



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Pesticide Usage in Ireland

Arable Crops Survey

Report 2022



Pesticide Usage in Ireland

ARABLE CROPS SURVEY REPORT 2022

Pesticide Control Division,

Department of Agriculture, Food and Marine (DAFM),

Backweston Campus,

Celbridge,

Co. Kildare,

Ireland

W23 X3PH

Tel: +353 1 615 7552

Email: pcs@agriculture.gov.ie

Contents

Contents	2
List of Tables	3
List of Figures	7
Arable Crops Survey Report Summary	9
Background	10
Methods	11
Definitions	14
Crops	15
Regional distribution of crops	16
Pesticide usage	20
Arable crop areas 2012, 2016 and 2022	24
Quantity of pesticide applied per crop - 2012, 2016 and 2022	25
Pesticide applied on crop growing area - 2012, 2016 and 2022	27
Spring barley	27
Winter barley	28
Spring wheat	28
Winter wheat	29
Spring oats	29
Winter oats	30
Oilseed rape	30
Peas and beans	31
Potatoes (seed, early and maincrop)	31
Pesticide Usage Survey Results 2022	33
Pesticide usage on spring barley	33
Pesticide usage on winter barley	35
Pesticide usage on spring wheat	37
Pesticide usage on winter wheat	39
Pesticide usage on spring oats	41
Pesticide usage on winter oats	43
Pesticide usage on oilseed rape	44
Pesticide usage on peas and beans	46
Pesticide usage on seed potatoes	48
Pesticide usage on early potatoes	50
Pesticide usage on maincrop potatoes	52
Acknowledgements	81
References	81

List of Tables

TABLE 1. REGIONS SELECTED FOR THE SURVEY AND RESPECTIVE COUNTIES.	12
TABLE 2. THE TOTAL NUMBER OF ARABLE FARMS IN EACH SIZE GROUP (A) AND THE NUMBER OF SAMPLES FROM EACH SIZE GROUP (B).	13
TABLE 3. THE TOTAL NUMBER, AREA (HECTARES) OF CROPS SAMPLED AND THE PROPORTION (%) OF THE TOTAL AREA OF ARABLE CROPS SURVEYED IN IRELAND, 2022.	15
TABLE 4. ARABLE CROPS AREAS (HA) FOR SURVEYS IN 2012, 2016 AND 2022 AND PERCENTAGE (%) CHANGE IN AREAS GROWN FROM 2012 AND 2016 AVERAGE COMPARED WITH 2022.	25
TABLE 5. QUANTITY OF PESTICIDE TYPE (KG/HA) AND PERCENTAGE CHANGE (%) FOR SPRING BARLEY FOR SURVEYS BETWEEN 2022 AND 2012-2016 AVERAGE.	28
TABLE 6. QUANTITY OF PESTICIDE TYPE (KG/HA) AND PERCENTAGE CHANGE (%) FOR WINTER BARLEY FOR SURVEYS BETWEEN 2022 AND 2012-2016 AVERAGE.	28
TABLE 7. QUANTITY OF PESTICIDE TYPE (KG/HA) AND PERCENTAGE CHANGE (%) FOR SPRING WHEAT FOR SURVEYS BETWEEN 2022 AND 2012-2016 AVERAGE.	29
TABLE 8. QUANTITY OF PESTICIDE TYPE (KG/HA) AND PERCENTAGE CHANGE (%) FOR WINTER WHEAT FOR SURVEYS BETWEEN 2022 AND 2012-2016 AVERAGE.	29
TABLE 9. QUANTITY OF PESTICIDE TYPE (KG/HA) AND PERCENTAGE CHANGE (%) FOR SPRING OATS FOR SURVEYS BETWEEN 2022 AND 2012-2016 AVERAGE.	30
TABLE 10. QUANTITY OF PESTICIDE TYPE (KG/HA) AND PERCENTAGE CHANGE (%) FOR WINTER OATS FOR SURVEYS BETWEEN 2022 AND 2012-2016 AVERAGE.	30
TABLE 11. QUANTITY OF PESTICIDE TYPE (KG/HA) AND PERCENTAGE CHANGE (%) FOR OILSEED RAPE FOR SURVEYS BETWEEN 2022 AND 2012-2016 AVERAGE.	31
TABLE 12. QUANTITY OF PESTICIDE TYPE (KG/HA) AND PERCENTAGE CHANGE (%) FOR PEAS AND BEANS FOR SURVEYS BETWEEN 2022 AND 2012-2016 AVERAGE.	31
TABLE 13. QUANTITY OF PESTICIDE TYPE (KG/HA) AND PERCENTAGE CHANGE (%) FOR ALL POTATOES FOR SURVEYS BETWEEN 2022 AND 2012-2016 AVERAGE.	32
TABLE 14. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON SPRING BARLEY IN 2022, RANKED BY AREA TREATED (SPRAY-HECTARES).	34
TABLE 15. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON SPRING BARLEY IN IRELAND IN 2022, RANKED BY WEIGHT (KG).	35
TABLE 16. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON WINTER BARLEY IN 2022, RANKED BY AREA TREATED (SPRAY-HECTARES).	36
TABLE 17. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON WINTER BARLEY IN IRELAND IN 2022, RANKED BY WEIGHT (KG).	36
TABLE 18. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON SPRING WHEAT IN 2022, RANKED BY AREA TREATED (SPRAY-HECTARES).	38
TABLE 19. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON SPRING WHEAT IN IRELAND IN 2022, RANKED BY WEIGHT (KG).	38
TABLE 20. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON WINTER WHEAT IN 2022, RANKED BY AREA TREATED (SPRAY-HECTARES).	40

TABLE 21. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON WINTER WHEAT IN IRELAND IN 2022, RANKED BY WEIGHT (KG).....	40
TABLE 22. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON SPRING OATS IN 2022, RANKED BY AREA TREATED (SPRAY-HECTARES).....	42
TABLE 23. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON SPRING OATS IN IRELAND IN 2022, RANKED BY WEIGHT (KG).	42
TABLE 24. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON WINTER OATS IN 2022, RANKED BY AREA TREATED (SPRAY-HECTARES).....	44
TABLE 25. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON WINTER OATS IN IRELAND IN 2022, RANKED BY WEIGHT (KG).	44
TABLE 26. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON OILSEED RAPE IN 2022, RANKED BY AREA TREATED (SPRAY-HECTARES).....	46
TABLE 27. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON OILSEED RAPE IN IRELAND IN 2022, RANKED BY WEIGHT (KG).	46
TABLE 28. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON PEAS AND BEANS IN 2022, RANKED BY AREA TREATED (SPRAY-HECTARES).....	48
TABLE 29. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON PEAS AND BEANS IN IRELAND IN 2022, RANKED BY WEIGHT (KG).....	48
TABLE 30. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON SEED POTATOES IN 2022, RANKED BY AREA TREATED (SPRAY-HECTARES).....	50
TABLE 31. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON SEED POTATOES IN IRELAND IN 2022, RANKED BY WEIGHT (KG).....	50
TABLE 32. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON EARLY POTATOES IN 2022, RANKED BY AREA TREATED (SPRAY-HECTARES).....	52
TABLE 33. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON EARLY POTATOES IN IRELAND IN 2022, RANKED BY WEIGHT (KG).....	52
TABLE 34. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON MAINCROP POTATOES IN 2022, RANKED BY AREA TREATED (SPRAY-HECTARES).....	54
TABLE 35. THE TOP 10 ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON MAINCROP POTATOES IN IRELAND IN 2022, RANKED BY WEIGHT (KG).....	54
TABLE 36. ESTIMATED AREA (HECTARES) OF ARABLE CROPS GROWN REGIONALLY IN IRELAND, 2022.	54
TABLE 37. ESTIMATED AREA (SPRAY-HECTARES) OF ARABLE CROPS TREATED REGIONALLY WITH EACH PESTICIDE TYPE IN IRELAND, 2022.....	55
TABLE 38. ESTIMATED WEIGHT (KGS) OF PESTICIDES APPLIED TO ARABLE CROPS TREATED IN IRELAND, 2022.	55
TABLE 39. THE TOTAL AREA (SPRAY HECTARES) AND THE BASIC AREA (HECTARES), OF ARABLE CROPS IN IRELAND 2022 TREATED WITH EACH PESTICIDE TYPE.....	56
TABLE 40. THE TOTAL QUANTITIES (KILOGRAMS) OF EACH PESTICIDE TYPE USED ON ARABLE CROPS IN IRELAND 2022.....	57

TABLE 41. ESTIMATED AREA (SPRAY-HECTARES) OF ARABLE CROPS TREATED WITH PESTICIDE FORMULATIONS IN IRELAND, 2022.	58
TABLE 42 (CONT.) ESTIMATED AREA (SPRAY-HECTARES) OF ARABLE CROPS TREATED WITH PESTICIDE FORMULATIONS IN IRELAND, 2022.	59
TABLE 43 (CONT.) ESTIMATED AREA (SPRAY-HECTARES) OF ARABLE CROPS TREATED WITH PESTICIDE FORMULATIONS IN IRELAND, 2022.	61
TABLE 44 (CONT.) ESTIMATED AREA (SPRAY-HECTARES) OF ARABLE CROPS TREATED WITH PESTICIDE FORMULATIONS IN IRELAND, 2022.	61
TABLE 45 (CONT.) ESTIMATED AREA (SPRAY-HECTARES) OF ARABLE CROPS TREATED WITH PESTICIDE FORMULATIONS IN IRELAND, 2022.	62
TABLE 46 (CONT.) ESTIMATED AREA (SPRAY-HECTARES) OF ARABLE CROPS TREATED WITH PESTICIDE FORMULATIONS IN IRELAND, 2022.	62
TABLE 47 (CONT.) ESTIMATED AREA (SPRAY-HECTARES) OF ARABLE CROPS TREATED WITH PESTICIDE FORMULATIONS IN IRELAND, 2022.	63
TABLE 48. ESTIMATED QUANTITIES (KILOGRAMS) OF PESTICIDE FORMULATIONS USED ON ARABLE CROPS IN IRELAND, 2022.....	63
TABLE 49. (CONT.) ESTIMATED QUANTITIES (KILOGRAMS) OF PESTICIDE FORMULATIONS USED ON ARABLE CROPS IN IRELAND, 2022.....	65
TABLE 50. (CONT.) ESTIMATED QUANTITIES (KILOGRAMS) OF PESTICIDE FORMULATIONS USED ON ARABLE CROPS IN IRELAND, 2022.....	67
TABLE 51. (CONT.) ESTIMATED QUANTITIES (KILOGRAMS) OF PESTICIDE FORMULATIONS USED ON ARABLE CROPS IN IRELAND, 2022.....	67
TABLE 52. (CONT.) ESTIMATED QUANTITIES (KILOGRAMS) OF PESTICIDE FORMULATIONS USED ON ARABLE CROPS IN IRELAND, 2022.....	67
TABLE 53. (CONT.) ESTIMATED QUANTITIES (KILOGRAMS) OF PESTICIDE FORMULATIONS USED ON ARABLE CROPS IN IRELAND, 2022.....	68
TABLE 54. (CONT.) ESTIMATED QUANTITIES (KILOGRAMS) OF PESTICIDE FORMULATIONS USED ON ARABLE CROPS IN IRELAND, 2022.....	69
TABLE 55. THE ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON ARABLE CROPS IN IRELAND IN 2022 RANKED BY AREA TREATED (SPRAY-HECTARES).....	70
TABLE 56. THE ACTIVE INGREDIENTS MOST EXTENSIVELY USED ON ARABLE CROPS IN IRELAND IN 2022 RANKED BY WEIGHT (KILOGRAMS).....	71
TABLE 57. ESTIMATED QUANTITY (KG), SPRAY AREA (SPHA) AND BASIC AREA (HA) OF ACTIVE SUBSTANCE FOR SPRING BARLEY, 2022.	72
TABLE 58. ESTIMATED QUANTITY (KG), SPRAY AREA (SPHA) AND BASIC AREA (HA) OF ACTIVE SUBSTANCE FOR WINTER BARLEY, 2022.	73
TABLE 59. ESTIMATED QUANTITY (KG), SPRAY AREA (SPHA) AND BASIC AREA (HA) OF ACTIVE SUBSTANCE FOR SPRING WHEAT, 2022.....	74
TABLE 60. ESTIMATED QUANTITY (KG), SPRAY AREA (SPHA) AND BASIC AREA (HA) OF ACTIVE SUBSTANCE FOR WINTER WHEAT, 2022.	75

TABLE 61. ESTIMATED QUANTITY (KG), SPRAY AREA (SPHA) AND BASIC AREA (HA) OF ACTIVE SUBSTANCE FOR SPRING OATS, 2022.....	76
TABLE 62. ESTIMATED QUANTITY (KG), SPRAY AREA (SPHA) AND BASIC AREA (HA) OF ACTIVE SUBSTANCE FOR WINTER OATS, 2022.....	77
TABLE 63. ESTIMATED QUANTITY (KG), SPRAY AREA (SPHA) AND BASIC AREA (HA) OF ACTIVE SUBSTANCE FOR OILSEED RAPE, 2022.	78
TABLE 64. ESTIMATED QUANTITY (KG), SPRAY AREA (SPHA) AND BASIC AREA (HA) OF ACTIVE SUBSTANCE FOR PEAS AND BEANS, 2022.....	78
TABLE 65. ESTIMATED QUANTITY (KG), SPRAY AREA (SPHA) AND BASIC AREA (HA) OF ACTIVE SUBSTANCE FOR SEED POTATOES, 2022.....	79
TABLE 66. ESTIMATED QUANTITY (KG), SPRAY AREA (SPHA) AND BASIC AREA (HA) OF ACTIVE SUBSTANCE FOR EARLY POTATOES, 2022.	80
TABLE 67. ESTIMATED QUANTITY (KG), SPRAY AREA (SPHA) AND BASIC AREA (HA) OF ACTIVE SUBSTANCE FOR MAINCROP POTATOES, 2022.....	80

List of Figures

FIGURE 1. AREAS OF INDIVIDUAL ARABLE CROPS GROWN IN IRELAND (HA), 2022.	16
FIGURE 2. REGIONAL DISTRIBUTION (HA) OF ARABLE CROPS GROWN IN IRELAND, 2022.....	17
FIGURE 3. REGIONAL DISTRIBUTION (HA) OF INDIVIDUAL ARABLE CROPS GROWN IN IRELAND, 2022.	18
FIGURE 4. REGIONAL DISTRIBUTION (HA) OF CEREAL CROPS GROWN IN IRELAND, 2022.....	18
FIGURE 5. REGIONAL DISTRIBUTION (HA) OF POTATO CROPS (SEED, EARLY AND MAINCROP) GROWN IN IRELAND, 2022.	19
FIGURE 6. REGIONAL DISTRIBUTION (HA) OF OTHER ARABLE CROPS (OILSEED RAPE, PEAS AND BEANS) GROWN	19
FIGURE 7. PESTICIDE USAGE (SPHA) ON ARABLE CROPS TREATED IN IRELAND, 2022.....	20
FIGURE 8. WEIGHT (KGS) OF PESTICIDES APPLIED TO ARABLE CROPS TREATED IN IRELAND, 2022.	21
FIGURE 9. PESTICIDE USAGE (SPHA) ON CEREAL CROPS GROWN IN IRELAND, 2022.....	21
FIGURE 10. WEIGHT (KGS) OF PESTICIDES APPLIED TO CEREAL CROPS TREATED IN IRELAND, 2022.	22
FIGURE 11. PESTICIDE USAGE (SPHA) ON POTATO CROPS (SEED, EARLY AND MAINCROP) GROWN IN IRELAND, 2022.	22
FIGURE 12. WEIGHT OF PESTICIDES (KG) APPLIED TO POTATO CROPS (SEED, EARLY AND MAINCROP) GROWN IN IRELAND, 2022.....	23
FIGURE 13. PESTICIDE USAGE (SPHA) ON OTHER ARABLE CROPS (OILSEED RAPE, PEAS AND BEANS) GROWN IN IRELAND, 2022.....	23
FIGURE 14. PESTICIDE USAGE (SPHA) ON OTHER ARABLE CROPS (OILSEED RAPE, PEAS AND BEANS) GROWN IN IRELAND, 2022.....	24
FIGURE 15. AVERAGE WEIGHT OF PESTICIDES APPLIED PER HECTARE OF CROP GROWN IN IRELAND (KG/HA), 2022.	26
FIGURE 16. AVERAGE WEIGHT OF PESTICIDES APPLIED PER HECTARE OF CROP GROWN IN IRELAND (KG/HA), 2016.....	26
FIGURE 17. AVERAGE WEIGHT OF PESTICIDES APPLIED PER HECTARE OF CROP GROWN IN IRELAND (KG/HA), 2012.....	27
FIGURE 18. PESTICIDE USAGE (SPHA) ON SPRING BARLEY IN IRELAND, 2022.....	33
FIGURE 19. WEIGHT OF PESTICIDES (KG) APPLIED TO SPRING BARLEY IN IRELAND, 2022.....	34
FIGURE 20. PESTICIDE USAGE (SPHA) ON WINTER BARLEY IN IRELAND, 2022.	35
FIGURE 21. WEIGHT OF PESTICIDES (KG) APPLIED TO WINTER BARLEY IN IRELAND, 2022.	36
FIGURE 22. PESTICIDE USAGE (SPHA) ON SPRING WHEAT IN IRELAND, 2022.....	37
FIGURE 23. WEIGHT OF PESTICIDES (KG) APPLIED TO SPRING WHEAT IN IRELAND, 2022.....	38
FIGURE 24. PESTICIDE USAGE (SPHA) ON WINTER WHEAT IN IRELAND, 2022.	39
FIGURE 25. WEIGHT OF PESTICIDES (KG) APPLIED TO WINTER WHEAT IN IRELAND, 2022.	40
FIGURE 26. PESTICIDE USAGE (SPHA) ON SPRING OATS IN IRELAND, 2022.	41
FIGURE 27. WEIGHT OF PESTICIDES (KG) APPLIED TO SPRING OATS IN IRELAND, 2022.....	42
FIGURE 28. PESTICIDE USAGE (SPHA) ON WINTER OATS IN IRELAND, 2022.....	43
FIGURE 29. WEIGHT OF PESTICIDES (KG) APPLIED TO WINTER OATS IN IRELAND, 2022.....	43

FIGURE 30. PESTICIDE USAGE (SPHA) ON OILSEED RAPE IN IRELAND, 2022.	45
FIGURE 31. WEIGHT OF PESTICIDES (KG) APPLIED TO OILSEED RAPE IN IRELAND, 2022.	45
FIGURE 32. PESTICIDE USAGE (SPHA) ON PEAS AND BEANS IN IRELAND, 2022.	47
FIGURE 33. WEIGHT OF PESTICIDES (KG) APPLIED TO PEAS AND BEANS IN IRELAND, 2022.	47
FIGURE 34. PESTICIDE USAGE (SPHA) ON SEED POTATOES IN IRELAND, 2022.	49
FIGURE 35. WEIGHT OF PESTICIDES (KG) APPLIED TO SEED POTATOES IN IRELAND, 2022.	49
FIGURE 36. PESTICIDE USAGE (SPHA) ON EARLY POTATOES IN IRELAND, 2022.	51
FIGURE 37. WEIGHT OF PESTICIDES (KG) APPLIED TO EARLY POTATOES IN IRELAND, 2022.	51
FIGURE 38. PESTICIDE USAGE (SPHA) ON MAINCROP POTATOES IN IRELAND, 2022.	53
FIGURE 39. WEIGHT OF PESTICIDES (KG) APPLIED TO MAINCROP POTATOES IN IRELAND, 2022.	53

Arable Crops Survey Report Summary

This is the fourth survey of pesticide¹ usage on arable crops in Ireland carried out by the Department of Agriculture, Food and the Marine (DAFM), providing comparative datasets obtained from surveys previously completed in 2016 and 2012.

Information on all aspects of pesticide usage was collected from 148 holdings across Ireland representing 4.09% of the total area of arable crops grown. Quantitative data has been adjusted to provide estimates of total pesticide usage.

