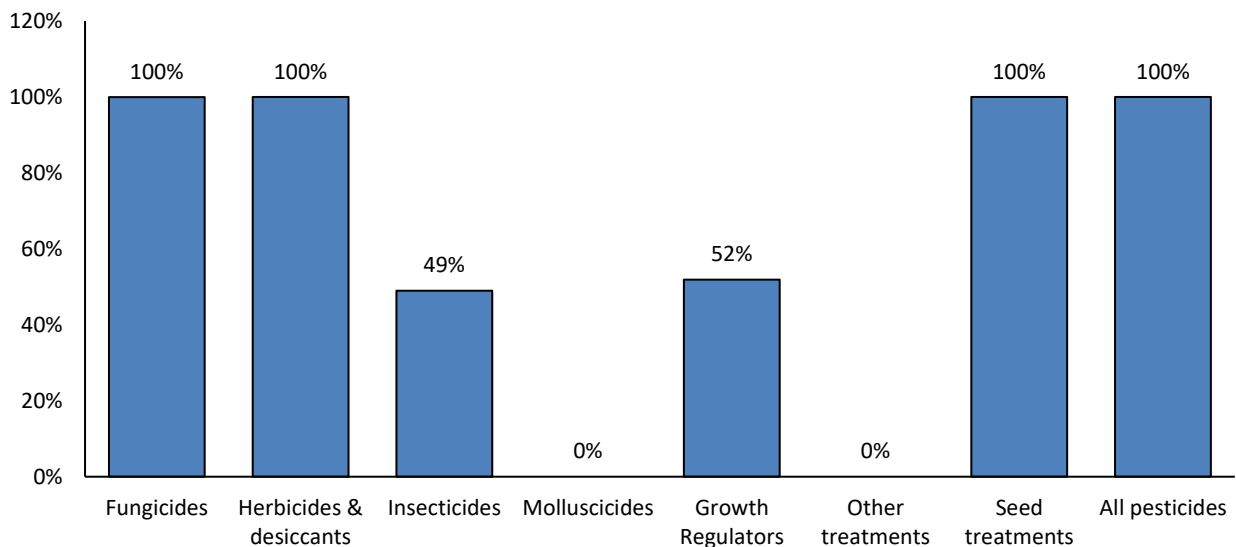




**Figure 56:** Area (spha) and proportion (%) of spring oat crops treated with each pesticide type in Northern Ireland, 2022.



**Figure 57:** Weight (kg) and proportion (%) of each pesticide type applied to spring oat crops in Northern Ireland, 2022.



**Figure 58:** Proportional area (%) of spring oat crops treated with each pesticide type in Northern Ireland, 2022.

## Fungicides – spring oats

- Basic treated area: 882 hectares
- Total treated area: 1,425 spray hectares
- Quantity applied: 233 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 total fungicide-treated area (spha)
Prothioconazole	570	570	113	40
Unknown fungicide	257	257	.	18
Prothioconazole/tebuconazole	175	175	42	12
Tebuconazole	175	175	44	12
Cyflufenamid	111	111	1	8

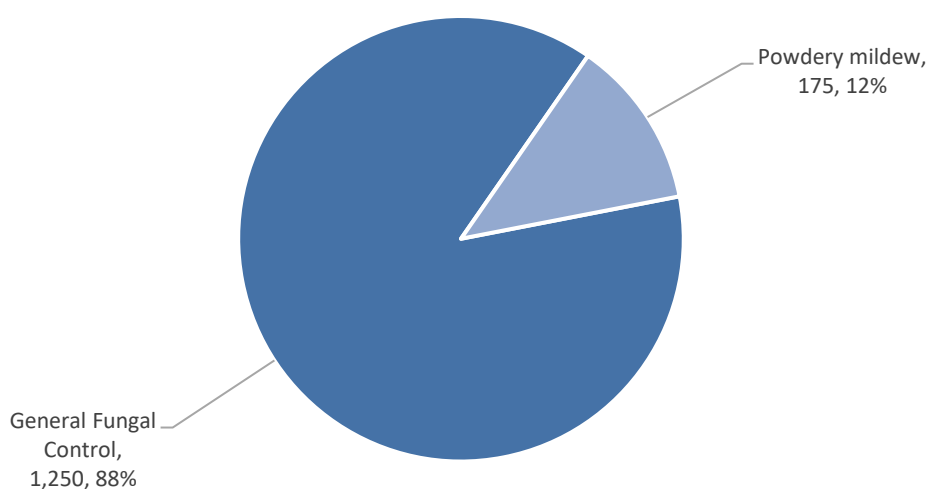
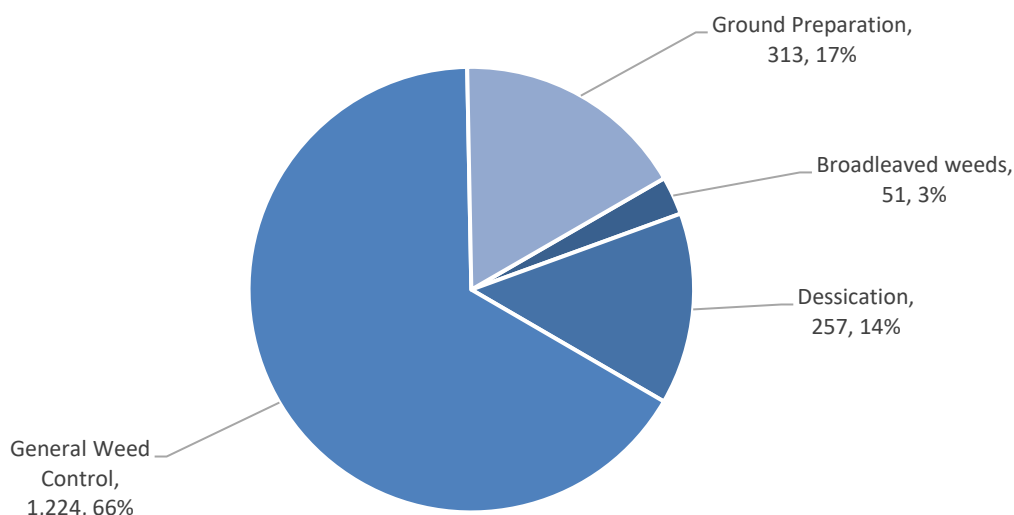


Figure 59: Spring oats: reasons for fungicide use (area [spha] and proportion [%] treated), 2022.

## Herbicides & desiccants – spring oats

- Basic treated area: 882 hectares
- Total treated area: 1,846 spray hectares
- Quantity applied: 950 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 total herbicide-treated area (spha)
Glyphosate	570	570	511	31
Florasulam/haloxifen-methyl	313	313	3	17
MCPA	257	257	411	14
Metsulfuron-methyl/tribenuron-methyl	257	257	3	14
Metsulfuron-methyl	175	175	1	9



**Figure 60:** Spring oats: reasons for herbicide & desiccant use (area [spha] and proportion [%] treated), 2022.

### Insecticides – spring oats

- Basic treated area: 432 hectares
- Total treated area: 689 spray hectares
- Quantity applied: 2 kilogrammes
- 49% of the area grown treated with insecticides
- The only active substance applied was esfenvalerate, exclusively for ‘aphids’

### Growth regulators – spring oats

- Basic treated area: 458 hectares
- Total treated area: 766 spray hectares
- Quantity applied: 148 kilogrammes
- 52% of the area grown treated with growth regulators
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total growth regulator-treated area (spha)
Prohexadione-calcium/trinexapac-ethyl	514	257	16	67
Chlormequat	201	201	127	26
Mepiquat chloride/prohexadione-calcium	26	26	5	3
Trinexapac-ethyl	26	26	1	3

### Seed treatments – spring oats

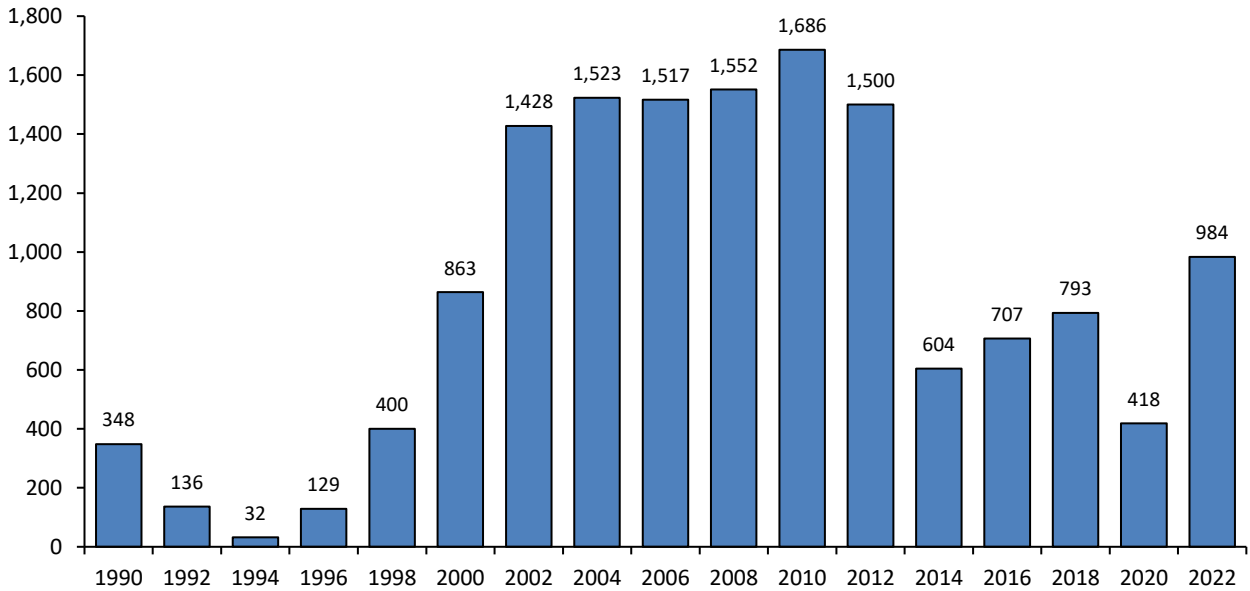
- Basic treated area: 882 hectares
- Total treated area: 882 spray hectares
- Quantity applied: 7 kilogrammes
- 100% of the area grown was sown with treated seed
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total seed treatment-treated area (spha)
Fludioxonil	625	625	7	71
Unknown seed treatment*	257	257	.	29

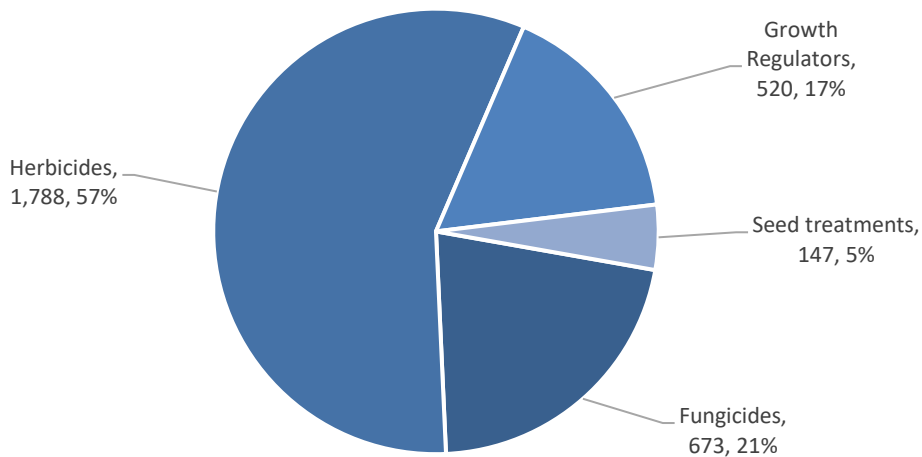
\*Quantities not available for unknown seed treatments

## Pesticide usage on Spring wheat (Tables 3, 5, 6, 7, 8, 9 & 17)

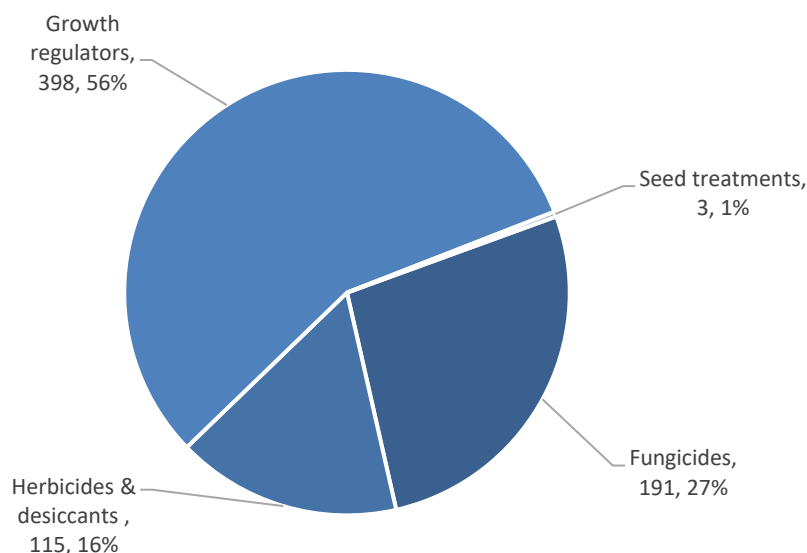
- 984 hectares of spring wheat grown in Northern Ireland
- 3,128 treated hectares
- 707 kilogrammes applied
- 61% of the area of spring wheat crops grown received a pesticide treatment
- Spring wheat crops were only recorded in County Down during this survey period
- Spring wheat received on average 1 fungicide, 3 herbicide, 1 growth regulator and 1 seed treatment application



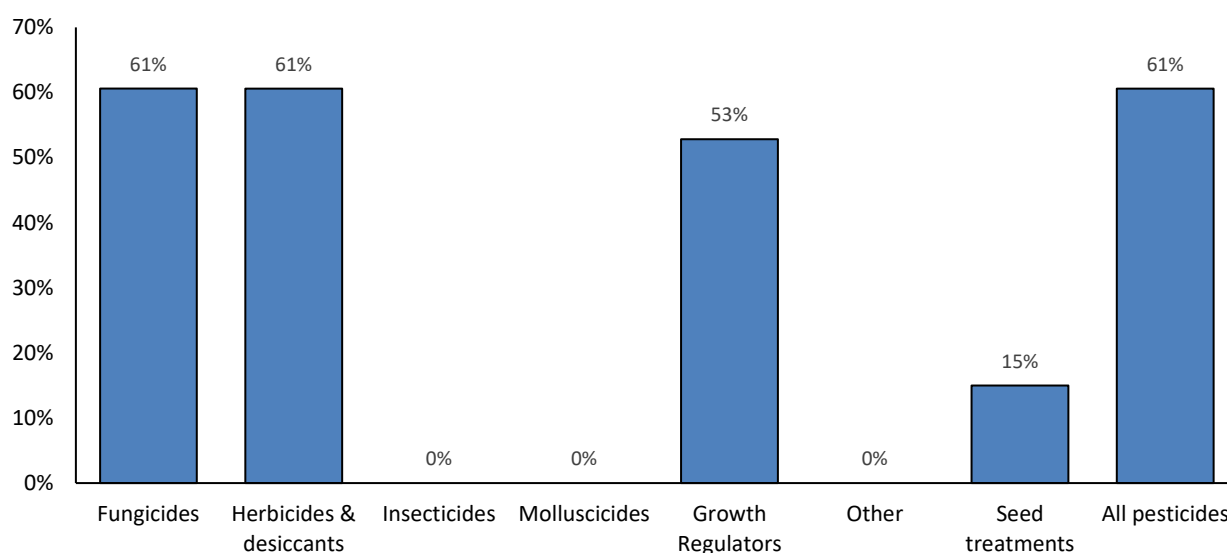
**Figure 61:** Total area (ha) of spring wheat crops grown in Northern Ireland from 1990 to 2022.



**Figure 62:** Area (spha) and proportion (%) of spring wheat crops treated with each pesticide type in Northern Ireland, 2022.



**Figure 63:** Weight (kg) and proportion (%) of each pesticide type applied to spring wheat crops in Northern Ireland, 2022.

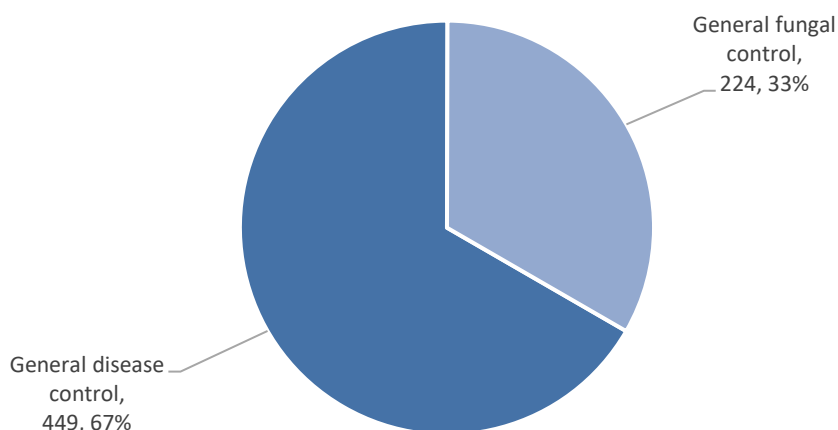


**Figure 64:** Proportional area (%) of spring wheat crops treated with each pesticide type in Northern Ireland, 2022.

### Fungicides - spring wheat

- Basic treated area: 596 hectares
- Total treated area: 673 spray hectares
- Quantity applied: 191 kilogrammes
- 61% 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 total fungicide-treated area (spha)
Prothioconazole/tebuconazole	520	520	160	77
Fluxapyroxad/mefentrifluconazole	76	76	11	11
Prothioconazole/trifloxystrobin	76	76	19	11



**Figure 65:** Spring wheat: reasons for fungicide use (area [spha] and proportion [%] treated), 2022.

### Herbicides & desiccants - spring wheat

- Basic treated area: 596 hectares
- Total treated area: 1,788 spray hectares
- Quantity applied: 115 kilogrammes
- 61% of the area grown treated with herbicides & desiccants
- The only reason given for use was 'General weed control'
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total herbicide-treated area (spha)
Florasulam/halauxifen-methyl	520	520	6	29
Metsulfuron-methyl	520	520	3	29
Pinoxaden	520	520	14	29
Diflufenican/flufenacet	76	76	14	4
Metsulfuron-methyl/tribenuron-methyl	76	76	1	4
Pendimethalin	76	76	78	4

### Growth regulators - spring wheat

- Basic treated area: 520 hectares
- Total treated area: 520 spray hectares
- Quantity applied: 398 kilogrammes
- 53% of the area grown treated with growth regulators
- The only active substance applied was chlormequat, for 'Growth regulation'

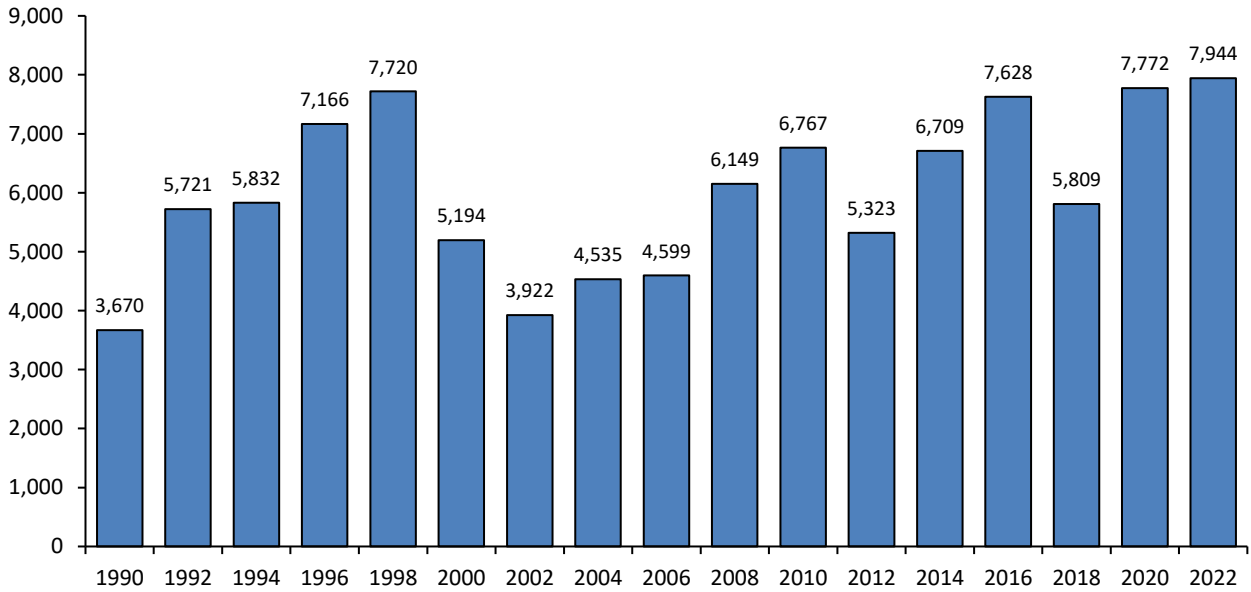
### Seed treatments - spring wheat

- Basic treated area: 147 hectares
- Total treated area: 147 spray hectares
- Quantity applied: 3 kilogrammes
- 15% of the area grown was sown with treated seed
- The active substances applied were:

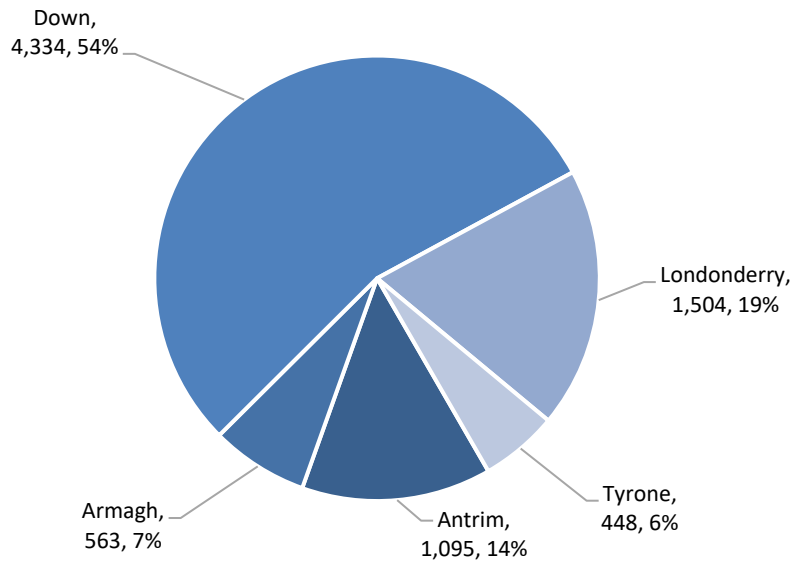
Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total seed treatment-treated area (spha)
Prothioconazole/tebuconazole	76	76	2	52
Fludioxonil	71	71	1	48

## Pesticide usage on Winter barley (Tables 3, 5, 6, 7, 8, 9 & 18)

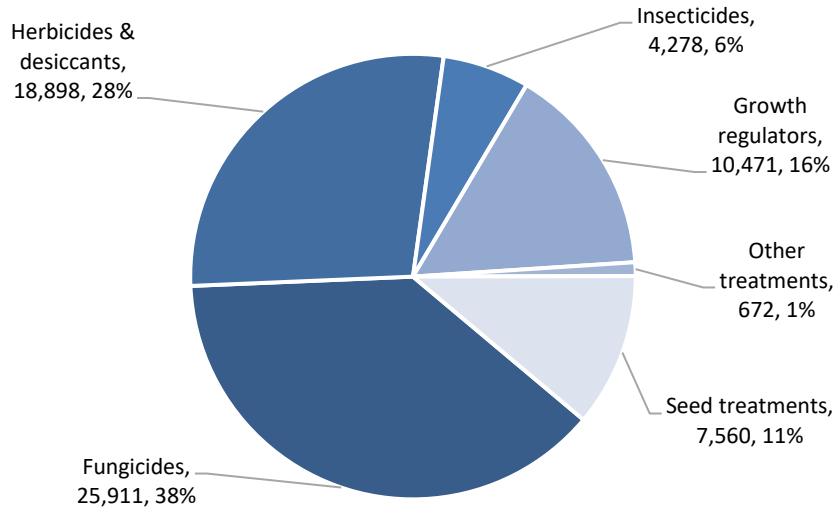
- 7,772 hectares of winter barley grown in Northern Ireland
- 67,572 treated hectares
- 21,652 kilogrammes applied
- 96% of the area of winter barley crops grown received a pesticide treatment
- Winter barley received on average 3 fungicide, 2 herbicide, 1 insecticide, 2 growth regulator and 1 seed treatment application



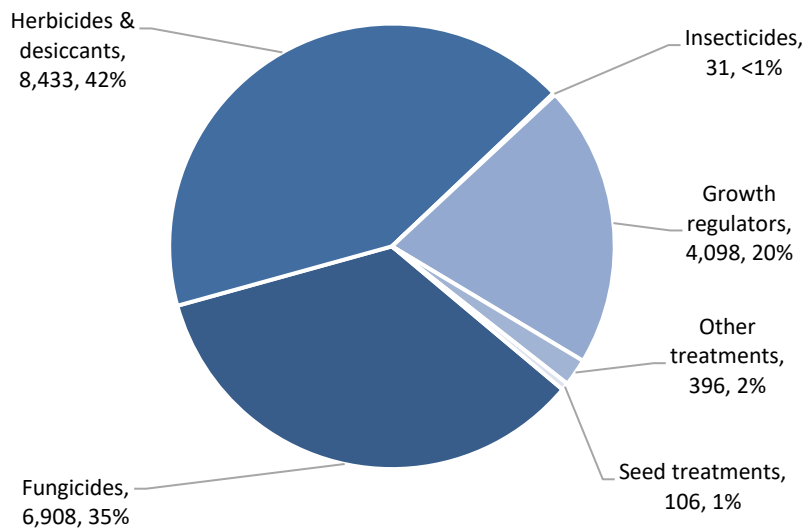
**Figure 66:** Total area (ha) of winter barley crops grown in Northern Ireland, 1990-2022.



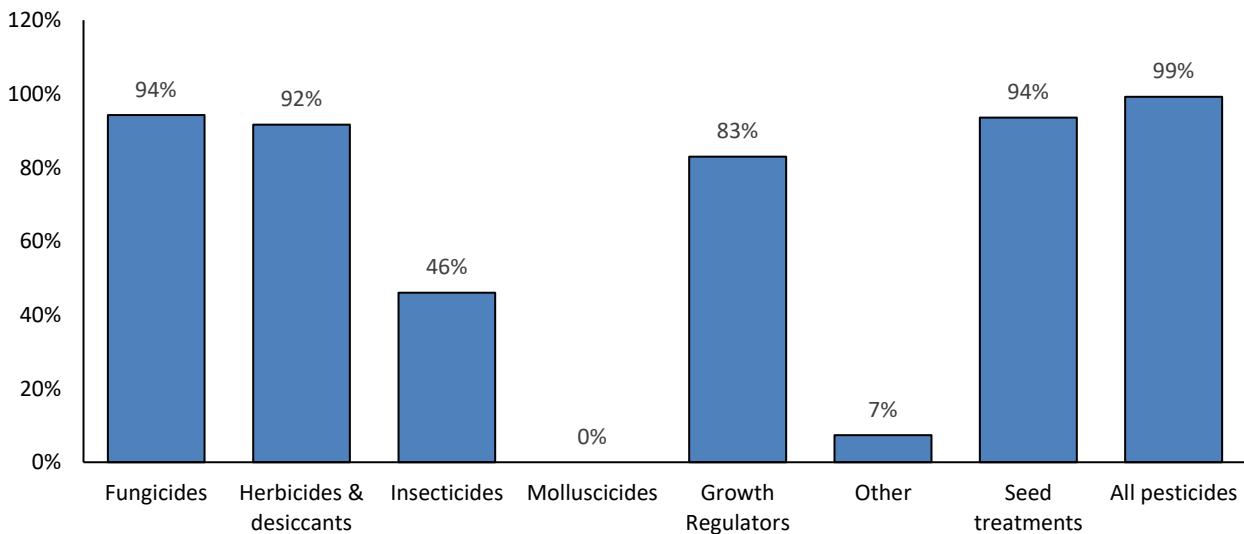
**Figure 67:** Regional distribution (ha) and proportion (%) of winter barley crops grown in Northern Ireland, 2022.