In 2022, an estimated 317,060 hectares of arable crops were grown which when adjusted for crops not surveyed (triticale) represents a 2% decrease compared to estimated average area for the years 2012 and 2016.

An estimated 769,954kgs of active substance was applied to arable crops in 2022 which represents a 27.3% decrease in overall weight of pesticides applied compared to the equivalent figure in 2016 and 32.7% decrease since 2012. The total pesticide treated area of the crops surveyed has declined by 0.47% since 2016 and 10.38% since 2012.

A total of 121 active substances were recorded in use on arable crops in the survey compared to 114 in 2012 and 120 in 2016.

Winter barley comprised 22% of the area of arable crops, accounting for 22% of the total pesticide treated area and 24% of the total weight of pesticides used on all arable crops.

Spring barley comprised 33% of the area of arable crops, accounting for 34% of the total pesticide treated area and 20% of the total weight of pesticides used on all arable crops.

Winter wheat comprised 23% of the area of arable crops, accounting for 23% of the total pesticide treated area and 33% of the total weight of pesticides used on all arable crops.

¹ Pesticide is an over-arching term that includes both plant protection products (including, for the purpose of this report, fungicides, herbicides, insecticides, molluscicides, biological controls and seed treatments) and biocides.

Spring wheat comprised 2% of the area of arable crops, accounting 2% for both the total pesticide treated area and total weight of pesticides used on all arable crops.

Winter oats comprised 4% of the area of arable crops, accounting for 4% of the total pesticide treated area and 3% of the total weight of pesticides used on all arable crops.

Spring oats comprised 5% of the area of arable crops, accounting 2% for both the total pesticide treated area and total weight of pesticides used on all arable crops.

Oilseed rape (spring and winter) comprised 5% of the area of arable crops, accounting 5% for both the total pesticide treated area and total weight of pesticides used on all arable crops.

Beans and peas comprised 3% of the area of arable crops, accounting 3% for both the total pesticide treated area and total weight of pesticides used on all arable crops.

Potato crops (maincrop, seed and early potato crops) comprised 3% of the area of arable crops, accounting for 3% for both the total pesticide treated area and total weight of pesticides used on all arable crops.

Background

The regulatory system for PPPs in Ireland is based directly on EU legislation which provides a very high level of protection for humans, animals and the environment.

Legislation has been put in place at both EU and national level to minimise the risks associated with the use of PPPs while ensuring necessary crop protection. This legislation addresses the authorisation of PPPs for specific uses, residues of pesticides on food and feed and the sustainable use of pesticides. The Sustainable Use Directive (EU Directive (EC) No. 128/2009) aims to achieve a balance between ensuring human and environmental safety while maintaining continued viability of the farming and amenity sectors. This involves training and registration of advisors, distributors, operators and inspectors of pesticide application equipment, controls on storage, supply and use, adoption of the principles of IPM and improved statistics on PPP use. Regulation (EC) No. 1185/2009 was adopted on 25 November 2009 and requires each member state to collect statistics on PPP use.

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

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

Methods

The samples of holdings to be surveyed was selected from each of the 26 counties, on the basis of the total area of arable crops grown, using data from DAFM. For the purpose of the survey, the country was divided into three geographical regions, namely, the East, South and the North/West as per Table 1. The samples were categorised into six size groups, according to the total area of arable crops grown in each region. Holdings were selected at random within each of the size groups and the number of holdings selected was proportional to the total area of crops grown.

Table 1. Regions selected for the survey and respective counties.

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

The purpose of the survey was explained to the occupiers of selected holdings in preliminary correspondence. A total of 148 arable holdings were contacted during the period May to July 2023 and data collected by phone and or physical interview for arable crops grown in 2022. The data collected included; the area of crops grown, area treated, target pests, pesticide used, rates applied and number of treatments applied. Holdings selected in the original sample which were unable to provide data were replaced with ones from the same county and size group held on a reserve list. The total number of farms sampled in each size group for arable crops are shown in Table 2. The collected data were entered using Oracle, a relational database programme. Validated data were downloaded for analysis using SPSS software.

Table 2. The total number of arable farms in each size group (A) and the number of samples from each size group (B).

Holdings in group size	<10		10<20		20<40		40<100		100-200		>200		Total	Total
	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B
Region														
East	1,349	3	817	5	839	8	781	23	234	18	102	14	4,122	71
South	2,491	8	1,359	14	1,057	17	702	14	177	5	59	6	5,845	64
North/West	928	3	238	4	138	2	84	2	14	1	5	1	1,407	13
Ireland	4,768	14	2,414	23	2,034	27	1,567	39	425	24	166	21	11,374	148

Definitions

- 'Basic area'; refers to the actual planted area of crop treated with a given pesticide.
- 'Biocides'; are defined as chemicals that are used to control and / or prevent various types of harmful or unwanted organisms, including disinfectants, preservatives, insect repellents, rodenticides and insecticides.
- 'Biological controls'; are defined as the use of biological organisms to control and / or prevent harmful insects, mites, weeds and plant diseases. Their usage is recorded by area treated (spha) only, as they are applied in units other than weight or volume (e.g. million/ha) and this does not translate readily into a conventional weight.
- 'Fungicides'; are defined as PPPs used to control and/or prevent harmful fungal disease.
- 'Growth regulators'; are defined as PPPs used to control/regulate the growth of the plant.
- 'Herbicides'; are defined as PPPs used to control and/ or prevent unwanted vegetation.
- 'Insecticides'; are defined as PPPs used to control and/or prevent harmful insects.
- 'Molluscicides'; are defined as PPPs used to control and/or prevent harmful slugs and snails.
- 'PPP'; refers to plant protection product.
- 'Rounding'; due to rounding of figures there may be slight differences in totals both within and between tables.
- 'Seed treatments'; are defined as PPPs applied to seeds to provide protection and improve the establishment of healthy crops.
- 'Spray applications'; refers to the number of treatments of any pesticide type to the treated areas.
- 'Treated area'; refers to the total area treated with a pesticide, which includes all repeated applications to the basic area. This is measured in 'spray hectares' (basic area x number of spray applications) = spray hectares (spha).

Crops

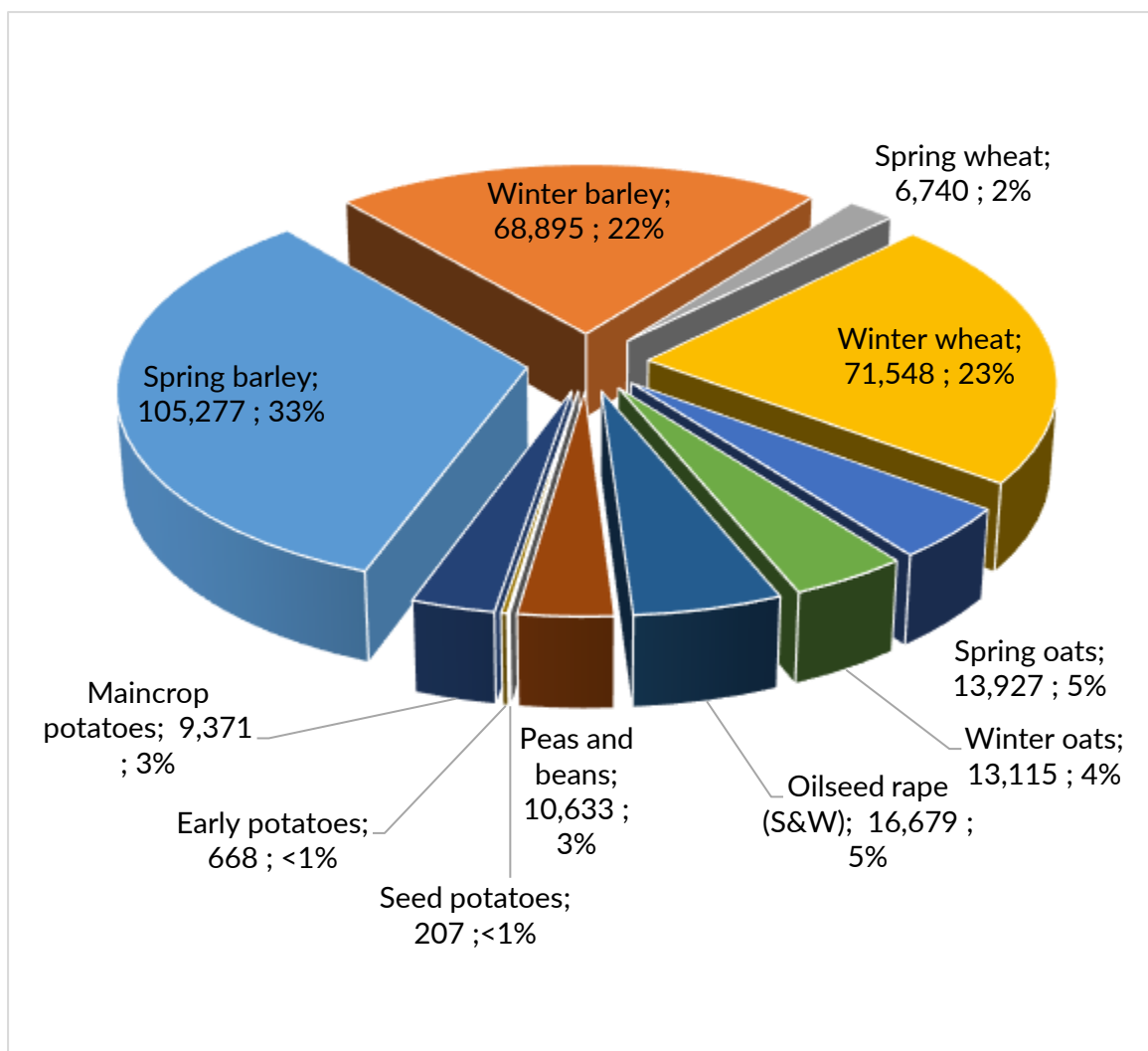
Information was collected for spring barley, winter barley, spring wheat, winter wheat, spring oats, winter oats, oilseed rape, peas and beans, seed potatoes, early potatoes and maincrop potatoes.

The number and areas of crops surveyed are shown in Table 3. Data from 148 farms provided information on 450 examples of 11 crop types. The total area of crops sampled in the survey (12,954 ha) was representative of the area of arable crops grown in Ireland in 2022 (317,060 ha).

Table 3. The total number, area (hectares) of crops sampled and the proportion (%) of the total area of arable crops surveyed in Ireland, 2022.

Crop	Number of crops surveyed	Survey Area (ha)	Proportion of crops surveyed (%)
Spring barley	113	2,616	2.49%
Winter barley	94	3,060	4.44%
Spring wheat	9	96	1.43%
Winter wheat	86	4,058	5.67%
Spring oats	25	340	2.44%
Winter oats	28	502	3.82%
Oilseed rape (S&W)	33	960	5.76%
Peas and Beans	34	548	5.16%
Seed potatoes	3	51	24.82%
Early potatoes	7	34	5.09%
Maincrop potatoes	18	689	7.35%
Total	450	12,954	4.09%

Figure 1. Areas of individual arable crops grown in Ireland (ha), 2022.



Regional distribution of crops

The East region was the largest producer of arable crops during 2022 and accounted for 49% of the total area of arable crops grown and 51% of the total pesticide treated area. Overall, 50% of the weight of herbicides, 47% of the weight of fungicides, 54% of the weight of insecticides, 56% of the weight of molluscicides, 56% of the weight of growth regulators and 61% of the weight of seed treatments were applied to arable crops in this region.

The South region accounted for 45% of the area of arable crops grown and 44% of the total pesticide-treated area. Overall, 43% of the weight of herbicides, 47% of the weight of fungicides, 42% of the weight of insecticides, 39% of the weight of molluscicides, 40% of the

weight of growth regulators and 39% of the weight of seed treatments were applied to arable crops in this region.

The North/West region accounted for 6% of the total arable growing area and 5% of the pesticide treated area. Overall, 7% of the weight of herbicides, 6% of the weight of fungicides, 4% of the weight of insecticides, 6% of the weight of molluscicides, 4% of the weight of growth regulators and less than 1% of the weight of seed treatments were applied to arable crops in this region.

Figure 2. Regional distribution (ha) of arable crops grown in Ireland, 2022.

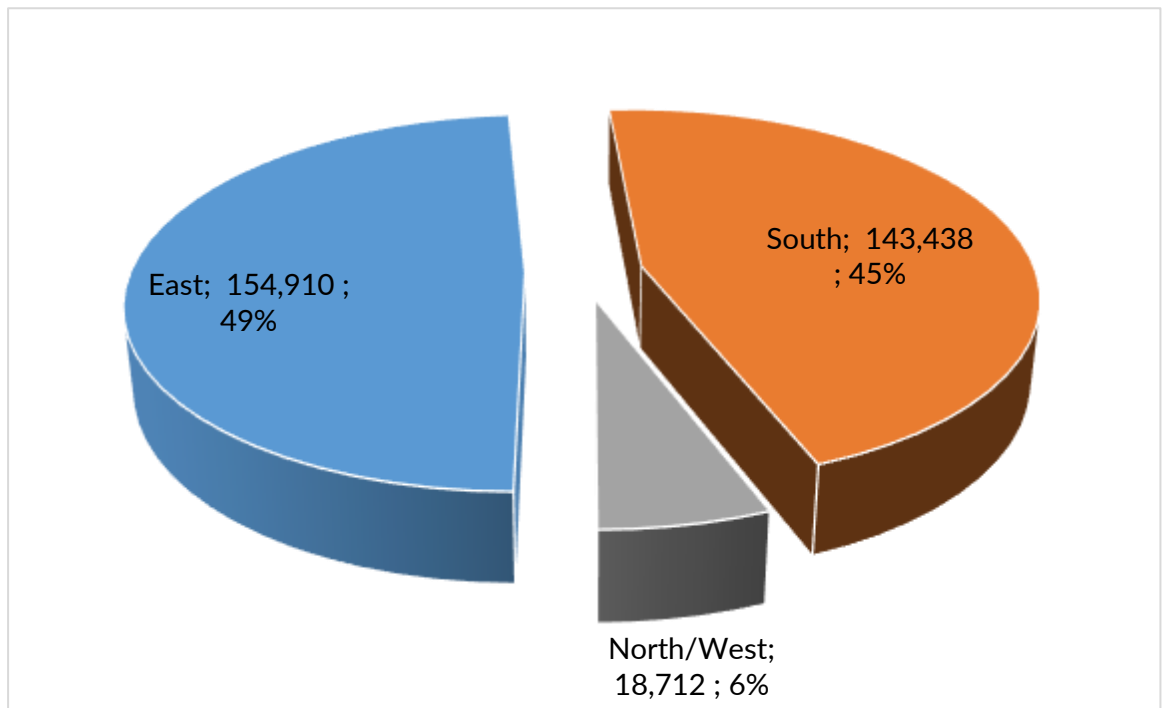


Figure 3. Regional distribution (ha) of individual arable crops grown in Ireland, 2022.

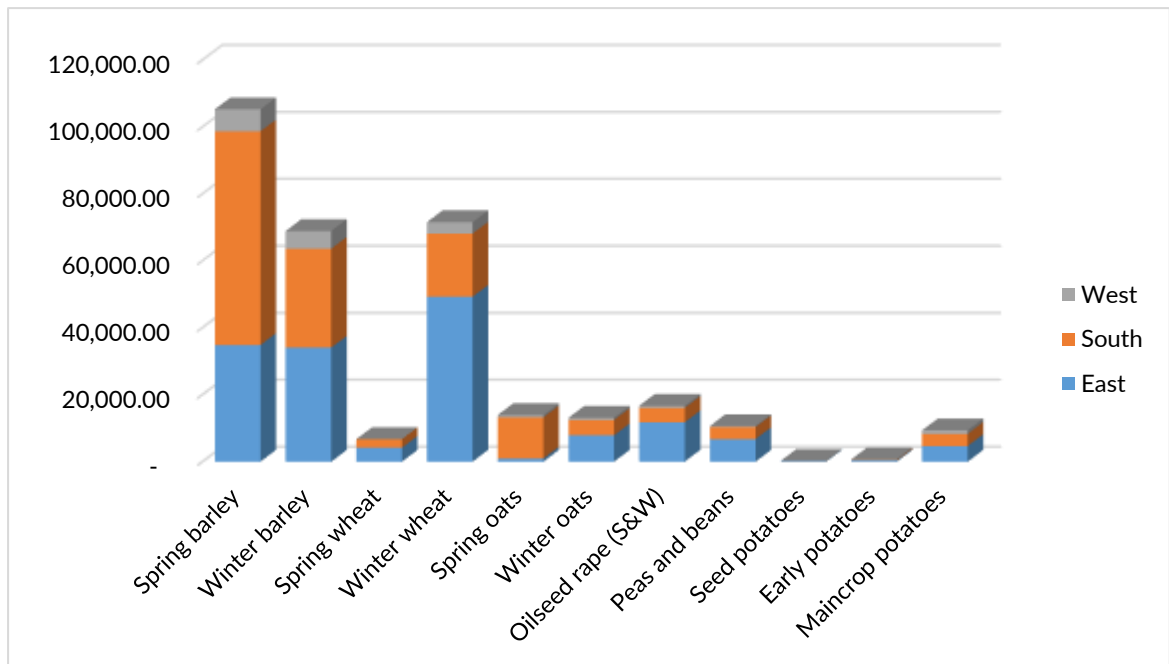


Figure 4. Regional distribution (ha) of cereal crops grown in Ireland, 2022.

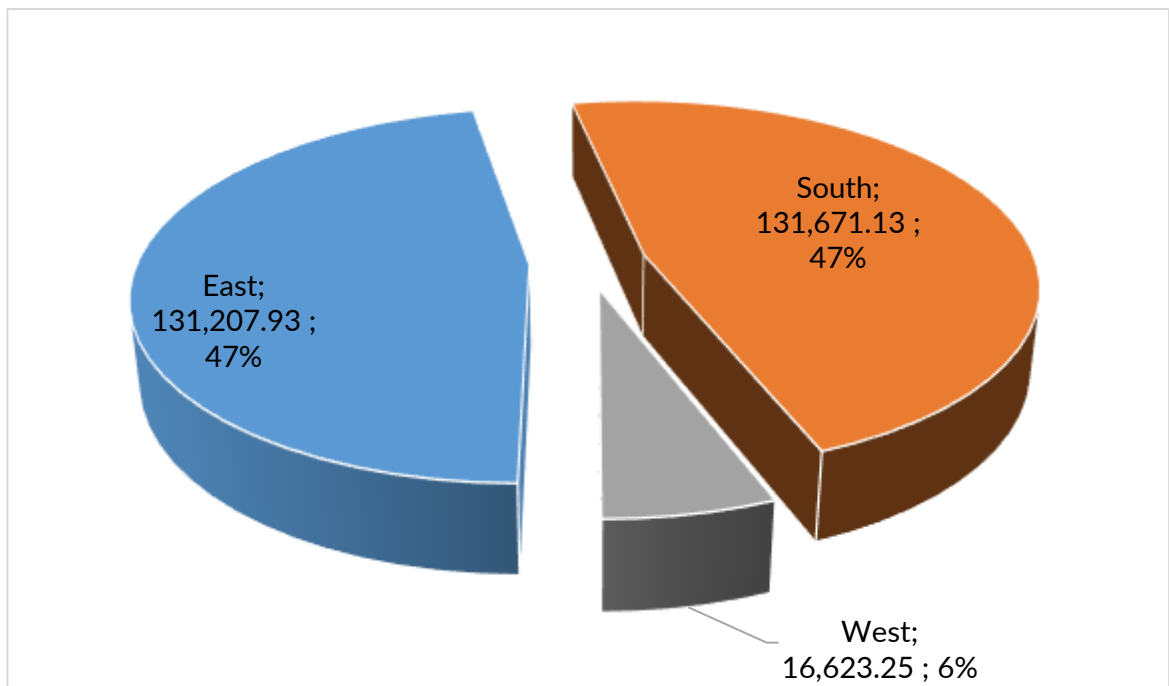


Figure 5. Regional distribution (ha) of potato crops (seed, early and maincrop) grown in Ireland, 2022.

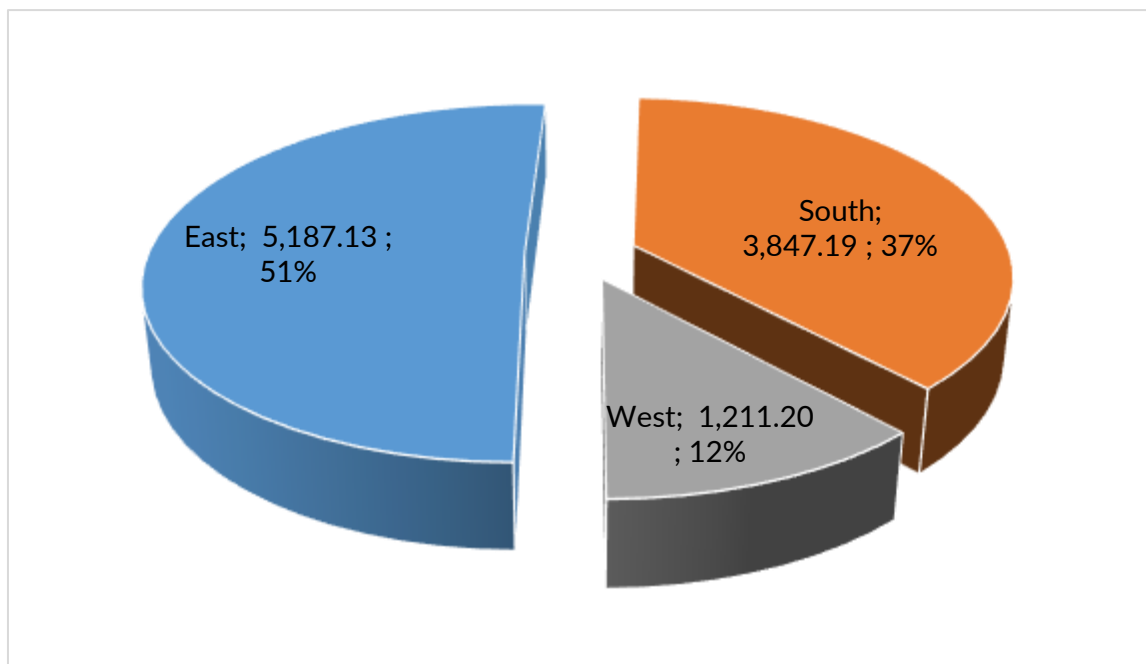
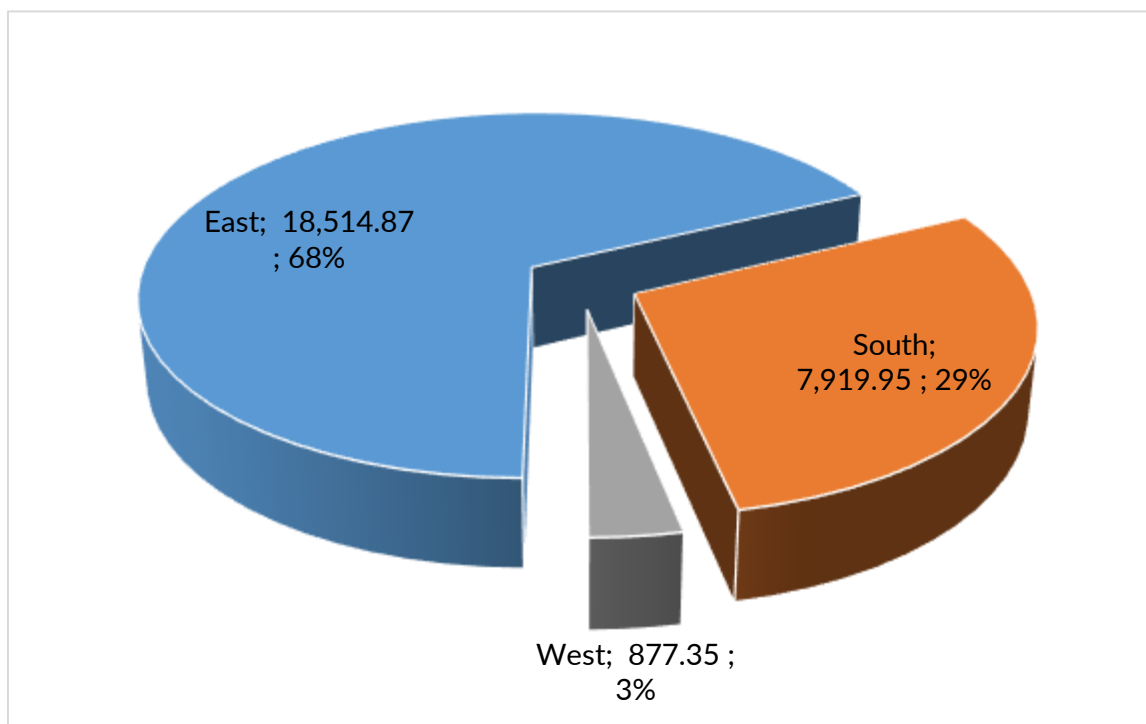


Figure 6. Regional distribution (ha) of other arable crops (oilseed rape, peas and beans) grown



Pesticide usage

Fungicides were applied to 47% of the pesticide treated area, accounting for 47% of the total weight of pesticides used. Herbicides were applied to 29% of the pesticide treated area, representing 29% of the total weight of pesticides used. Insecticides were applied to 6% of the pesticide treated area of arable crops, representing less than 1% of the weight of pesticides applied. Molluscicide treatments represented 1% of pesticide treated area and less than 1% of the weight of pesticides applied. Growth regulator usage accounted for 14% of the pesticide treated area and 23% of the weight of active substance applied. Seed treatments were applied to 3% of the pesticide treated area, representing less than 1% of the weight of active substances applied.

The use of fungicides on cereal crops accounted for 46% of the cereal pesticide treated area and 49% of the total weight of pesticides applied to cereal crops. The use of fungicides on potato crops accounted for 72% of the potato pesticide treated area and 63% of the total weight of pesticides applied to potato crops. The use of herbicides on other arable crops (peas, beans and oilseed rape) accounted for 43% of the treated area and 79% of the total weight of pesticides applied to this crop group.

Figure 7. Pesticide usage (spha) on arable crops treated in Ireland, 2022.

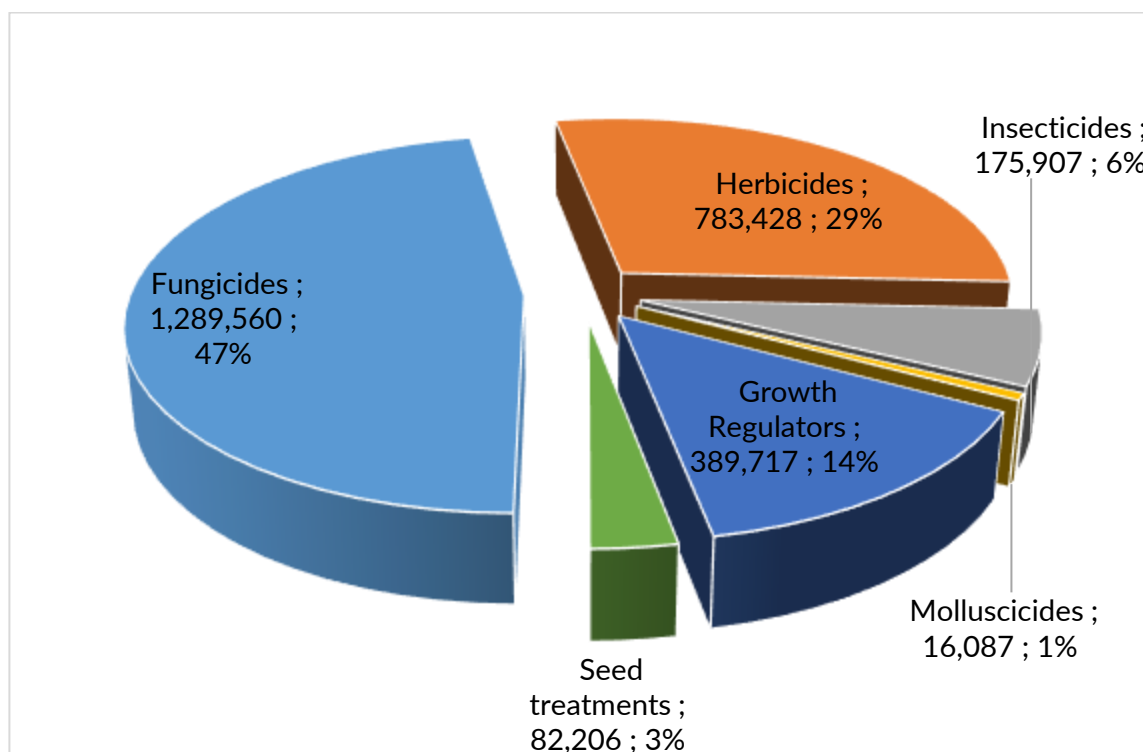


Figure 8. Weight (kgs) of pesticides applied to arable crops treated in Ireland, 2022.

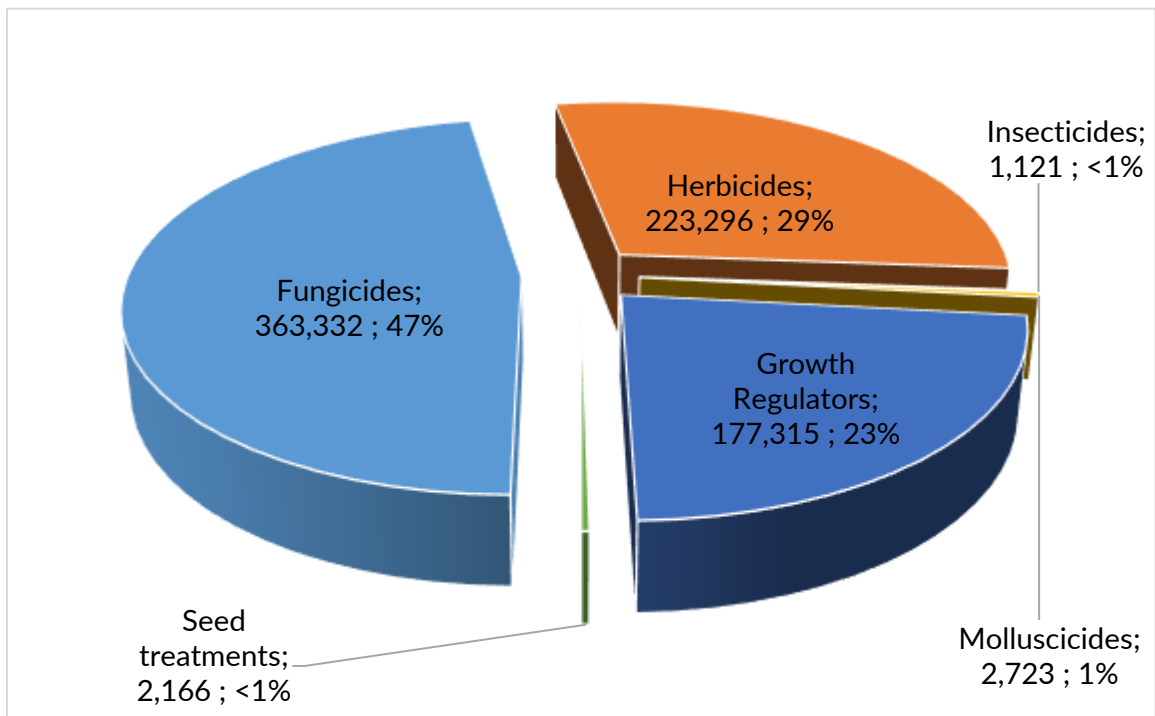


Figure 9. Pesticide usage (spha) on cereal crops grown in Ireland, 2022.

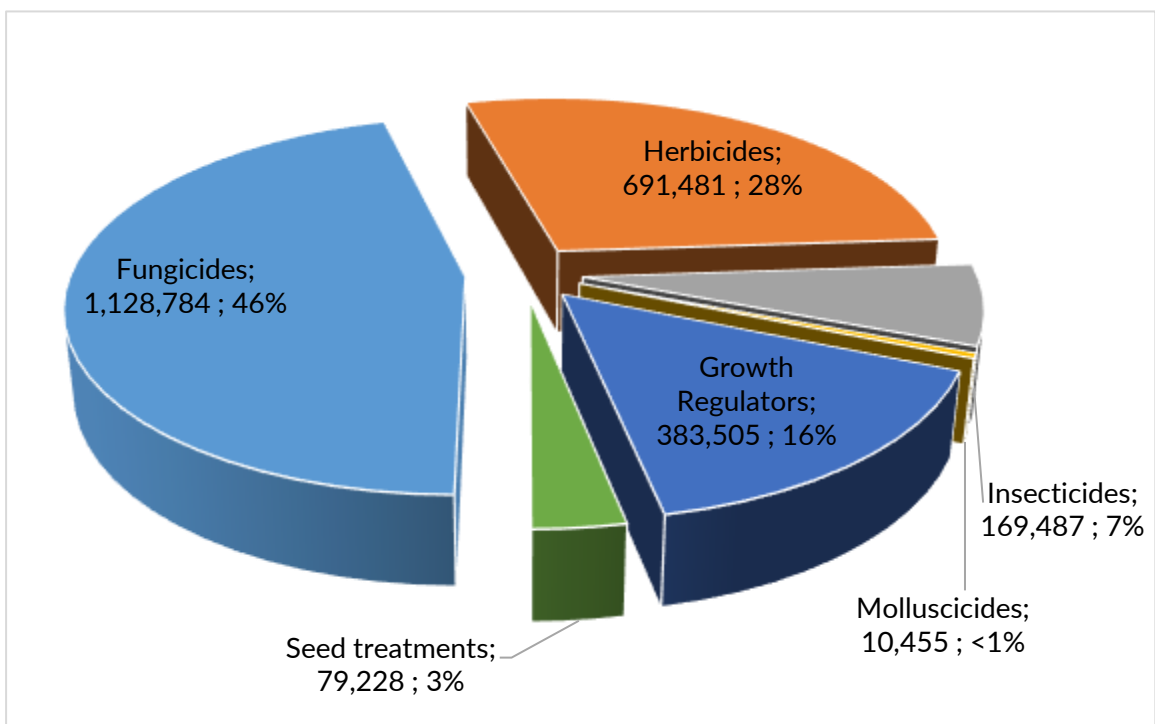


Figure 10. Weight (kgs) of pesticides applied to cereal crops treated in Ireland, 2022.

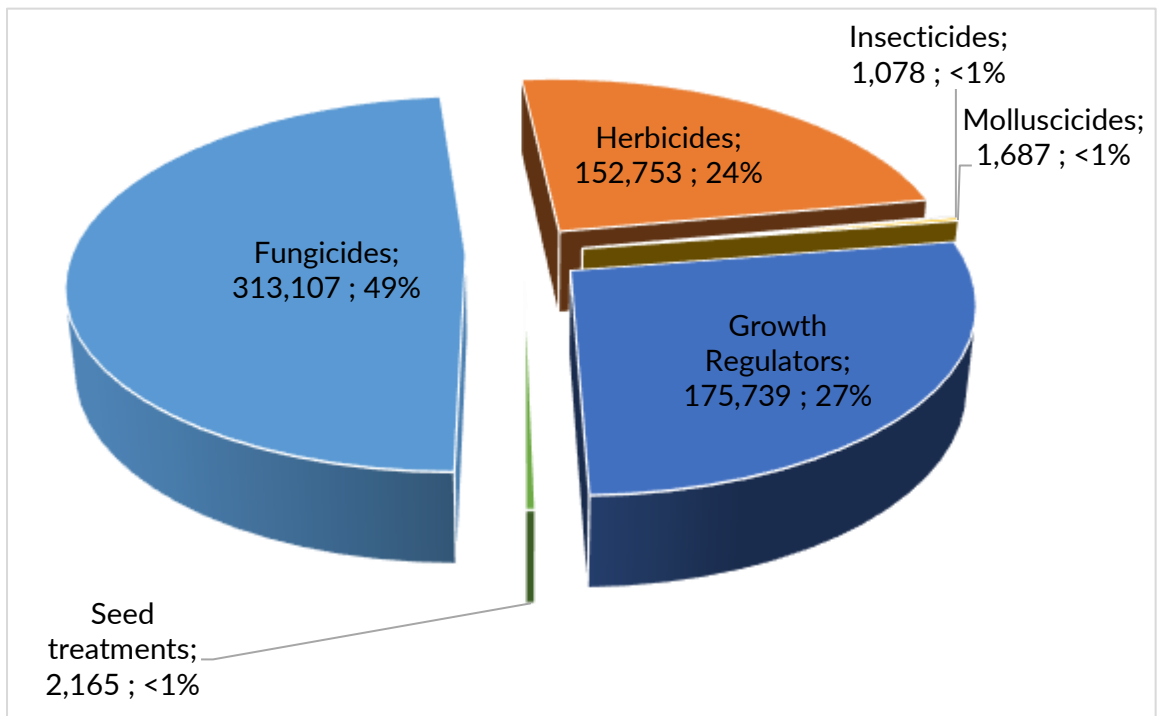


Figure 11. Pesticide usage (spha) on potato crops (seed, early and maincrop) grown in Ireland, 2022.

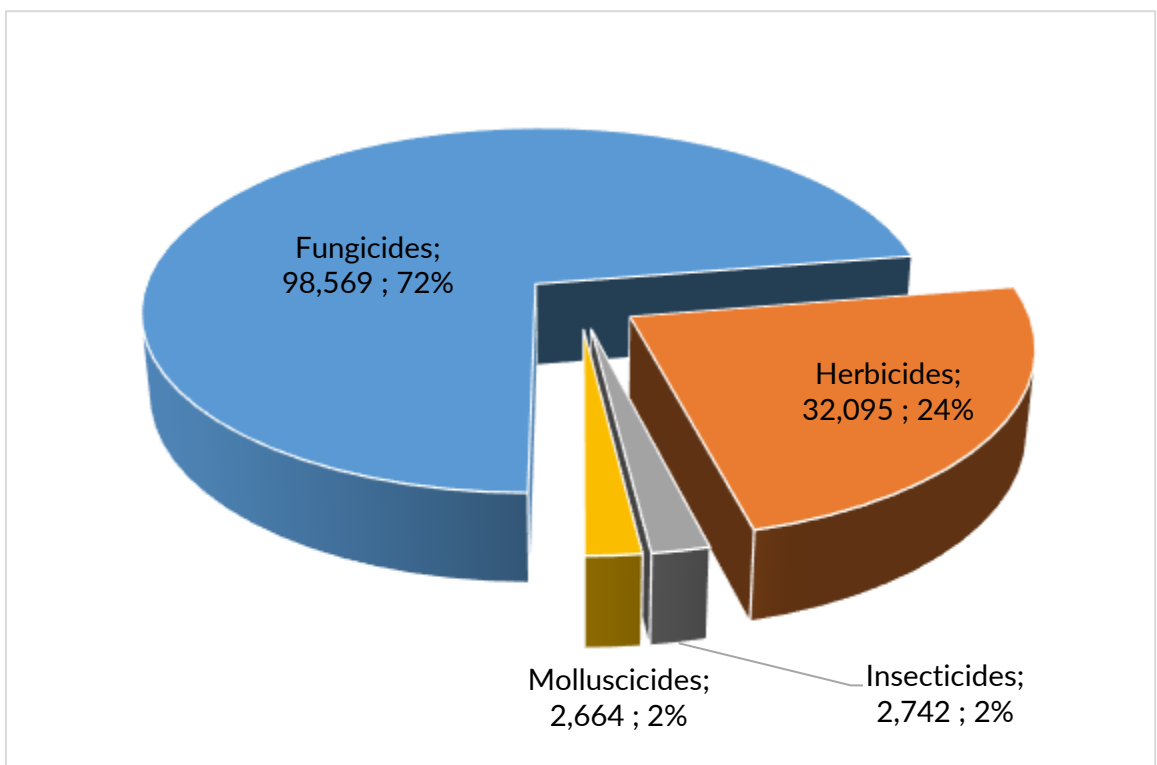


Figure 12. Weight of pesticides (kg) applied to potato crops (seed, early and maincrop) grown in Ireland, 2022.