**Figure 68:** Area (spha) and proportion (%) of winter barley crops treated with each pesticide type in Northern Ireland, 2022.



**Figure 69:** Weight (kg) and proportion (%) of each pesticide type applied to winter barley crops in Northern Ireland, 2022.



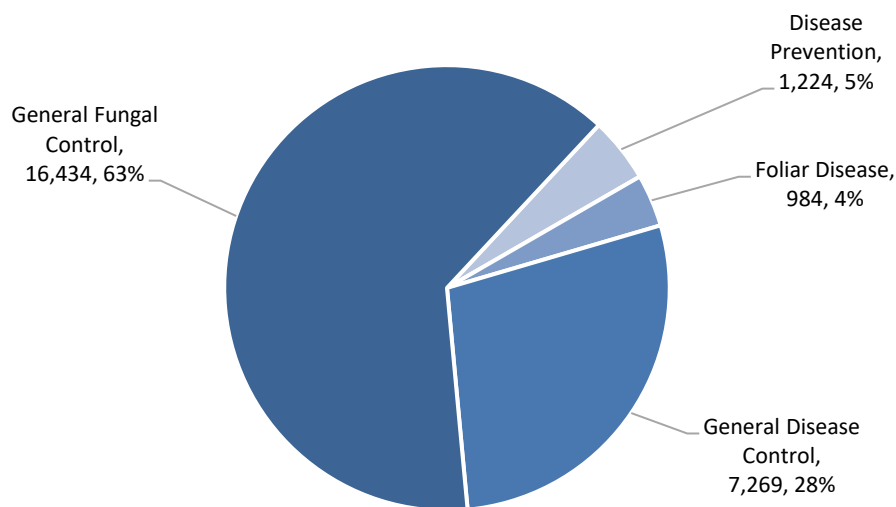
**Figure 70:** Proportional area (%) of winter barley crops treated with each pesticide type in Northern Ireland, 2022.



## Fungicides - winter barley

- Basic treated area: 7,485 hectares
- Total treated area: 25,911 spray hectares
- Quantity applied: 6,908 kilogrammes
- 94% 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 total fungicide-treated area (spha)
Folpet	5,733	4,037	3,101	22
Prothioconazole	4,463	3,677	615	17
Bixafen/prothioconazole	3,025	2,261	597	12
Prothioconazole/trifloxystrobin	1,674	1,411	290	6
Bixafen/prothioconazole/spiroxamine	1,559	1,213	622	6

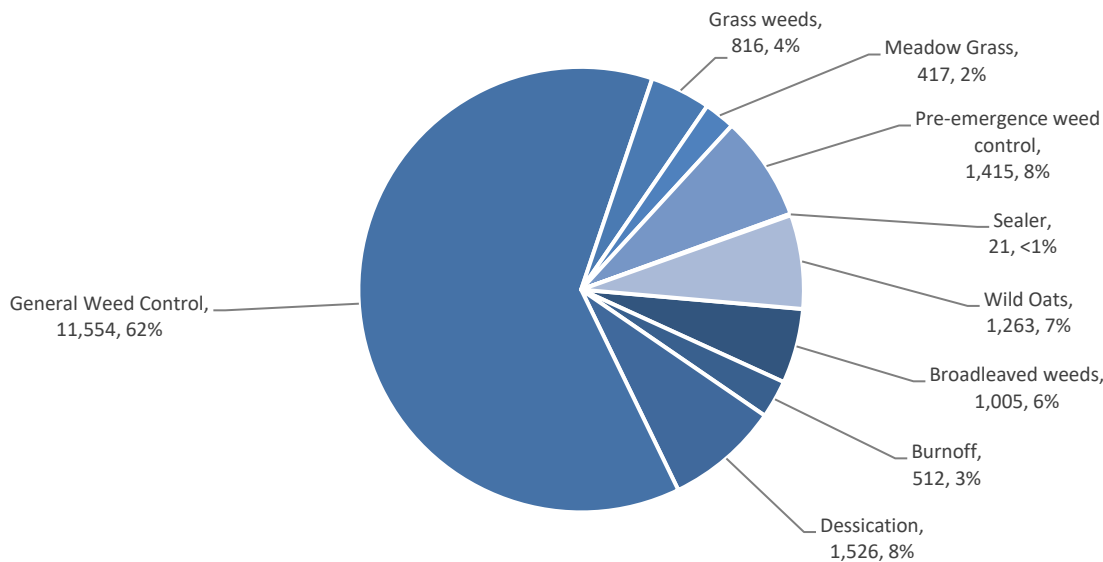


**Figure 71:** Winter barley: reasons for fungicide use (area [spha] and proportion [%] treated), 2022.

## Herbicides & desiccants - winter barley

- Basic treated area: 7,282 hectares
- Total treated area: 18,898 spray hectares
- Quantity applied: 8,433 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 total herbicide-treated area (spha)
Flufenacet/pendimethalin	3,115	3,115	3,919	16
Glyphosate	2,355	2,355	1,832	12
Diflufenican	2,096	2,096	160	11
Diflufenican/flufenacet	2,018	2,018	498	11
Pinoxaden	1,511	1,511	53	8

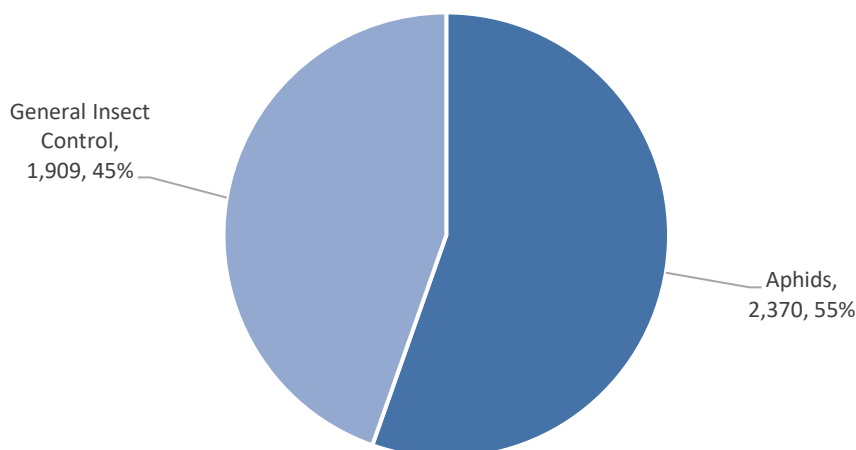


**Figure 72:** Winter barley: reasons for herbicide & desiccant use (area [spha] and proportion [%] treated), 2022.

### *Insecticides - winter barley*

- Basic treated area: 3,655 hectares
- Total treated area: 4,278 spray hectares
- Quantity applied: 31 kilogrammes
- 46% 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 total insecticide-treated area (spha)
Lambda-cyhalothrin	2905	2459	14	68
Esfenvalerate	1171	1171	5	27
Flonicamid	202	202	12	5

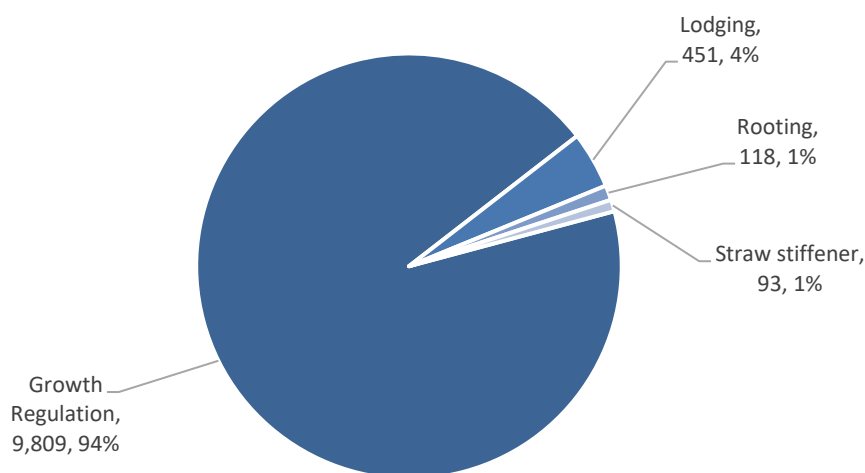


**Figure 73:** Winter barley: reasons for insecticide use (area [spha] and proportion [%] treated), 2022.

## Growth regulators - winter barley

- Basic treated area: 6,589 hectares
- Total treated area: 10,471 spray hectares
- Quantity applied: 4,098 kilogrammes
- 83% of the area grown treated with growth regulators
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total growth regulator-treated area (spha)
Chlormequat	4,350	3,684	3,559	42
Trinexapac-ethyl	3,310	3,158	186	32
Prohexadione-calcium/trinexapac-ethyl	1,748	1,748	99	17
Mepiquat chloride/prohexadione-calcium	685	607	143	7
2-chloroethylphosphonic acid	379	379	110	4



**Figure 74:** Winter barley: reasons for growth regulator use (area [spha] and proportion [%] treated), 2022.

## Other treatments - winter barley

- Basic treated area: 585 hectares
- Total treated area: 672 spray hectares
- Quantity applied: 396 kilogrammes
- 7% of the area grown received other treatments
- The substances applied were manganese, nitrogen/phosphate/potassium and seaweed extract

## Seed treatments - winter barley

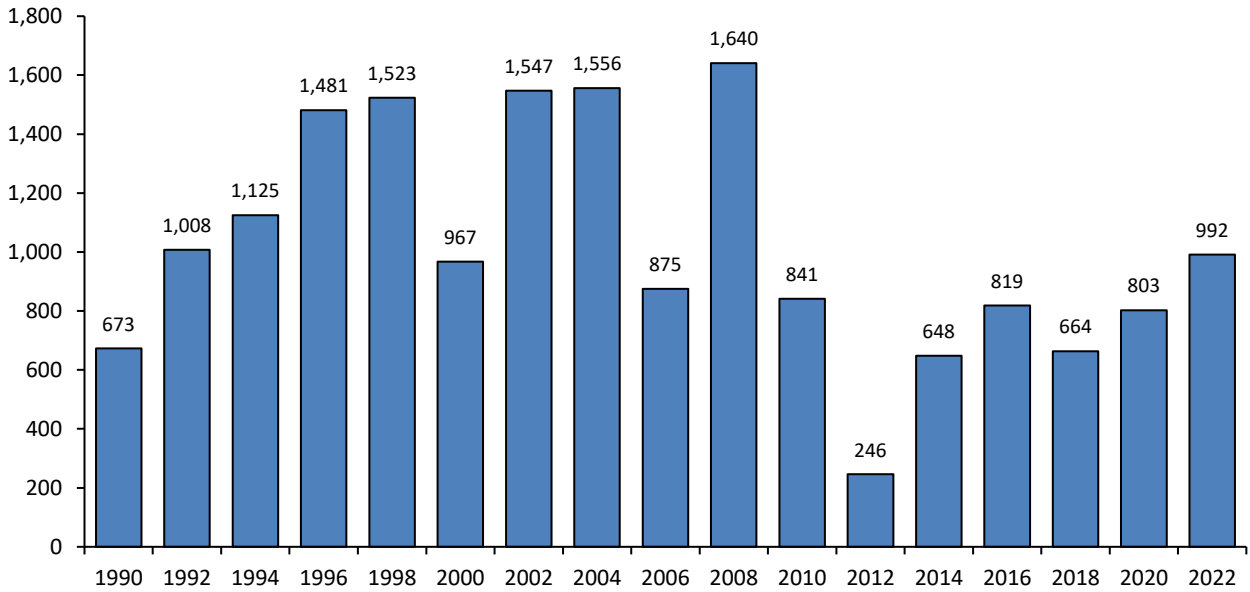
- Basic treated area: 7,433 hectares
- Total area treated: 7,560 spray hectares
- Quantity applied: 106 kilogrammes
- 94% of the area grown was sown with treated seed
- The most commonly applied active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total seed treatment-treated area (spha)
Fludioxonil	4,047	4,047	34	54
Prothioconazole/tebuconazole	1,281	1,281	27	17
Fludioxonil/fluxapyroxad/triticonazole	964	964	26	13
Imazalil/ipconazole	531	531	8	7
Unknown seed treatment*	280	280	.	4

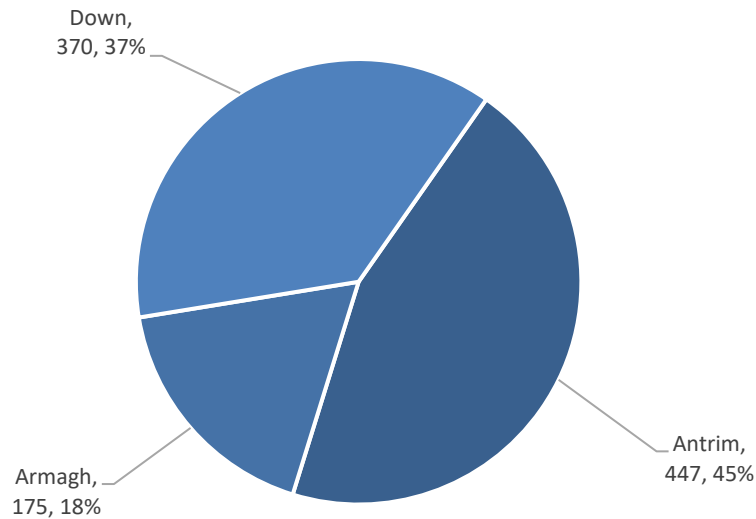
\*Quantities not available for unknown seed treatments

## Pesticide usage on Winter oats (Tables 3, 5, 6, 7, 8, 9 & 19)

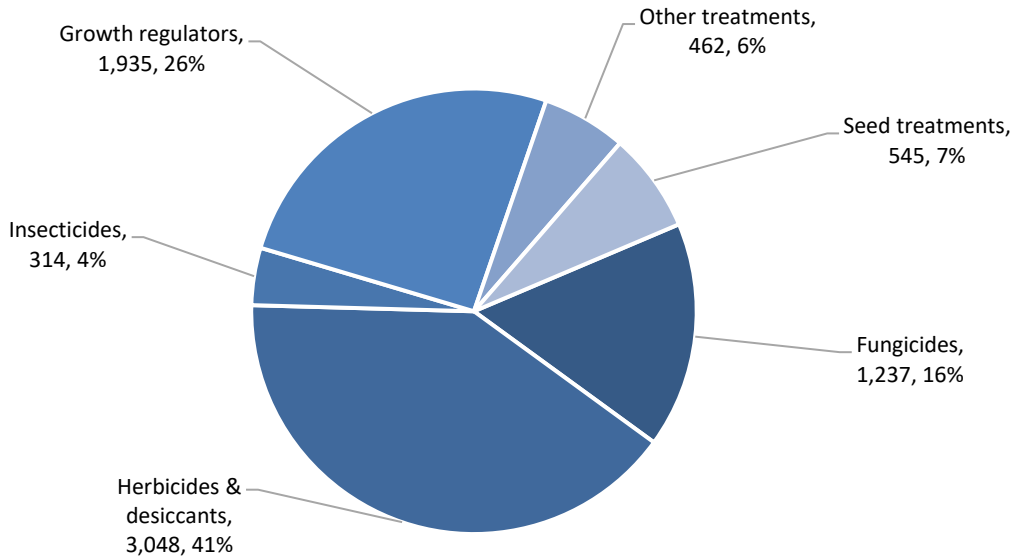
- 992 hectares of winter oats grown in Northern Ireland
- 7,540 treated hectares
- 2,581 kilogrammes applied
- 100% of the area of winter oat crops grown received a pesticide treatment
- Winter oats received on average 2 fungicide, 2 herbicide, 1 insecticide, 1 growth regulator, 2 other treatments and 1 seed treatment application



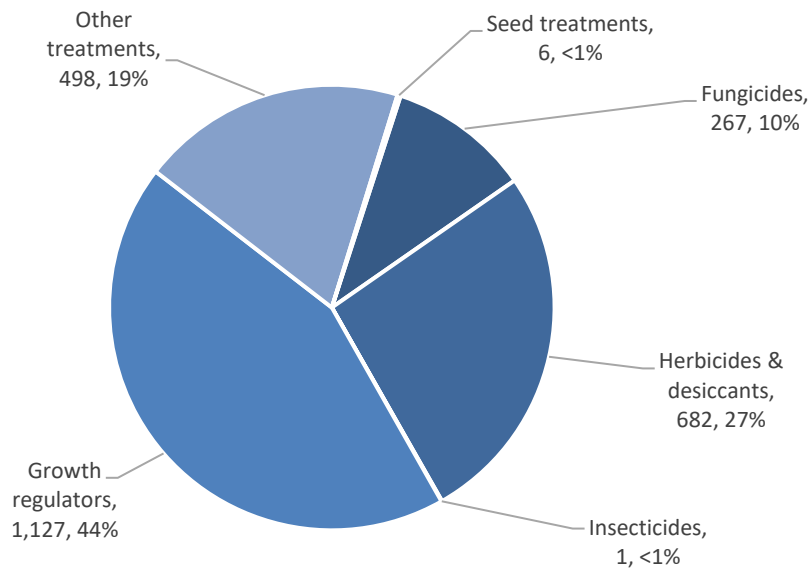
**Figure 75:** Total area (ha) of winter oat crops grown in Northern Ireland from 1990 to 2020.



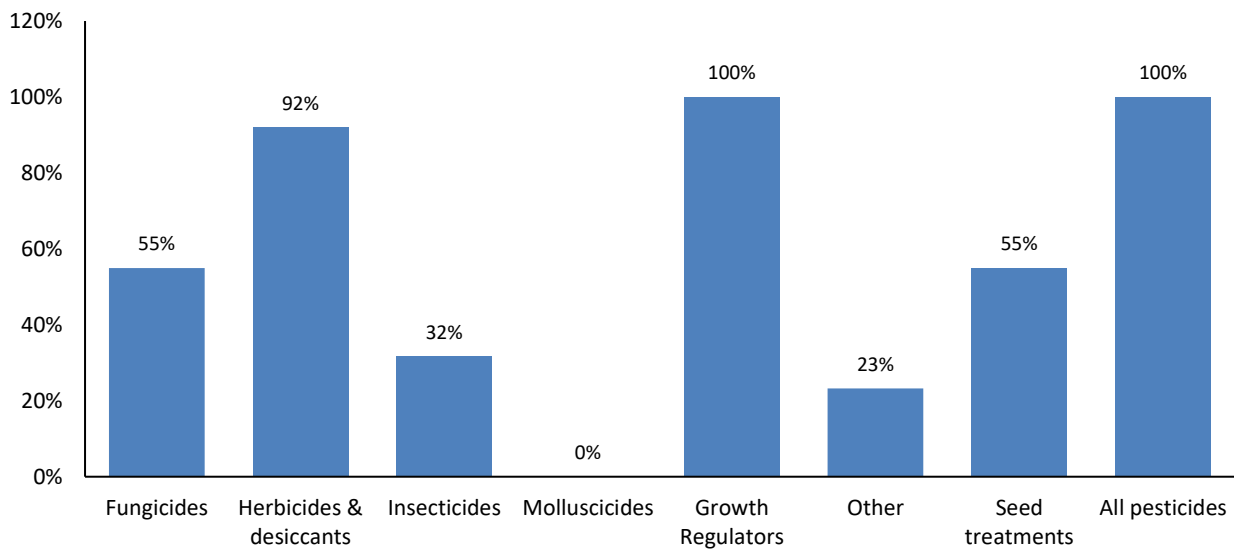
**Figure 76:** Regional distribution (ha) and proportion (%) of winter oat crops grown in Northern Ireland, 2022.



**Figure 77:** Area (spha) and proportion (%) of winter oats crops treated with each pesticide type in Northern Ireland, 2022.



**Figure 78:** Weight (kg) and proportion (%) of each pesticide type applied to winter oat crops in Northern Ireland, 2022.



**Figure 79:** Proportional area (%) of winter oat crops treated with each pesticide type in Northern Ireland, 2022.

## Fungicides – winter oats

- Basic treated area: 545 hectares
- Total treated area: 1,237 spray hectares
- Quantity applied: 267 kilogrammes
- 55% 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 total fungicide-treated area (spha)
Tebuconazole	293	234	58	24
Bixafen/prothioconazole	201	201	36	16
Prothioconazole/tebuconazole	175	175	42	14
Pyraclostrobin	168	168	26	14
Prothioconazole	122	122	19	10

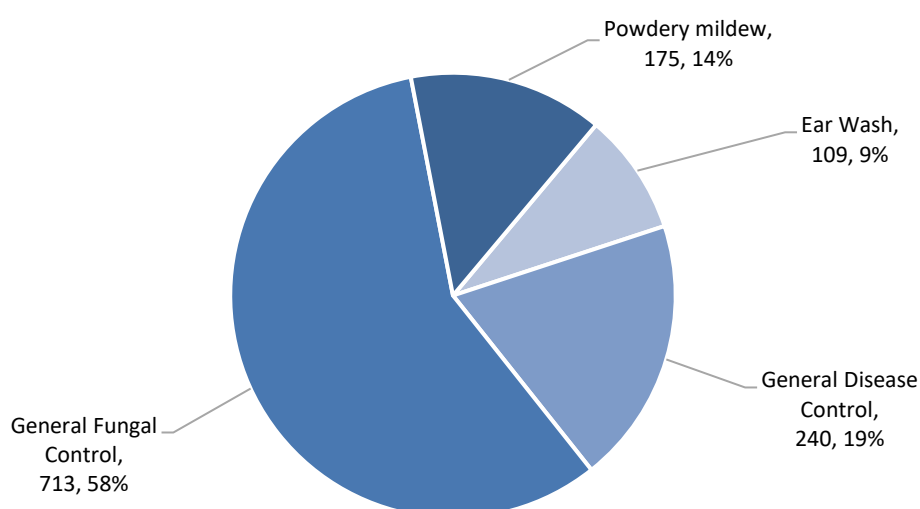
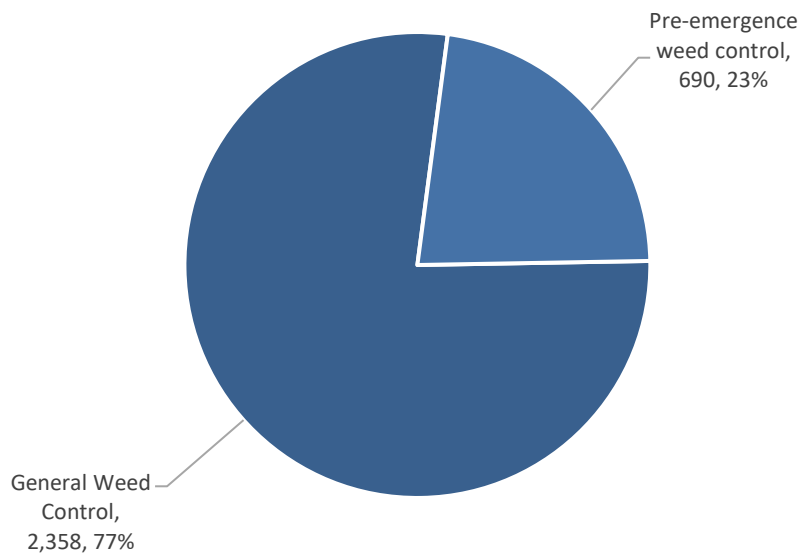


Figure 80: Winter oats: reasons for fungicide use (area [spha] and proportion [%] treated), 2022.

## Herbicides & desiccants – winter oats

- Basic treated area: 912 hectares
- Total treated area: 3,048 spray hectares
- Quantity applied: 682 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 total herbicide-treated area (spha)
Diflufenican/flufenacet	556	556	100	18
Fluroxypyr	506	506	98	17
Thifensulfuron-methyl/tribenuron-methyl	506	506	9	17
Glyphosate	447	447	161	15
Pendimethalin	447	447	203	15

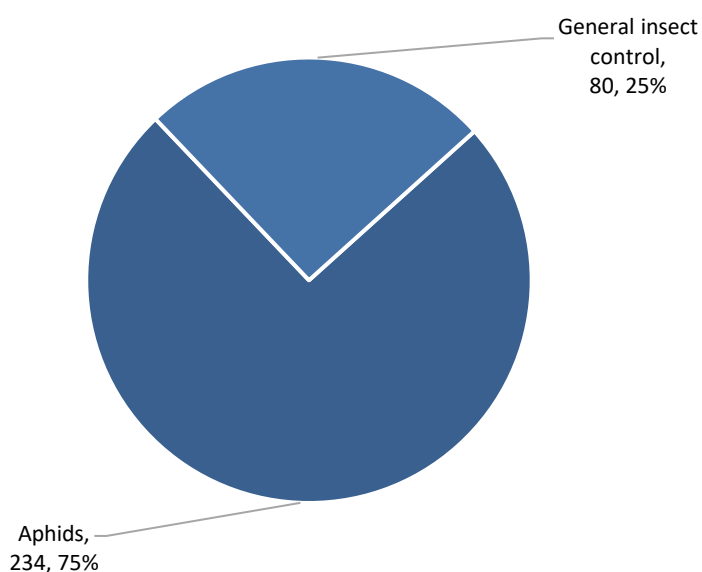


**Figure 81:** Winter oats: reasons for herbicide & desiccant use (area [spha] and proportion [%] treated), 2022.

### **Insecticides – winter oats**

- Basic treated area: 314 hectares
- Total treated area: 315 spray hectares
- Quantity applied: 1 kilogramme
- 32% of the area grown treated with insecticides
- The active substances applied were:

<i>Active substance</i>	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total herbicide-treated area (spha)
Esfenvalerate	234	234	1	75
Lambda-cyhalothrin	80	80	<1	25



**Figure 82:** Winter oats: reasons for insecticide use (area [spha] and proportion [%] treated), 2022.

## Growth regulators – winter oats

- Basic treated area: 992 hectares
- Total treated area: 1,935 spray hectares
- Quantity applied: 1,127 kilogrammes
- 100% of the area grown treated with growth regulators
- The active substances applied were:

<b>Active substance</b>	<b>Total treated area (spha)</b>	<b>Basic treated area (ha)</b>	<b>Quantity applied (kgs)</b>	<b>% of the total insecticide-treated area (spha)</b>
Chlormequat	1,317	870	911	68
Trinexapac-ethyl	328	248	14	17
Chlormequat chloride	122	122	182	6
Prohexadione-calcium/trinexapac-ethyl	109	109	5	6
Mepiquat chloride/prohexadione-calcium	59	59	14	3

## Other treatments – winter oats

- Basic treated area: 231 hectares
- Total treated area: 462 spray hectares
- Quantity applied: 498 kilogrammes
- 23% of the area grown treated with other treatments
- The substances applied were manganese and seaweed extract

## Seed treatments – winter oats

- Basic treated area: 545 hectares
- Total treated area: 545 spray hectares
- Quantity applied: 6 kilogrammes
- 55% of the area grown was sown with treated seed
- The active substances applied were:

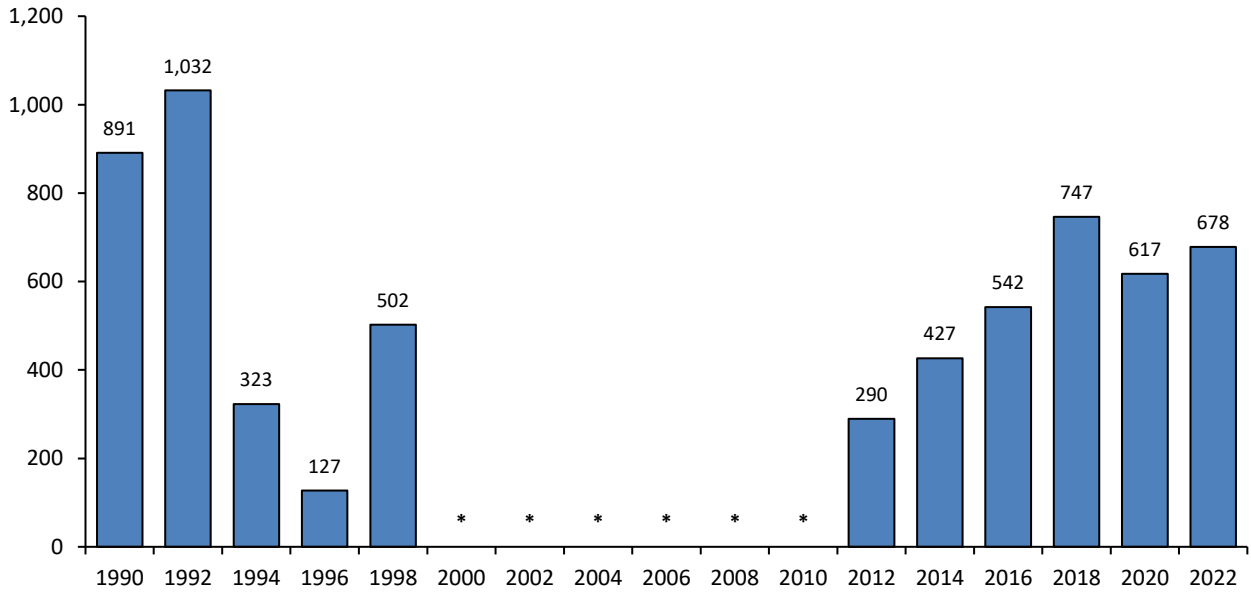
<b>Active substance</b>	<b>Total treated area (spha)</b>	<b>Basic treated area (ha)</b>	<b>Quantity applied (kgs)</b>	<b>% of the total seed treatment-treated area (spha)</b>
Fludioxonil	234	234	3	43
Prothioconazole	201	201	3	37
Unknown seed treatment*	109	109	.	20