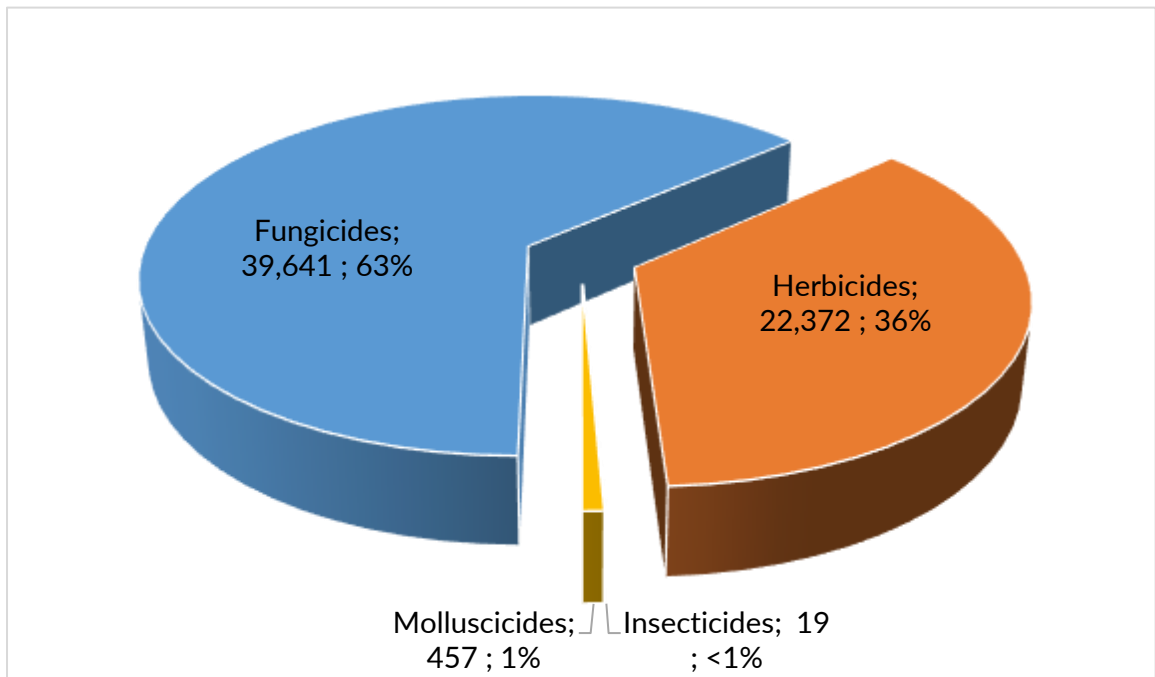


Figure 13. Pesticide usage (spha) on other arable crops (oilseed rape, peas and beans) grown in Ireland, 2022.

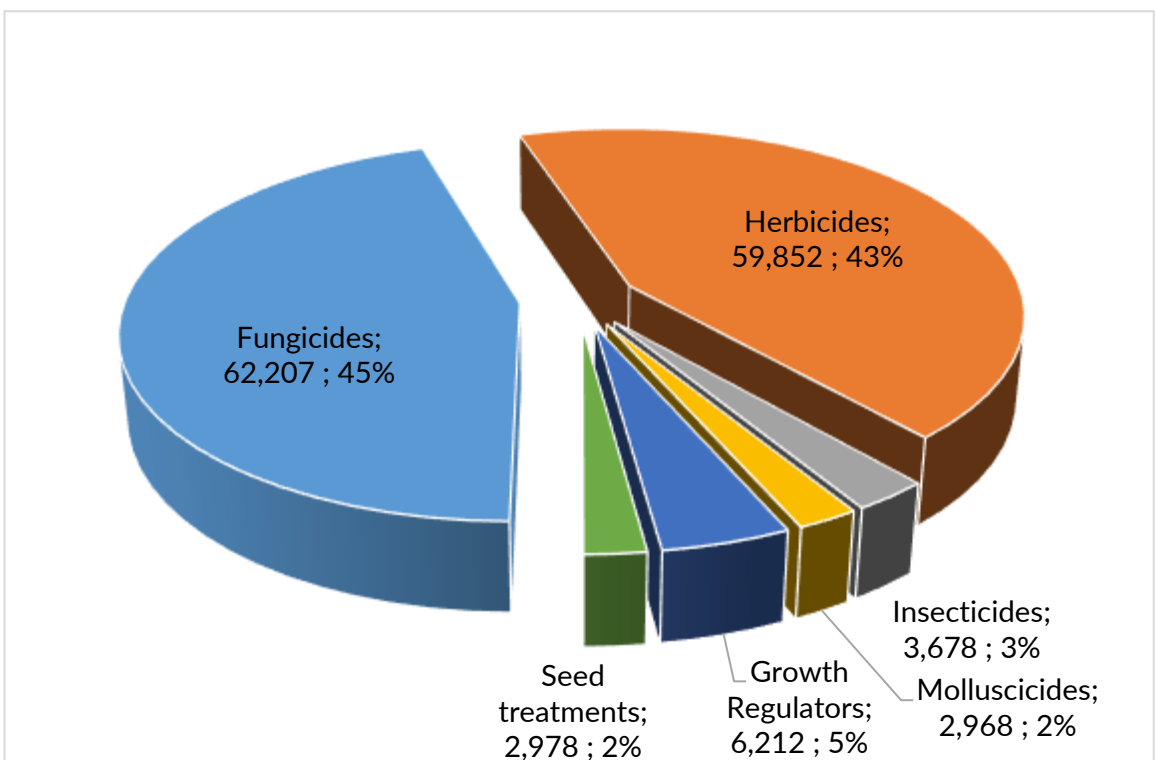
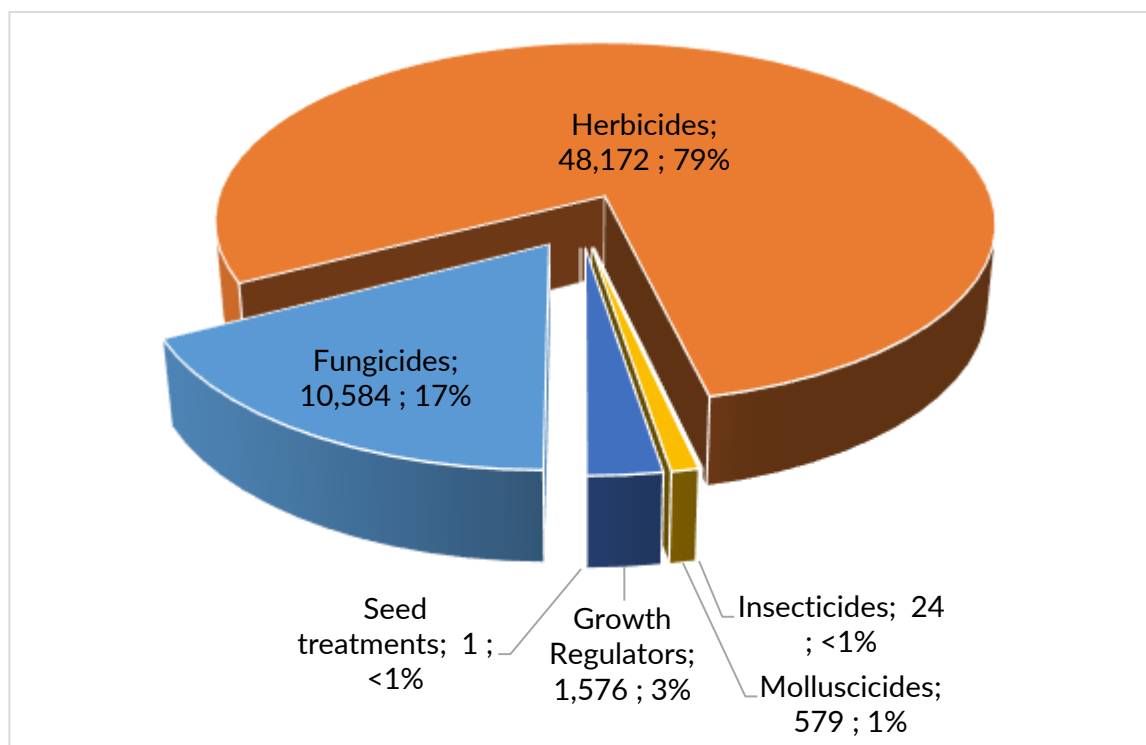


Figure 14. Pesticide usage (spha) on other arable crops (oilseed rape, peas and beans) grown in Ireland, 2022.



Arable crop areas 2012, 2016 and 2022

Overall, the total area of arable crops has decreased by 0.28% to 323,106 ha when compared to the average of years 2012 and 2016. In addition, the areas of some individual crops have changed. Areas under spring barley and spring wheat decreased while all other crop areas increased. Details of changes in arable crop areas between 2012, 2016 and 2022 are outlined in Table 4 below.

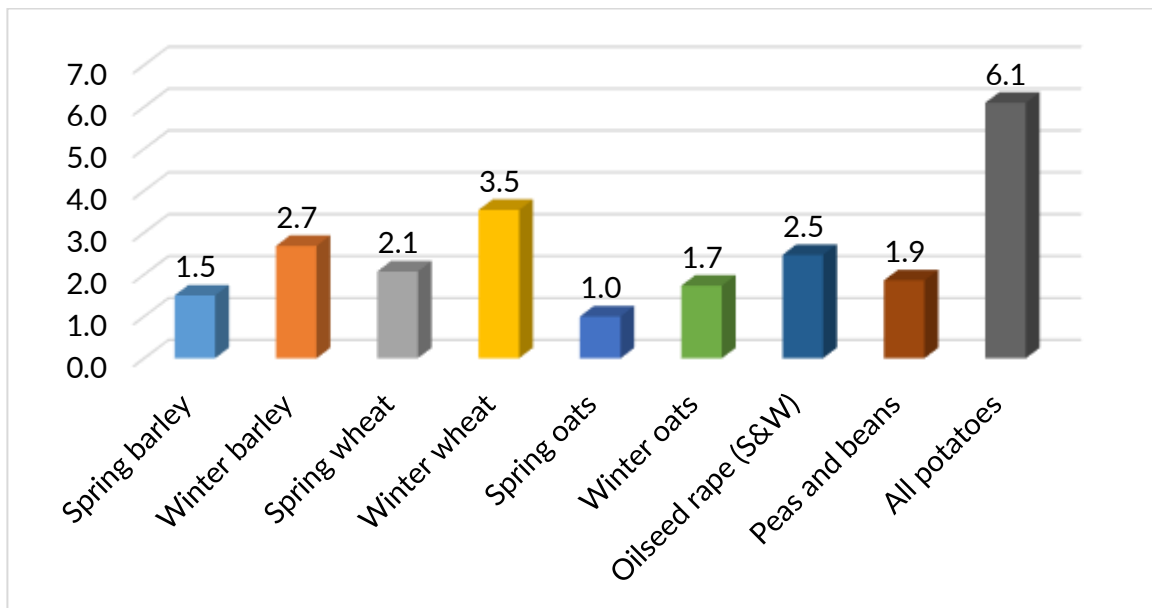
Table 4. Arable crops areas (ha) for surveys in 2012, 2016 and 2022 and percentage (%) change in areas grown from 2012 and 2016 average compared with 2022.

Area grown				
Crop	2012	2016	2022	Crop area change between 2012, 2016 and 2021 (%)
Spring barley	150,378	111,929	105,277	-20
Winter barley	40,717	76,626	68,895	17
Spring wheat	13,314	11,125	6,740	-45
Winter wheat	83,751	52,134	71,548	5
Spring oats	13,998	11,151	13,927	11
Winter oats	9,782	13,146	13,115	14
Oilseed rape (S&W)	17,282	9,912	16,679	23
Peas and beans	3,696	11,016	10,633	45
Triticale	1,445	(Not surveyed) –(N/S)	(N/S)	-
All potatoes	9,035	9,052	10,246	13
All crops (excl. triticale)	341,953	306,091	323,106	-0.28

Quantity of pesticide applied per crop - 2012, 2016 and 2022

The average weight of pesticide applied per hectare of crop grown for each crop is provided below across the years 2022, 2016 and 2012. Average weights were calculated as the total weight of pesticides applied divided by the total area of crop grown (whether treated or untreated). The average weight of pesticide applied per hectare of crops grown for 2022 is shown in Figure 15. The highest weight of pesticides applied per hectare was on potato crops (6.1 kg/ha) which results from the relatively high number of pesticide treatments, in particular fungicide treatments, applied to potato crops. The winter cereal crops had the next highest levels of pesticide use with winter wheat (3.5 kg/ha), winter barley (2.7 kg/ha) and oilseed rape (2.5 kg/ha).

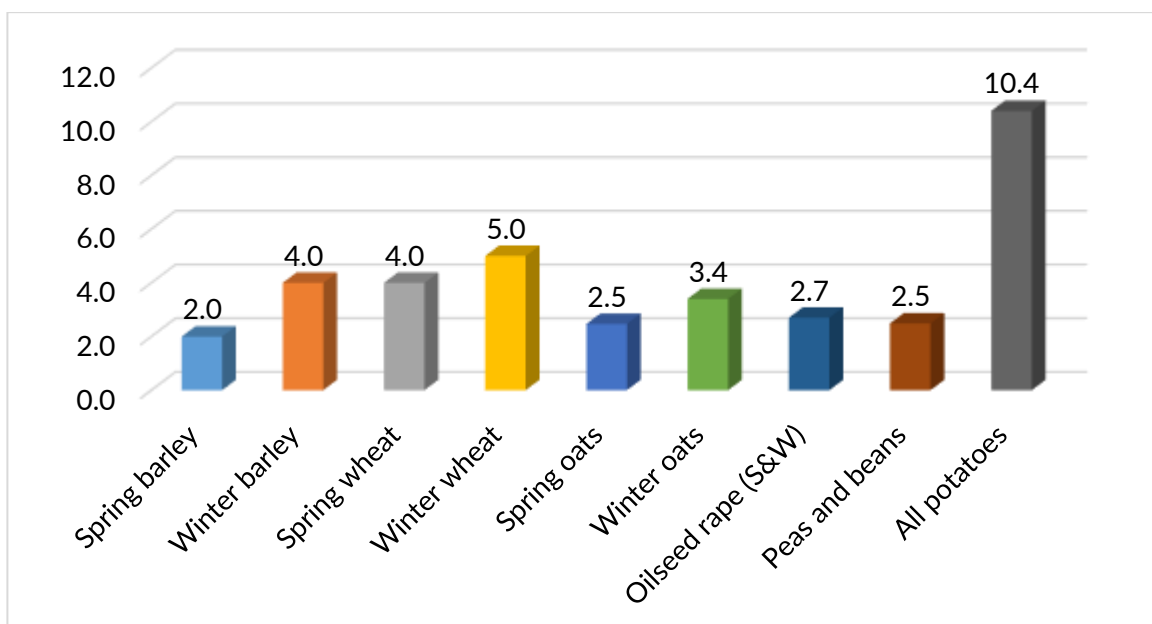
Figure 15. Average weight of pesticides applied per hectare of crop grown in Ireland (kg/ha), 2022.



The average weight of pesticide applied per hectare of crop grown for 2016 is shown in

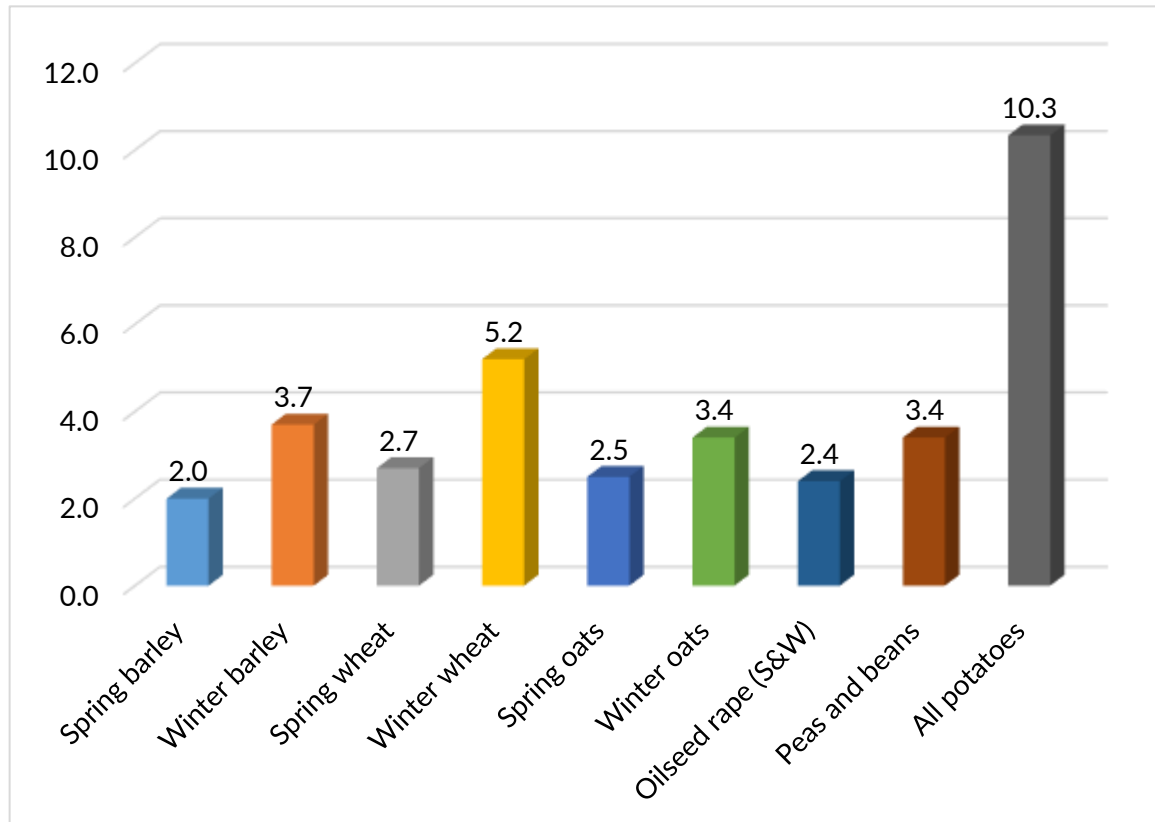
Figure 16 below. Similarly, the highest weight of pesticides applied per hectare was on potato crops (10.4 kg/ha) which results from the relatively high number of pesticide treatments, in particular fungicide treatments, applied to potato crops. The winter cereal crops had the next highest levels of pesticide use with winter wheat (5.0 kg/ha), winter barley (4.0 kg/ha) and winter oats (3.4 kg/ha).

Figure 16. Average weight of pesticides applied per hectare of crop grown in Ireland (kg/ha), 2016.



The average weight of pesticide applied per hectare of crop grown for 2012 is shown in Figure 17. Similarly, the highest weight of pesticides applied per hectare was on potato crops (10.3 kg/ha) which results from the relatively high number of pesticide treatments, in particular fungicide treatments, applied to potato crops. The winter cereal crops had the next highest levels of pesticide use with winter wheat (5.2 kg/ha), winter barley (3.7 kg/ha) followed by winter oats and peas and beans with an average weight of (3.4 kg/ha).

Figure 17. Average weight of pesticides applied per hectare of crop grown in Ireland (kg/ha), 2012.



Pesticide applied on crop growing area - 2012, 2016 and 2022

The average weight of pesticide applied per hectare of each crop grown for 2012, 2016 and 2022 including percentage change is provided below.

Spring barley

Quantities (kg/ha) of fungicides, herbicides and insecticides applied to spring barley decreased by 17%, 52% and 89% respectively when comparing 2022 with the average of 2012 and 2016. Quantities of molluscicides, growth regulators and seed treatments also decreased by 100%,

7% and 90% respectively. Overall, there was only a 32% decrease in quantities of pesticides (kg/ha) applied to spring barley when comparing 2022 with 2012 and 2016.

Table 5. Quantity of pesticide type (kg/ha) and percentage change (%) for spring barley for surveys between 2022 and 2012-2016 average.

Pesticide type	Kg/ha on area grown			
	2012	2016	2022	(%) Change
Fungicides	1.14	1.13	0.94	-17
Herbicides	0.67	0.99	0.40	-52
Insecticides	0.02	0.04	0.003	-89
Molluscicides	0.0002	-	-	-100
Growth regulators	0.11	0.22	0.16	-7
Seed treatments	0.05	0.07	0.01	-90
All pesticides	1.99	2.44	1.50	-32

Winter barley

Quantities (kg/ha) of fungicides, herbicides, insecticides and seed treatments applied to winter barley decreased by 31%, 47%, 72% and 83% respectively when comparing 2022 with the average of 2012 and 2016. Quantities of molluscicides and growth regulators increased by 156% and 9% respectively. Overall, there was only a 29% decrease in quantities of pesticides applied to winter barley when comparing 2022 with 2012 and 2016.

Table 6. Quantity of pesticide type (kg/ha) and percentage change (%) for winter barley for surveys between 2022 and 2012-2016 average.

Pesticide type	Kg/ha on area grown			
	2012	2016	2022	(%) Change
Fungicides	1.57	1.43	1.03	-31
Herbicides	1.35	1.47	0.75	-47
Insecticides	0.01	0.02	0.005	-72
Molluscicides	0.01	0.002	0.01	156
Growth regulators	0.75	0.85	0.87	9
Seed treatments	0.05	0.07	0.01	-83
All pesticides	3.74	3.84	2.68	-29

Spring wheat

Quantities (kg/ha) of all pesticide types applied to spring wheat decreased when comparing 2022 with 2012 and 2016. No molluscicide applications were recorded on spring wheat. Overall, there was a 38% decrease in quantities of pesticides applied to spring wheat when comparing 2022 with 2012 and 2016.

Table 7. Quantity of pesticide type (kg/ha) and percentage change (%) for spring wheat for surveys between 2022 and 2012-2016 average.

Pesticide type	Kg/ha on area grown			
	2012	2016	2022	(%) Change
Fungicides	1.23	1.70	0.95	-35
Herbicides	0.52	0.75	0.30	-52
Insecticides	0.11	0.20	0.003	-98
Molluscicides	-	-	-	0
Growth regulators	0.79	1.22	0.80	-20
Seed treatments	0.06	0.09	0.01	-81
All pesticides	2.71	3.96	2.07	-38

Winter wheat

Quantities (kg/ha) of all pesticide types applied to winter wheat decreased when comparing 2022 with 2012 and 2016. Overall, there was a 31% decrease in quantities of pesticides applied to winter wheat when comparing 2022 with 2012 and 2016.

Table 8. Quantity of pesticide type (kg/ha) and percentage change (%) for winter wheat for surveys between 2022 and 2012-2016 average.

Pesticide type	Kg/ha on area grown			
	2012	2016	2022	(%) Change
Fungicides	2.37	2.32	1.77	-25
Herbicides	1.30	1.23	0.70	-45
Insecticides	0.19	0.22	0.00	-98
Molluscicides	0.01	0.02	0.01	-4
Growth regulators	1.26	1.21	1.05	-15
Seed treatments	0.07	0.08	0.01	-89
All pesticides	5.21	5.08	3.54	-31

Spring oats

Quantities (kg/ha) of all pesticide types applied to spring oats decreased when comparing 2022 with 2012 and 2016. No molluscicide applications were recorded on spring oats. Overall, there was a 60% decrease in quantities of pesticides applied to spring oats when comparing 2022 with 2012 and 2016.

Table 9. Quantity of pesticide type (kg/ha) and percentage change (%) for spring oats for surveys between 2022 and 2012-2016 average.

Kg/ha on area grown				
Pesticide type	2012	2016	2022	(%) Change
Fungicides	0.98	0.97	0.29	-70
Herbicides	0.61	0.61	0.32	-48
Insecticides	0.02	0.02	0.00	-93
Molluscicides	-	-	-	0
Growth regulators	0.81	0.81	0.39	-52
Seed treatments	0.06	0.05	0.00	-95
All pesticides	2.48	2.47	1.00	-60

Winter oats

Quantities (kg/ha) of all pesticide types applied to winter oats decreased when comparing 2022 with 2012 and 2016. Overall, there was a 48% decrease in quantities of pesticides applied to winter oats when comparing 2022 with 2012 and 2016.

Table 10. Quantity of pesticide type (kg/ha) and percentage change (%) for winter oats for surveys between 2022 and 2012-2016 average.

Kg/ha on area grown				
Pesticide type	2012	2016	2022	(%) Change
Fungicides	1.42	1.23	0.51	-62
Herbicides	0.62	0.54	0.18	-69
Insecticides	0.02	0.01	0.00	-91
Molluscicides	-	0.004	-	-100
Growth regulators	1.28	1.38	1.04	-22
Seed treatments	0.05	0.08	0.01	-92
All pesticides	3.39	3.24	1.73	-48

Oilseed rape

Quantities (kg/ha) of all pesticide types applied to oilseed rape decreased when comparing 2022 with 2012 and 2016 except for fungicides and growth regulators which increased by 5% and 100%. Overall, there was a 3% decrease in quantities of pesticides applied to oilseed rape when comparing 2022 with 2012 and 2016 average.

Table 11. Quantity of pesticide type (kg/ha) and percentage change (%) for oilseed rape for surveys between 2022 and 2012-2016 average.

Pesticide type	Kg/ha on area grown			
	2012	2016	2022	(%) Change
Fungicides	0.37	0.39	0.40	5
Herbicides	1.99	2.21	1.95	-7
Insecticides	0.00	0.01	0.0003	-97
Molluscicides	0.05	0.04	0.03	-27
Growth regulators	-	-	0.09	100
Seed treatments	0.01	0.02	0.0001	-100
All pesticides	2.42	2.67	2.47	-3

Peas and beans

Quantities (kg/ha) of all pesticide types applied to peas and beans decreased when comparing 2022 with 2012 and 2016 except for molluscicides which increased by 170%. No growth regulator or seed treatment applications were recorded on peas and beans. Overall, there was a 37% decrease in quantities of pesticides applied to peas and beans when comparing 2022 with 2012 and 2016.

Table 12. Quantity of pesticide type (kg/ha) and percentage change (%) for peas and beans for surveys between 2022 and 2012-2016 average.

Pesticide type	Kg/ha on area grown			
	2012	2016	2022	(%) Change
Fungicides	1.19	1.14	0.37	-68
Herbicides	2.21	1.33	1.48	-16
Insecticides	0.01	0.01	0.002	-81
Molluscicides	-	0.004	0.01	170
Growth regulators	-	-	-	0
Seed treatments	-	-	-	-
All pesticides	3.41	2.48	1.86	-37

Potatoes (seed, early and maincrop)

Quantities (kg/ha) of fungicides, herbicides, molluscicides, and growth regulators applied to potatoes (as a group) increased by 73%, 173% and 14% respectively when comparing 2022 with 2012 and 2016 average. Overall, there was a 92% increase in total pesticides when comparing 2022 with 2012 and 2016 average.

Table 13. Quantity of pesticide type (kg/ha) and percentage change (%) for all potatoes for surveys between 2022 and 2012-2016 average.

Kg/ha on area grown				
Pesticide type	2012	2016	2022	(%) Change
Fungicides	7.71	6.50	12.28	73
Herbicides	2.20	2.45	6.35	173
Insecticides	0.02	0.04	0.02	-33
Molluscicides	0.11	0.06	0.10	14
Growth regulators	0.09	-	-	-100
Seed treatments	0.18	0.13	-	-100
All pesticides	10.31	9.18	18.75	92

Pesticide Usage Survey Results 2022

Pesticide usage on spring barley

- 105,277 ha of spring barley in Ireland.
- 764,946 treated hectares (spha).
- 157,697 kilograms applied.

Figure 18. Pesticide usage (spha) on spring barley in Ireland, 2022.

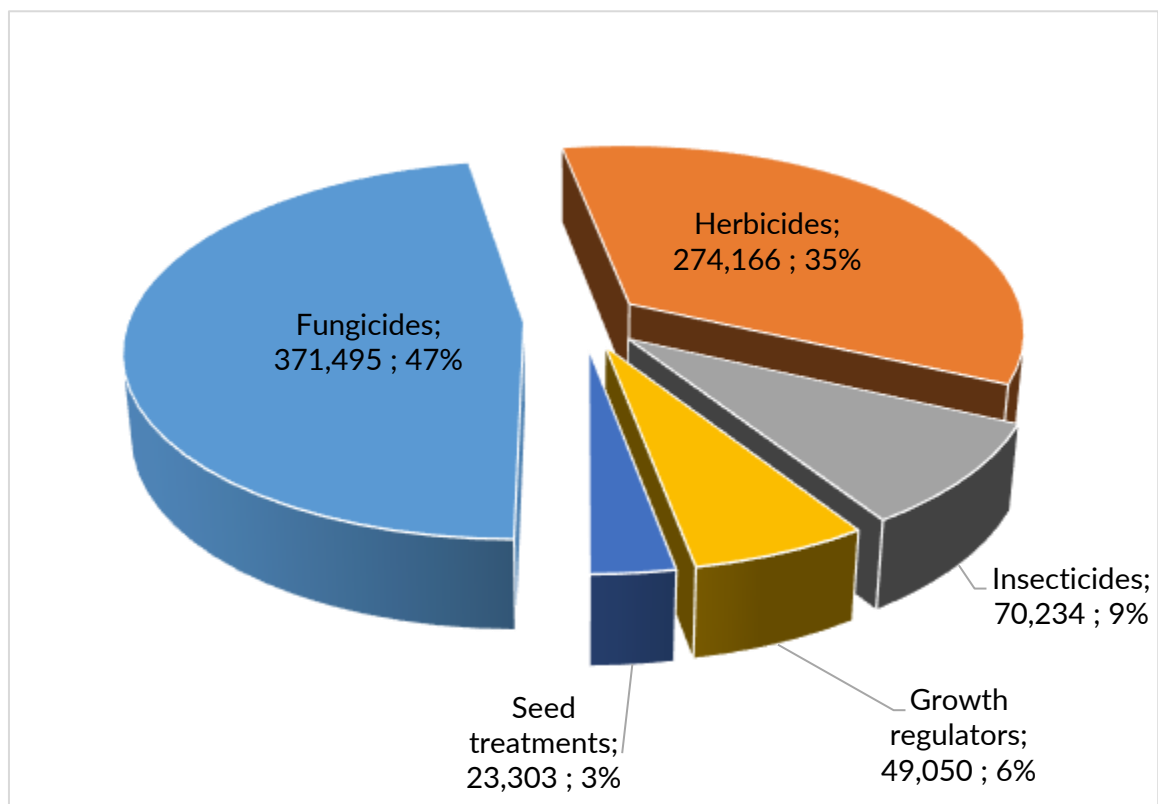


Figure 19. Weight of pesticides (kg) applied to spring barley in Ireland, 2022.

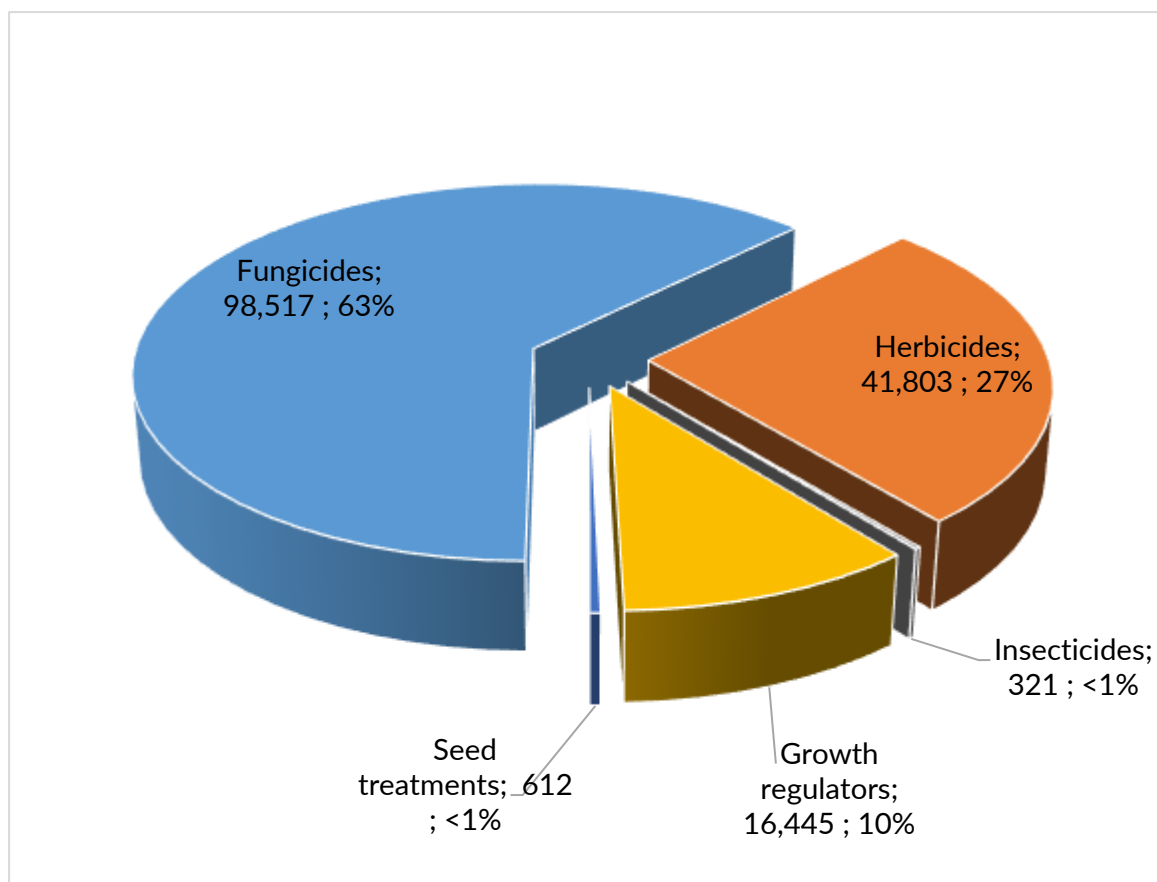


Table 14. The top 10 active ingredients most extensively used on spring barley in 2022, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Prothioconazole	185,416.36	96,864.71	53,556.77
Fluroxypyr	96,266.51	85,289.71	20,883.55
Folpet	84,812.30	74,815.27	17,249.46
Pyraclostrobin	79,391.90	60,241.52	11,326.14
Tribenuron-methyl	76,227.82	73,900.36	10,035.40
Lambda-cyhalothrin	67,494.83	63,985.39	8,828.76
Thifensulfuron-methyl	67,239.74	65,569.96	7,673.61
Florasulam	66,165.32	66,165.32	5,588.82
Fluxapyroxad	59,540.11	53,287.85	3,943.34
Pinoxaden	55,594.71	55,594.71	3,282.53

Table 15. The top 10 active ingredients most extensively used on spring barley in Ireland in 2022, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Folpet	53,556.77	84,812.30	74,815.27
Prothioconazole	20,883.55	185,416.36	96,864.71
Glyphosate	17,249.46	15,762.71	15,762.71
Chlormequat chloride	11,326.14	16,818.10	16,692.46
Pyraclostrobin	10,035.40	79,391.90	60,241.52
Fluroxypyr	8,828.76	96,266.51	85,289.71
Mecoprop-P	7,673.61	9,600.85	9,600.85
Spiroxamine	5,588.82	27,383.36	24,058.98
Clopyralid	3,282.53	54,027.65	54,027.65
Fluxapyroxad	3,068.41	59,540.11	53,287.85

Pesticide usage on winter barley

- 68,895 ha of winter barley in Ireland.
- 639,438 treated hectares (spha).
- 184,774 kilograms applied.

Figure 20. Pesticide usage (spha) on winter barley in Ireland, 2022.

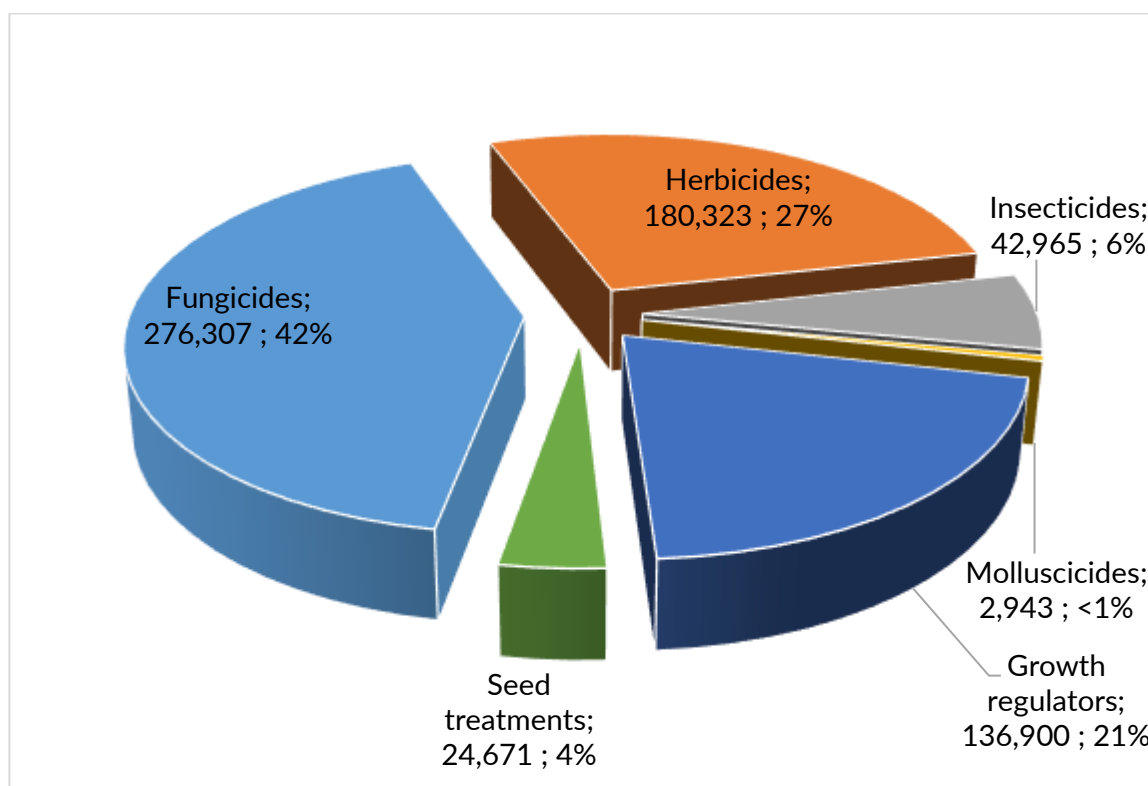


Figure 21. Weight of pesticides (kg) applied to winter barley in Ireland, 2022.