\*Quantities not available for unknown seed treatments

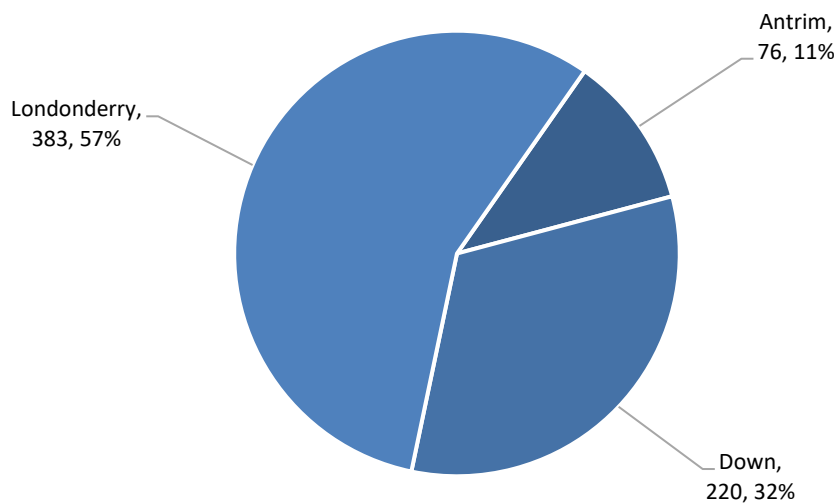


**Pesticide usage on Winter oilseed rape (Tables 3, 5, 6, 7, 8, 9 & 20)**

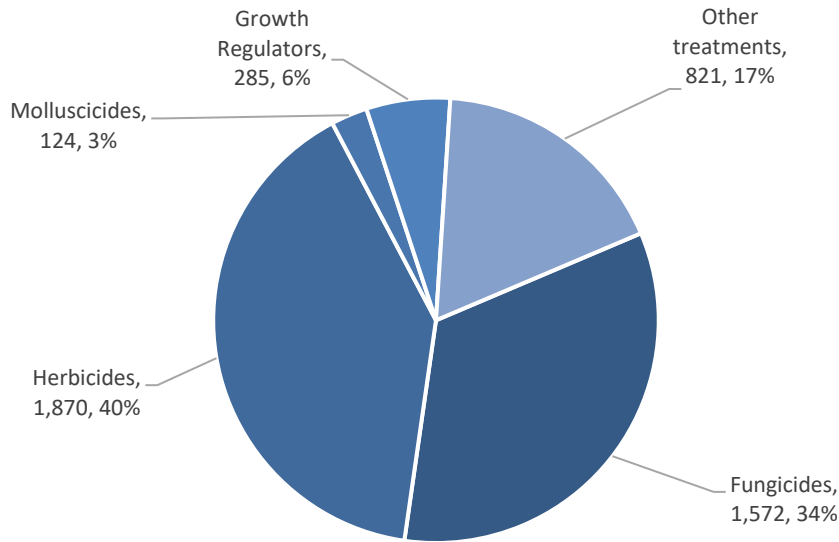
- 678 hectares of winter oilseed rape grown in Northern Ireland
- 4,671 treated hectares
- 2,565 kilogrammes applied
- 100% of the area of winter oilseed rape crops grown received a pesticide treatment
- Winter oilseed rape crops received on average 2 fungicide, 3 herbicide, 1 molluscicide, 1 growth regulator and 1 other treatment application



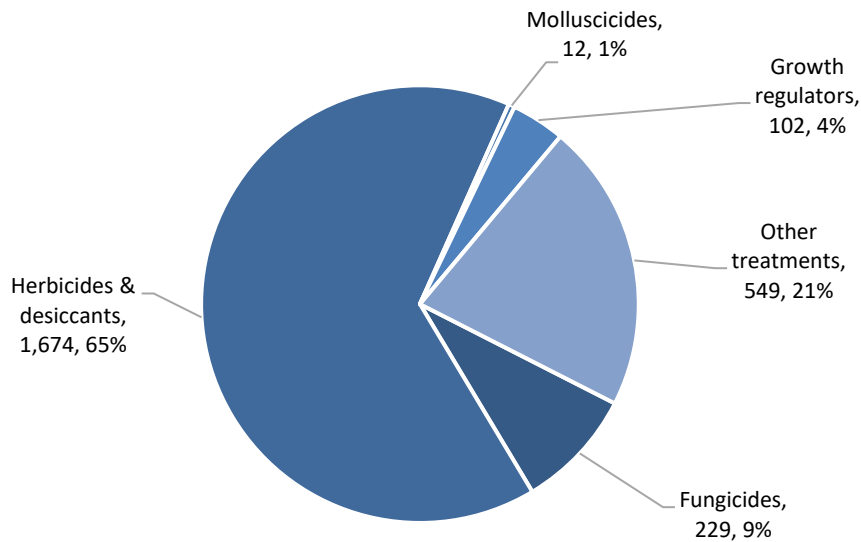
**Figure 83:** Total area (ha) of winter oilseed rape crops grown in Northern Ireland from 1990 to 2022. \*Data specified as ‘oilseed rape’ only.



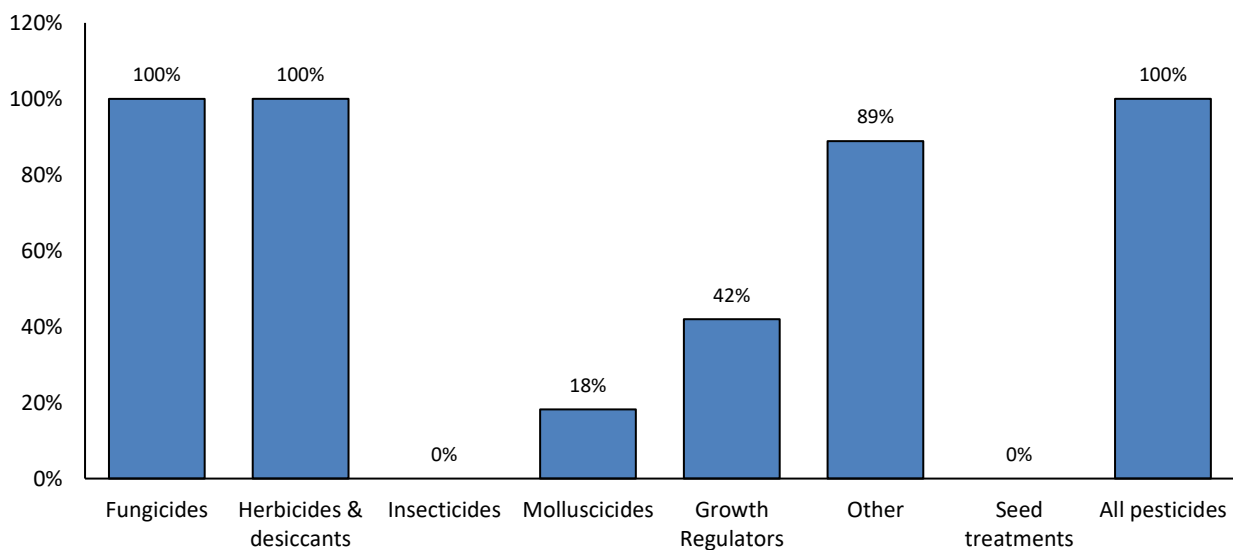
**Figure 84:** Regional distribution (ha) and proportion (%) of winter oilseed rape crops grown in Northern Ireland, 2022.



**Figure 85:** Area (spha) and proportion (%) of winter oilseed rape crops treated with each pesticide type in Northern Ireland, 2022.



**Figure 86:** Weight (kg) and proportion (%) of each pesticide type applied to winter oilseed rape crops in Northern Ireland, 2022.

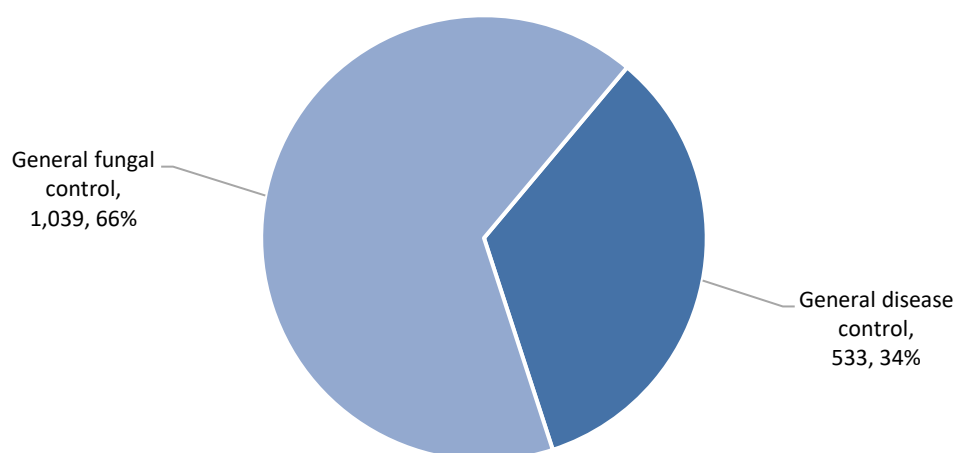


**Figure 87:** Proportional area (%) of winter oilseed rape crops treated with each pesticide type in Northern Ireland, 2022.

## Fungicides – winter oilseed rape

- Basic treated area: 678 hectares
- Total treated area: 1,572 spray hectares
- Quantity applied: 229 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 total fungicide-treated area (spha)
Prothioconazole	449	449	47	29
Prothioconazole/tebuconazole	244	244	46	15
Azoxystrobin	178	178	22	11
Bixafen/prothioconazole	178	178	21	11
Boscalid/metconazole	133	133	23	8

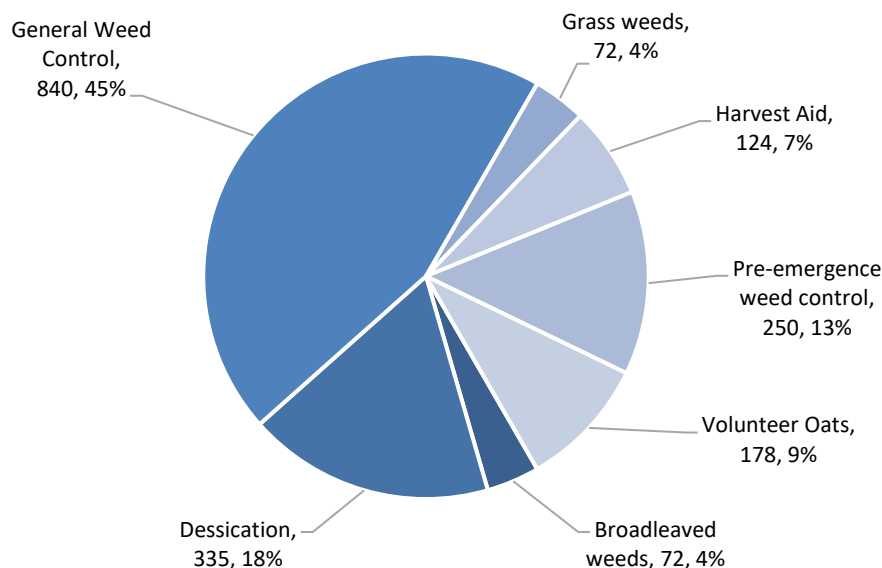


**Figure 88:** Winter oilseed rape: reasons for fungicide use (area [spha] and proportion [%] treated), 2022.

## Herbicides & desiccants – winter oilseed rape

- Basic treated area: 678 hectares
- Total treated area: 1,870 spray hectares
- Quantity applied: 1,674 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 total herbicide-treated area (spha)
Glyphosate	678	678	756	36
Dimethenamid-P/metazachlor/quinmerac	506	506	552	27
Propaquizafop	225	225	25	12
Propyzamide	148	148	100	8
Aminopyralid/metazachlor/picloram	96	96	60	5



**Figure 89:** Winter oilseed rape: reasons for herbicide & desiccant use (area [spha] and proportion [%] treated), 2022.

### Growth regulators – winter oilseed rape

- Basic treated area: 285 hectares
- Total treated area: 285 spray hectares
- Quantity applied: 102 kilogrammes
- 42% of the area grown treated with growth regulators
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total herbicide-treated area (spha)
Mepiquat chloride/metconazole	199	199	67	70
Mepiquat chloride/prohexadione-calcium/pyraclostrobin	85	85	35	30

### Molluscicides – winter oilseed rape

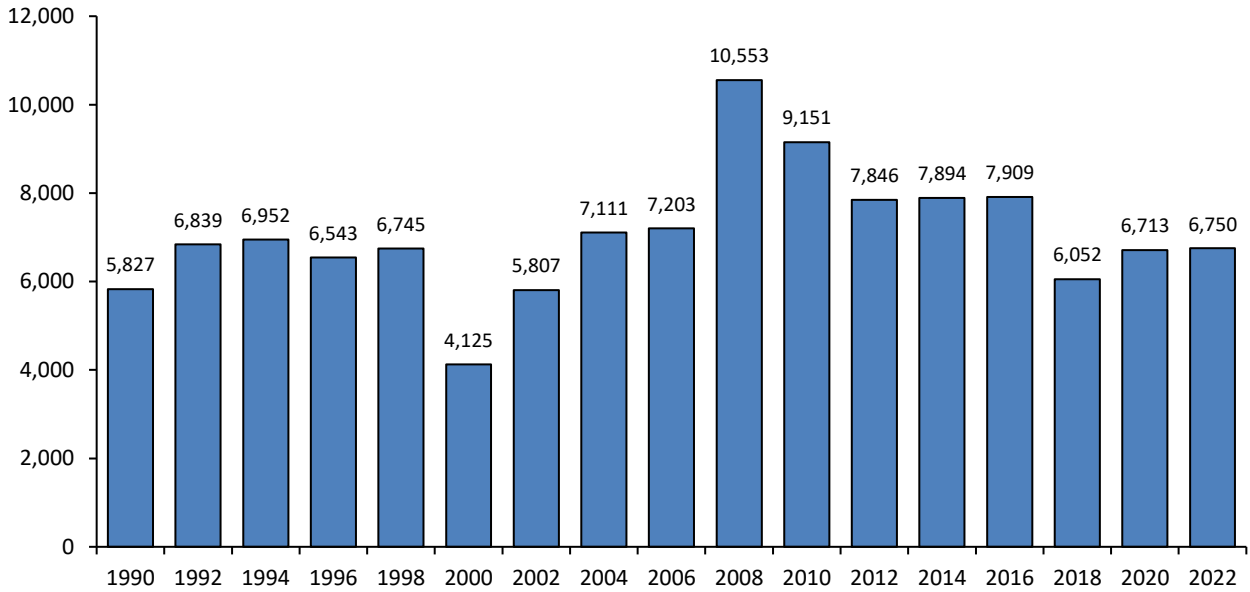
- Basic treated area: 124 hectares
- Total treated area: 124 spray hectares
- Quantity applied: 12 kilogrammes
- 18% of the area grown treated with molluscicides
- The only active substance applied was ferric phosphate
- The only reason given for use was 'slugs'

### Other treatments – winter oilseed rape

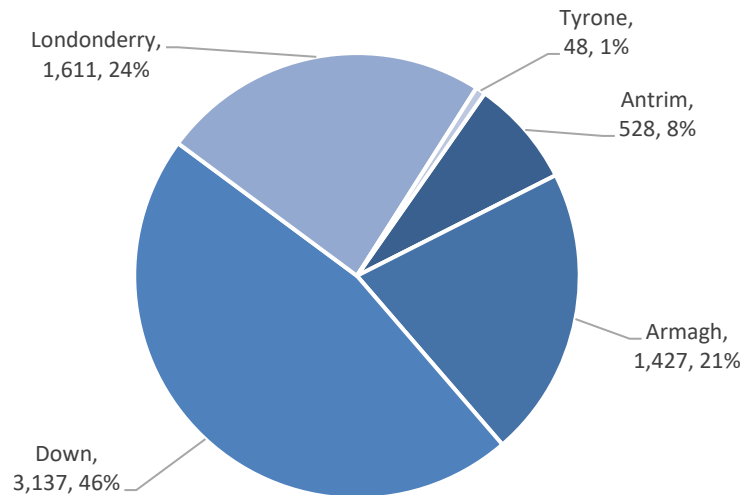
- Basic treated area: 603 hectares
- Total treated area: 821 spray hectares
- Quantity applied: 549 kilogrammes
- 89% of the area grown treated with other treatments
- The substances applied were boron, carboxylated styrene-butadiene and seaweed extract

## Pesticide usage on Winter wheat (Tables 3, 5, 6, 7, 8, 9 & 21)

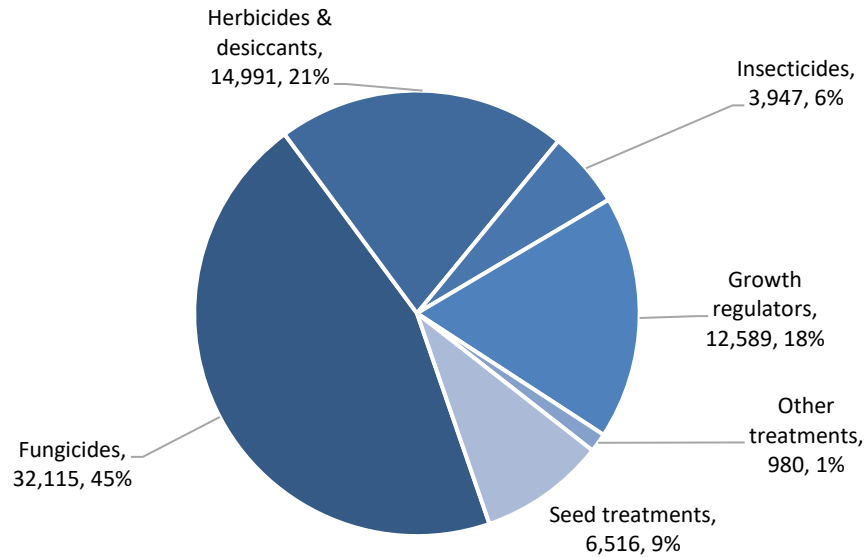
- 6,750 hectares of winter wheat grown in Northern Ireland
- 71,138 treated hectares
- 20,213 kilogrammes applied
- 100% of the area of winter wheat crops grown received a pesticide treatment
- Winter wheat received on average 4 fungicide, 2 herbicide, 1 insecticide, 2 growth regulator, 1 other treatment and 1 seed treatment application



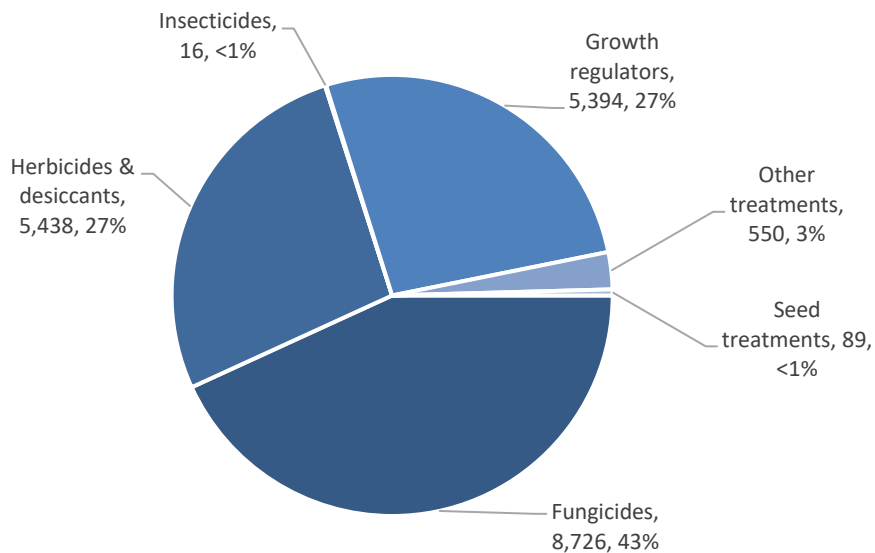
**Figure 90:** Total area (ha) of winter wheat crops grown in Northern Ireland from 1990 to 2022.



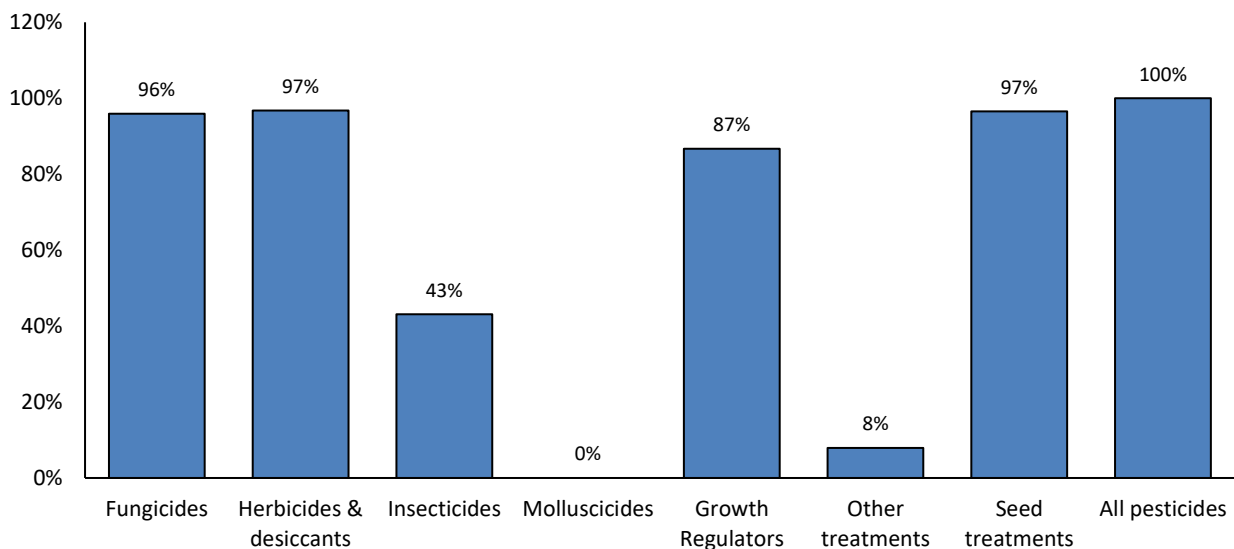
**Figure 91:** Regional distribution (ha) and proportion (%) of winter wheat crops grown in Northern Ireland, 2022.



**Figure 92:** Area (spha) and proportion (%) of winter wheat crops treated with each pesticide type in Northern Ireland, 2022.



**Figure 93:** Weight (kg) and proportion (%) of each pesticide type applied to winter wheat crops in Northern Ireland, 2022.

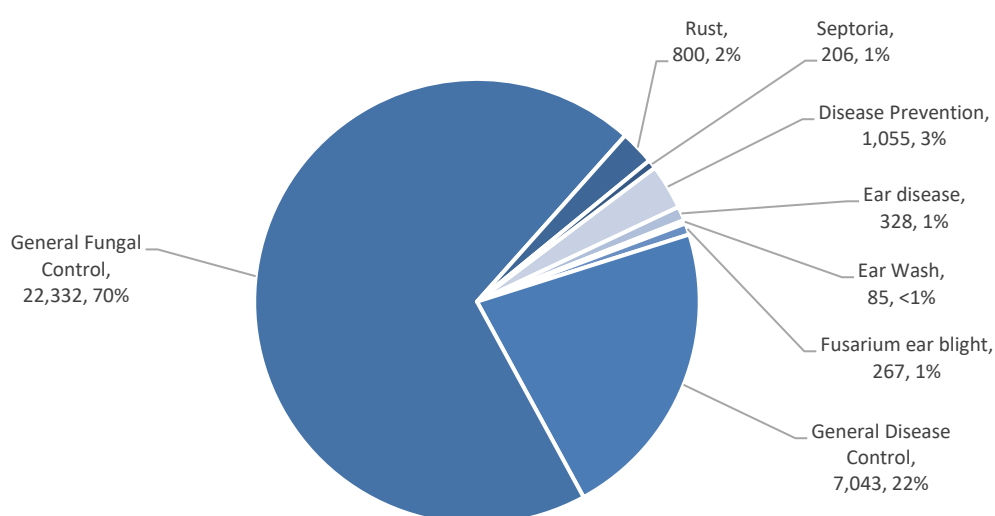


**Figure 94:** Proportional area (%) of winter wheat crops treated with each pesticide type in Northern Ireland, 2022.

## Fungicides - winter wheat

- Basic treated area: 6,477 hectares
- Total treated area: 32,115 spray hectares
- Quantity applied: 8,726 kilogrammes
- 96% 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 total fungicide-treated area (spha)
Folpet	7,641	5,037	4,406	24
Prothioconazole	3,802	2,501	512	12
Fluxapyroxad	3,469	2,136	276	11
Prothioconazole/tebuconazole	3,108	2,780	663	10
Tebuconazole	2,033	1,827	245	6

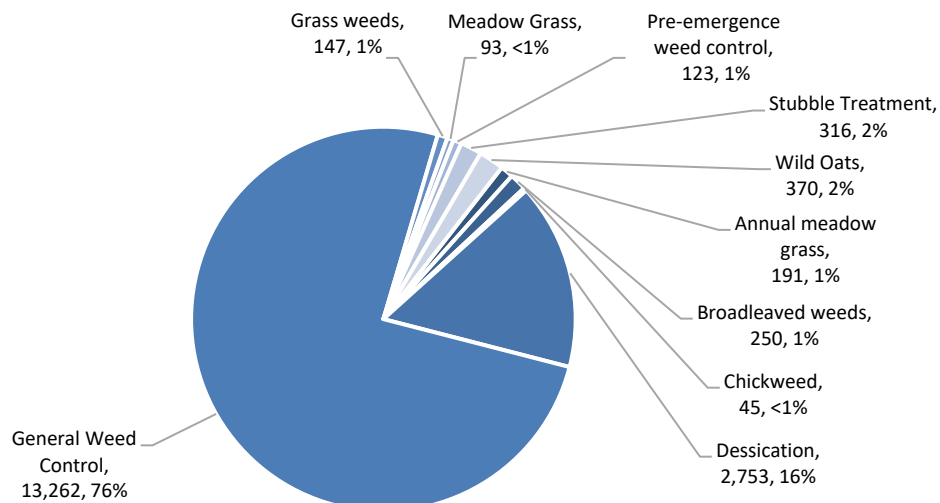


**Figure 95:** Winter wheat: reasons for fungicide use (area [spha] and proportion [%] treated), 2022.

## Herbicides & desiccants - winter wheat

- Basic treated area: 6,532 hectares
- Total treated area: 14,991 spray hectares
- Quantity applied: 5,438 kilogrammes
- 97% 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 total herbicide-treated area (spha)
Florasulam/haloxifen-methyl	2466	2466	18	16
Flufenacet/pendimethalin	2254	2254	2669	15
Diflufenican/flufenacet	1751	1751	291	12
Diflufenican/iodosulfuron-methyl-sodium/mesosulfuron-methyl	1592	1592	93	11
Glyphosate	870	870	601	6

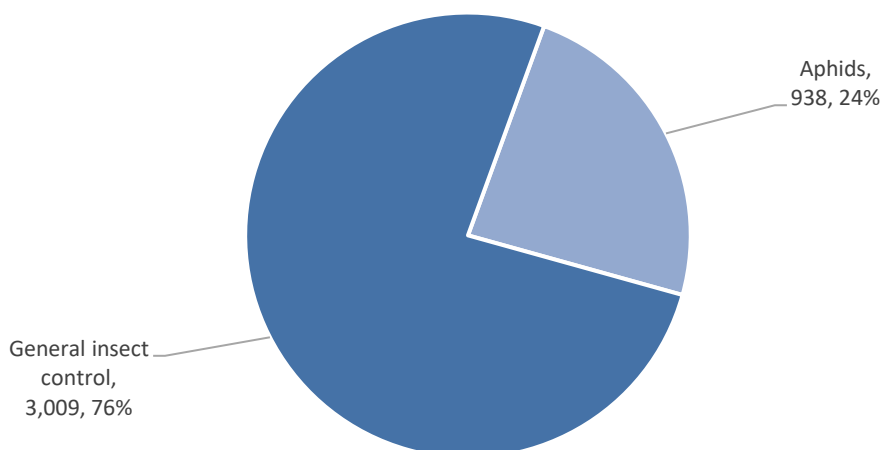


**Figure 96:** Winter wheat: reasons for herbicide & desiccant use (area [spha] and proportion [%] treated), 2022.

### Insecticides - winter wheat

- Basic treated area: 2,910 hectares
- Total treated area: 3,947 spray hectares
- Quantity applied: 16 kilogrammes
- 43% 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 total insecticide-treated area (spha)
Lambda-cyhalothrin	2,066	1,836	8	52
Esfenvalerate	1,882	1,074	8	48



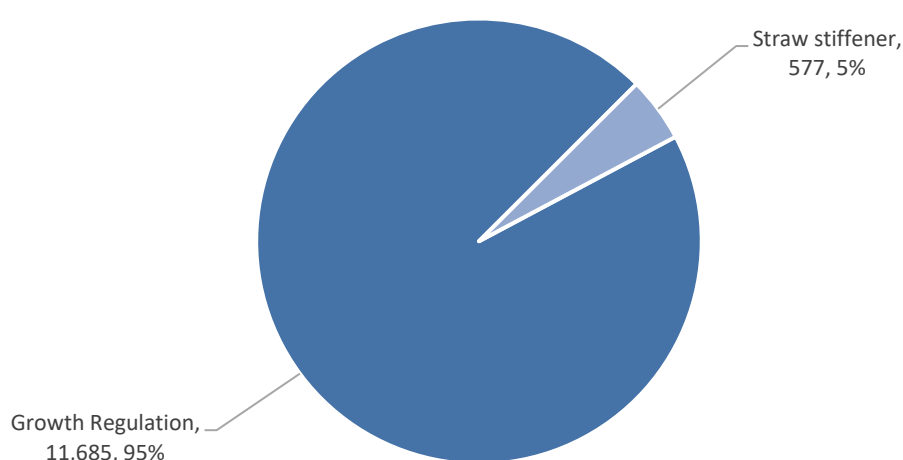
**Figure 97:** Winter wheat: reasons for insecticide use (area [spha] and proportion [%] treated), 2022.



## Growth regulators - winter wheat

- Basic treated area: 5,852 hectares
- Total treated area: 12,589 spray hectares
- Quantity applied: 5,394 kilogrammes
- 87% of the area grown treated with growth regulators
- The active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kgs)	% of the total growth regulator-treated area (spha)
Chlormequat	6,233	4,716	4,768	50
Trinexapac-ethyl	3,780	2,985	163	30
Mepiquat chloride/prohexadione-calcium	1,464	1,464	391	12
Prohexadione-calcium/trinexapac-ethyl	801	801	20	6
2-chloroethylphosphonic acid	312	312	52	2



**Figure 98:** Winter wheat: reasons for growth regulator use (area [spha] and proportion [%] treated), 2022.

## Other treatments - winter wheat

- Basic treated area: 532 hectares
- Total treated area: 980 spray hectares
- Quantity applied: 550 kilogrammes
- 8% of the area grown received other treatments
- The substances applied were manganese and seaweed extract

## Seed treatments - winter wheat

- Basic treated area: 6,516 hectares
- Total treated area: 6,516 spray hectares
- Quantity applied: 89 kilogrammes
- 97% 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 total seed treatment-treated area (spha)
Fludioxonil	3,961	3,961	28	61
Silthiofam	1,603	1,603	44	25
Prothioconazole/tebuconazole	731	731	14	11
Prothioconazole	206	206	4	3
Unknown seed treatment*	15	15	.	<1

\*Quantities not available for unknown seed treatments

**Table 1:** Number of farms in each size class with arable crops in the Northern Ireland June 2022 census and the number of samples from each class.

<i>County</i>	<i>Size group (hectares)</i>												<i>Total</i>	
	<i>&lt; 5</i>		<i>5 &lt; 10</i>		<i>10 &lt; 20</i>		<i>20 &lt; 50</i>		<i>50 &lt; 100</i>		<i>100+</i>		<i>Holdings in size group</i>	<i>Holdings sampled</i>
	<i>Holdings in size group</i>	<i>Holdings sampled</i>	<i>Holdings in size group</i>	<i>Holdings sampled</i>	<i>Holdings in size group</i>	<i>Holdings sampled</i>	<i>Holdings in size group</i>	<i>Holdings sampled</i>	<i>Holdings in size group</i>	<i>Holdings sampled</i>	<i>Holdings in size group</i>	<i>Holdings sampled</i>	<i>Holdings in size group</i>	<i>Holdings sampled</i>
Antrim	186	.	90	.	78	4	53	5	11	1	2	1	420	11
Armagh	55	3	48	.	41	.	17	1	4	.	7	1	172	5
Down	294	1	184	3	149	9	119	7	54	10	13	4	813	34
Fermanagh	4	.	1	.	1	.	1	.	.	.	.	.	7	.
Londonderry	183	2	112	2	85	4	53	4	17	3	15	3	465	18
Tyrone	85	.	50	1	45	1	18	.	8	1	1	.	207	3
<b><i>Northern Ireland</i></b>	<b>807</b>	<b>6</b>	<b>485</b>	<b>6</b>	<b>399</b>	<b>18</b>	<b>261</b>	<b>17</b>	<b>94</b>	<b>15</b>	<b>38</b>	<b>9</b>	<b>2,084</b>	<b>71</b>

**Table 2: Total grown area (ha), total surveyed area (ha), number of crops surveyed and percentage of crops surveyed in Northern Ireland, 2022.**

<b>Crop</b>	<b>Total grown area (ha)</b>	<b>Surveyed area (ha)</b>	<b>Number of crops surveyed</b>	<b>Percentage of crops surveyed</b>
Field beans	160	13	2	8%
Maincrop potatoes	3,084	113	14	4%
Seed potatoes	384	40	2	10%
Spring barley	12,898	931	46	7%
Spring oats	882	42	5	5%
Spring wheat	984	175	4	18%
Winter barley	7,944	995	52	13%
Winter oats	992	60	6	6%
Winter oilseed rape	678	100	7	15%
Winter wheat	6,750	818	37	12%
<b>All crops</b>	<b>34,756</b>	<b>3,288</b>	<b>175</b>	<b>9%</b>

**Table 3: Estimated area (ha) of arable crops grown regionally in Northern Ireland, 2022.**

<i>Crop</i>	County					Northern Ireland
	Antrim	Armagh	Down	Londonderry	Tyrone	
Field beans	.	.	160	.	.	160
Maincrop potatoes	.	469	1,799	815	.	3,084
Seed potatoes	239	.	145	.	.	384
Spring barley	2,436	400	5,386	4,344	332	12,898
Spring oats	.	175	111	313	283	882
Spring wheat	.	.	984	.	.	984
Winter barley	1,095	563	4,334	1,504	448	7,944
Winter oats	447	175	370	.	.	992
Winter oilseed rape	76	.	220	383	.	678
Winter wheat	528	1,427	3,137	1,611	48	6,750
<b>All crops</b>	<b>4,820</b>	<b>3,209</b>	<b>16,646</b>	<b>8,970</b>	<b>1,111</b>	<b>34,756</b>

**Table 4a:** Estimated area (spha) of arable crops treated regionally with each pesticide type in Northern Ireland, 2022.

<i>Pesticide type</i>	<i>County</i>					<i>Northern Ireland</i>
	<i>Antrim</i>	<i>Armagh</i>	<i>Down</i>	<i>Londonderry</i>	<i>Tyrone</i>	
Fungicides	15,114	19,371	59,539	29,376	2,634	126,034
Herbicides & desiccants	14,036	6,173	40,170	27,116	2,635	90,131
Insecticides	3,996	3,201	9,490	3,546	929	21,162
Molluscicides	.	.	1,611	.	.	1,611
Growth regulators	5,682	3,811	18,774	8,309	941	37,517
Other treatments	.	.	2,752	1,734	.	4,486
Seed treatments	3,825	2,897	14,782	7,772	1,111	30,387
<b>All active substances</b>	<b>42,653</b>	<b>35,453</b>	<b>147,119</b>	<b>77,854</b>	<b>8,249</b>	<b>311,328</b>

**Table 4b:** Estimated weight (kg) of active ingredients applied to arable crops regionally with each pesticide type in Northern Ireland, 2022.

<i>Pesticide type</i>	<i>County</i>					<i>Northern Ireland</i>
	<i>Antrim</i>	<i>Armagh</i>	<i>Down</i>	<i>Londonderry</i>	<i>Tyrone</i>	
Fungicides	4,184	5,764	19,439	8,072	499	37,957
Herbicides & desiccants	5,669	3,147	16,018	9,441	1,183	35,458
Insecticides	78	12	59	19	2	170
Molluscicides	.	.	154	.	.	154
Growth regulators	2,324	1,209	7,876	3,609	203	15,220
Other treatments	.	.	1,632	1,296	.	2,928
Seed treatments	63	35	468	83	14	663
<b>All active substances</b>	<b>12,319</b>	<b>10,166</b>	<b>45,645</b>	<b>22,520</b>	<b>1,901</b>	<b>92,551</b>

**Table 5: The total treated area (spha) and the basic treated area (ha) of arable crops treated with each pesticide type in Northern Ireland, 2022.**

Crop	Pesticide type															
	Fungicides		Herbicides & dessicants		Insecticides		Molluscicides		Growth regulators		Other		Seed treatments		All pesticides	
	Sp ha	ha	Sp ha	ha	Sp ha	ha	Sp ha	ha	Sp ha	ha	Sp ha	ha	Sp ha	ha	Sp ha	ha
Field beans	93	47	207	160	.	.	.	.	.	.	.	.	.	.	300	160
Maincrop potatoes	32,329	3,084	12,863	3,084	2,514	1,907	1,487	945	178	178	.	.	2,192	1,649	51,564	3,084
Seed potatoes	5,415	384	2,972	384	1,725	384	.	.	.	.	.	.	145	145	10,256	384
Spring barley	25,264	11,260	31,649	11,947	7,695	7,259	.	.	10,774	8,489	1,551	976	12,401	12,401	89,333	12,898
Spring oats	1,425	882	1,846	882	689	432	.	.	766	458	.	.	882	882	5,607	882
Spring wheat	673	596	1,788	596	.	.	.	.	520	520	.	.	147	147	3,128	596
Winter barley	25,911	7,485	18,898	7,282	4,278	3,655	.	.	10,471	6,589	672	585	7,560	7,433	67,790	7,882
Winter oats	1,237	545	3,048	912	314	314	.	.	1,935	992	462	231	545	545	7,540	992
Winter oilseed rape	1,572	678	1,870	678	.	.	124	124	285	285	821	603	.	.	4,671	678
Winter wheat	32,115	6,477	14,991	6,532	3,947	2,910	.	.	12,589	5,852	980	532	6,516	6,516	71,138	6,750
<b>Total</b>	<b>126,034</b>	<b>31,437</b>	<b>90,131</b>	<b>32,457</b>	<b>21,162</b>	<b>16,861</b>	<b>1,611</b>	<b>1,068</b>	<b>37,517</b>	<b>23,361</b>	<b>4,486</b>	<b>2,926</b>	<b>30,387</b>	<b>29,718</b>	<b>311,328</b>	<b>34,306</b>

**Table 6: Total quantities (kg) of each pesticide type used on arable crops in Northern Ireland, 2022.**

<i>Pesticide type</i>	<i>Pesticide type</i>							<i>All pesticides</i>
	<i>Fungicides</i>	<i>Herbicides &amp; desiccants</i>	<i>Insecticides</i>	<i>Molluscicides</i>	<i>Growth regulators</i>	<i>Other</i>	<i>Seed treatments</i>	
Field beans	21	217	.	.	.	.	.	238
Maincrop potatoes	13,040	8,269	19	142	534	.	326	22,330
Seed potatoes	2,171	2,352	66	.	.	.	.	4,589
Spring barley	6,172	7,328	35	.	3,419	935	127	18,016
Spring oats	233	950	2	.	148	.	7	1,340
Spring wheat	191	115	.	.	398	.	3	707
Winter barley	6,908	8,433	31	.	4,098	396	106	19,972
Winter oats	267	682	1	.	1,127	498	6	2,581
Winter oilseed rape	229	1,674	.	12	102	549	.	2,565
Winter wheat	8,726	5,438	16	.	5,394	550	89	20,213
<b>Total</b>	<b>37,957</b>	<b>35,458</b>	<b>170</b>	<b>154</b>	<b>15,220</b>	<b>2,928</b>	<b>663</b>	<b>92,551</b>

**Table 7:** The proportional area (%) of each crop treated with pesticides and the mean number of spray applications (sp apps) applied to each crop in Northern Ireland, 2022.

Crop	Pesticide type															
	Fungicides		Herbicides & desiccants		Insecticides		Molluscicides		Growth regulators		Other		Seed treatments		All pesticides	
	%	sp apps	%	sp apps	%	sp apps	%	sp apps	%	sp apps	%	sp apps	%	sp apps	%	sp apps
Field beans	29%	2	100%	1	.	.	.	.	.	.	.	.	.	.	100%	2
Maincrop potatoes	100%	11	100%	3	62%	1	31%	1	6%	1	.	.	53%	1	100%	5
Seed potatoes	100%	7	100%	5	100%	2	.	.	.	.	.	.	38%	1	100%	4
Spring barley	87%	2	93%	2	56%	1	.	.	66%	1	8%	1	96%	1	100%	1
Spring oats	100%	2	100%	1	49%	1	.	.	52%	1	.	.	100%	1	100%	1
Spring wheat	61%	1	61%	3	.	.	.	.	53%	1	.	.	15%	1	61%	2
Winter barley	94%	3	92%	2	46%	1	.	.	83%	1	7%	1	94%	1	99%	2
Winter oats	55%	2	92%	2	32%	1	.	.	100%	1	23%	2	55%	1	100%	1
Winter oilseed rape	100%	2	100%	3	.	.	18%	1	42%	1	89%	1	.	.	100%	2
Winter wheat	96%	4	97%	2	43%	1	.	.	87%	2	8%	1	97%	1	100%	2
<b>Total</b>	<b>90%</b>	<b>4</b>	<b>93%</b>	<b>2</b>	<b>49%</b>	<b>1</b>	<b>3%</b>	<b>1</b>	<b>67%</b>	<b>1</b>	<b>8%</b>	<b>1</b>	<b>86%</b>	<b>1</b>	<b>99%</b>	<b>2</b>



**Table 8: Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland, 2022.**

Pesticide group & active substance	Crop type										All crops	
	Field beans	Maincrop potatoes	Seed potatoes	Spring barley	Spring oats	Spring wheat	Winter barley	Winter oats	Winter oilseed rape	Winter wheat		
<b>Fungicides</b>												
Ametoctradin/dimethomorph	.	883	239	.	.	.	.	.	.	.	.	1,122
Amisulbrom	.	4,080	957	.	.	.	.	.	.	.	.	5,037
Azoxystrobin	.	543	.	.	.	.	.	178	.	1,688	.	2,408
Benthiavali carb/oxathiapiprolin	.	5,570	1,246	.	.	.	.	.	.	.	.	6,817
Benthiavali carb-isopropyl/mancozeb	.	258	.	.	.	.	.	.	.	.	.	258
Benzovindiflupyr	.	.	.	831	.	.	801	.	.	.	.	1,632
Benzovindiflupyr/prothioconazole	.	.	.	472	.	.	763	80	.	.	140	1,455
Bixafen/fluopyram/prothioconazole	.	.	.	623	.	.	655	.	.	.	1,824	3,102
Bixafen/prothioconazole	.	.	.	3,196	.	.	3,025	201	178	.	1,659	8,259
Bixafen/prothioconazole/spiroxamine	.	.	.	1,686	.	.	1,559	118	.	.	757	4,119
Bixafen/prothioconazole/tebuconazole	.	.	.	.	.	.	.	.	.	.	460	460
Boscalid/metconazole	.	.	.	.	.	.	.	.	133	.	.	133
Boscalid/pyraclostrobin	47	.	.	.	.	.	.	.	.	.	.	47
Bromuconazole/tebuconazole	.	.	.	.	.	.	.	.	.	.	758	758
Cyazofamid	.	5,350	623	.	.	.	.	.	.	.	.	5,973
Cyflufenamid	.	.	.	.	111	.	.	.	.	.	.	111
Cymoxanil	.	792	239	.	.	.	.	.	.	.	.	1,031
Cymoxanil/propamocarb hydrochloride	.	1,954	1,246	.	.	.	.	.	.	.	.	3,201
Cymoxanil/zoxamide	.	178	.	.	.	.	.	.	.	.	.	178
Cyprodinil	.	.	.	982	.	.	850	.	.	.	.	1,831
Difenoconazole/paclobotrazol	.	.	.	.	.	.	.	.	96	.	.	96
Dimethomorph/propamocarb hydrochloride	.	543	.	.	.	.	.	.	.	.	.	543
Epoxiconazole	.	.	.	.	.	.	377	.	.	.	808	1,185
Fenpicoxamid	.	.	.	.	.	.	.	.	.	.	282	282
Fenpicoxamid/prothioconazole	.	.	.	.	.	.	.	.	.	.	194	194
Fluazinam	.	993	239	.	.	.	.	.	.	.	.	1,232
Fluopicolide/propamocarb hydrochloride	.	6,933	384	.	.	.	.	.	.	.	.	7,317
Fluopyram/prothioconazole	.	.	.	.	.	.	.	.	124	.	.	124
Fluoxastrobin/prothioconazole	.	.	.	.	.	.	517	.	.	.	.	517
Fluoxastrobin/prothioconazole/trifloxystrobin	.	.	.	.	.	.	156	.	.	.	.	156
Fluxapyroxad	.	.	.	1,149	.	.	1,292	.	.	.	3,469	5,911
Fluxapyroxad/mefentrifluconazole	.	.	.	.	.	76	461	.	.	.	1,817	2,354

**Table 8 contd:** Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland, 2022.

<i>Pesticide group &amp; active substance</i>	<i>Crop type</i>										<i>All crops</i>
	<i>Field beans</i>	<i>Maincrop potatoes</i>	<i>Seed potatoes</i>	<i>Spring barley</i>	<i>Spring oats</i>	<i>Spring wheat</i>	<i>Winter barley</i>	<i>Winter oats</i>	<i>Winter oilseed rape</i>	<i>Winter wheat</i>	
<b><i>Fungicides</i></b>											
Fluxapyroxad/pyraclostrobin	.	.	.	.	.	.	788	.	.	.	788
Folpet	.	.	.	4,732	.	.	5,733	.	.	7,641	18,106
Mandipropamid	.	2,931	239	.	.	.	.	.	.	.	3,171
Mefentrifluconazole	.	.	.	.	.	.	.	.	.	835	835
Metconazole	.	.	.	.	.	.	.	.	48	.	48
Oxathiapiprolin	.	1,322	.	.	.	.	.	.	.	.	1,322
Proquinazid	.	.	.	.	26	.	.	.	.	.	26
Prothioconazole	.	.	.	4,081	570	.	4,463	122	449	3,802	13,486
Prothioconazole/spiroxamine	.	.	.	438	111	.	722	.	.	48	1,319
Prothioconazole/spiroxamine/tebuconazole	.	.	.	.	.	.	278	.	.	.	278
Prothioconazole/tebuconazole	.	.	.	845	175	520	101	175	244	3,108	5,167
Prothioconazole/trifloxystrobin	.	.	.	3,602	.	76	1,674	.	.	251	5,603
Pyraclostrobin	.	.	.	697	.	.	491	168	.	276	1,632
Tebuconazole	47	.	.	935	175	.	138	293	124	2,033	3,744
Trifloxystrobin	.	.	.	682	.	.	1,067	.	.	.	1,749
Unknown fungicide	.	.	.	313	257	.	.	80	.	267	916
<b>All fungicides</b>	<b>93</b>	<b>32,329</b>	<b>5,415</b>	<b>25,264</b>	<b>1,425</b>	<b>673</b>	<b>25,911</b>	<b>1,237</b>	<b>1,572</b>	<b>32,115</b>	<b>126,034</b>

**Table 8 contd:** Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland, 2022.

Pesticide group & active substance	Crop type										All crops
	Field beans	Maincrop potatoes	Seed potatoes	Spring barley	Spring oats	Spring wheat	Winter barley	Winter oats	Winter oilseed rape	Winter wheat	
<b>Herbicides &amp; desiccants</b>											
Amidosulfuron/iodosulfuron-methyl-sodium	.	.	.	584	.	.	.	.	.	.	584
Amidosulfuron/iodosulfuron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	.	.	.	.	.	448	448
Aminopyralid/metazachlor/picloram	.	.	.	.	.	.	.	.	96	.	96
Carbetamide	.	.	.	.	.	.	.	.	96	.	96
Carfentrazone-ethyl	.	3,435	528	.	.	.	.	.	.	.	3,964
Clomazone	.	.	.	.	.	.	.	.	48	.	48
Clopyralid/florasulam/fluroxypyr	.	.	.	409	.	.	.	.	.	.	409
Dicamba/MCPA/mecoprop-p	.	.	.	522	.	.	.	.	.	.	522
Dicamba/mecoprop-p	.	.	.	847	.	.	.	.	.	128	975
Diflufenican	.	.	.	1,208	.	.	2,096	59	.	734	4,097
Diflufenican/flufenacet	.	.	.	2,005	.	76	2,018	556	.	1,751	6,406
Diflufenican/flufenacet/metribuzin	.	.	.	.	.	.	115	.	.	157	272
Diflufenican/iodosulfuron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	.	.	.	.	.	1,592	1,592
Dimethenamid-P/metazachlor/quinmerac	.	.	.	.	.	.	.	.	506	.	506
Fenoxaprop-P-ethyl	.	.	.	.	.	.	177	.	.	.	177
Florasulam	.	.	.	.	.	.	371	.	.	.	371
Florasulam/fluroxypyr	.	.	.	479	.	.	.	.	.	201	680
Florasulam/halauxifen-methyl	.	.	.	3,700	313	520	991	.	.	2,466	7,990
Florasulam/pyroxsulam	.	.	.	.	.	.	.	.	.	531	531
Flufenacet/pendimethalin	.	.	.	402	.	.	3,115	.	.	2,254	5,770
Flufenacet/picolinafen	.	.	.	.	.	.	745	.	.	.	745
Fluroxypyr	.	.	.	3,562	137	.	404	506	.	637	5,247
Fluroxypyr/halauxifen-methyl	.	.	.	748	.	.	345	.	.	50	1,143
Fluroxypyr/metsulfuron-methyl	.	.	.	.	.	.	129	.	.	.	129
Glyphosate	47	2,049	718	4,320	570	.	2,355	447	678	870	12,053
Halauxifen-methyl/picloram	.	.	.	.	.	.	.	.	72	.	72
Imazamox/pendimethalin	114	.	.	.	.	.	.	.	.	.	114
Iodosulfuron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	.	.	.	.	.	728	728
MCPA	.	.	.	828	257	.	.	.	.	.	1,085
Mecoprop-P	.	.	.	.	.	.	63	122	.	285	470
Mesosulfuron-methyl/propoxycarbazone-sodium	.	.	.	.	.	.	.	.	.	197	197
Metribuzin	.	3,084	623	.	.	.	.	.	.	.	3,707

**Table 8 contd:** Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland, 2022.

<i>Pesticide group &amp; active substance</i>	<i>Crop type</i>										<i>All crops</i>
	<i>Field beans</i>	<i>Maincrop potatoes</i>	<i>Seed potatoes</i>	<i>Spring barley</i>	<i>Spring oats</i>	<i>Spring wheat</i>	<i>Winter barley</i>	<i>Winter oats</i>	<i>Winter oilseed rape</i>	<i>Winter wheat</i>	
<b><i>Herbicides &amp; desiccants</i></b>											
Metsulfuron-methyl	.	.	.	3,434	175	520	1,236	284	.	441	6,090
Metsulfuron-methyl/thifensulfuron-methyl	.	.	.	396	.	.	.	.	.	.	396
Metsulfuron-methyl/tribenuron-methyl	.	.	.	4,849	257	76	1,197	122	.	328	6,829
Pendimethalin	47	.	.	609	.	76	675	447	.	100	1,954
Pendimethalin/picolinafen	.	.	.	521	.	.	899	.	.	752	2,172
Pinoxaden	.	.	.	840	.	520	1,511	.	.	140	3,011
Propaquizafop	.	58	.	.	.	.	.	.	225	.	284
Propyzamide	.	.	.	.	.	.	.	.	148	.	148
Prosulfocarb	.	2,286	623	.	.	.	129	.	.	201	3,239
Pyraflufen-ethyl	.	1,951	479	.	.	.	.	.	.	.	2,430
Thifensulfuron-methyl/tribenuron-methyl	.	.	.	1,386	137	.	327	506	.	.	2,355
<b>All herbicides</b>	<b>207</b>	<b>12,863</b>	<b>2,972</b>	<b>31,649</b>	<b>1,846</b>	<b>1,788</b>	<b>18,898</b>	<b>3,048</b>	<b>1,870</b>	<b>14,991</b>	<b>90,131</b>

**Table 8 contd:** Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland, 2022.

<i>Pesticide group &amp; active substance</i>	<i>Crop type</i>								<i>All crops</i>
	<i>Maincrop potatoes</i>	<i>Seed potatoes</i>	<i>Spring barley</i>	<i>Spring oats</i>	<i>Winter barley</i>	<i>Winter oats</i>	<i>Winter oilseed rape</i>	<i>Winter wheat</i>	
<b><i>Insecticides</i></b>									
Acetamiprid	.	479	.	.	.	.	.	.	479
Esfenvalerate	.	145	3,591	689	1,171	234	.	1,882	7,712
Flonicamid	.	479	.	.	202	.	.	.	681
Lambda-cyhalothrin	2,514	479	4,104	.	2,905	80	.	2,066	12,147
Unknown insecticide	.	145	.	.	.	.	.	.	145
<b>All insecticides</b>	<b>2,514</b>	<b>1,725</b>	<b>7,695</b>	<b>689</b>	<b>4,278</b>	<b>314</b>	<b>.</b>	<b>3,947</b>	<b>21,162</b>
<b><i>Molluscicides</i></b>									
Ferric phosphate	1,487	.	.	.	.	.	124	.	1,611
<b>All molluscicides</b>	<b>1,487</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>124</b>	<b>.</b>	<b>1,611</b>