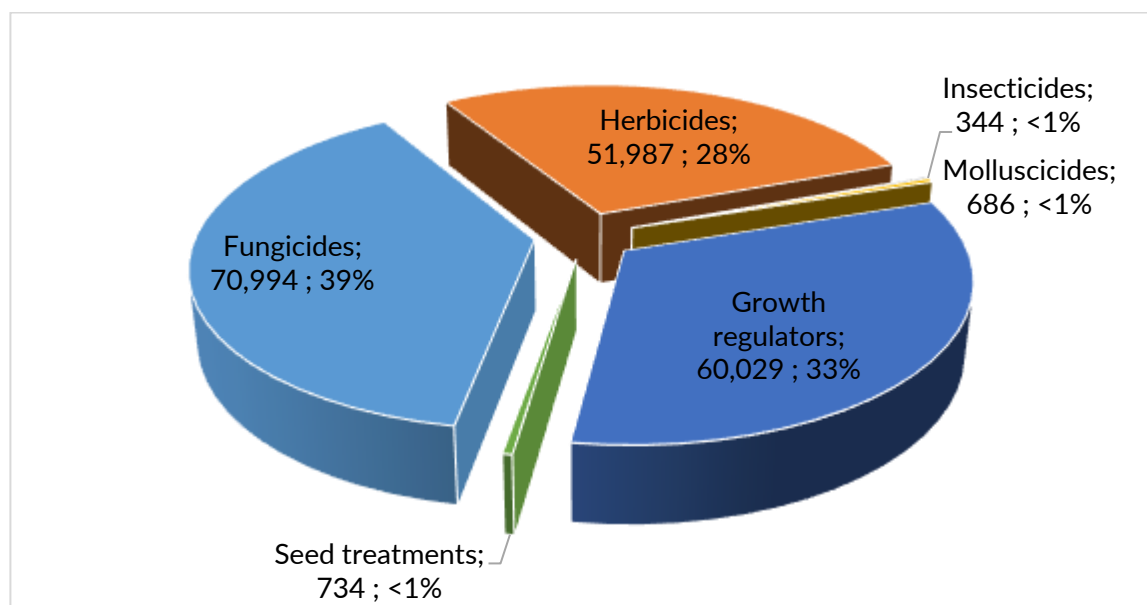


Table 16. The top 10 active ingredients most extensively used on winter barley in 2022, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Prothioconazole	138,739.37	66,011.13	15,786.10
Diflufenican	69,641.96	53,917.54	5,226.55
Folpet	61,251.30	46,434.85	38,962.76
Fluxapyroxad	50,703.45	37,324.45	2,100.28
Trinexapac-ethyl	48,646.19	42,572.94	2,415.02
Chlormequat chloride	42,747.05	36,768.34	32,785.72
Flufenacet	39,091.93	37,653.82	5,596.88
Pinoxaden	37,708.83	37,708.83	1,241.58
Pyraclostrobin	37,452.50	29,776.03	4,558.88
Bixafen	32,299.07	26,919.73	1,373.89

Table 17. The top 10 active ingredients most extensively used on winter barley in Ireland in 2022, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Folpet	38,962.76	61,251.30	46,434.85
Chlormequat chloride	32,785.72	42,747.05	36,768.34
Pendimethalin	16,843.27	23,032.73	20,854.85
Prothioconazole	15,786.10	138,739.37	66,011.13
Chlormequat	13,996.86	20,154.64	17,893.40
Glyphosate	9,233.81	11,511.31	10,756.99
Chlorotoluron	6,945.64	15,195.68	15,195.68
Mepiquat chloride	6,474.66	21,934.53	21,934.53
Flufenacet	5,596.88	39,091.93	37,653.82
Diflufenican	5,226.55	69,641.96	53,917.54

Pesticide usage on spring wheat

- 6,740 ha of spring wheat in Ireland.
- 49,611 treated hectares (spha).
- 13,961 kilograms applied.

Figure 22. Pesticide usage (spha) on spring wheat in Ireland, 2022.

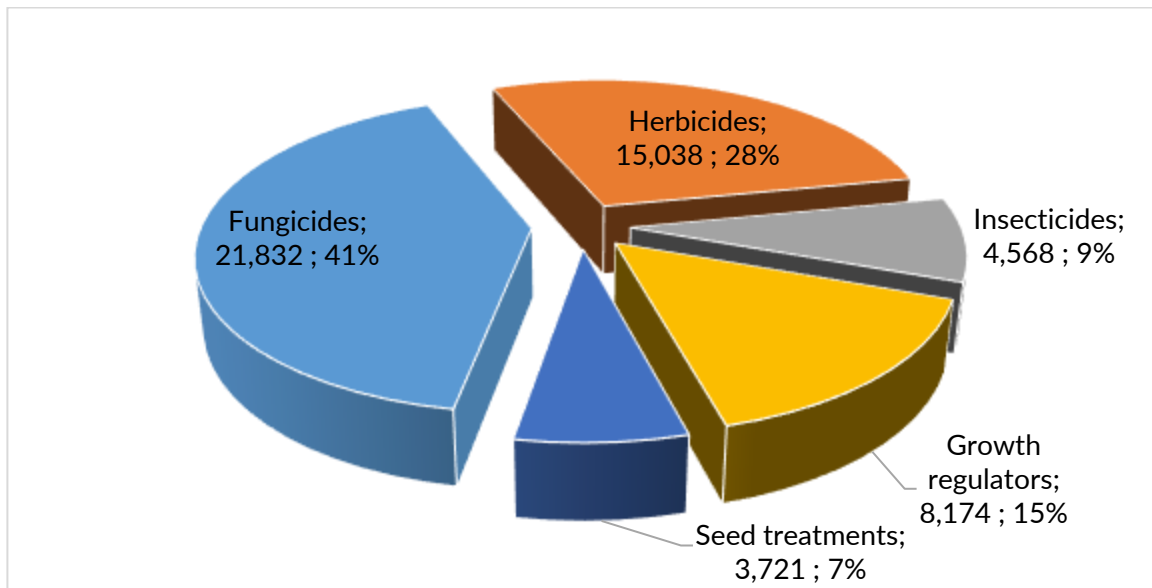


Figure 23. Weight of pesticides (kg) applied to spring wheat in Ireland, 2022.

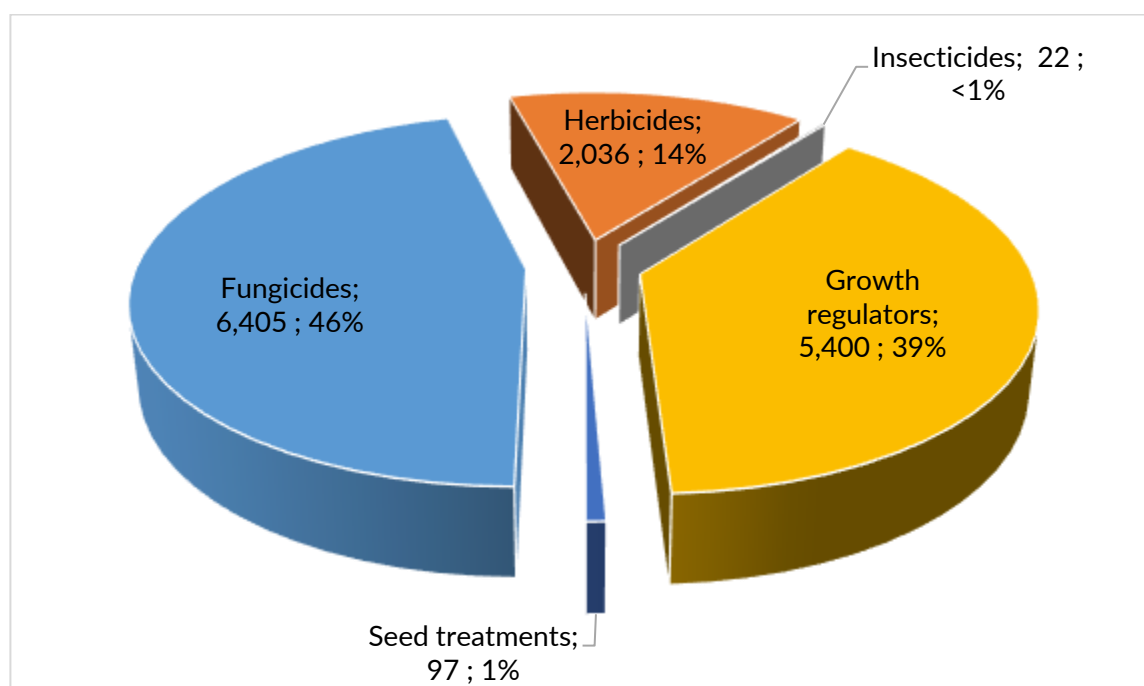


Table 18. The top 10 active ingredients most extensively used on spring wheat in 2022, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Prothioconazole	8,476.36	6,740.37	974.53
Fluxapyroxad	7,066.84	6,354.39	270.63
Chlormequat chloride	6,991.96	6,740.37	5,282.10
Folpet	6,225.38	5,869.16	3,936.08
Fluroxypyr	5,216.44	4,897.94	695.64
Bixafen	5,073.13	5,073.13	197.79
Lambda-cyhalothrin	4,316.18	4,149.44	21.19
Thifensulfuron-methyl	4,308.08	4,308.08	167.71
Metsulfuron-methyl	4,206.54	4,206.54	13.22
Pinoxaden	3,795.09	3,795.09	106.73

Table 19. The top 10 active ingredients most extensively used on spring wheat in Ireland in 2022, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Chlormequat chloride	5,282.10	6,991.96	6,740.37
Folpet	3,936.08	6,225.38	5,869.16
Glyphosate	981.69	742.20	742.20
Prothioconazole	974.53	8,476.36	6,740.37
Fluroxypyr	695.64	5,216.44	4,897.94
Spiroxamine	376.13	1,708.05	1,708.05
Fluxapyroxad	270.63	7,066.84	6,354.39
Bixafen	197.79	5,073.13	5,073.13
Thifensulfuron-methyl	167.71	4,308.08	4,308.08
Fenpropidin	161.25	430.01	430.01

Pesticide usage on winter wheat

- 71,548 ha of winter wheat in Ireland.
- 783, 359 treated hectares (spha).
- 253,470 kilograms applied.

Figure 24. Pesticide usage (spha) on winter wheat in Ireland, 2022.

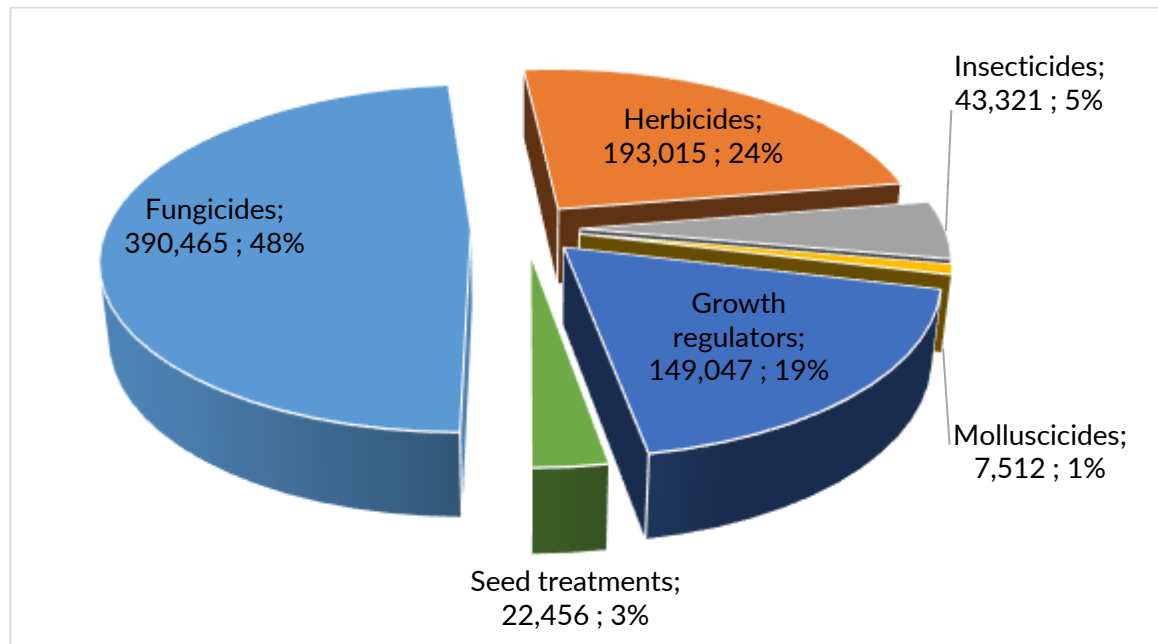


Figure 25. Weight of pesticides (kg) applied to winter wheat in Ireland, 2022.

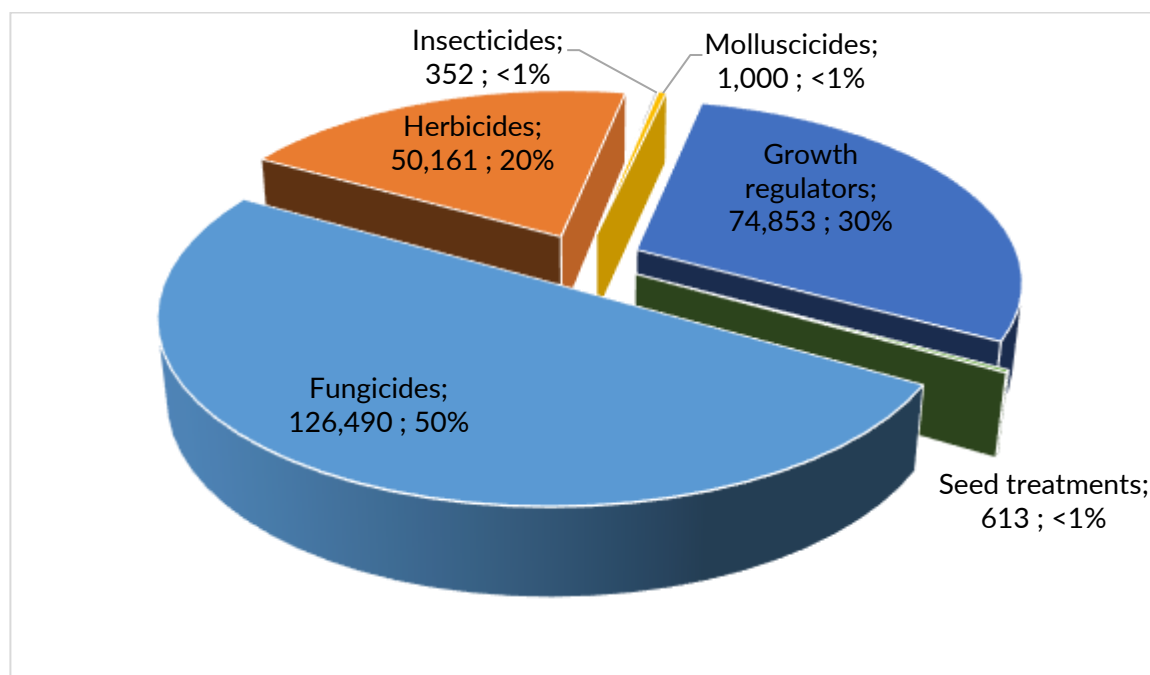


Table 20. The top 10 active ingredients most extensively used on winter wheat in 2022, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Folpet	118,517.02	59,682.22	79,061.13
Prothioconazole	102,425.61	60,386.44	13,817.00
Fluxapyroxad	80,972.20	51,406.51	4,503.32
Chlormequat chloride	75,222.21	62,035.56	65,185.76
Diflufenican	58,909.51	44,443.54	5,043.10
Mefentrifluconazole	57,410.54	45,785.19	7,199.60
Trinexapac-ethyl	55,938.27	49,932.61	2,396.43
Tebuconazole	50,905.82	42,626.85	6,030.23
Fenpicoxamid	37,065.31	35,346.68	2,936.97
Mesosulfuron-methyl	29,603.87	29,603.87	279.63

Table 21. The top 10 active ingredients most extensively used on winter wheat in Ireland in 2022, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Folpet	79,061.13	118,517.02	59,682.22
Chlormequat chloride	65,185.76	75,222.21	62,035.56
Prothioconazole	13,817.00	102,425.61	60,386.44
Glyphosate	13,534.06	15,254.80	14,524.19
Pendimethalin	11,837.35	17,190.62	14,794.64
Mefentrifluconazole	7,199.60	57,410.54	45,785.19
Tebuconazole	6,030.23	50,905.82	42,626.85
Chlormequat	5,507.55	11,297.03	8,831.45
Diflufenican	5,043.10	58,909.51	44,443.54
Prosulfocarb	4,654.42	4,069.87	4,069.87

Pesticide usage on spring oats

- 13,927 ha of spring oats in Ireland.
- 53,515 treated hectares (spha).
- 13,898 kilograms applied.

Figure 26. Pesticide usage (spha) on spring oats in Ireland, 2022.

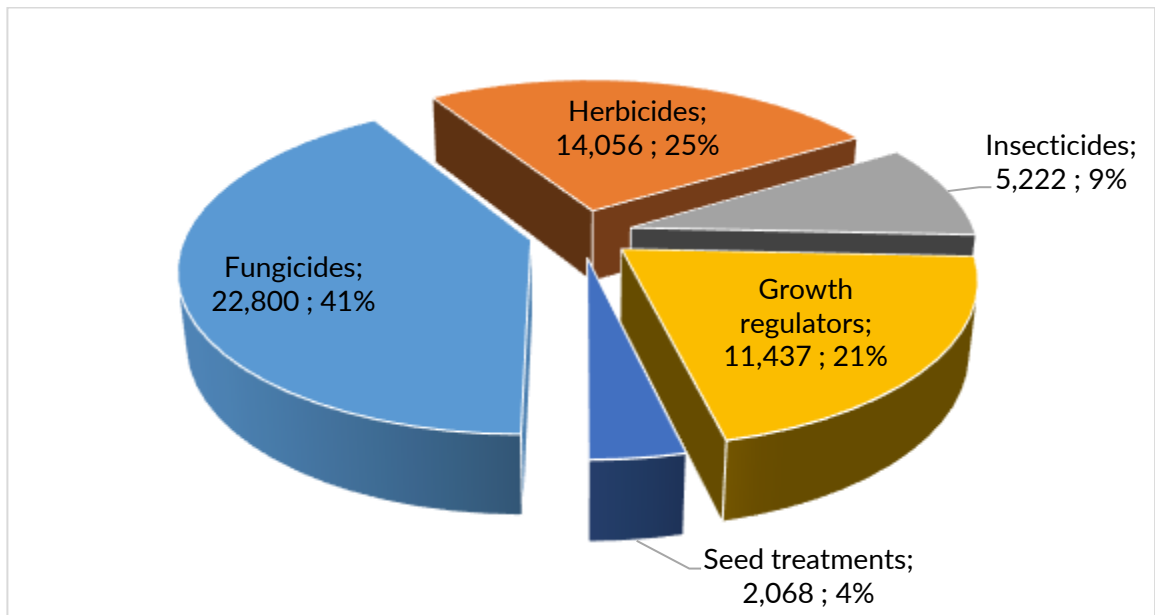


Figure 27. Weight of pesticides (kg) applied to spring oats in Ireland, 2022.