**Table 8 contd:** Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland, 2022.

<i>Pesticide group &amp; active substance</i>	<i>Crop type</i>								
	Maincrop potatoes	Spring barley	Spring oats	Spring wheat	Winter barley	Winter oats	Winter oilseed rape	Winter wheat	All crops
<b><i>Growth regulators</i></b>									
2-chloroethylphosphonic acid	.	1,016	.	.	379	.	.	312	1,707
Chlormequat	.	4,055	201	520	4,350	1,317	.	6,233	16,675
Chlormequat chloride	.	.	.	.	.	122	.	.	122
Maleic hydrazide	178	.	.	.	.	.	.	.	178
Mepiquat chloride/metconazole	.	.	.	.	.	.	199	.	199
Mepiquat chloride/prohexadione-calcium	.	719	26	.	685	59	.	1,464	2,952
Mepiquat chloride/prohexadione-calcium/pyraclostrobin	.	.	.	.	.	.	85	.	85
Prohexadione-calcium/trinexapac-ethyl	.	379	514	.	1,748	109	.	801	3,551
Trinexapac-ethyl	.	4,605	26	.	3,310	328	.	3,780	12,049
<b>All growth regulators</b>	<b>178</b>	<b>10,774</b>	<b>766</b>	<b>520</b>	<b>10,471</b>	<b>1,935</b>	<b>285</b>	<b>12,589</b>	<b>37,517</b>
<b><i>Other active substances</i></b>									
Boron	.	.	.	.	.	.	171	.	171
Carboxylated styrene-butadiene	.	.	.	.	.	.	144	.	144
Manganese	.	689	.	.	301	243	.	896	2,129
Nitrogen/phosphate/potassium	.	.	.	.	118	.	.	.	118
Seaweed extract	.	862	.	.	253	219	72	83	1,489
Synthetic latex	.	.	.	.	.	.	434	.	434
<b>All others</b>	<b>.</b>	<b>1,551</b>	<b>.</b>	<b>.</b>	<b>672</b>	<b>462</b>	<b>821</b>	<b>980</b>	<b>4,486</b>

**Table 8 contd:** Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland, 2022.

<i>Pesticide group &amp; active substance</i>	<i>Crop type</i>								
	Maincrop potatoes	Seed potatoes	Spring barley	Spring oats	Spring wheat	Winter barley	Winter oats	Winter wheat	All crops
<b>Seed treatments</b>									
Fludioxonil	.	.	9,454	625	71	4,047	234	3,961	18,391
Fludioxonil/fluxapyroxad/triticonazole	.	.	.	.	.	964	.	.	964
Fluopyram/prothioconazole/tebuconazole	.	.	.	.	.	126	.	.	126
Flutolanil	1,056	.	.	.	.	.	.	.	1,056
Imazalil	878	.	.	.	.	.	.	.	878
Imazalil/ipconazole	.	.	519	.	.	531	.	.	1,050
Prothioconazole	.	.	.	.	.	162	201	206	570
Prothioconazole/tebuconazole	.	.	1,389	.	76	1,281	.	731	3,477
Silthiofam	.	.	.	.	.	170	.	1,603	1,773
Unknown seed treatment	258	145	1,039	257	.	280	109	15	2,103
<b>All seed treatments</b>	<b>2,192</b>	<b>145</b>	<b>12,401</b>	<b>882</b>	<b>147</b>	<b>7,560</b>	<b>545</b>	<b>6,516</b>	<b>30,387</b>

**Table 9: Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland, 2022.**

Pesticide group & active substance	Crop type										All crops	
	Field beans	Maincrop potatoes	Seed potatoes	Spring barley	Spring oats	Spring wheat	Winter barley	Winter oats	Winter oilseed rape	Winter wheat		
<b>Fungicides</b>												
Ametoctradin/dimethomorph	.	303	101	.	.	.	.	.	.	.	.	403
Amisulbrom	.	353	57	.	.	.	.	.	.	.	.	410
Azoxystrobin	.	339	.	.	.	.	.	.	22	343	.	704
Benthiavali carb/oxathiapiprolin	.	206	26	.	.	.	.	.	.	.	.	232
Benthiavali carb-isopropyl/mancozeb	.	296	.	.	.	.	.	.	.	.	.	296
Benzovindiflupyr	.	.	.	42	.	.	48	.	.	.	.	90
Benzovindiflupyr/prothioconazole	.	.	.	80	.	.	134	18	.	25	.	257
Bixafen/fluopyram/prothioconazole	.	.	.	93	.	.	96	.	.	284	.	473
Bixafen/prothioconazole	.	.	.	545	.	.	597	36	21	434	.	1,633
Bixafen/prothioconazole/spiroxamine	.	.	.	678	.	.	622	28	.	426	.	1,754
Bixafen/prothioconazole/tebuconazole	.	.	.	.	.	.	.	.	.	131	.	131
Boscalid/metconazole	.	.	.	.	.	.	.	.	23	.	.	23
Boscalid/pyraclostrobin	16	.	.	.	.	.	.	.	.	.	.	16
Bromuconazole/tebuconazole	.	.	.	.	.	.	.	.	.	205	.	205
Cyazofamid	.	427	50	.	.	.	.	.	.	.	.	477
Cyflufenamid	.	.	.	.	1	.	.	.	.	.	.	1
Cymoxanil	.	83	29	.	.	.	.	.	.	.	.	112
Cymoxanil/propamocarb hydrochloride	.	2,128	1,402	.	.	.	.	.	.	.	.	3,530
Cymoxanil/zoxamide	.	53	.	.	.	.	.	.	.	.	.	53
Cyprodinil	.	.	.	262	.	.	311	.	.	.	.	573
Difenoconazole/paclobotrazol	.	.	.	.	.	.	.	.	11	.	.	11
Dimethomorph/propamocarb hydrochloride	.	641	.	.	.	.	.	.	.	.	.	641
Epoxiconazole	.	.	.	.	.	.	41	.	.	76	.	117
Fenpicoxamid	.	.	.	.	.	.	.	.	.	18	.	18
Fenpicoxamid/prothioconazole	.	.	.	.	.	.	.	.	.	35	.	35
Fluazinam	.	239	48	.	.	.	.	.	.	.	.	287
Fluopicolide/propamocarb hydrochloride	.	7,525	422	.	.	.	.	.	.	.	.	7,948
Fluopyram/prothioconazole	.	.	.	.	.	.	.	.	25	.	.	25
Fluoxastrobin/prothioconazole	.	.	.	.	.	.	102	.	.	.	.	102
Fluoxastrobin/prothioconazole/trifloxystrobin	.	.	.	.	.	.	31	.	.	.	.	31
Fluxapyroxad	.	.	.	89	.	.	105	.	.	276	.	469
Fluxapyroxad/mefentrifluconazole	.	.	.	.	.	11	64	.	.	319	.	394



**Table 9 contd:** Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland, 2022.

<i>Pesticide group &amp; active substance</i>	<i>Crop type</i>										<i>All crops</i>
	<i>Field beans</i>	<i>Maincrop potatoes</i>	<i>Seed potatoes</i>	<i>Spring barley</i>	<i>Spring oats</i>	<i>Spring wheat</i>	<i>Winter barley</i>	<i>Winter oats</i>	<i>Winter oilseed rape</i>	<i>Winter wheat</i>	
<b><i>Fungicides</i></b>											
Fluxapyroxad/pyraclostrobin	.	.	.	.	.	.	142	.	.	.	142
Folpet	.	.	.	2,593	.	.	3,101	.	.	4,406	10,099
Mandipropamid	.	426	36	.	.	.	.	.	.	.	462
Mefentrifluconazole	.	.	.	.	.	.	.	.	.	93	93
Metconazole	.	.	.	.	.	.	.	.	3	.	3
Oxathiapiprolin	.	20	.	.	.	.	.	.	.	.	20
Proquinazid	.	.	.	.	1	.	.	.	.	.	1
Prothioconazole	.	.	.	605	113	.	615	19	47	512	1,911
Prothioconazole/spiroxamine	.	.	.	101	33	.	236	.	.	14	384
Prothioconazole/spiroxamine/tebuconazole	.	.	.	.	.	.	132	.	.	.	132
Prothioconazole/tebuconazole	.	.	.	135	42	160	31	42	46	663	1,118
Prothioconazole/trifloxystrobin	.	.	.	629	.	19	290	.	.	56	994
Pyraclostrobin	.	.	.	39	.	.	54	26	.	32	152
Tebuconazole	6	.	.	113	44	.	8	58	31	245	505
Trifloxystrobin	.	.	.	170	.	.	144	.	.	.	315
Unknown fungicide	.	.	.	.	.	.	.	40	.	133	173
<b>All fungicides</b>	<b>21</b>	<b>13,040</b>	<b>2,171</b>	<b>6,172</b>	<b>233</b>	<b>191</b>	<b>6,908</b>	<b>267</b>	<b>229</b>	<b>8,726</b>	<b>37,957</b>

**Table 9 contd: Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland, 2022.**

Pesticide group & active substance	Crop type										All crops
	Field beans	Maincrop potatoes	Seed potatoes	Spring barley	Spring oats	Spring wheat	Winter barley	Winter oats	Winter oilseed rape	Winter wheat	
<b>Herbicides &amp; desiccants</b>											
Amidosulfuron/iodosulfuron-methyl-sodium	.	.	.	14	.	.	.	.	.	.	14
Amidosulfuron/iodosulfuron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	.	.	.	.	.	20	20
Aminopyralid/metazachlor/picloram	.	.	.	.	.	.	.	.	60	.	60
Carbetamide	.	.	.	.	.	.	.	.	173	.	173
Carfentrazone-ethyl	.	175	26	.	.	.	.	.	.	.	201
Clomazone	.	.	.	.	.	.	.	.	6	.	6
Clopyralid/florasulam/fluroxypyr	.	.	.	62	.	.	.	.	.	.	62
Dicamba/MCPA/mecoprop-p	.	.	.	804	.	.	.	.	.	.	804
Dicamba/mecoprop-p	.	.	.	433	.	.	.	.	.	53	485
Diflufenican	.	.	.	64	.	.	160	6	.	51	281
Diflufenican/flufenacet	.	.	.	296	.	14	498	100	.	291	1,199
Diflufenican/flufenacet/metribuzin	.	.	.	.	.	.	23	.	.	31	54
Diflufenican/iodosulfuron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	.	.	.	.	.	93	93
Dimethenamid-P/metazachlor/quinmerac	.	.	.	.	.	.	.	.	552	.	552
Fenoxaprop-P-ethyl	.	.	.	.	.	.	12	.	.	.	12
Florasulam	.	.	.	.	.	.	2	.	.	.	2
Florasulam/fluroxypyr	.	.	.	49	.	.	.	.	.	31	80
Florasulam/halauxifen-methyl	.	.	.	29	3	6	8	.	.	18	63
Florasulam/pyroxsulam	.	.	.	.	.	.	.	.	.	12	12
Flufenacet/pendimethalin	.	.	.	289	.	.	3,919	.	.	2,669	6,878
Flufenacet/picolinafen	.	.	.	.	.	.	143	.	.	.	143
Fluroxypyr	.	.	.	565	18	.	67	98	.	104	851
Fluroxypyr/halauxifen-methyl	.	.	.	98	.	.	40	.	.	6	144
Fluroxypyr/metsulfuron-methyl	.	.	.	.	.	.	20	.	.	.	20
Glyphosate	21	1,481	775	2,592	511	.	1,832	161	756	601	8,731
Halauxifen-methyl/picloram	.	.	.	.	.	.	.	.	2	.	2
Imazamox/pendimethalin	136	.	.	.	.	.	.	.	.	.	136
Iodosulfuron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	.	.	.	.	.	9	9
MCPA	.	.	.	863	411	.	.	.	.	.	1,274
Mecoprop-P	.	.	.	.	.	.	76	102	.	342	520
Mesosulfuron-methyl/propoxycarbazone-sodium	.	.	.	.	.	.	.	.	.	7	7
Metribuzin	.	1,573	298	.	.	.	.	.	.	.	1,870

**Table 9 contd:** Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland, 2022.

Pesticide group & active substance	Crop type										All crops
	Field beans	Maincrop potatoes	Seed potatoes	Spring barley	Spring oats	Spring wheat	Winter barley	Winter oats	Winter oilseed rape	Winter wheat	
<b>Herbicides &amp; desiccants</b>											
Metsulfuron-methyl	.	.	.	20	1	3	7	2	.	2	35
Metsulfuron-methyl/thifensulfuron-methyl	.	.	.	14	.	.	.	.	.	.	14
Metsulfuron-methyl/tribenuron-methyl	.	.	.	42	3	1	9	1	.	2	58
Pendimethalin	59	.	.	627	.	78	457	203	.	78	1,502
Pendimethalin/picolinafen	.	.	.	399	.	.	790	.	.	530	1,718
Pinoxaden	.	.	.	26	.	14	53	.	.	5	98
Propaquizafop	.	9	.	.	.	.	.	.	25	.	34
Propyzamide	.	.	.	.	.	.	.	.	100	.	100
Prosulfocarb	.	4,992	1,243	.	.	.	309	.	.	483	7,027
Pyraflufen-ethyl	.	39	10	.	.	.	.	.	.	.	50
Thifensulfuron-methyl/tribenuron-methyl	.	.	.	43	3	.	6	9	.	.	62
<b>All herbicides</b>	<b>217</b>	<b>8,269</b>	<b>2,352</b>	<b>7,328</b>	<b>950</b>	<b>115</b>	<b>8,433</b>	<b>682</b>	<b>1,674</b>	<b>5,438</b>	<b>35,458</b>

**Table 9 contd:** Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland, 2022.

<i>Pesticide group &amp; active substance</i>	<i>Crop type</i>								<i>All crops</i>
	<i>Maincrop potatoes</i>	<i>Seed potatoes</i>	<i>Spring barley</i>	<i>Spring oats</i>	<i>Winter barley</i>	<i>Winter oats</i>	<i>Winter oilseed rape</i>	<i>Winter wheat</i>	
<b><i>Insecticides</i></b>									
Acetamiprid	.	24	.	.	.	.	.	.	24
Esfenvalerate	.	1	15	2	5	1	.	8	30
Flonicamid	.	38	.	.	12	.	.	.	50
Lambda-cyhalothrin	19	4	20	.	14	<1	.	8	66
Unknown insecticide*	.	.	.	.	.	.	.	.	.
<b>All insecticides</b>	<b>19</b>	<b>66</b>	<b>35</b>	<b>2</b>	<b>31</b>	<b>1</b>	<b>.</b>	<b>16</b>	<b>170</b>
<b><i>Molluscicides</i></b>									
Ferric phosphate	142	.	.	.	.	.	12	.	154
<b>All molluscicides</b>	<b>142</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>12</b>	<b>.</b>	<b>154</b>

\*Quantities not available for unknown insecticide

**Table 9 contd:** Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland, 2022.

<i>Pesticide group &amp; active substance</i>	<i>Crop type</i>								
	Maincrop potatoes	Spring barley	Spring oats	Spring wheat	Winter barley	Winter oats	Winter oilseed rape	Winter wheat	All crops
<b><i>Growth regulators</i></b>									
2-chloroethylphosphonic acid	.	148	.	.	110	.	.	52	310
Chlormequat	.	2,817	127	398	3,559	911	.	4,768	12,579
Chlormequat chloride	.	.	.	.	.	182	.	.	182
Maleic hydrazide	534	.	.	.	.	.	.	.	534
Mepiquat chloride/metconazole	.	.	.	.	.	.	67	.	67
Mepiquat chloride/prohexadione-calcium	.	174	5	.	143	14	.	391	727
Mepiquat chloride/prohexadione-calcium/pyraclostrobin	.	.	.	.	.	.	35	.	35
Prohexadione-calcium/trinexapac-ethyl	.	24	16	.	99	5	.	20	164
Trinexapac-ethyl	.	257	1	.	186	14	.	163	622
<b>All growth regulators</b>	<b>534</b>	<b>3,419</b>	<b>148</b>	<b>398</b>	<b>4,098</b>	<b>1,127</b>	<b>102</b>	<b>5,394</b>	<b>15,220</b>
<b><i>Other active substances</i></b>									
Boron	.	.	.	.	.	.	45	.	45
Carboxylated styrene-butadiene	.	.	.	.	.	.	63	.	63
Manganese	.	273	.	.	106	83	.	344	806
Nitrogen/phosphate/potassium	.	.	.	.	76	.	.	.	76
Seaweed extract	.	661	.	.	215	416	72	206	1,569
Synthetic latex	.	.	.	.	.	.	369	.	369
<b>All other active substances</b>	<b>.</b>	<b>935</b>	<b>.</b>	<b>.</b>	<b>396</b>	<b>498</b>	<b>549</b>	<b>550</b>	<b>2,928</b>

**Table 9 contd:** Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland, 2022.

Pesticide group & active substance	Crop type								All crops
	Maincrop potatoes	Spring barley	Spring oats	Spring wheat	Winter barley	Winter oats	Winter oilseed rape	Winter wheat	
<b>Seed treatments</b>									
Fludioxonil	.	87	7	1	34	3	.	28	159
Fludioxonil/fluxapyroxad/triticonazole	.	.	.	.	26	.	.	.	26
Fluopyram/prothioconazole/tebuconazole	.	.	.	.	2	.	.	.	2
Flutolanil	286	.	.	.	.	.	.	.	286
Imazalil	40	.	.	.	.	.	.	.	40
Imazalil/ipconazole	.	11	.	.	8	.	.	.	18
Prothioconazole	.	.	.	.	2	3	.	4	10
Prothioconazole/tebuconazole	.	29	.	2	27	.	.	14	72
Silthiofam	.	.	.	.	7	.	.	44	50
Unknown seed treatment*	.	.	.	.	.	.	.	.	.
<b>All seed treatments</b>	<b>326</b>	<b>127</b>	<b>7</b>	<b>3</b>	<b>106</b>	<b>6</b>	<b>.</b>	<b>89</b>	<b>663</b>

*\*Quantities not available for unknown seed treatments*

**Table 10: The fifty substances most extensively used on arable crops in Northern Ireland, 2022, ranked by treated area (spha).**

	<i>Active substance</i>	<i>Treated area</i>
1	Prothioconazole	44,242
2	Folpet	18,106
3	Chlormequat	16,675
4	Bixafen	15,941
5	Trinexapac-ethyl	15,600
6	Glyphosate	13,683
7	Metsulfuron-methyl	13,444
8	Flufenacet	13,193
9	Diiflufenican	12,367
10	Lambda-cyhalothrin	12,147
11	Propamocarb hydrochloride	11,060
12	Tebuconazole	10,407
13	Pendimethalin	10,010
14	Florasulam	9,980
15	Halauxifen-methyl	9,205
16	Tribenuron-methyl	9,185
17	Fluxapyroxad	9,053
18	Oxathiapiprolin	8,138
19	Esfenvalerate	7,712
20	Fluroxypyr	7,608
21	Trifloxystrobin	7,509
22	Fluopicolide	7,317
23	Benthiavalicarb	6,817
24	Prohexadione-calcium	6,588
25	Cyazofamid	5,973
26	Spiroxamine	5,717
27	Amisulbrom	5,037
28	Cymoxanil	4,410
29	Metribuzin	3,979
30	Carfentrazone-ethyl	3,964
31	Iodosulfuron-methyl-sodium	3,352
32	Prosulfocarb	3,239
33	Mepiquat chloride	3,237
34	Fluopyram	3,226
35	Mefentrifluconazole	3,190
36	Mandiopropamid	3,171
37	Benzovindiflupyr	3,088
38	Pinoxaden	3,011
39	Mesosulfuron-methyl	2,966
40	Picolinafen	2,916
41	Thifensulfuron-methyl	2,751
42	Pyraclostrobin	2,466
43	Pyraflufen-ethyl	2,430
44	Azoxystrobin	2,408
45	Manganese	2,129
46	Mecoprop-P	1,967
47	Cyprodinil	1,831
48	Ferric phosphate	1,735
49	2-chloroethylphosphonic acid	1,707
50	Dimethomorph	1,665

**Table 11: The fifty substances most extensively used on arable crops in Northern Ireland, 2022, ranked by quantity applied (kg).**

	<i>Active substance</i>	<i>Quantity applied</i>
1	Chlormequat	12,579
2	Propamocarb hydrochloride	10,906
3	Folpet	10,099
4	Glyphosate	9,612
5	Pendimethalin	9,042
6	Prosulfocarb	7,027
7	Prothioconazole	5,667
8	Flufenacet	2,190
9	MCPA	1,914
10	Metribuzin	1,880
11	Seaweed extract	1,569
12	Spiroxamine	1,419
13	Tebuconazole	1,154
14	Fluroxypyr	1,121
15	Mecoprop-P	1,059
16	Manganese	806
17	Trifloxystrobin	770
18	Fluopicolide	723
19	Trinexapac-ethyl	720
20	Azoxystrobin	704
21	Mepiquat chloride	701
22	Bixafen	693
23	Fluxapyroxad	671
24	Diflufenican	659
25	Cyprodinil	573
26	Maleic hydrazide	534
27	Cymoxanil	531
28	Cyazofamid	477
29	Mandipropamid	462
30	Amisulbrom	410
31	Synthetic latex	369
32	Metazachlor	341
33	Mefentrifluconazole	333
34	2-chloroethylphosphonic acid	310
35	Mancozeb	289
36	Fluazinam	287
37	Flutolanil	286
38	Dimethomorph	271
39	Pyraclostrobin	250
40	Ametoctradin	230
41	Carfentrazone-ethyl	201
42	Chlormequat chloride	182
43	Benzovindiflupyr	176
44	Unknown fungicide	173
45	Carbetamide	173
46	Prohexadione-calcium	173
47	Ferric phosphate	165
48	Benthiavalicarb	162
49	Fludioxonil	159
50	Dimethenamid-P	158



**Table 12:** Field beans: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>		Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	General fungal control	General weed control			
<b><i>Fungicides</i></b>					
Boscalid/pyraclostrobin	47	.	47	47	16
Tebuconazole	47	.	47	47	6
<b>All fungicides</b>	<b>93</b>	<b>.</b>	<b>93</b>	<b>.</b>	<b>21</b>
<b><i>Herbicides</i></b>					
Glyphosate	.	47	47	47	21
Imazamox/pendimethalin	.	114	114	114	136
Pendimethalin	.	47	47	47	59
<b>All herbicides</b>	<b>.</b>	<b>207</b>	<b>207</b>	<b>.</b>	<b>217</b>

**Table 13: Maincrop potatoes: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).**

Pesticide group and active substance	Reasons for treatment									Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	Blight	Dessication	General Disease Control	General Fungal Control	General Weed Control	Ground Preparation	Rhizoctonia	Sealer				
<b>Fungicides</b>												
Ametoctradin/dimethomorph	883	.	.	.	.	.	.	.	.	883	570	303
Amisulbrom	1,916	.	.	2,164	.	.	.	.	.	4,080	1,951	353
Azoxystrobin	.	.	.	.	.	.	543	.	.	543	543	339
Benthiavalicarb/oxathiapiprolin	2,962	.	815	1,794	.	.	.	.	.	5,570	2,490	206
Benthiavalicarb-isopropyl/mancozeb	258	.	.	.	.	.	.	.	.	258	258	296
Cyazofamid	3,364	.	.	1,986	.	.	.	.	.	5,350	2,920	427
Cymoxanil	258	.	.	534	.	.	.	.	.	792	436	83
Cymoxanil/propamocarb hydrochloride	1,599	.	.	356	.	.	.	.	.	1,954	1,106	2,128
Cymoxanil/zoxamide	.	.	.	178	.	.	.	.	.	178	178	53
Dimethomorph/propamocarb hydrochloride	543	.	.	.	.	.	.	.	.	543	543	641
Fluazinam	.	.	.	993	.	.	.	.	.	993	993	239
Fluopicolide/propamocarb hydrochloride	4,769	.	.	2,164	.	.	.	.	.	6,933	2,920	7,525
Mandipropamid	1,302	.	.	1,630	.	.	.	.	.	2,931	1,659	426
Oxathiapiprolin	831	.	.	491	.	.	.	.	.	1,322	579	20
<b>All fungicides</b>	<b>18,684</b>	.	<b>815</b>	<b>12,288</b>	.	.	<b>543</b>	.	.	<b>32,329</b>	.	<b>13,040</b>
<b>Herbicides</b>												
Carfentrazone-ethyl	.	2,779	.	.	657	.	.	.	.	3,435	2,608	175
Glyphosate	.	.	.	.	1,536	513	.	.	.	2,049	2,049	1,481
Metribuzin	.	.	.	.	2,571	.	.	513	.	3,084	3,084	1,573
Propaquizafop	.	.	.	.	58	.	.	.	.	58	58	9
Prosulfocarb	.	.	.	.	2,286	.	.	.	.	2,286	2,286	4,992
Pyraflufen-ethyl	.	1,773	.	.	178	.	.	.	.	1,951	1,951	39
<b>All herbicides</b>	.	<b>4,552</b>	.	.	<b>7,285</b>	<b>513</b>	.	<b>513</b>	.	<b>12,863</b>	.	<b>8,269</b>

**Table 13 contd:** Maincrop potatoes: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>					<i>Total treated area (spha)</i>	<i>Basic treated area (ha)</i>	<i>Quantity applied (kg)</i>
	<i>Aphids</i>	<i>General Insect Control</i>	<i>Growth Regulation</i>	<i>Seed Treatment</i>	<i>Slugs</i>			
<b><i>Growth Regulators</i></b>								
Maleic hydrazide	.	.	178	.	.	178	178	534
<b>All growth regulators</b>	.	.	<b>178</b>	.	.	<b>178</b>	.	<b>534</b>
<b><i>Insecticides</i></b>								
Lambda-cyhalothrin	673	1,841	.	.	.	2,514	1,907	19
<b>All insecticides</b>	<b>673</b>	<b>1,841</b>	.	.	.	<b>2,514</b>	.	<b>19</b>
<b><i>Molluscicides</i></b>								
Ferric phosphate	.	.	.	.	1,487	1,487	945	142
<b>All molluscicides</b>	.	.	.	.	<b>1,487</b>	<b>1,487</b>	.	<b>142</b>
<b><i>Seed treatments</i></b>								
Flutolanil	.	.	.	1,056	.	1,056	1,056	286
Imazalil	.	.	.	878	.	878	878	40
Unknown seed treatment*	.	.	.	258	.	258	258	.
<b>All seed treatments</b>	.	.	.	<b>2,192</b>	.	<b>2,192</b>	.	<b>326</b>

*\*Quantities not available for unknown seed treatments*

**Table 14: Seed potatoes: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).**

Pesticide group and active substance	Reasons for treatment						Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	Aphids	Blight	Dessication	General Weed Control	Ground Preparation	Seed Treatment			
<b>Fungicides</b>									
Ametoctradin/dimethomorph	.	239	.	.	.	.	239	239	101
Amisulbrom	.	957	.	.	.	.	957	239	57
Benthiavalicarb/oxathiapiprolin	.	1,246	.	.	.	.	1,246	384	26
Cyazofamid	.	623	.	.	.	.	623	384	50
Cymoxanil	.	239	.	.	.	.	239	239	29
Cymoxanil/propamocarb hydrochloride	.	1,246	.	.	.	.	1,246	384	1,402
Fluazinam	.	239	.	.	.	.	239	239	48
Fluopicolide/propamocarb hydrochloride	.	384	.	.	.	.	384	384	422
Mandipropamid	.	239	.	.	.	.	239	239	36
<b>All fungicides</b>	.	<b>5,415</b>	.	.	.	.	<b>5,415</b>	.	<b>2,171</b>
<b>Herbicides</b>									
Carfentrazone-ethyl	.	.	384	145	.	.	528	384	26
Glyphosate	.	.	.	.	718	.	718	239	775
Metribuzin	.	.	.	623	.	.	623	384	298
Prosulfocarb	.	.	.	623	.	.	623	384	1,243
Pyraflufen-ethyl	.	.	479	.	.	.	479	239	10
<b>All herbicides</b>	.	.	<b>863</b>	<b>1,391</b>	<b>718</b>	.	<b>2,972</b>	.	<b>2,352</b>

**Table 14 contd:** Seed potatoes: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>		<i>Total treated area (spha)</i>	<i>Basic treated area (ha)</i>	<i>Quantity applied (kg)</i>
	<i>Aphids</i>	<i>Seed Treatment</i>			
<b><i>Insecticides</i></b>					
Acetamiprid	479	.	479	239	24
Esfenvalerate	145	.	145	145	1
Flonicamid	479	.	479	239	38
Lambda-cyhalothrin	479	.	479	239	4
Unknown insecticide	145	.	145	145	.
<b>All insecticides</b>	<b>1,725</b>	<b>.</b>	<b>1,725</b>	<b>.</b>	<b>66</b>
<b><i>Seed treatments</i></b>					
Unknown seed treatment*	.	145	145	145	.
<b>All seed treatments</b>	<b>.</b>	<b>145</b>	<b>145</b>	<b>.</b>	<b>.</b>

*\*Quantities not available for unknown seed treatments*

**Table 15: Spring barley: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).**

Pesticide group and active substance	Reasons for treatment						Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	Disease prevention	Foliar disease	General disease control	General fungal Control	Mildew	Powdery mildew			
<b>Fungicides</b>									
Benzovindiflupyr	.	.	430	402	.	.	831	831	42
Benzovindiflupyr/prothioconazole	.	.	.	472	.	.	472	472	80
Bixafen/fluopyram/prothioconazole	.	.	344	280	.	.	623	623	93
Bixafen/prothioconazole	317	722	829	1,329	.	.	3,196	2,162	545
Bixafen/prothioconazole/spiroxamine	.	.	168	1,518	.	.	1,686	1,347	678
Cyprodinil	.	.	144	556	281	.	982	982	262
Fluxapyroxad	.	.	955	194	.	.	1,149	1,149	89
Folpet	.	722	2,009	2,001	.	.	4,732	4,232	2,593
Prothioconazole	525	.	2,670	886	.	.	4,081	3,925	605
Prothioconazole/spiroxamine	.	.	.	438	.	.	438	219	101
Prothioconazole/tebuconazole	.	.	584	261	.	.	845	845	135
Prothioconazole/trifloxystrobin	.	.	1,580	2,022	.	.	3,602	2,962	629
Pyraclostrobin	317	.	.	379	.	.	697	697	39
Tebuconazole	.	.	414	259	.	261	935	935	113
Trifloxystrobin	.	.	.	682	.	.	682	461	170
Unknown fungicide*	.	.	.	313	.	.	313	156	.
<b>All fungicides</b>	<b>1,159</b>	<b>1,443</b>	<b>10,128</b>	<b>11,991</b>	<b>281</b>	<b>261</b>	<b>25,264</b>	<b>.</b>	<b>6,172</b>

*\*Quantities not available for unknown fungicides*

**Table 15 contd:** Spring barley: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

Pesticide group and active substance	Reasons for treatment													Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	Annual meadow grass	Broadleaved weeds	Burnoff	Chickweed	Dessication	General Weed Control	Grass weeds	Ground Preparation	Pre-emergence weed control	Ripen grain	Sow thistle	Stubble Treatment	Wild Oats			
<b>Herbicides</b>																
Amidosulfuron/iodosulfuron-methyl-sodium	.	.	.	.	.	584	.	.	.	.	.	.	.	584	584	14
Clopyralid/florasulam/fluroxypyr	.	.	.	.	.	409	.	.	.	.	.	.	.	409	409	62
Dicamba/MCPA/mecoprop-p	.	.	.	.	.	522	.	.	.	.	.	.	.	522	522	804
Dicamba/mecoprop-p	.	.	.	.	.	847	.	.	.	.	.	.	.	847	847	433
Diflufenican	78	.	.	.	.	953	.	.	177	.	.	.	.	1,208	1,208	64
Diflufenican/flufenacet	78	.	.	.	.	1,294	168	.	464	.	.	.	.	2,005	2,005	296
Florasulam/fluroxypyr	.	.	.	.	.	479	.	.	.	.	.	.	.	479	479	49
Florasulam/halauxifen-methyl	.	287	.	672	.	2,741	.	.	.	.	.	.	.	3,700	3,700	29
Flufenacet/pendimethalin	.	.	.	.	.	.	.	402	.	.	.	.	.	402	402	289
Fluroxypyr	.	.	.	581	.	2,981	.	.	.	.	.	.	.	3,562	3,562	565
Fluroxypyr/halauxifen-methyl	.	254	.	.	.	494	.	.	.	.	.	.	.	748	748	98
Glyphosate	.	.	491	.	2,001	241	.	78	.	512	.	996	.	4,320	3,995	2,592
MCPA	.	.	.	.	.	156	.	.	.	.	672	.	.	828	828	863
Metsulfuron-methyl	.	.	.	.	.	3,434	.	.	.	.	.	.	.	3,434	3,434	20
Metsulfuron-methyl/thifensulfuron-methyl	.	78	.	.	.	317	.	.	.	.	.	.	.	396	396	14
Metsulfuron-methyl/tribenuron-methyl	.	287	.	.	.	4,561	.	.	.	.	.	.	.	4,849	4,849	42
Pendimethalin	.	.	.	.	.	414	.	.	194	.	.	.	.	609	609	627
Pendimethalin/picolinafen	.	.	.	.	.	521	.	.	.	.	.	.	.	521	521	399
Pinoxaden	.	.	.	.	.	259	.	.	.	.	.	.	581	840	840	26
Thifensulfuron-methyl/tribenuron-methyl	.	176	.	.	.	1,210	.	.	.	.	.	.	.	1,386	1,386	43
<b>All herbicides</b>	<b>156</b>	<b>1,083</b>	<b>491</b>	<b>1,253</b>	<b>2,001</b>	<b>22,419</b>	<b>168</b>	<b>480</b>	<b>835</b>	<b>512</b>	<b>672</b>	<b>996</b>	<b>581</b>	<b>31,649</b>	<b>.</b>	<b>7,328</b>

**Table 15 contd:** Spring barley: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>						<i>Total treated area (spha)</i>	<i>Basic treated area (ha)</i>	<i>Quantity applied (kg)</i>
	<i>Aphids</i>	<i>Foliar Feed</i>	<i>General Insect Control</i>	<i>Growth Regulation</i>	<i>Seed Treatment</i>	<i>Trace Element</i>			
<b><i>Insecticides</i></b>									
Esfenvalerate	2,750	.	841	.	.	.	3,591	3,435	15
Lambda-cyhalothrin	992	.	3,111	.	.	.	4,104	4,104	20
<b>All insecticides</b>	<b>3,742</b>	<b>.</b>	<b>3,953</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>7,695</b>	<b>.</b>	<b>35</b>
<b><i>Growth Regulators</i></b>									
2-chloroethylphosphonic acid	.	.	.	1,016	.	.	1,016	1,016	148
Chlormequat	.	.	.	4,055	.	.	4,055	4,055	2,817
Mepiquat chloride/prohexadione-calcium	.	.	.	719	.	.	719	719	174
Prohexadione-calcium/trinexapac-ethyl	.	.	.	379	.	.	379	379	24
Trinexapac-ethyl	.	.	.	4,605	.	.	4,605	4,298	257
<b>All growth regulators</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>10,774</b>	<b>.</b>	<b>.</b>	<b>10,774</b>	<b>.</b>	<b>3,419</b>
<b><i>Other treatments</i></b>									
Manganese	.	259	.	.	.	430	689	689	273
Seaweed extract	.	862	.	.	.	.	862	287	661
<b>All others</b>	<b>.</b>	<b>1,121</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>430</b>	<b>1,551</b>	<b>.</b>	<b>935</b>
<b><i>Seed treatments</i></b>									
Fludioxonil	.	.	.	.	9,454	.	9,454	9,454	87
Imazalil/ipconazole	.	.	.	.	519	.	519	519	11
Prothioconazole/tebuconazole	.	.	.	.	1,389	.	1,389	1,389	29
Unknown seed treatments*	.	.	.	.	1,039	.	1,039	1,039	.
<b>All seed treatments</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>12,401</b>	<b>.</b>	<b>12,401</b>	<b>.</b>	<b>127</b>

\*Quantities not available for unknown seed treatments



**Table 16: Spring oats: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).**

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>						<i>Total treated area (spha)</i>	<i>Basic treated area (ha)</i>	<i>Quantity applied (kg)</i>
	<i>Broadleaved weeds</i>	<i>Dessication</i>	<i>General Fungal Control</i>	<i>General Weed Control</i>	<i>Ground Preparation</i>	<i>Powdery mildew</i>			
<b><i>Fungicides</i></b>									
Cyflufenamid	.	.	111	.	.	.	111	111	1
Proquinazid	.	.	26	.	.	.	26	26	1
Prothioconazole	.	.	570	.	.	.	570	570	113
Prothioconazole/spiroxamine	.	.	111	.	.	.	111	111	33
Prothioconazole/tebuconazole	.	.	175	.	.	.	175	175	42
Tebuconazole	.	.	.	.	.	175	175	175	44
Unknown fungicide*	.	.	257	.	.	.	257	257	.
<b>All fungicides</b>	.	.	<b>1,250</b>	.	.	<b>175</b>	<b>1,425</b>	.	<b>233</b>
<b><i>Herbicides</i></b>									
Florasulam/halauxifen-methyl	.	.	.	313	.	.	313	313	3
Fluroxypyr	26	.	.	111	.	.	137	137	18
Glyphosate	.	257	.	.	313	.	570	570	511
MCPA	.	.	.	257	.	.	257	257	411
Metsulfuron-methyl	.	.	.	175	.	.	175	175	1
Metsulfuron-methyl/tribenuron-methyl	.	.	.	257	.	.	257	257	3
Thifensulfuron-methyl/tribenuron-methyl	26	.	.	111	.	.	137	137	3
<b>All herbicides</b>	<b>51</b>	<b>257</b>	.	<b>1,224</b>	<b>313</b>	.	<b>1,846</b>	.	<b>950</b>

*\*Quantities not available for unknown fungicides*

**Table 16 contd:** Spring oats: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>			<i>Total treated area (spha)</i>	<i>Basic treated area (ha)</i>	<i>Quantity applied (kg)</i>
	<i>Aphids</i>	<i>Growth regulation</i>	<i>Seed treatment</i>			
<b><i>Growth Regulators</i></b>						
Chlormequat	.	201	.	201	201	127
Mepiquat chloride/prohexadione-calcium	.	26	.	26	26	5
Prohexadione-calcium/trinexapac-ethyl	.	514	.	514	257	16
Trinexapac-ethyl	.	26	.	26	26	1
<b>All growth regulators</b>	.	<b>766</b>	.	<b>766</b>	.	<b>148</b>
<b><i>Insecticides</i></b>						
Esfenvalerate	689	.	.	689	432	2
<b>All insecticides</b>	<b>689</b>	.	.	<b>689</b>	.	<b>2</b>
<b><i>Seed treatments</i></b>						
Fludioxonil	.	.	625	625	625	7
Unknown seed treatment*	.	.	257	257	257	.
<b>All seed treatments</b>	.	.	<b>882</b>	<b>882</b>	.	<b>7</b>

*\*Quantities not available for unknown seed treatments*

**Table 17: Spring wheat: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).**

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>			<i>Total treated area (spha)</i>	<i>Basic treated area (ha)</i>	<i>Quantity applied (kg)</i>
	<i>General disease control</i>	<i>General fungal control</i>	<i>General weed control</i>			
<b><i>Fungicides</i></b>						
Fluxapyroxad/mefentrifluconazole	.	76	.	76	76	11
Prothioconazole/tebuconazole	449	71	.	520	520	160
Prothioconazole/trifloxystrobin	.	76	.	76	76	19
<b>All fungicides</b>	<b>449</b>	<b>224</b>	<b>.</b>	<b>673</b>	<b>.</b>	<b>191</b>
<b><i>Herbicides</i></b>						
Diflufenican/flufenacet	.	.	76	76	76	14
Florasulam/halauxifen-methyl	.	.	520	520	520	6
Metsulfuron-methyl	.	.	520	520	520	3
Metsulfuron-methyl/tribenuron-methyl	.	.	76	76	76	1
Pendimethalin	.	.	76	76	76	78
Pinoxaden	.	.	520	520	520	14
<b>All herbicides</b>	<b>.</b>	<b>.</b>	<b>1,788</b>	<b>1,788</b>	<b>.</b>	<b>115</b>

**Table 17 contd:** Spring wheat: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>		Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	General insect control	Seed treatment			
<b><i>Growth Regulators</i></b>					
Chlormequat	520	.	520	520	398
<b>All growth regulators</b>	<b>520</b>	<b>.</b>	<b>520</b>	<b>.</b>	<b>398</b>
<b><i>Seed treatments</i></b>					
Fludioxonil	.	71	71	71	1
Prothioconazole/tebuconazole	.	76	76	76	2
<b>All seed treatments</b>	<b>.</b>	<b>147</b>	<b>147</b>	<b>.</b>	<b>3</b>

**Table 18: Winter barley: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).**

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>				Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	Disease prevention	Foliar disease	General disease control	General fungal control			
<b>Fungicides</b>							
Benzovindiflupyr	.	.	126	675	801	801	48
Benzovindiflupyr/prothioconazole	.	.	225	539	763	683	134
Bixafen/fluopyram/prothioconazole	250	.	75	330	655	655	96
Bixafen/prothioconazole	250	492	975	1,308	3,025	2,261	597
Bixafen/prothioconazole/spiroxamine	.	.	451	1,108	1,559	1,213	622
Cyprodinil	282	.	203	365	850	850	311
Epoxiconazole	.	.	.	377	377	377	41
Fluoxastrobin/prothioconazole	.	.	517	.	517	517	102
Fluoxastrobin/prothioconazole/trifloxystrobin	.	.	.	156	156	156	31
Fluxapyroxad	.	.	405	887	1,292	735	105
Fluxapyroxad/mefentrifluconazole	250	.	.	211	461	461	64
Fluxapyroxad/pyraclostrobin	.	.	246	541	788	586	142
Folpet	192	492	1,818	3,231	5,733	4,037	3,101
Prothioconazole	.	.	1,200	3,263	4,463	3,677	615
Prothioconazole/spiroxamine	.	.	225	497	722	722	236
Prothioconazole/spiroxamine/tebuconazole	.	.	.	278	278	278	132
Prothioconazole/tebuconazole	.	.	.	101	101	101	31
Prothioconazole/trifloxystrobin	.	.	214	1,460	1,674	1,411	290
Pyraclostrobin	.	.	.	491	491	491	54
Tebuconazole	.	.	138	.	138	138	8
Trifloxystrobin	.	.	451	617	1,067	722	144
<b>All fungicides</b>	<b>1,224</b>	<b>984</b>	<b>7,269</b>	<b>16,434</b>	<b>25,911</b>	<b>.</b>	<b>6,908</b>

**Table 18 contd:** Winter barley: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

Pesticide group and active substance	Reasons for treatment										treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	Annual meadow grass	Broadleaved weeds	Burnoff	Dessication	General Weed Control	Grass weeds	Meadow Grass	Pre-emergence weed control	Sealer	Wild Oats			
<b>Herbicides</b>													
Diflufenican	.	255	.	.	1,386	.	208	246	.	.	2,096	2,096	160
Diflufenican/flufenacet	.	177	.	.	1,429	255	.	156	.	.	2,018	2,018	498
Diflufenican/flufenacet/metribuzin	.	.	.	.	115	.	.	.	.	.	115	115	23
Fenoxaprop-P-ethyl	.	.	.	.	.	.	.	.	.	177	177	177	12
Florasulam	.	371	.	.	.	.	.	.	.	.	371	371	2
Florasulam/halauxifen-methyl	.	.	.	.	991	.	.	.	.	.	991	991	8
Flufenacet/pendimethalin	371	.	.	.	1,804	.	.	920	21	.	3,115	3,115	3,919
Flufenacet/picolinafen	.	.	.	.	253	283	208	.	.	.	745	745	143
Fluroxypyr	.	.	.	.	404	.	.	.	.	.	404	404	67
Fluroxypyr/halauxifen-methyl	.	.	.	.	345	.	.	.	.	.	345	345	40
Fluroxypyr/metsulfuron-methyl	.	.	.	.	129	.	.	.	.	.	129	129	20
Glyphosate	.	.	512	1,526	216	101	.	.	.	.	2,355	2,355	1,832
Mecoprop-P	.	.	.	.	63	.	.	.	.	.	63	63	76
Metsulfuron-methyl	.	.	.	.	1,236	.	.	.	.	.	1,236	1,236	7
Metsulfuron-methyl/tribenuron-methyl	.	202	.	.	995	.	.	.	.	.	1,197	1,197	9
Pendimethalin	.	.	.	.	583	.	.	93	.	.	675	675	457
Pendimethalin/picolinafen	.	.	.	.	722	177	.	.	.	.	899	899	790
Pinoxaden	.	.	.	.	426	.	.	.	.	1,086	1,511	1,511	53
Prosulfocarb	.	.	.	.	129	.	.	.	.	.	129	129	309
Thifensulfuron-methyl/tribenuron-methyl	.	.	.	.	327	.	.	.	.	.	327	327	6
<b>All herbicides</b>	<b>371</b>	<b>1,005</b>	<b>512</b>	<b>1,526</b>	<b>11,554</b>	<b>816</b>	<b>417</b>	<b>1,415</b>	<b>21</b>	<b>1,263</b>	<b>18,898</b>	<b>.</b>	<b>8,433</b>

**Table 18 contd:** Winter barley: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

Pesticide group and active substance	Reasons for treatment										Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	Aphids	Biostimulant	Foliar Feed	General Insect Control	Growth Regulation	Lodging	Rooting	Seed Treatment	Straw stiffener	Trace Element			
<b>Growth Regulators</b>													
2-chloroethylphosphonic acid	.	.	.	.	379	.	.	.	.	.	379	379	110
Chlormequat	.	.	.	.	4,031	225	.	.	93	.	4,350	3,684	3,559
Mepiquat chloride/prohexadione-calcium	.	.	.	.	685	.	.	.	.	.	685	607	143
Prohexadione-calcium/trinexapac-ethyl	.	.	.	.	1,748	.	.	.	.	.	1,748	1,748	99
Trinexapac-ethyl	.	.	.	.	2,966	225	118	.	.	.	3,310	3,158	186
<b>All growth regulators</b>	.	.	.	.	<b>9,809</b>	<b>451</b>	<b>118</b>	.	<b>93</b>	.	<b>10,471</b>	.	<b>4,098</b>
<b>Insecticides</b>													
Esfenvalerate	866	.	.	305	.	.	.	.	.	.	1,171	1,171	5
Flonicamid	.	.	.	202	.	.	.	.	.	.	202	202	12
Lambda-cyhalothrin	1,503	.	.	1,402	.	.	.	.	.	.	2,905	2,459	14
<b>All insecticides</b>	<b>2,370</b>	.	.	<b>1,909</b>	.	.	.	.	.	.	<b>4,278</b>	.	<b>31</b>
<b>Other treatments</b>													
Manganese	.	.	175	.	.	.	.	.	.	126	301	214	106
Nitrogen/phosphate/potassium	.	.	.	.	.	.	.	.	.	118	118	118	76
Seaweed extract	.	101	153	.	.	.	.	.	.	.	253	253	215
<b>All others</b>	.	<b>101</b>	<b>327</b>	.	.	.	.	.	.	<b>244</b>	<b>672</b>	.	<b>396</b>
<b>Seed treatments</b>													
Fludioxonil	.	.	.	.	.	.	.	4,047	.	.	4,047	4,047	34
Fludioxonil/fluxapyroxad/triticonazole	.	.	.	.	.	.	.	964	.	.	964	964	26
Fluopyram/prothioconazole/tebuconazole	.	.	.	.	.	.	.	126	.	.	126	126	2
Imazalil/ipconazole	.	.	.	.	.	.	.	531	.	.	531	531	8
Prothioconazole	.	.	.	.	.	.	.	162	.	.	162	162	2
Prothioconazole/tebuconazole	.	.	.	.	.	.	.	1,281	.	.	1,281	1,281	27
Silthiofam	.	.	.	.	.	.	.	170	.	.	170	170	7
Unknown seed treatment*	.	.	.	.	.	.	.	280	.	.	280	280	.
<b>All seed treatments</b>	.	.	.	.	.	.	.	<b>7,560</b>	.	.	<b>7,560</b>	.	<b>106</b>

\*Quantities not available for unknown seed treatments

**Table 19: Winter oats: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).**

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>						Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	Ear Wash	General Disease Control	General Fungal Control	General Weed Control	Powdery mildew	Pre-emergence weed control			
<b><i>Fungicides</i></b>									
Benzovindiflupyr/prothioconazole	.	80	.	.	.	.	80	80	18
Bixafen/prothioconazole	.	80	122	.	.	.	201	201	36
Bixafen/prothioconazole/spiroxamine	.	.	118	.	.	.	118	59	28
Prothioconazole	.	.	122	.	.	.	122	122	19
Prothioconazole/tebuconazole	.	.	175	.	.	.	175	175	42
Pyraclostrobin	109	.	59	.	.	.	168	168	26
Tebuconazole	.	.	118	.	175	.	293	234	58
Unknown fungicide	.	80	.	.	.	.	80	80	40
<b>All fungicides</b>	<b>109</b>	<b>240</b>	<b>713</b>	<b>.</b>	<b>175</b>	<b>.</b>	<b>1,237</b>	<b>.</b>	<b>267</b>
<b><i>Herbicides</i></b>									
Diflufenican	.	.	.	59	.	.	59	59	6
Diflufenican/flufenacet	.	.	.	109	.	447	556	556	100
Fluroxypyr	.	.	.	506	.	.	506	506	98
Glyphosate	.	.	.	447	.	.	447	447	161
Mecoprop-P	.	.	.	.	.	122	122	122	102
Metsulfuron-methyl	.	.	.	284	.	.	284	284	2
Metsulfuron-methyl/tri benuron-methyl	.	.	.	.	.	122	122	122	1
Pendimethalin	.	.	.	447	.	.	447	447	203
Thifensulfuron-methyl/tri benuron-methyl	.	.	.	506	.	.	506	506	9
<b>All herbicides</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>2,358</b>	<b>.</b>	<b>690</b>	<b>3,048</b>	<b>.</b>	<b>682</b>



**Table 19 contd:** Winter oats: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>							<i>Total treated area (spha)</i>	<i>Basic treated area (ha)</i>	<i>Quantity applied (kg)</i>
	<i>Aphids</i>	<i>Biostimulant</i>	<i>Ear Wash</i>	<i>Foliar Feed</i>	<i>General Insect Control</i>	<i>Growth Regulation</i>	<i>Seed Treatment</i>			
<b><i>Growth Regulators</i></b>										
Chlormequat	.	.	.	.	.	1,317	.	1,317	870	911
Chlormequat chloride	.	.	.	.	.	122	.	122	122	182
Mepiquat chloride/prohexadione-calcium	.	.	.	.	.	59	.	59	59	14
Prohexadione-calcium/trinexapac-ethyl	.	.	.	.	.	109	.	109	109	5
Trinexapac-ethyl	.	.	.	.	.	328	.	328	248	14
<b>All growth regulators</b>	.	.	.	.	.	<b>1,935</b>	.	<b>1,935</b>	.	<b>1,127</b>
<b><i>Insecticides</i></b>										
Esfenvalerate	234	.	.	.	.	.	.	234	234	1
Lambda-cyhalothrin	.	.	.	.	80	.	.	80	80	<1
<b>All insecticides</b>	<b>234</b>	.	.	.	<b>80</b>	.	.	<b>314</b>	.	<b>1</b>
<b><i>Other treatments</i></b>										
Manganese	.	.	.	243	.	.	.	243	122	83
Seaweed extract	.	109	109	.	.	.	.	219	109	416
<b>All other treatments</b>	.	<b>109</b>	<b>109</b>	<b>243</b>	.	.	.	<b>462</b>	.	<b>498</b>
<b><i>Seed treatments</i></b>										
Fludioxonil	.	.	.	.	.	.	234	234	234	3
Prothioconazole	.	.	.	.	.	.	201	201	201	3
Unknown seed treatment*	.	.	.	.	.	.	109	109	109	.
<b>All seed treatments</b>	.	.	.	.	.	.	<b>545</b>	<b>545</b>	.	<b>6</b>

\*Quantities not available for unknown seed treatments

**Table 20: Winter oilseed rape: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).**

Pesticide group and active substance	Reasons for treatment									Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	Broadleaved weeds	Dessication	General Disease Control	General Fungal Control	General Weed Control	Grass weeds	Harvest Aid	Pre-emergence weed control	Volunteer Oats			
<b>Fungicides</b>												
Azoxystrobin	.	.	178	.	.	.	.	.	.	178	178	22
Bixafen/prothioconazole	.	.	178	.	.	.	.	.	.	178	178	21
Boscalid/metconazole	.	.	.	133	.	.	.	.	.	133	133	23
Difenoconazole/paclobutrazol	.	.	.	96	.	.	.	.	.	96	96	11
Fluopyram/prothioconazole	.	.	.	124	.	.	.	.	.	124	124	25
Metconazole	.	.	.	48	.	.	.	.	.	48	48	3
Prothioconazole	.	.	178	271	.	.	.	.	.	449	449	47
Prothioconazole/tebuconazole	.	.	.	244	.	.	.	.	.	244	244	46
Tebuconazole	.	.	.	124	.	.	.	.	.	124	124	31
<b>All fungicides</b>	.	.	<b>533</b>	<b>1,039</b>	.	.	.	.	.	<b>1,572</b>	.	<b>229</b>
<b>Herbicides</b>												
Aminopyralid/metazachlor/picloram	.	.	.	.	96	.	.	.	.	96	96	60
Carbetamide	.	.	.	.	96	.	.	.	.	96	96	173
Clomazone	.	.	.	.	48	.	.	.	.	48	48	6
Dimethenamid-P/metazachlor/quinmerac	.	.	.	.	257	.	.	250	.	506	506	552
Glyphosate	.	335	.	.	219	.	124	.	.	678	678	756
Halauxifen-methyl/picloram	72	.	.	.	.	.	.	.	.	72	72	2
Propaquizafop	.	.	.	.	48	.	.	.	178	225	225	25
Propyzamide	.	.	.	.	76	72	.	.	.	148	148	100
<b>All herbicides</b>	<b>72</b>	<b>335</b>	.	.	<b>840</b>	<b>72</b>	<b>124</b>	<b>250</b>	<b>178</b>	<b>1,870</b>	.	<b>1,674</b>

**Table 20 contd:** Winter oilseed rape: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>							<i>Total treated area (spha)</i>	<i>Basic treated area (ha)</i>	<i>Quantity applied (kg)</i>
	<i>Adjuvant</i>	<i>Foliar Feed</i>	<i>Growth Regulation</i>	<i>Pod shatter</i>	<i>Sealant</i>	<i>Slugs</i>	<i>Trace Element</i>			
<b><i>Growth Regulators</i></b>										
Mepiquat chloride/metconazole	.	.	199	.	.	.	.	199	199	67
Mepiquat chloride/prohexadione-calcium/pyraclostrobin	.	.	85	.	.	.	.	85	85	35
<b>All growth regulators</b>	.	.	<b>285</b>	.	.	.	.	<b>285</b>	.	<b>102</b>
<b><i>Molluscicides</i></b>										
Ferric phosphate	.	.	.	.	.	124	.	124	124	12
<b>All molluscicides</b>	.	.	.	.	.	<b>124</b>	.	<b>124</b>	.	<b>12</b>
<b><i>Other treatments</i></b>										
Boron	.	.	.	.	.	.	171	171	85	45
Carboxylated styrene-butadiene	48	.	.	96	.	.	.	144	144	63
Seaweed extract	.	72	.	.	.	.	.	72	72	72
Synthetic latex	48	.	.	301	85	.	.	434	434	369
<b>All other treatments</b>	<b>96</b>	<b>72</b>	.	<b>397</b>	<b>85</b>	.	<b>171</b>	<b>821</b>	.	<b>549</b>

**Table 21: Winter wheat: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).**

Pesticide group and active substance	Reasons for treatment								Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	Disease Prevention	Ear disease	Ear Wash	Fusarium ear blight	General Disease Control	General Fungal Control	Rust	Septoria			
<b>Fungicides</b>											
Azoxystrobin	.	.	.	.	65	1,623	.	.	1,688	1,688	343
Benzovindiflupyr/prothioconazole	140	.	.	.	.	.	.	.	140	140	25
Bixafen/fluopyram/prothioconazole	194	.	.	.	499	925	206	.	1,824	1,582	284
Bixafen/prothioconazole	194	.	.	.	1,189	70	206	.	1,659	1,166	434
Bixafen/prothioconazole/spiroxamine	.	.	.	.	.	757	.	.	757	757	426
Bixafen/prothioconazole/tebuconazole	.	.	.	.	308	152	.	.	460	384	131
Bromuconazole/tebuconazole	.	.	.	267	.	491	.	.	758	758	205
Epoxiconazole	.	.	.	.	.	808	.	.	808	808	76
Fenpicoxamid	.	.	.	.	234	48	.	.	282	282	18
Fenpicoxamid/prothioconazole	194	.	.	.	.	.	.	.	194	194	35
Fluxapyroxad	.	.	.	.	671	2,798	.	.	3,469	2,136	276
Fluxapyroxad/mefentrifluconazole	140	.	.	.	284	1,393	.	.	1,817	1,438	319
Folpet	.	.	.	.	2,174	5,467	.	.	7,641	5,037	4,406
Mefentrifluconazole	.	.	.	.	328	508	.	.	835	835	93
Prothioconazole	.	.	.	.	314	3,488	.	.	3,802	2,501	512
Prothioconazole/spiroxamine	.	.	.	.	.	48	.	.	48	48	14
Prothioconazole/tebuconazole	.	328	85	.	870	1,704	121	.	3,108	2,780	663
Prothioconazole/trifloxystrobin	.	.	.	.	.	251	.	.	251	126	56
Pyraclostrobin	.	.	.	.	92	184	.	.	276	276	32
Tebuconazole	194	.	.	.	15	1,618	.	206	2,033	1,827	245
Unknown fungicide	.	.	.	.	.	.	267	.	267	267	133
<b>All fungicides</b>	<b>1,055</b>	<b>328</b>	<b>85</b>	<b>267</b>	<b>7,043</b>	<b>22,332</b>	<b>800</b>	<b>206</b>	<b>32,115</b>	<b>.</b>	<b>8,726</b>

**Table 21 contd:** Winter wheat: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

Pesticide group and active substance	Reasons for treatment										Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)
	Annual meadow grass	Broadleaved weeds	Chickweed	Dessication	General Weed Control	Grass weeds	Meadow Grass	Pre-emergence weed control	Stubble Treatment	Wild Oats			
<b>Herbicides</b>													
Amidosulfuron/iodosulfuron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	448	.	.	.	.	.	448	448	20
Dicamba/mecoprop-p	.	.	.	.	128	.	.	.	.	.	128	128	53
Diflufenican	.	.	.	.	312	.	.	422	.	.	734	734	51
Diflufenican/flufenacet	.	267	.	.	629	48	.	808	.	.	1,751	1,751	291
Diflufenican/flufenacet/metribuzin	.	.	.	.	157	.	.	.	.	.	157	157	31
Diflufenican/iodosulfuron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	992	358	242	.	.	.	1,592	1,592	93
Florasulam/fluroxypyr	.	.	.	.	201	.	.	.	.	.	201	201	31
Florasulam/halauxifen-methyl	.	.	281	.	2,185	.	.	.	.	.	2,466	2,466	18
Florasulam/pyroxsulam	.	337	.	.	194	.	.	.	.	.	531	531	12
Flufenacet/pendimethalin	337	.	.	.	687	296	.	933	.	.	2,254	2,254	2,669
Fluroxypyr	.	.	296	.	341	.	.	.	.	.	637	637	104
Fluroxypyr/halauxifen-methyl	.	.	50	.	.	.	.	.	.	.	50	50	6
Glyphosate	.	.	.	332	201	.	.	.	337	.	870	870	601
Iodosulfuron-methyl-sodium/mesosulfuron-methyl	.	.	.	.	602	.	.	.	.	126	728	728	9
Mecoprop-P	.	.	.	.	285	.	.	.	.	.	285	285	342
Mesosulfuron-methyl/propoxycarbazone-sodium	.	.	.	.	197	.	.	.	.	.	197	197	7
Metsulfuron-methyl	.	.	.	.	441	.	.	.	.	.	441	441	2
Metsulfuron-methyl/tribenuron-methyl	.	.	.	.	328	.	.	.	.	.	328	328	2
Pendimethalin	.	.	.	.	100	.	.	.	.	.	100	100	78
Pendimethalin/picolinafen	.	267	.	.	485	.	.	.	.	.	752	752	530
Pinoxaden	.	.	.	.	140	.	.	.	.	.	140	140	5
Prosulfocarb	.	.	.	.	201	.	.	.	.	.	201	201	483
<b>All herbicides</b>	<b>337</b>	<b>870</b>	<b>627</b>	<b>332</b>	<b>9,255</b>	<b>702</b>	<b>242</b>	<b>2,163</b>	<b>337</b>	<b>126</b>	<b>14,991</b>	<b>.</b>	<b>5,438</b>

**Table 21 contd:** Winter wheat: reasons for treatment, total treated area (spha), basic treated area (ha) and quantity applied (kg).