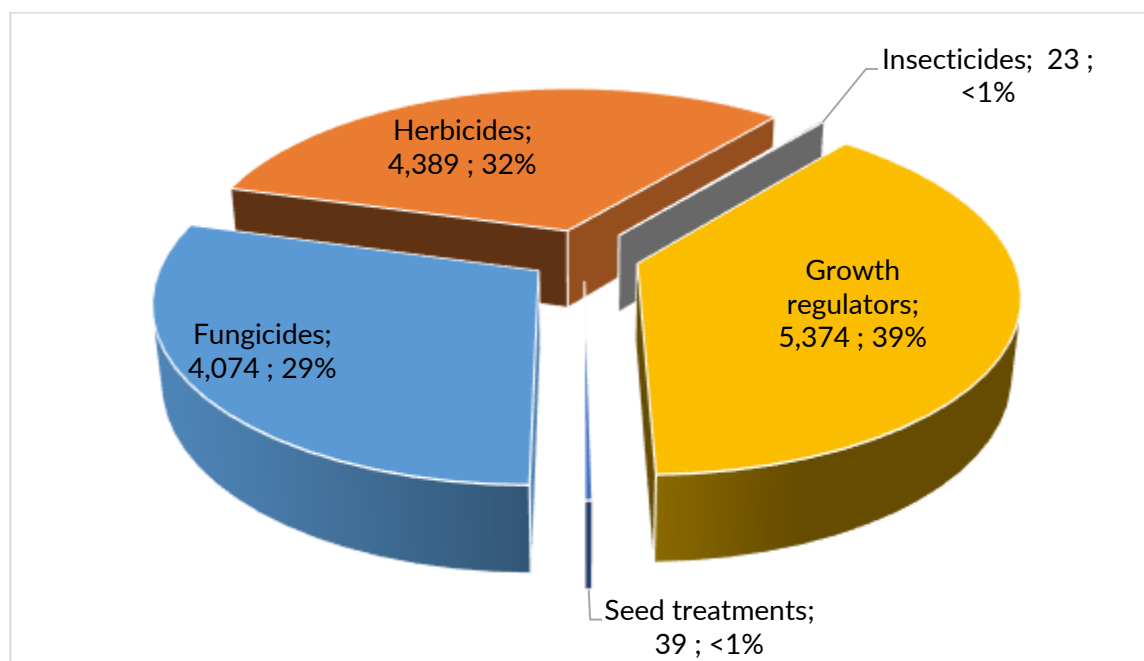


Table 22. The top 10 active ingredients most extensively used on spring oats in 2022, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Prothioconazole	11,194.43	5,648.29	1,230.04
Chlormequat chloride	5,846.32	4,785.14	4,984.86
Fluroxypyr	5,630.29	5,630.29	719.77
Trinexapac-ethyl	5,383.80	4,310.99	228.53
Pyraclostrobin	4,788.66	4,102.23	688.50
Tribenuron-methyl	4,783.22	4,783.22	53.31
Lambda-cyhalothrin	4,534.76	4,534.76	19.29
Benzovindiflupyr	4,518.70	4,518.70	284.97
Thifensulfuron-methyl	4,312.98	4,312.98	51.34
Bixafen	3,199.10	2,511.64	145.48

Table 23. The top 10 active ingredients most extensively used on spring oats in Ireland in 2022, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Chlormequat chloride	4,984.86	5,846.32	4,785.14
Glyphosate	2,699.61	2,326.42	2,020.61
Prothioconazole	1,230.04	11,194.43	5,648.29
Fenpropidin	795.61	2,228.34	1,292.68
Fluroxypyr	719.77	5,630.29	5,630.29
Pyraclostrobin	688.50	4,788.66	4,102.23
Mecoprop-P	684.92	877.72	877.72
Spiroxamine	454.75	1,783.21	1,783.21
Benzovindiflupyr	284.97	4,518.70	4,518.70
Trinexapac-ethyl	228.53	5,383.80	4,310.99

Pesticide usage on winter oats

- 13,115 ha of winter oats in Ireland.
- 92,844 treated hectares (spha).
- 22,727 kilograms applied.

Figure 28. Pesticide usage (spha) on winter oats in Ireland, 2022.

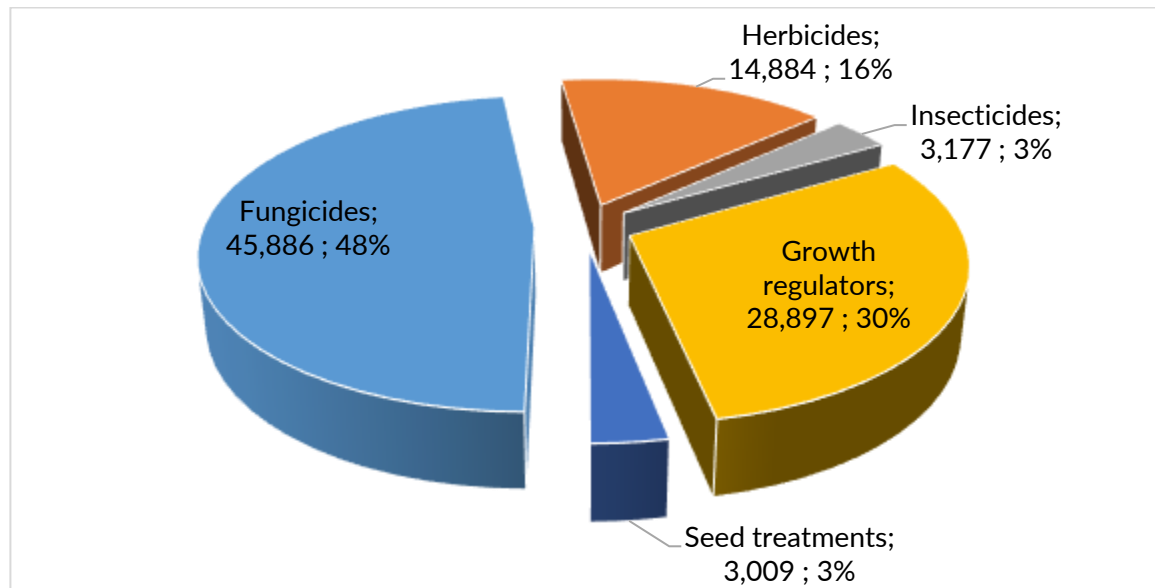


Figure 29. Weight of pesticides (kg) applied to winter oats in Ireland, 2022.

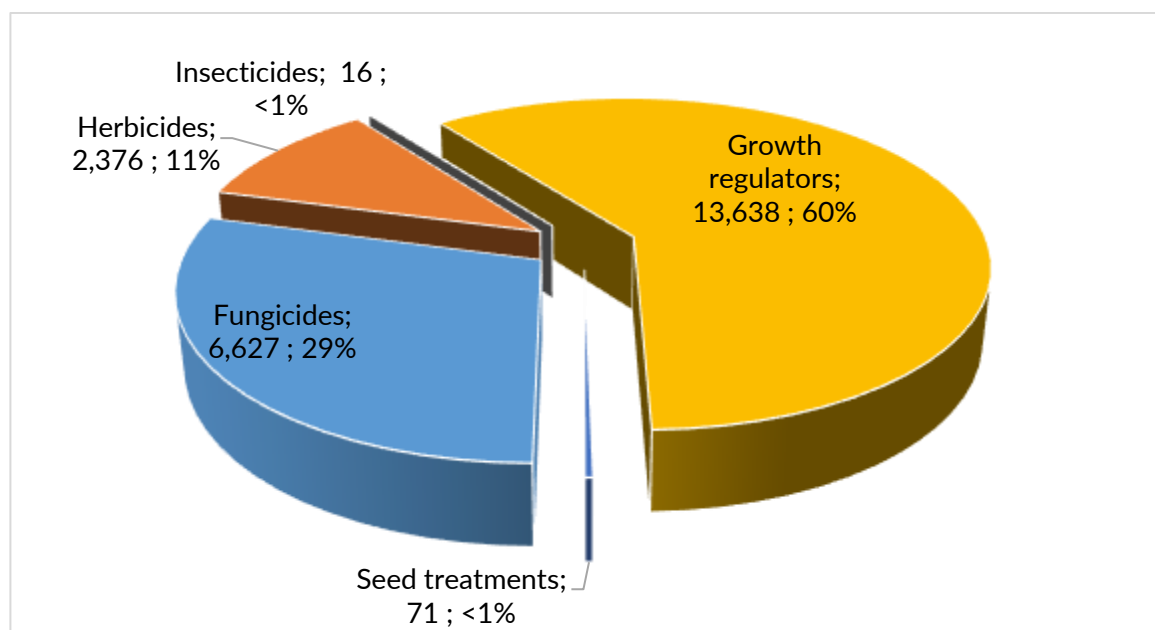


Table 24. The top 10 active ingredients most extensively used on winter oats in 2022, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Prothioconazole	18,668.95	9,762.55	2,235.99
Chlormequat chloride	12,787.52	8,491.28	10,577.47
Trinexapac-ethyl	12,209.73	8,294.75	533.31
Benzovindiflupyr	7,428.97	7,428.97	448.42
Pyraclostrobin	7,084.03	6,086.43	927.05
Proquinazid	6,390.24	4,393.52	249.33
Diflufenican	4,948.01	4,370.51	536.76
Tribenuron-methyl	4,290.62	3,713.12	38.33
Chlormequat	3,900.22	3,222.23	2,498.42
Bixafen	3,731.54	3,731.54	185.59

Table 25. The top 10 active ingredients most extensively used on winter oats in Ireland in 2022, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Chlormequat chloride	10,577.47	12,787.52	8,491.28
Chlormequat	2,498.42	3,900.22	3,222.23
Prothioconazole	2,235.99	18,668.95	9,762.55
Glyphosate	1,160.03	1,650.67	1,650.67
Pyraclostrobin	927.05	7,084.03	6,086.43
Spiroxamine	889.08	3,404.96	3,328.94
Diflufenican	536.76	4,948.01	4,370.51
Trinexapac-ethyl	533.31	12,209.73	8,294.75
Benzovindiflupyr	448.42	7,428.97	7,428.97
Fenpropidin	416.44	1,438.85	1,110.99

Pesticide usage on oilseed rape

- 16,679 ha of oilseed rape in Ireland.
- 118,811 treated hectares (spha).
- 41,164 kilograms applied.

Figure 30. Pesticide usage (spha) on oilseed rape in Ireland, 2022.

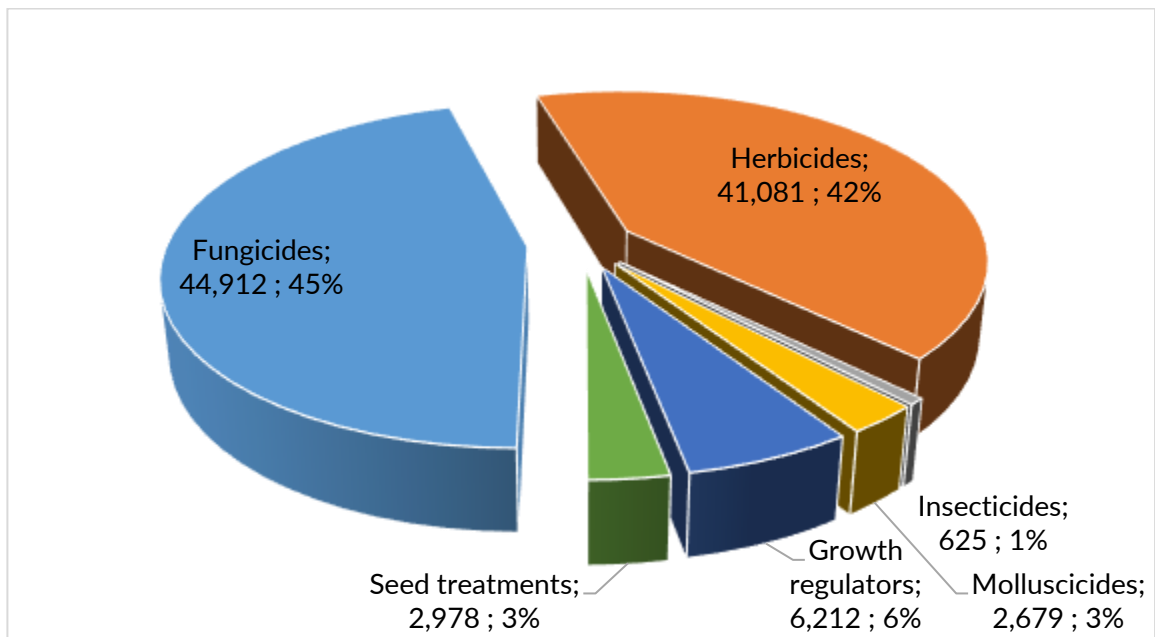


Figure 31. Weight of pesticides (kg) applied to oilseed rape in Ireland, 2022.

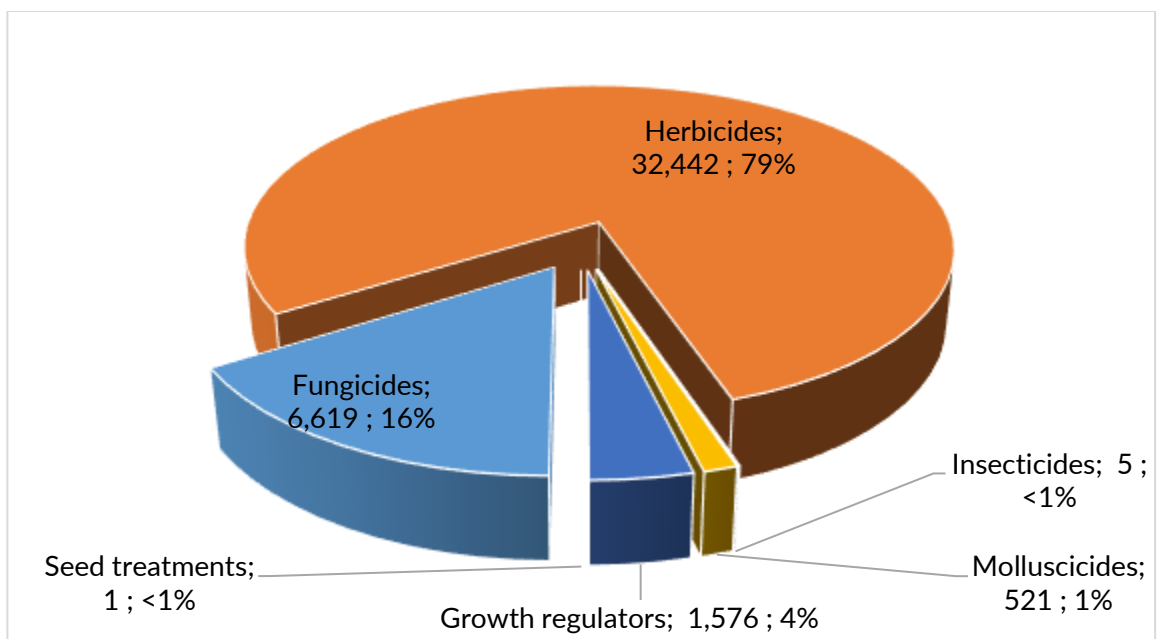


Table 26. The top 10 active ingredients most extensively used on oilseed rape in 2022, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Prothioconazole	22,536.47	12,694.36	2,179.27
Glyphosate	16,388.80	12,576.68	16,357.32
Tebuconazole	11,343.42	5,183.54	1,772.99
Metconazole	10,562.49	7,041.93	399.55
Propyzamide	9,290.28	8,338.56	7,434.53
Boscalid	8,877.71	8,299.45	2,028.78
Metazachlor	6,652.03	6,652.03	3,210.00
Propaquizafop	6,570.76	6,407.06	375.40
Aminopyralid	6,495.44	5,543.73	66.59
Quinmerac	6,409.84	6,409.84	1,464.99

Table 27. The top 10 active ingredients most extensively used on oilseed rape in Ireland in 2022, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Glyphosate	16,357.32	16,388.80	12,576.68
Propyzamide	7,434.53	9,290.28	8,338.56
Metazachlor	3,210.00	6,652.03	6,652.03
Dimethenamid-P	2,733.19	6,016.29	6,016.29
Prothioconazole	2,179.27	22,536.47	12,694.36
Boscalid	2,028.78	8,877.71	8,299.45
Tebuconazole	1,772.99	11,343.42	5,183.54
Quinmerac	1,464.99	6,409.84	6,409.84
Mepiquat chloride	1,379.28	6,211.66	5,296.78
Prosulfocarb	688.97	1,076.51	1,076.51

Pesticide usage on peas and beans

- 10,633 ha of peas and beans in Ireland.
- 41,476 treated hectares (spha).
- 19,772 kilograms applied.

Figure 32. Pesticide usage (spha) on peas and beans in Ireland, 2022.

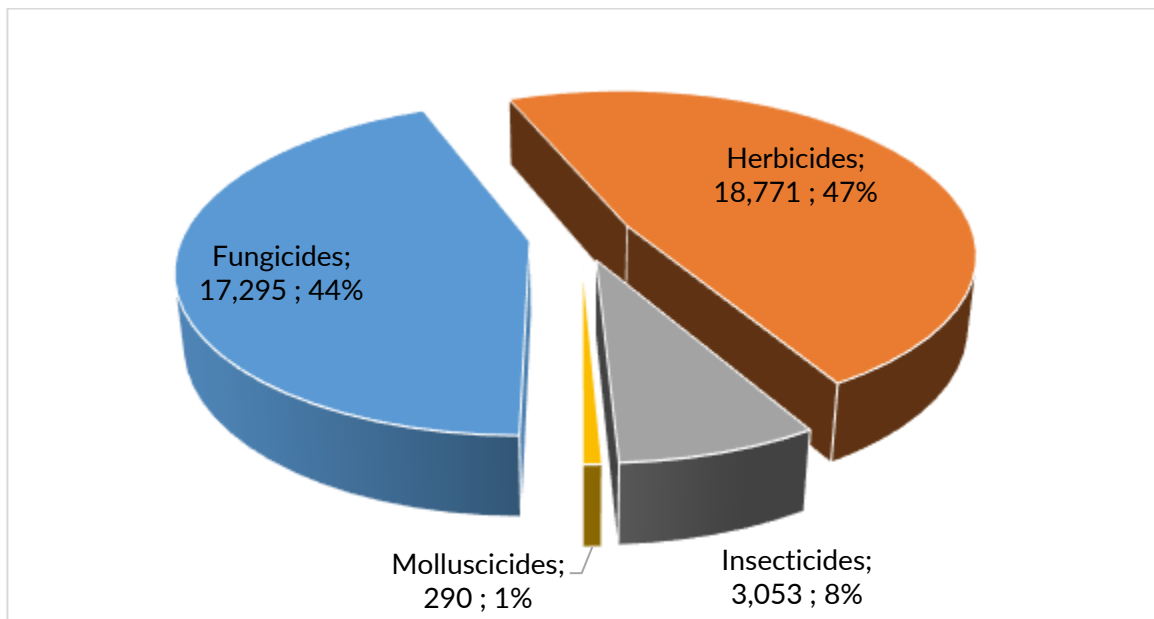


Figure 33. Weight of pesticides (kg) applied to peas and beans in Ireland, 2022.

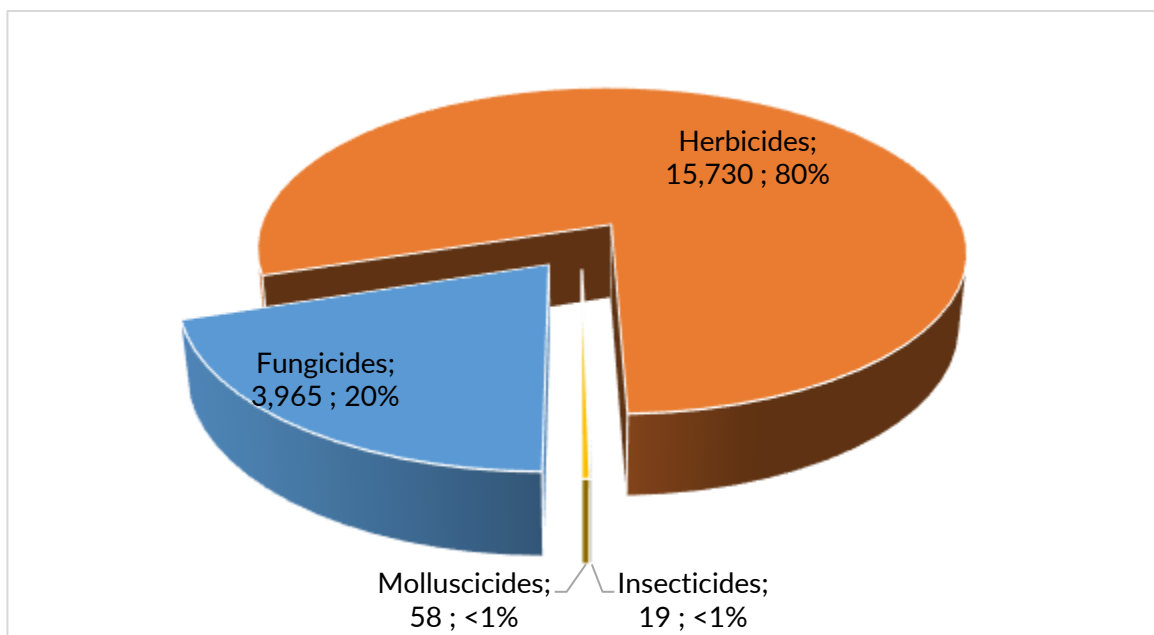


Table 28. The top 10 active ingredients most extensively used on peas and beans in 2022, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Pyraclostrobin	9,761.07	6,708.30	510.91
Boscalid	9,103.16	6,708.30	1,642.76
Glyphosate	4,243.67	3,423.56	3,479.14
Pendimethalin	4,024.16	4,024.16	3,677.66
Imazamox	3,587.29	3,587.29	215.86
Lambda-cyhalothrin	3,052.71	2,802.55	19.08
Propaquizafop	2,693.86	2,693.86	208.77
Cycloxydim	2,654.65	2,654.65	596.40
Azoxystrobin	2,603.50	2,158.75	428.18
Benzovindiflupyr	2,327.08	2,327.08	116.77

Table 29. The top 10 active ingredients most extensively used on peas and beans in Ireland in 2022, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Prosulfocarb	5,013.66	1,597.60	1,597.60
Pendimethalin	3,677.66	4,024.16	4,024.16
Glyphosate	3,479.14	4,243.67	3,423.56
Aclonifen	1,676.45	1,383.16	1,383.16
Boscalid	1,642.76	9,103.16	6,708.30
Cycloxydim	596.40	2,654.65	2,654.65
Bentazone	542.83	1,087.90	1,087.90
Pyraclostrobin	510.91	9,761.07	6,708.30
Folpet	493.43	657.91	657.91
Azoxystrobin	428.18	2,603.50	2,158.75

Pesticide usage on seed potatoes

- 207 ha of seed potatoes in Ireland.
- 3,722 treated hectares (spha).
- 1,528 kilograms applied.