<i>Pesticide group and active substance</i>	<i>Reasons for treatment</i>									<i>Total treated area (spha)</i>	<i>Basic treated area (ha)</i>	<i>Quantity applied (kg)</i>
	<i>Aphids</i>	<i>Biostimulant</i>	<i>Foliar Feed</i>	<i>General Fungal Control</i>	<i>General Insect Control</i>	<i>Growth Regulation</i>	<i>Lodging</i>	<i>Seed Treatment</i>	<i>Straw stiffener</i>			
<b><i>Growth Regulators</i></b>												
2-chloroethylphosphonic acid	.	.	.	.	.	312	.	.	.	312	312	52
Chlormequat	.	.	.	.	.	6,233	.	.	.	6,233	4,716	4,768
Mepiquat chloride/prohexadione-calcium	.	.	.	.	.	1,183	.	281	.	1,464	1,464	391
Prohexadione-calcium/trinexapac-ethyl	.	.	.	.	.	801	.	.	.	801	801	20
Trinexapac-ethyl	.	.	.	.	.	3,156	328	.	296	3,780	2,985	163
<b>All growth regulators</b>	.	.	.	.	.	<b>11,685</b>	<b>328</b>	.	<b>577</b>	<b>12,589</b>	.	<b>5,394</b>
<b><i>Insecticides</i></b>												
Esfenvalerate	267	.	.	.	1,615	.	.	.	.	1,882	1,074	8
Lambda-cyhalothrin	671	.	.	.	1,394	.	.	.	.	2,066	1,836	8
<b>All insecticides</b>	<b>938</b>	.	.	.	<b>3,009</b>	.	.	.	.	<b>3,947</b>	.	<b>16</b>
<b><i>Other treatments</i></b>												
Manganese	.	.	896	.	.	.	.	.	.	896	448	344
Seaweed extract	.	83	.	.	.	.	.	.	.	83	83	206
<b>All other treatments</b>	.	<b>83</b>	<b>896</b>	.	.	.	.	.	.	<b>980</b>	.	<b>550</b>
<b><i>Seed treatments</i></b>												
Fludioxonil	.	.	.	.	.	.	.	3,961	.	3,961	3,961	28
Prothioconazole	.	.	.	.	.	.	.	206	.	206	206	4
Prothioconazole/tebuconazole	.	.	.	.	.	.	.	731	.	731	731	14
Silthiofam	.	.	.	.	.	.	.	1,603	.	1,603	1,603	44
Unknown seed treatment*	.	.	.	.	.	.	.	15	.	15	15	.
<b>All seed treatments</b>	.	.	.	.	.	.	.	<b>6,516</b>	.	<b>6,516</b>	.	<b>89</b>

\*Quantities not available for unknown seed treatments

**Table 22: Comparison of the area of arable crops grown (ha) in Northern Ireland, 1990-2022.**

Crop	Survey year																
	1990	1992	1994	1996	1998	2000**	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020	2022
<b>Cereals</b>																	
Rye	.	.	.	.	.	.	.	.	.	.	.	.	.	.	122	1,763	.
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	14,725	12,564	12,898
Spring oats	2,220	1,257	953	858	978	1,920	804	903	991	778	1,441	1,441	1,341	1,423	1,321	1,076	882
Spring wheat	348	136	32	129	400	863	1,428	1,523	1,517	1,552	1,686	1,500	604	707	793	418	984
Triticale	37	.	.	.	17	64	49	182	12	82	5	.	390	.	38	139	.
Undersown barley	5,800	5,759	6,542	4,875	4,035	3,532	1,876	599	654	803	591	508	430	232	169	.	.
Undersown oats	117	221	337	130	102	25	20	234	71	.	49	193	98	15	29	.	.
Undersown wheat	27	.	42	.	.	.	.	.	.	.	58	48	.	.	.	.	.
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	5,809	7,772	7,944
Winter oats	673	1,008	1,125	1,481	1,523	967	1,547	1,556	875	1,640	841	246	648	819	664	803	992
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	6,052	6,713	6,750
<b>All cereals</b>	<b>48,612</b>	<b>45,670</b>	<b>42,704</b>	<b>42,438</b>	<b>44,586</b>	<b>40,592</b>	<b>38,111</b>	<b>38,601</b>	<b>33,494</b>	<b>40,299</b>	<b>37,556</b>	<b>36,807</b>	<b>34,530</b>	<b>33,209</b>	<b>29,721</b>	<b>31,249</b>	<b>30,450</b>
<b>Other arable crops</b>																	
Spring oilseed rape	15	31	287	66	237	.	111	.	.	.	.	517	67	10	69	.	.
Winter oilseed rape	891	1,032	323	127	502	.	.	.	.	.	.	290	427	542	747	617	678
All oilseed rape *	906	1,063	610	193	739	131	111	255	471	439	446	807	494	552	816	617	678
Hemp	.	.	.	.	.	.	.	.	.	40	.	.	.	.	.	.	.
Linseed	.	158	.	.	.	.	14	.	.	2	.	.	.	.	.	.	.
Maize	.	45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Peas & beans	.	.	.	.	199	273	197	212	83	55	85	10	54	295***	160	405***	160***
Lupins	.	.	.	.	.	.	67	10	19	.	.	.	.	.	.	.	.
Camelina	.	.	.	.	.	.	.	.	.	.	.	81	.	.	.	.	.
Set-aside	.	.	.	.	.	2,451	3,013	3,394	2,284	.	.	.	.	.	.	.	.
<b>All other arable crops</b>	<b>1,812</b>	<b>2,329</b>	<b>1,220</b>	<b>386</b>	<b>1,677</b>	<b>2,855</b>	<b>3,513</b>	<b>3,871</b>	<b>2,857</b>	<b>537</b>	<b>531</b>	<b>1,705</b>	<b>1,042</b>	<b>1,399</b>	<b>1,792</b>	<b>1,022</b>	<b>838</b>
<b>Potatoes</b>																	
Early potatoes	463	836	813	729	391	.	728	403	370	401	191	192	155	.	101	88	.
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	3,236	3,316	3,084
Seed potatoes	3,509	3,688	1,678	1,798	1,607	.	1,239	1,148	763	792	707	555	.	527	365	399	384
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	3,601	3,715	3,468
<b>All potatoes</b>	<b>11,835</b>	<b>11,064</b>	<b>8,404</b>	<b>8,488</b>	<b>7,513</b>	<b>.</b>	<b>6,708</b>	<b>6,068</b>	<b>5,118</b>	<b>5,501</b>	<b>4,939</b>	<b>4,150</b>	<b>3,765</b>	<b>3,907</b>	<b>3,702</b>	<b>3,803</b>	<b>3,468</b>
<b>All crops</b>	<b>62,259</b>	<b>59,063</b>	<b>52,328</b>	<b>51,312</b>	<b>53,775</b>	<b>43,447</b>	<b>48,332</b>	<b>48,541</b>	<b>41,469</b>	<b>46,337</b>	<b>43,026</b>	<b>42,662</b>	<b>39,337</b>	<b>37,963</b>	<b>34,398</b>	<b>36,074</b>	<b>34,756</b>

\* both spring & winter oilseed rape

\*\*excluding potatoes

\*\*\*excluding peas

**Table 22 contd: Percentage change in the area of arable crops grown (ha) in Northern Ireland, 1990-2022.**

Crop	Differences between:															
	2022-90	2022-92	2022-94	2022-96	2022-98	2022-00	2022-02	2022-04	2022-06	2022-08	2022-10	2022-12	2022-14	2022-16	2022-18	2022-20
<b>Cereals</b>																
Rye	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1346%	.
Spring barley	-57%	-48%	-38%	-39%	-44%	-46%	-43%	-41%	-27%	-31%	-24%	-35%	-21%	-11%	-12%	3%
Spring oats	-60%	-30%	-7%	3%	-10%	-54%	10%	-2%	-11%	13%	-39%	-39%	-34%	-38%	-33%	-18%
Spring wheat	183%	623%	2974%	661%	146%	14%	-31%	-35%	-35%	-37%	-42%	-34%	63%	39%	24%	135%
Triticale	2%	.	.	.	127%	-41%	-23%	-79%	219%	-54%	653%	.	-90%	.	.	-73%
Undersown barley	-97%	-97%	-97%	-97%	-96%	-95%	-91%	-72%	-74%	-79%	-71%	-67%	-61%	-27%	.	.
Undersown oats	-76%	-87%	-92%	-78%	-72%	12%	43%	-88%	-60%	.	-42%	-85%	-71%	90%	.	.
Undersown wheat	78%	.	15%	.	.	.	.	.	.	.	-100%	-100%	.	.	.	.
Winter barley	116%	39%	36%	11%	3%	53%	103%	75%	73%	29%	17%	49%	18%	4%	37%	2%
Winter oats	47%	-2%	-12%	-33%	-35%	3%	-36%	-36%	13%	-40%	18%	303%	53%	21%	49%	24%
Winter wheat	16%	-1%	-3%	3%	0%	64%	16%	-5%	-6%	-36%	-26%	-14%	-14%	-15%	12%	1%
<b>All cereals</b>	<b>-37%</b>	<b>-33%</b>	<b>-29%</b>	<b>-28%</b>	<b>-32%</b>	<b>-25%</b>	<b>-20%</b>	<b>-21%</b>	<b>-9%</b>	<b>-24%</b>	<b>-19%</b>	<b>-17%</b>	<b>-12%</b>	<b>-8%</b>	<b>2%</b>	<b>-3%</b>
<b>Other arable crops</b>																
Spring oilseed rape	362%	123%	-76%	5%	-71%	.	.	.	.	.	.	-87%	3%	592%	.	.
Winter oilseed rape	-24%	-34%	110%	434%	35%	.	.	.	.	.	.	134%	59%	25%	-9%	10%
All oilseed rape *	-25%	-36%	11%	251%	-8%	418%	511%	166%	44%	54%	52%	-16%	37%	23%	-17%	10%
Hemp	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Linseed	.	-100%	.	.	.	.	-100%	.	.	-100%	.	.	.	.	.	.
Maize	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Peas & beans	.	.	.	.	-20%	-41%	-19%	-24%	93%	190%	88%	1444%	195%	-46%	0%	-60%
Lupins	.	.	.	.	.	.	-100%	-100%	-100%	.	.	.	.	.	.	.
Camelina	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Set-aside	.	.	.	.	.	-100%	-100%	-100%	-100%	.	.	.	.	.	.	.
<b>All other arable crops</b>	<b>-54%</b>	<b>-64%</b>	<b>-31%</b>	<b>117%</b>	<b>-50%</b>	<b>-71%</b>	<b>-76%</b>	<b>-78%</b>	<b>-71%</b>	<b>56%</b>	<b>58%</b>	<b>-51%</b>	<b>-20%</b>	<b>-40%</b>	<b>-53%</b>	<b>-18%</b>
<b>Potatoes</b>																
Early potatoes	-81%	-89%	-89%	-88%	-78%	.	-88%	-78%	-76%	-78%	-54%	-54%	-43%	.	-13%	.
Maincrop potatoes	-61%	-53%	-48%	-48%	-44%	.	-35%	-32%	-23%	-28%	-24%	-9%	.	-9%	-5%	-7%
Seed potatoes	-89%	-90%	-77%	-79%	-76%	.	-69%	-67%	-50%	-52%	-46%	-31%	.	-27%	5%	-4%
Maincrop & seed potatoes	-70%	-66%	-54%	-55%	-51%	.	-42%	-39%	-27%	-32%	-27%	-12%	-4%	-11%	-4%	-7%
<b>All potatoes</b>	<b>-71%</b>	<b>-69%</b>	<b>-59%</b>	<b>-59%</b>	<b>-54%</b>	.	<b>-48%</b>	<b>-43%</b>	<b>-32%</b>	<b>-37%</b>	<b>-30%</b>	<b>-16%</b>	<b>-8%</b>	<b>-11%</b>	<b>-6%</b>	<b>-9%</b>
<b>All crops</b>	<b>-44%</b>	<b>-41%</b>	<b>-34%</b>	<b>-32%</b>	<b>-35%</b>	<b>-20%</b>	<b>-28%</b>	<b>-28%</b>	<b>-16%</b>	<b>-25%</b>	<b>-19%</b>	<b>-19%</b>	<b>-12%</b>	<b>-8%</b>	<b>1%</b>	<b>-4%</b>



**Table 23: The area (spha) of arable crops treated with pesticides in Northern Ireland, 1990-2022.**

Pesticide type	Survey year																
	1990	1992	1994	1996	1998	2000*	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020	2022
<b>Fungicides</b>	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	146,444	134,094	126,034
<b>Herbicides &amp; desiccants</b>	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	101,534	91,622	90,131
<b>Insecticides</b>																	
<i>Carbamates</i>	.	111	167	520	297	.	594	592	30	558	59	112	140	221	.	.	.
<i>Organochlorines</i>	.	79	255	222	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Organophosphates</i>	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	457	308	.
<i>Pyrethroids</i>	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	15,594	16,650	19,859
<i>Pyridines</i>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	681
<i>Azomethines</i>	.	.	.	.	.	.	.	673	71	.	.	272	.	.	.	797	.
<i>Neonicotinoids</i>	.	.	.	.	.	.	.	.	96	.	78	274	.	609	291	.	479
<i>Feeding blockers</i>	.	.	.	.	.	.	.	.	.	252	77	66	101	.	.	399	.
<i>Mixed Formulations</i>	.	.	.	.	.	.	.	581	96	.	129	.	.	.	.	.	.
<i>Unknown insecticides</i>	465	694	207	815	1,238	.	.	180	89	.	.	74	.	80	.	.	145
<b>All insecticides</b>	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	16,342	18,153	21,162
<b>Molluscicides</b>	834	871	243	434	1,123	.	1,926	337	1,237	1,277	816	3,642	1,387	2,712	2,002	5,518	1,611
<b>Growth regulators</b>	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	33,571	34,205	37,517
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	89	210	664	633	315	902	121	4,486
<b>Mixed formulations</b>	233	186	134	137	128	.	86	.	.	.	.	.	.	.	.	.	.
<b>Seed treatments</b>	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	28,310	33,513	30,387
<b>All pesticides</b>	<b>234,985</b>	<b>245,485</b>	<b>245,971</b>	<b>268,710</b>	<b>308,881</b>	.	<b>288,348</b>	<b>325,299</b>	<b>295,635</b>	<b>374,207</b>	<b>337,336</b>	<b>374,845</b>	<b>335,215</b>	<b>354,216</b>	<b>329,104</b>	<b>317,226</b>	<b>311,328</b>
Area grown (ha)	61,355	57,999	51,718	51,119	53,036	43,447	48,222	48,541	37,114	41,627	43,027	41,856	38,843	37,963	34,398	36,074	34,756

\* Potato data not available for 2000

**Table 23 contd:** Comparison of the area (spha) of arable crops treated in Northern Ireland, 1990-2022.

Pesticide type	Differences between:															
	2022-90	2022-92	2022-94	2022-96	2022-98	2022-00	2022-02	2022-04	2022-06	2022-08	2022-10	2022-12	2022-14	2022-16	2022-18	2022-20
<b>Fungicides</b>	23%	19%	10%	3%	-11%	.	-1%	-10%	2%	-21%	-15%	-20%	-10%	-18%	-14%	-6%
<b>Herbicides &amp; desiccants</b>	20%	18%	24%	11%	-1%	.	4%	-14%	-4%	-22%	-12%	-21%	-14%	-16%	-11%	-2%
<b>Insecticides</b>																
<i>Carbamates</i>	.	99%	32%	-57%	-26%	.	-63%	-63%	638%	-60%	275%	98%	58%	.	.	.
<i>Organochlorines</i>	.	181%	-13%	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Organophosphates</i>	-79%	-87%	-85%	-90%	-81%	.	-76%	-87%	-83%	-74%	-74%	-87%	-89%	-51%	-33%	.
<i>Pyrethroids</i>	586%	609%	508%	158%	16%	.	9%	-26%	-21%	-45%	-25%	-26%	-4%	7%	27%	19%
<i>Pyridines</i>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Azomethines</i>	.	.	.	.	.	.	.	18%	1023%	.	.	193%	.	.	.	.
<i>Neonicotinoids</i>	.	.	.	.	.	.	.	.	399%	.	514%	75%	.	-21%	64%	.
<i>Feeding blockers</i>	.	.	.	.	.	.	.	.	.	58%	418%	504%	293%	.	.	.
<i>Mixed Formulations</i>	.	.	.	.	.	.	.	-78%	34%	.	.	.	.	.	.	.
<i>Unknown insecticides</i>	-69%	-79%	-30%	-82%	-88%	.	.	-20%	62%	.	.	95%	.	80%	.	.
<b>All insecticides</b>	338%	245%	252%	71%	5%	.	6%	-33%	-22%	-44%	-24%	-30%	-11%	6%	29%	17%
<b>Molluscicides</b>	93%	85%	563%	271%	43%	.	-16%	378%	30%	26%	97%	-56%	16%	-41%	-20%	-71%
<b>Growth regulators</b>	332%	254%	192%	169%	97%	.	115%	127%	92%	67%	56%	18%	20%	3%	12%	10%
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	4939%	2036%	575%	609%	1325%	398%	3603%
<b>Mixed formulations</b>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
<b>Seed treatments</b>	-29%	-32%	-22%	-22%	-16%	.	-12%	-8%	0%	-17%	-11%	-20%	-6%	-8%	7%	-9%
<b>All pesticides</b>	32%	27%	27%	16%	1%	.	8%	-4%	5%	-17%	-8%	-17%	-7%	-12%	-5%	-2%
Area grown (ha)	-43%	-40%	-33%	-32%	-34%	-20%	-28%	-28%	-6%	-17%	-19%	-17%	-11%	-8%	1%	-4%

**Table 24: The quantity (kg) of pesticides applied to arable crops in Northern Ireland, 1990-2022.**

Pesticide type	Survey year																
	1990	1992	1994	1996	1998	2000*	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020	2022
<b>Fungicides</b>	97,570	101,760	90,994	94,225	91,060	.	85,205	71,130	67,256	77,316	67,880	58,699	53,195	56,576	62,470	55,087	37,957
<b>Herbicides &amp; desiccants</b>	253,620	212,360	133,566	336,328	337,645	.	390,979	254,620	152,127	71,582	50,750	52,122	45,691	42,275	41,420	36,123	35,458
<b>Insecticides</b>																	
<i>Carbamates</i>	.	20	21	70	36	.	79	79	4	75	8	16	18	31	.	.	.
<i>Organochlorines</i>	.	90	290	230	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Organophosphates</i>	680	800	850	1,510	870	.	572	1,072	1,373	786	733	1,294	1,929	174	103	7	.
<i>Pyrethroids</i>	50	50	69	150	190	.	203	198	163	295	163	192	103	95	92	80	96
<i>Azomethine</i>	.	.	.	.	.	.	.	102	5	.	.	43	.	.	.	120	.
<i>Neonicotinoid</i>	.	.	.	.	.	.	.	.	9	.	6	21	.	46	33	.	24
<i>Feeding blocker</i>	.	.	.	.	.	.	.	.	.	20	6	5	8	.	.	32	.
<i>Mixed Formulations</i>	.	.	.	.	.	.	.	51	16	.	14	.	.	.	.	.	50
<i>Unknown insecticides</i>	.	.	.	.	.	.	.	10	.	.	.	59	.	12	.	.	N/K
<b>All insecticides</b>	730	960	1,230	1,960	1,095	.	854	1,512	1,570	1,176	930	1,630	2,058	358	229	239	170
<b>Molluscicides</b>	330	270	118	90	173	.	338	60	284	169	120	297	134	365	257	1,097	154
<b>Growth regulators</b>	10,600	9,350	10,859	12,844	14,433	.	11,609	11,700	12,629	17,000	14,330	16,585	14,758	18,230	14,314	13,951	15,220
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	14	180	244	351	225	689	118	2,928
<b>Mixed formulations</b>	510	410	295	301	282	.	127	.	.	.	.	.	.	.	.	.	.
<b>Seed treatments</b>	380*	3,770	5,060	3,034	3,708	.	2,820	2,280	4,028	1,817	2,090	2,522	2,018	3,405	2,271	354	663
<b>All pesticides</b>	<b>363,740</b>	<b>328,890</b>	<b>242,123</b>	<b>448,780</b>	<b>448,399</b>	<b>.</b>	<b>491,932</b>	<b>341,300</b>	<b>237,894</b>	<b>169,060</b>	<b>136,280</b>	<b>132,100</b>	<b>118,239</b>	<b>121,434</b>	<b>121,647</b>	<b>106,968</b>	<b>92,551</b>
Area grown (ha)	61,355	57,999	51,718	51,119	53,036	43,447	48,222	48,541	37,114	41,627	43,027	41,856	38,843	37,963	34,398	36,074	34,756

\* Potato data not available for 2000

**Table 24 contd:** Comparison of quantity (kg) of pesticides applied to arable crops in Northern Ireland, 1990-2022.

Pesticide type	Differences between:																
	2022-90	2022-92	2022-94	2022-96	2022-98	2022-00	2022-02	2022-04	2022-06	2022-08	2022-10	2022-12	2022-14	2022-16	2022-18	2022-20	
<b>Fungicides</b>	-61%	-63%	-58%	-60%	-58%	.	-55%	-47%	-44%	-51%	-44%	-35%	-29%	-33%	-39%	-31%	
<b>Herbicides &amp; desiccants</b>	-86%	-83%	-73%	-89%	-89%	.	-91%	-86%	-77%	-50%	-30%	-32%	-22%	-16%	-14%	-2%	
<b>Insecticides</b>																	
<i>Carbamates</i>	.	.	-13%	-74%	-49%	.	-77%	-77%	356%	-76%	128%	16%	.	-41%	.	.	
<i>Organochlorines</i>	.	156%	-21%	.	.	.	.	.	.	.	.	.	.	.	.	.	
<i>Organophosphates</i>	-99%	-99%	-99%	-100%	-99%	.	-99%	-99%	-99%	-99%	-99%	-99%	-100%	-96%	-93%	.	
<i>Pyrethroids</i>	92%	92%	39%	-36%	-50%	.	-53%	-52%	-41%	-67%	-41%	-50%	-7%	1%	4%	20%	
<i>Azomethine</i>	.	.	.	.	.	.	.	17%	2291%	.	.	176%	.	.	.	.	
<i>Neonicotinoid</i>	.	.	.	.	.	.	.	.	166%	.	299%	13%	.	-48%	-28%	.	
<i>Feeding blocker</i>	.	.	.	.	.	.	.	.	.	59%	431%	504%	293%	.	.	.	
<i>Mixed Formulations</i>	.	.	.	.	.	.	.	-2%	213%	.	257%	.	.	.	.	.	
<i>Unknown insecticides</i>	.	.	.	.	.	.	.	20%	.	.	.	-80%	.	.	.	.	
<b>All insecticides</b>	-67%	-82%	-86%	-91%	-84%	.	-80%	-89%	-89%	-86%	-82%	-90%	-92%	-53%	-26%	-29%	
<b>Molluscicides</b>	-53%	-43%	30%	72%	-11%	.	-54%	156%	-46%	-9%	28%	-48%	15%	-58%	-40%	-86%	
<b>Growth regulators</b>	44%	63%	40%	19%	5%	.	31%	30%	21%	-10%	6%	-8%	3%	-17%	6%	9%	
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	.	20815%	1527%	1099%	734%	1204%	325%	2392%
<b>Mixed formulations</b>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
<b>Seed treatments</b>	75%	-82%	-87%	-78%	-82%	.	-76%	-71%	-84%	-63%	-68%	-74%	-67%	-81%	-71%	88%	
<b>All pesticides</b>	-75%	-72%	-62%	-79%	-79%	.	-81%	-73%	-61%	-45%	-32%	-30%	-22%	-24%	-24%	-13%	
Area grown (ha)	-43%	-40%	-33%	-32%	-34%	-20%	-28%	-28%	-6%	-17%	-19%	-17%	-11%	-8%	1%	-4%	

**Table 25: The area (spha) of cereal crops treated with pesticides in Northern Ireland, 1990-2022.**

Pesticide type	Survey year																
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014	2016	2018*	2020*	2022
<b>Fungicides</b>	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	93,645	85,904	86,624
<b>Herbicides &amp; desiccants</b>	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	82,998	72,201	72,220
<b>Insecticides</b>	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	14,710	14,615	16,923
<b>Molluscicides</b>	24	.	27	168	129	833	305	223	307	493	324	466	442	714	361	1,772	.
<b>Growth regulators</b>	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	33,440	34,014	37,054
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	89	.	425	162	.	670	49	3,665
<b>Seed treatments</b>	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	25,835	29,771	28,051
<b>All pesticides</b>	<b>140,465</b>	<b>146,819</b>	<b>153,330</b>	<b>180,624</b>	<b>207,314</b>	<b>217,031</b>	<b>197,144</b>	<b>241,374</b>	<b>227,451</b>	<b>294,463</b>	<b>256,277</b>	<b>295,351</b>	<b>276,957</b>	<b>284,626</b>	<b>251,659</b>	<b>238,325</b>	<b>244,537</b>
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	29,721	31,249	30,450

\* Includes rye and triticale.

**Table 25 contd: Comparison of the area (spha) of cereal crops treated in Northern Ireland, 1990-2022.**

Pesticide type	Differences between:															
	2022-90	2022-92	2022-94	2022-96	2022-98	2022-00	2022-02	2022-04	2022-06	2022-08	2022-10	2022-12	2022-14	2022-16	2022-18	2022-20
<b>Fungicides</b>	157%	130%	104%	52%	35%	36%	44%	1%	12%	-19%	-5%	-18%	-15%	-20%	-7%	1%
<b>Herbicides &amp; desiccants</b>	38%	37%	29%	15%	-1%	1%	4%	-13%	-7%	-24%	-13%	-23%	-20%	-20%	-13%	0%
<b>Insecticides</b>	322%	187%	194%	53%	-13%	-43%	-6%	-36%	-33%	-53%	-35%	-41%	-24%	-7%	15%	16%
<b>Molluscicides</b>	7284%	.	6463%	955%	1274%	113%	481%	695%	477%	259%	447%	280%	301%	148%	390%	.
<b>Growth regulators</b>	331%	253%	189%	166%	95%	115%	114%	125%	89%	66%	55%	17%	19%	3%	11%	9%
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	4018%	.	762%	2169%	.	447%	7336%
<b>Seed treatments</b>	-33%	-30%	-22%	-21%	-12%	-18%	-11%	-4%	3%	-16%	-11%	-19%	-8%	-10%	9%	-6%
<b>All pesticides</b>	<b>74%</b>	<b>67%</b>	<b>59%</b>	<b>35%</b>	<b>18%</b>	<b>13%</b>	<b>24%</b>	<b>1%</b>	<b>8%</b>	<b>-17%</b>	<b>-5%</b>	<b>-17%</b>	<b>-12%</b>	<b>-14%</b>	<b>-3%</b>	<b>3%</b>
Area grown (ha)	-37%	-33%	-29%	-28%	-32%	-25%	-20%	-21%	-9%	-24%	-19%	-17%	-11%	-9%	2%	-3%

**Table 26: The quantity (kg) of pesticides applied to cereal crops in Northern Ireland, 1990-2022.**

Pesticide type	Survey year																
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014	2016	2018*	2020*	2022
<b>Fungicides</b>	14,970	18,430	14,964	24,520	22,820	13,320	15,183	19,150	20,206	32,173	27,620	31,114	30,840	28,813	29,501	23,181	22,497
<b>Herbicides &amp; desiccants</b>	55,070	39,430	35,669	42,870	46,260	41,680	35,350	42,210	48,774	58,475	38,277	40,344	36,704	33,355	28,538	26,852	22,945
<b>Insecticides</b>	550	830	876	1,660	959	2,750	776	1,140	1,357	1,077	892	1,540	1,849	260	177	70	85
<b>Molluscicides</b>	10	.	6	40	17	140	65	40	43	69	28	37	51	62	22	368	.
<b>Growth regulators</b>	10,510	9,320	10,859	12,840	14,410	12,870	11,609	11,640	12,618	16,934	14,163	16,555	14,479	18,173	14,272	13,896	14,584
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	14	.	45	4	.	488	56	2,379
<b>Seed treatments</b>	330	940	3,800	2,410	1,715	2,340	1,568	1,350	1,417	1,086	1,371	1,401	12,813	1,602	1,629	258	338
<b>All pesticides</b>	<b>81,440</b>	<b>68,940</b>	<b>66,170</b>	<b>84,350</b>	<b>86,190</b>	<b>73,110</b>	<b>64,350</b>	<b>75,550</b>	<b>84,410</b>	<b>109,827</b>	<b>82,354</b>	<b>91,036</b>	<b>85,209</b>	<b>82,265</b>	<b>74,626</b>	<b>64,682</b>	<b>62,829</b>
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	29,721	31,249	30,450

\* Includes rye and triticale.

**Table 26 contd: Comparison of quantity (kg) of pesticides applied to cereal crops in Northern Ireland, 1990-2022.**

Pesticide type	Differences between:															
	2022-90	2022-92	2022-94	2022-96	2022-98	2022-00	2022-02	2022-04	2022-06	2022-08	2022-10	2022-12	2022-14	2022-16	2022-18	2022-20
<b>Fungicides</b>	50%	22%	50%	-8%	-1%	69%	48%	17%	11%	-30%	-19%	-28%	-27%	-22%	-24%	-3%
<b>Herbicides &amp; desiccants</b>	-58%	-42%	-36%	-46%	-50%	-45%	-35%	-46%	-53%	-61%	-40%	-43%	-37%	-31%	-20%	-15%
<b>Insecticides</b>	-85%	-90%	-90%	-95%	-91%	-97%	-89%	-93%	-94%	-92%	-90%	-94%	-95%	-67%	-52%	22%
<b>Molluscicides</b>	3584%	.	5657%	821%	2113%	163%	469%	821%	757%	434%	1216%	889%	623%	496%	1599%	.
<b>Growth regulators</b>	39%	56%	34%	14%	1%	13%	26%	25%	16%	-14%	3%	-12%	1%	-20%	2%	5%
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	16895%	.	5230%	58816%	.	387%	4116%
<b>Seed treatments</b>	2%	-64%	-91%	-86%	-80%	-86%	-78%	-75%	-76%	-69%	-75%	-76%	-97%	-79%	-79%	31%
<b>All pesticides</b>	<b>-23%</b>	<b>-9%</b>	<b>-5%</b>	<b>-26%</b>	<b>-27%</b>	<b>-14%</b>	<b>-2%</b>	<b>-17%</b>	<b>-26%</b>	<b>-43%</b>	<b>-24%</b>	<b>-31%</b>	<b>-26%</b>	<b>-24%</b>	<b>-16%</b>	<b>-3%</b>
Area grown (ha)	-37%	-33%	-29%	-28%	-32%	-25%	-20%	-21%	-9%	-24%	-19%	-17%	-11%	-9%	2%	-3%

**Table 27: The area (spha) of oilseed rape crops treated with pesticides in Northern Ireland, 1990-2022.**

Pesticide type	Survey year																
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020*	2022*
<b>Fungicides</b>	467	525	86	226	664	244	70	238	646	737	1,337	1,265	1,245	1,618	2,112	1,691	1,572
<b>Herbicides &amp; desiccants</b>	1,603	1,343	597	292	1,171	366	194	448	970	972	1,054	1,694	1,227	1,620	2,957	1,531	1,870
<b>Insecticides</b>	.	198	180	25	234	.	49	55	149	316	361	146	93	154	100	44	.
<b>Molluscicides</b>	810	871	216	72	522	.	39	.	68	120	.	270	467	.	408	197	124
<b>Growth regulators</b>	.	84	.	.	.	.	.	.	.	.	.	.	.	256	131	191	285
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	.	210	239	471	315	200	72	821
<b>Seed treatments</b>	906	1,063	610	140	339	123	98	106	271	22	423	786	66	.	88	275	.
<b>All pesticides</b>	<b>3,786</b>	<b>4,084</b>	<b>1,689</b>	<b>755</b>	<b>2,931</b>	<b>732</b>	<b>450</b>	<b>846</b>	<b>2,104</b>	<b>2,167</b>	<b>3,360</b>	<b>4,400</b>	<b>3,569</b>	<b>3,962</b>	<b>5,996</b>	<b>4,001</b>	<b>4,716</b>
Area grown (ha)	906	1,062	610	193	739	131	111	255	471	439	446	807	494	552	816	617	678

\* Winter oilseed rape only.

**Table 27 contd: Comparison of the area (spha) of oilseed rape crops treated in Northern Ireland, 1990-2022.**

Pesticide type	Differences between:															
	2022-90	2022-92	2022-94	2022-96	2022-98	2022-00	2022-02	2022-04	2022-06	2022-08	2022-10	2022-12	2022-14	2022-16	2022-18	2022-20
<b>Fungicides</b>	237%	199%	1739%	596%	137%	545%	2133%	562%	143%	113%	18%	24%	26%	-3%	-26%	-7%
<b>Herbicides &amp; desiccants</b>	17%	39%	213%	540%	60%	411%	865%	317%	93%	92%	77%	10%	52%	15%	-37%	22%
<b>Insecticides</b>	.	-78%	-75%	78%	-81%	.	-9%	-19%	-70%	-86%	-88%	-70%	-52%	-71%	-56%	.
<b>Molluscicides</b>	-85%	-86%	-43%	72%	-76%	.	216%	.	82%	3%	.	-54%	-74%	.	-70%	-37%
<b>Growth regulators</b>	.	239%	.	.	.	.	.	.	.	.	.	.	.	11%	117%	49%
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	.	291%	243%	74%	161%	310%	1042%
<b>Seed treatments</b>	-70%	-74%	-55%	96%	-19%	123%	181%	160%	1%	1148%	-35%	-65%	314%	.	213%	.
<b>All pesticides</b>	<b>25%</b>	<b>15%</b>	<b>179%</b>	<b>525%</b>	<b>61%</b>	<b>544%</b>	<b>948%</b>	<b>457%</b>	<b>124%</b>	<b>118%</b>	<b>40%</b>	<b>7%</b>	<b>32%</b>	<b>19%</b>	<b>-21%</b>	<b>18%</b>
Area grown (ha)	-25%	-36%	11%	251%	-8%	418%	511%	166%	44%	54%	52%	-16%	37%	23%	-17%	10%

**Table 28:** The quantity (kg) of pesticides applied to oilseed rape crops in Northern Ireland, 1990-2022.

Pesticide type	Survey year																
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020*	2022
<b>Fungicides</b>	530	60	33	300	603	640	12	30	103	116	270	182	146	228	329	259	229
<b>Herbicides &amp; desiccants</b>	1,310	980	615	200	738	160	98	250	759	810	650	1,135	1,133	1,091	1,791	1,274	1,674
<b>Insecticides</b>	.	30	76	10	9	.	<1	<1	1	11	3	3	1	1	1	<1	.
<b>Molluscicides</b>	320	270	112	10	60	.	10	.	14	27	.	22	45	.	30	25	12
<b>Growth regulators</b>	.	40	.	.	.	.	.	.	.	.	.	.	.	57	42	55	102
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	.	.	.	347	225	163	61	549
<b>Seed treatments</b>	50	110	59	20	5	.	14	2	5	1	7	10	1	.	<1	.	.
<b>All pesticides</b>	<b>2,210</b>	<b>1,490</b>	<b>895</b>	<b>540</b>	<b>1,415</b>	<b>810</b>	<b>134</b>	<b>280</b>	<b>882</b>	<b>964</b>	<b>1,108</b>	<b>1,552</b>	<b>1,672</b>	<b>1,602</b>	<b>2,357</b>	<b>1,675</b>	<b>2,565</b>
Area grown (ha)	906	1,062	610	193	739	131	111	255	471	439	446	807	494	552	816	617	678

\* Winter oilseed rape only.

**Table 28 contd:** Comparison of quantity (kg) of pesticides applied to oilseed rape crops in Northern Ireland, 1990-2022.

Pesticide type	Differences between:															
	2022-90	2022-92	2022-94	2022-96	2022-98	2022-00	2022-02	2022-04	2022-06	2022-08	2022-10	2022-12	2022-14	2022-16	2022-18	2022-20
<b>Fungicides</b>	-57%	281%	590%	-24%	-62%	-64%	1820%	662%	122%	97%	-15%	26%	56%	0%	-31%	-12%
<b>Herbicides &amp; desiccants</b>	28%	71%	172%	737%	127%	946%	1610%	569%	121%	107%	157%	47%	48%	53%	-7%	31%
<b>Insecticides</b>	.	-98%	-99%	-93%	-93%	.	.	.	-44%	-94%	-78%	-75%	-3%	-29%	.	.
<b>Molluscicides</b>	-96%	-96%	-90%	17%	-81%	.	12%	.	-17%	-57%	.	-48%	-74%	.	-61%	-54%
<b>Growth regulators</b>	.	155%	.	.	.	.	.	.	.	.	.	.	.	79%	142%	86%
<b>Other treatments</b>	.	.	.	.	.	.	.	.	.	.	.	.	58%	144%	236%	798%
<b>Seed treatments</b>	-98%	-99%	-98%	-95%	-78%	.	-93%	-51%	-80%	0%	-86%	-90%	32%	.	.	.
<b>All pesticides</b>	<b>16%</b>	<b>72%</b>	<b>186%</b>	<b>375%</b>	<b>81%</b>	<b>217%</b>	<b>1813%</b>	<b>816%</b>	<b>191%</b>	<b>166%</b>	<b>131%</b>	<b>65%</b>	<b>53%</b>	<b>60%</b>	<b>9%</b>	<b>53%</b>
Area grown (ha)	-25%	-36%	11%	251%	-8%	418%	511%	166%	44%	54%	52%	-16%	37%	23%	-17%	10%



**Table 29:** The area (spha) of pea and bean crops treated with pesticides in Northern Ireland, 1998-2022.

Pesticide type	Survey Year												
	1998	2000	2002	2004	2006	2008	2010	2012	2014	2016*	2018	2020*	2022*
<b>Fungicides</b>	314	138	303	677	19	8	296	.	133	426	191	426	93
<b>Herbicides &amp; desiccants</b>	444	199	241	322	120	63	137	21	99	822	388	1,717	207
<b>Insecticides</b>	105	18	120	197	12	8	99	.	44	146	53	.	.
<b>Seed treatments</b>	.	105	138	15	.	8	72	.	.	25	9	125	.
<b>All pesticides</b>	<b>863</b>	<b>460</b>	<b>802</b>	<b>1,210</b>	<b>151</b>	<b>88</b>	<b>604</b>	<b>21</b>	<b>276</b>	<b>1,419</b>	<b>640</b>	<b>2,268</b>	<b>300</b>
Area grown (ha)	199	273	197	212	763	55	85	10	54	295	160	405	160

\*Only beans recorded in 2016, 2020 and 2022.

**Table 29 contd:** Comparison of the area (spha) of pea and bean crops treated in Northern Ireland, 1998-2022.

Pesticide type	Differences between:											
	2022-98	2022-00	2022-02	2022-04	2022-06	2022-08	2022-10	2022-12	2022-14	2022-16	2022-18	2022-20
<b>Fungicides</b>	-70%	-33%	-69%	-86%	391%	1065%	-69%	.	-30%	-78%	-51%	-78%
<b>Herbicides &amp; desiccants</b>	-53%	4%	-14%	-36%	72%	228%	51%	898%	110%	-75%	-47%	-88%
<b>Insecticides</b>	-50%	188%	-56%	-73%	340%	560%	-47%	.	19%	-64%	.	.
<b>Seed treatments</b>	.	19%	-9%	728%	.	1463%	74%	.	.	408%	1231%	.
<b>All pesticides</b>	<b>-65%</b>	<b>-35%</b>	<b>-63%</b>	<b>-75%</b>	<b>99%</b>	<b>241%</b>	<b>-50%</b>	<b>1348%</b>	<b>9%</b>	<b>-79%</b>	<b>-53%</b>	<b>-87%</b>
Area grown (ha)	-19%	-41%	-19%	-24%	-79%	191%	89%	1503%	197%	-46%	0%	-60%

**Table 30:** The quantity (kg) of pesticides applied to pea and bean crops in Northern Ireland, 1998-2022.

Pesticide type	Survey Year												
	1998	2000	2002	2004	2006	2008	2010	2012	2014	2016*	2018	2020*	2022*
<b>Fungicides</b>	199	54	106	540	9	6	180	.	25	237	147	106	21
<b>Herbicides &amp; desiccants</b>	409	197	255	197	98	62	132	18	78	572	295	1317	217
<b>Insecticides</b>	6	5	3	1	<1	<1	<1	.	<1	1	<1	.	.
<b>Seed treatments</b>	.	112	15	2	.	5	18	.	.	6	1	<1	.
<b>All pesticides</b>	<b>614</b>	<b>367</b>	<b>378</b>	<b>740</b>	<b>107</b>	<b>73</b>	<b>334</b>	<b>18</b>	<b>103</b>	<b>816</b>	<b>443</b>	<b>1423</b>	<b>238</b>
Area grown (ha)	199	273	197	212	83	55	85	10	54	295	160	405	160

\*Only beans recorded in 2016, 2020 and 2022.

**Table 30 contd:** Comparison of quantity (kg) of pesticides applied to pea and bean crops in Northern Ireland, 1998-2022.

Pesticide type	Differences between:											
	2022-98	2022-00	2022-02	2022-04	2022-06	2022-08	2022-10	2022-12	2022-14	2022-16	2022-18	2022-20
<b>Fungicides</b>	-89%	-61%	-80%	-96%	133%	250%	-88%	.	-16%	-91%	-86%	-80%
<b>Herbicides &amp; desiccants</b>	-47%	10%	-15%	10%	121%	250%	64%	1104%	178%	-62%	-26%	-84%
<b>Insecticides</b>	-98%	-98%	-97%	-90%	0%	0%	0%	.	-70%	-90%	.	.
<b>Seed treatments</b>	.	-100%	-100%	-100%	.	-100%	-100%	.	.	-100%	.	.
<b>All pesticides</b>	<b>-61%</b>	<b>-35%</b>	<b>-37%</b>	<b>-68%</b>	<b>122%</b>	<b>226%</b>	<b>-29%</b>	<b>1220%</b>	<b>130%</b>	<b>-71%</b>	<b>-46%</b>	<b>-83%</b>
Area grown (ha)	-20%	-41%	-19%	-24%	93%	191%	88%	1500%	196%	-46%	0%	-61%

**Table 31:** The area (spha) of potato crops treated with pesticides in Northern Ireland, 1990-2022.

Pesticide type	Survey Year																
	1990	1992	1994	1996	1998	2000*	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020	2022
<b>Fungicides</b>	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	50,496	46,073	37,744
<b>Herbicides &amp; desiccants</b>	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	15,192	16,173	15,834
<b>Insecticides</b>	820	51	102	1,295	492	.	1,823	4,565	1,900	1,595	1,379	1,369	1,428	1,508	1,479	3,494	4,239
<b>Molluscicides</b>	.	.	.	195	472	.	1,581	114	930	664	491	2,906	479	1,998	1,233	3,549	1,487
<b>Growth regulators</b>	233	186	134	137	128	.	86	.	.	.	.	.	.	.	.	.	178
<b>Mixed formulations</b>	.	.	.	.	.	.	72	.	.	23	56	10	93	.	31	.	.
<b>Seed treatments</b>	.	3,738	2,420	3,314	4,017	.	3,071	3,679	2,756	3,158	2,117	2,666	1,632	1,797	2,377	3,343	2,337
<b>All pesticides</b>	<b>90,583</b>	<b>93,972</b>	<b>90,952</b>	<b>87,330</b>	<b>97,658</b>	.	<b>88,295</b>	<b>80,347</b>	<b>66,954</b>	<b>77,473</b>	<b>77,085</b>	<b>74,992</b>	<b>54,413</b>	<b>64,209</b>	<b>70,809</b>	<b>72,632</b>	<b>61,819</b>
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	3,702	3,803	3,468

\* Potato data not available for 2000

**Table 31 contd:** Comparison of the area (spha) of potato crops treated in Northern Ireland, 1990-2022.

Pesticide type	Differences between:															
	2022-90	2022-92	2022-94	2022-96	2022-98	2022-00	2022-02	2022-04	2022-06	2022-08	2022-10	2022-12	2022-14	2022-16	2022-18	2022-20
<b>Fungicides</b>		-45%	-48%	-42%	-50%	.	-44%	-28%	-17%	-28%	-32%	-26%	1%	-15%	-25%	-18%
<b>Herbicides &amp; desiccants</b>	-25%	-27%	-1%	-10%	-5%	.	7%	-20%	-1%	-20%	-11%	-9%	20%	9%	4%	-2%
<b>Insecticides</b>	417%	8212%	4076%	227%	762%	.	133%	-7%	123%	166%	207%	210%	197%	181%	187%	21%
<b>Molluscicides</b>	.	.	.	663%	215%	.	-6%	1205%	60%	124%	203%	-49%	211%	-26%	21%	-58%
<b>Growth regulators</b>	-24%	-4%	33%	30%	39%	.	107%	.	.	.	.	.	.	.	.	.
<b>Mixed formulations</b>	.	.	.	.	.	.	-56%	.	.	36%	-44%	207%	-66%	.	.	.
<b>Seed treatments</b>	.	-37%	-3%	-29%	-42%	.	-24%	-36%	-15%	-26%	10%	-12%	43%	30%	-2%	-30%
<b>All pesticides</b>	<b>-32%</b>	<b>-34%</b>	<b>-32%</b>	<b>-29%</b>	<b>-37%</b>	.	<b>-30%</b>	<b>-23%</b>	<b>-8%</b>	<b>-20%</b>	<b>-20%</b>	<b>-18%</b>	<b>14%</b>	<b>-4%</b>	<b>-13%</b>	<b>-15%</b>
Area grown (ha)	-71%	-69%	-59%	-59%	-54%	.	-48%	-43%	-32%	-37%	-30%	-16%	-8%	-11%	-6%	-9%

**Table 32:** The quantity (kg) of pesticides applied to potato crops in Northern Ireland, 1990-2022.

Pesticide type	Survey year																
	1990	1992	1994	1996	1998	2000*	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020	2022
<b>Fungicides</b>	82,070	83,280	75,997	69,410	67,430	.	69,901	51,326	46,930	45,019	39,796	27,404	22,184	27,298	32,500	31,541	15,211
<b>Herbicides &amp; desiccants</b>	197,200	171,750	97,282	293,260	290,230	.	354,008	211,178	101,780	12,221	11,698	10,592	7,775	7,258	10,790	6,680	10,622
<b>Insecticides</b>	170	100	279	280	130	.	75	362	200	87	36	88	242	96	51	169	85
<b>Molluscicides</b>				40	98	.	263	16	230	74	90	238	38	302	205	703	142
<b>Growth regulators</b>	510	410	295	300	282	.	127	.	.	.	.	.	.	.	.	.	534
<b>Mixed formulations</b>						.	172	.	.	69	168	31	279	.	37	.	.
<b>Seed treatments</b>		2,710	1,204	610	1,989	.	1,219	898	2,600	726	695	1,110	736	1,796	640	95	326
<b>All pesticides</b>	<b>279,950</b>	<b>258,250</b>	<b>175,057</b>	<b>363,890</b>	<b>360,160</b>	.	<b>425,835</b>	<b>263,781</b>	<b>151,750</b>	<b>58,197</b>	<b>52,480</b>	<b>39,462</b>	<b>31,255</b>	<b>36,751</b>	<b>44,221</b>	<b>39,188</b>	<b>26,919</b>
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	3,702	3,803	3,468

\* Potato data not available for 2000

**Table 32 contd:** Comparison of quantity (kg) of pesticides applied to potato crops in Northern Ireland, 1990-2022.

Pesticide type	Differences between:															
	2022-90	2022-92	2022-94	2022-96	2022-98	2022-00	2022-02	2022-04	2022-06	2022-08	2022-10	2022-12	2022-14	2022-16	2022-18	2022-20
<b>Fungicides</b>		-82%	-80%	-78%	-77%	.	-78%	-70%	-68%	-66%	-62%	-44%	-31%	-44%	-53%	-52%
<b>Herbicides &amp; desiccants</b>	-95%	-94%	-89%	-96%	-96%	.	-97%	-95%	-90%	-13%	-9%	0%	37%	46%	-2%	59%
<b>Insecticides</b>	-50%	-15%	-69%	-70%	-35%	.	13%	-76%	-57%	-2%	136%	-3%	-65%	-12%	66%	-50%
<b>Molluscicides</b>	.	.	.	255%	45%	.	-46%	788%	-38%	92%	58%	-40%	271%	-53%	-31%	-80%
<b>Growth regulators</b>	5%	30%	81%	78%	89%	.	319%	.	.	.	.	.	.	.	.	.
<b>Mixed formulations</b>	.	.	.	.	.	.	-78%	.	.	-46%	-78%	23%	-87%	.	.	.
<b>Seed treatments</b>	.	-88%	-73%	-47%	-84%	.	-73%	-64%	-87%	-55%	-53%	-71%	-56%	-82%	-49%	241%
<b>All pesticides</b>	<b>-90%</b>	<b>-90%</b>	<b>-85%</b>	<b>-93%</b>	<b>-93%</b>	.	<b>-94%</b>	<b>-90%</b>	<b>-82%</b>	<b>-54%</b>	<b>-49%</b>	<b>-32%</b>	<b>-14%</b>	<b>-27%</b>	<b>-39%</b>	<b>-31%</b>
Area grown (ha)	-71%	-69%	-59%	-59%	-54%	.	-48%	-43%	-32%	-37%	-30%	-16%	-8%	-11%	-6%	-9%

**Table 33: Comparison of early/maincrop potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2022.**

	Ware (early and maincrop) potatoes														
	1992	1994	1996	1998	2002	2004	2006	2008	2010	2012	2014*	2016	2018	2020**	2022**
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	36,619	.	.
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	36,619	.	.

\* both seed and maincrop potatoes combined in 2014 \*\* storage data not available for 2020 and 2022

**Table 34: Comparison of seed potatoes stored (tonnes), treated (treated tonnes) and weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2022.**

	Seed potatoes														
	1992	1994	1996	1998	2002	2004	2006	2008	2010	2012	2014*	2016	2018	2020**	2022**
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	9,542	.	.
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	9,542	.	.

\* both seed and maincrop potatoes combined in 2014 \*\* storage data not available for 2020 and 2022

**Table 35: Comparison of all potatoes stored (tonnes), treated (treated tonnes) and weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2022.**

	All potatoes														
	1992	1994	1996	1998	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020**	2022**
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	46,161	.	.
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	46,161	.	.

\*\* storage data not available for 2020 and 2022

## ACKNOWLEDGEMENTS

We, the authors, wish to thank all the growers who participated in this survey without whose co-operation completion of this report would not have been possible. We are extremely grateful for the assistance of Dr David Matthews, Ms Ciara Isaac and Ms Alison Faulkner who provided support on key aspects of this report. We are also grateful for the invaluable assistance of the staff at the Food & Environmental Research Agency (FERA), York and the Science & Advice for Scottish Agriculture (SASA), a Division of the Scottish Government Rural Payments and Inspections Directorate.

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## Northern Ireland Pesticide Usage Survey Published Reports Appendix 1

<b>Report No.</b>	<b>Report title</b>	<b>ISBN</b>
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



<b>Report No.</b>	<b>Report title</b>	<b>ISBN</b>
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
240	Soft Fruit Crops 2010	1-848 07 251 0
241	Top Fruit Crops 2010	1-848 07 250 3
242	Arable Crops 2010	1-848 07 252 7
245	Mushroom crops 2011	1-84807-308-1
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
275	Arable Crops 2016	1-84807-808-6
276	Soft Fruit Crops 2016	1-84807-809-3
277	Top Fruit Crops 2016	1-84807-810-9
280	Edible Protected Crops 2017	1-84807-918-2
281	Outdoor Vegetable Crops 2017	1-84807-917-5
282	Grassland & Fodder Crops 2017	1-84807-916-8

288	Arable Crops 2018	1-83887-064-5
289	Soft Fruit Crops 2018	1-83887-065-2
290	Top Fruit Crops 2018	1-83887-066-9
293	Outdoor Vegetable Crops 2019	1-908471-15-4
294	Edible Protected Crops 2019	1-908471-16-1
299	Arable Crops 2020	1-908471-19-2
300	Soft Fruit Crops 2020	1-908471-21-5
301	Top Fruit Crops 2020	1-908471-20-8
306	Outdoor Vegetable Crops 2021	1-908471-26-0
307	Edible Protected Crops 2021	1-908471-27-7
308	Grassland & Fodder Crops 2021	1-908471-25-3
314	Soft Fruit Crops 2022	1-908471-30-7
315	Top Fruit Crops 2022	1-908471-31-4

**ISBN 1-908471-29-1**

**12/23**