Figure 34. Pesticide usage (spha) on seed potatoes in Ireland, 2022.

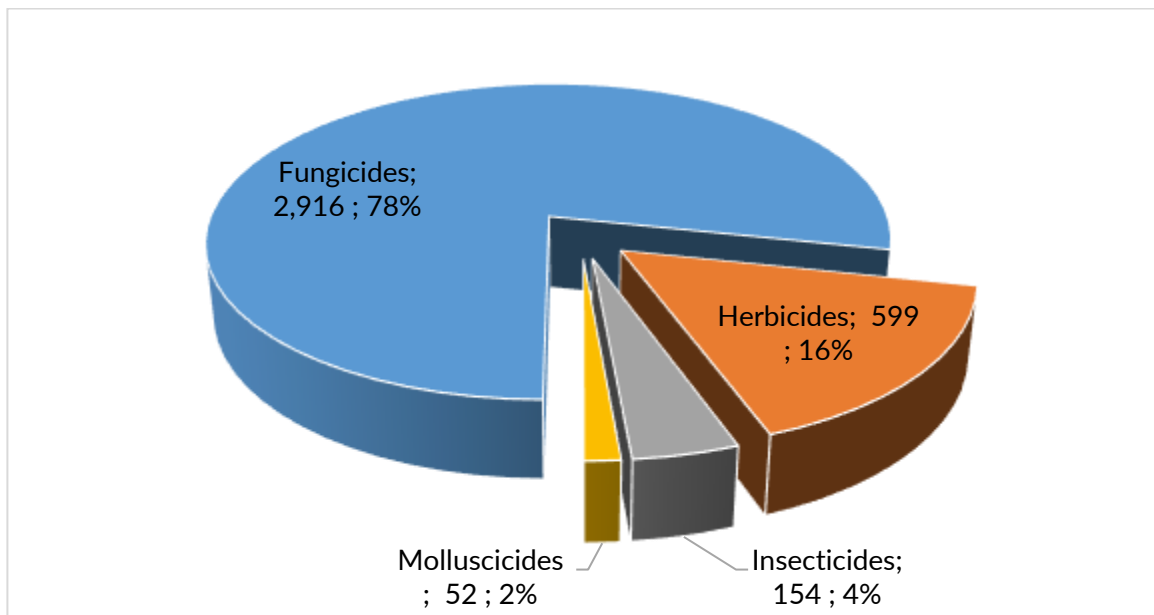


Figure 35. Weight of pesticides (kg) applied to seed potatoes in Ireland, 2022.

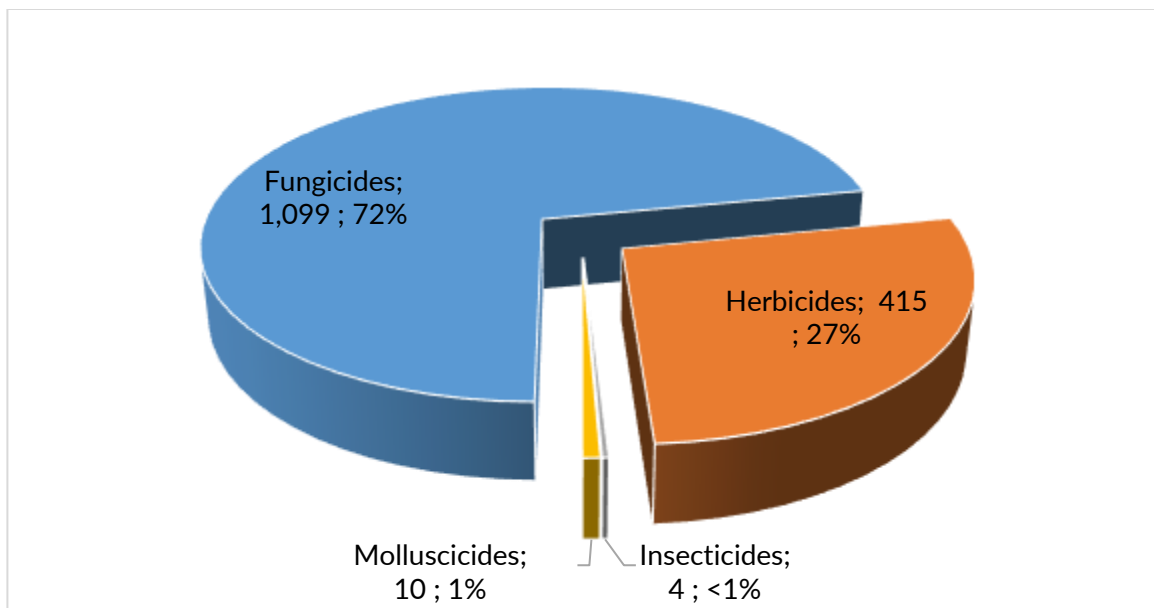


Table 30. The top 10 active ingredients most extensively used on seed potatoes in 2022, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Cymoxanil	970.28	206.97	104.97
Propamocarb hydrochloride	775.50	206.97	773.21
Mandipropamid	618.04	185.45	89.24
Benthiavalicarb	413.93	206.97	10.51
oxathiapiprolin	413.93	206.97	4.50
Fluopicolide	404.61	206.97	40.27
Fluazinam	340.05	185.45	37.09
Metribuzin	206.97	206.97	94.32
Aclonifen	185.45	185.45	96.96
Pendimethalin	154.60	154.60	185.52

Table 31. The top 10 active ingredients most extensively used on seed potatoes in Ireland in 2022, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Propamocarb hydrochloride	773.21	775.50	206.97
Pendimethalin	185.52	154.60	154.60
Cymoxanil	104.97	970.28	206.97
Aclonifen	96.96	185.45	185.45
Metribuzin	94.32	206.97	206.97
Mandipropamid	89.24	618.04	185.45
Fluopicolide	40.27	404.61	206.97
Fluazinam	37.09	340.05	185.45
Glyphosate	36.57	30.85	30.85
Mineral oil	27.83	154.60	154.60

Pesticide usage on early potatoes

- 668 ha of seed potatoes in Ireland.
- 11,010 treated hectares (spha).
- 3,495 kilograms applied.

Figure 36. Pesticide usage (spha) on early potatoes in Ireland, 2022.

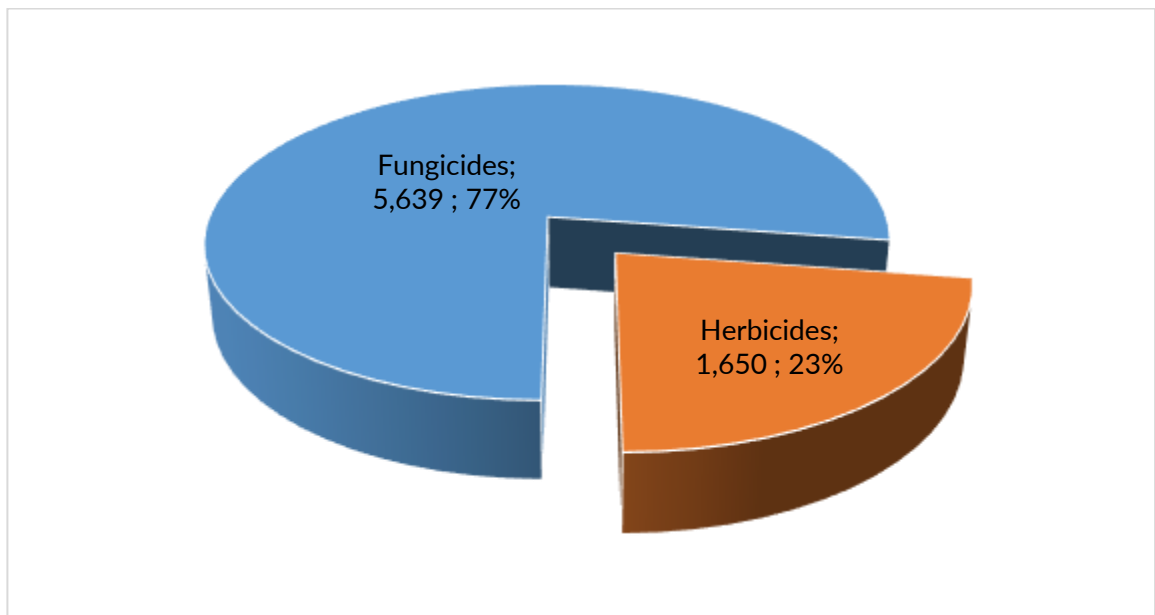


Figure 37. Weight of pesticides (kg) applied to early potatoes in Ireland, 2022.

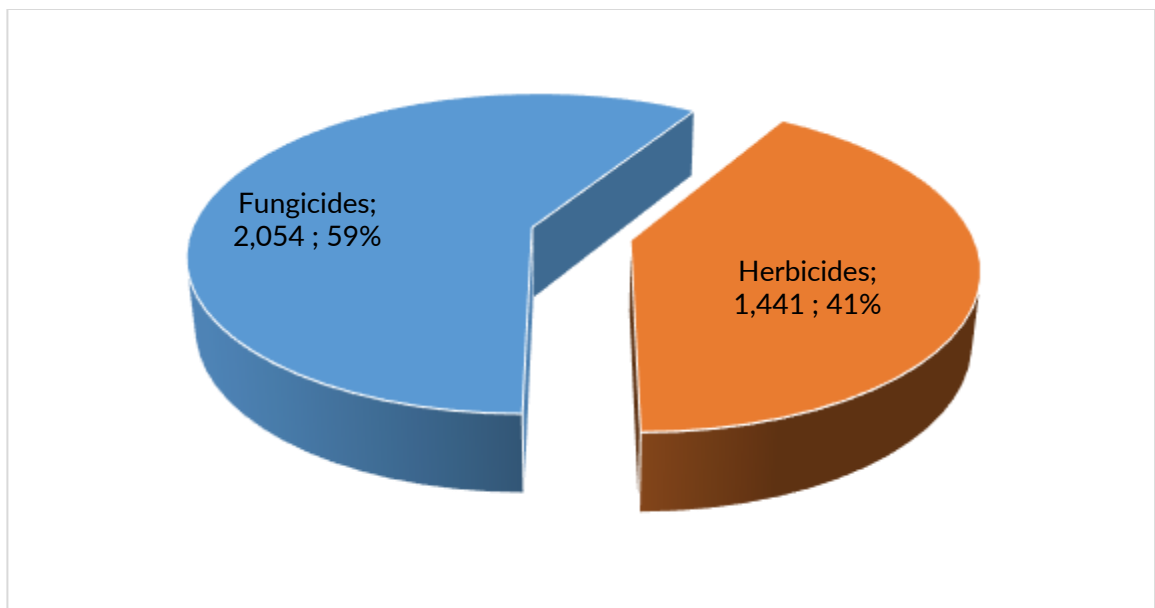


Table 32. The top 10 active ingredients most extensively used on early potatoes in 2022, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Cyazofamid	1,332.16	439.87	94.86
Propamocarb hydrochloride	1,298.86	629.31	1,284.06
Cymoxanil	1,284.80	439.87	143.77
Fluopicolide	871.31	629.31	85.65
Mandipropamid	858.37	596.83	128.76
Glyphosate	585.64	292.82	448.02
Metribuzin	581.95	581.95	254.90
Benthiavalicarb	539.33	374.99	13.66
Oxathiapiprolin	539.33	374.99	5.86
Azoxystrobin	374.99	374.99	208.04

Table 33. The top 10 active ingredients most extensively used on early potatoes in Ireland in 2022, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Propamocarb hydrochloride	1,284.06	1,298.86	629.31
Prosulfocarb	606.21	189.44	189.44
Glyphosate	448.02	585.64	292.82
Metribuzin	254.90	581.95	581.95
Azoxystrobin	208.04	374.99	374.99
Cymoxanil	143.77	1,284.80	439.87
Aclonifen	131.77	292.82	292.82
Mandipropamid	128.76	858.37	596.83
Cyazofamid	94.86	1,332.16	439.87
Fluopicolide	85.65	871.31	629.31

Pesticide usage on maincrop potatoes

- 9,371 ha of maincrop potatoes in Ireland.
- 149,730 treated hectares (spha).
- 57,467 kilograms applied.

Figure 38. Pesticide usage (spha) on maincrop potatoes in Ireland, 2022.

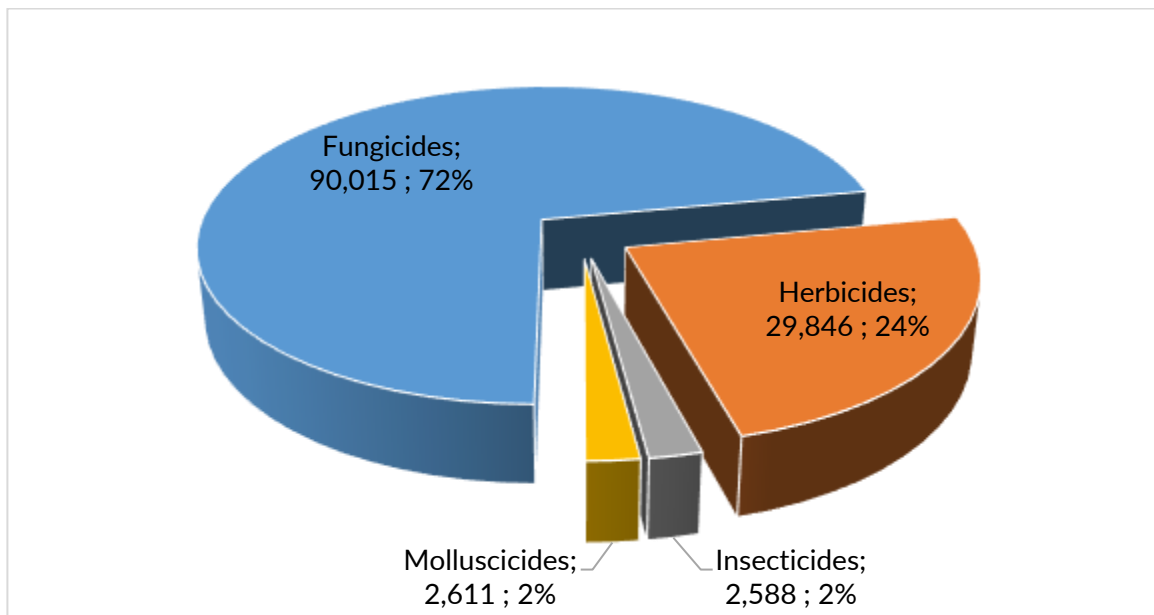


Figure 39. Weight of pesticides (kg) applied to maincrop potatoes in Ireland, 2022.

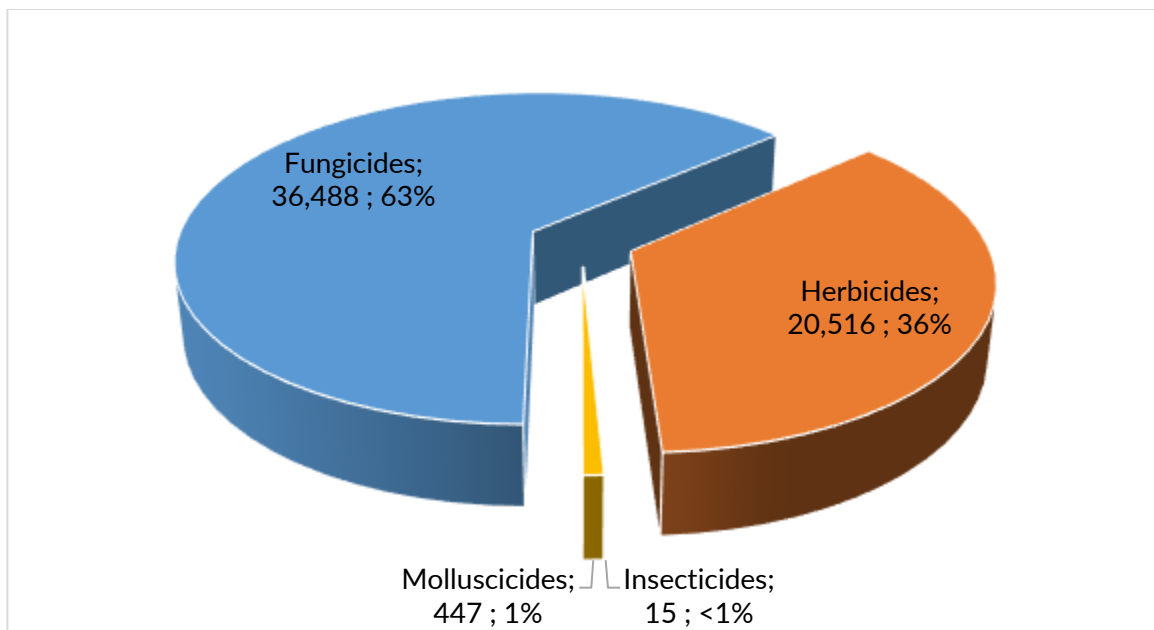


Table 34. The top 10 active ingredients most extensively used on maincrop potatoes in 2022, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Propamocarb hydrochloride	27,155.98	8,651.60	26,659.00
Fluopicolide	17,746.54	7,596.09	1,751.62
Cyazofamid	16,510.95	6,885.57	1,259.11
Mandipropamid	16,306.06	6,712.20	2,351.19
Cymoxanil	15,834.30	5,630.03	1,820.60
Oxathiapiprolin	15,558.85	7,111.47	181.32
Benthiavalicarb	13,109.87	6,295.15	337.36
Carfentrazone-ethyl	7,873.45	4,456.37	336.61
Metribuzin	7,868.67	7,868.67	3,622.82
Fluazinam	4,319.87	3,295.10	709.63

Table 35. The top 10 active ingredients most extensively used on maincrop potatoes in Ireland in 2022, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Propamocarb hydrochloride	26,659.00	27,155.98	8,651.60
Prosulfocarb	12,323.88	4,259.28	4,259.28
Metribuzin	3,622.82	7,868.67	7,868.67
Mandipropamid	2,351.19	16,306.06	6,712.20
Cymoxanil	1,820.60	15,834.30	5,630.03
Methylated rapeseed oil	1,777.47	1,055.51	1,055.51
Fluopicolide	1,751.62	17,746.54	7,596.09
Glyphosate	1,712.73	2,747.10	2,747.10
Aclonifen	1,531.30	3,402.89	3,402.89
Cyazofamid	1,259.11	16,510.95	6,885.57

Table 36. Estimated area (hectares) of arable crops grown regionally in Ireland, 2022.

Crop	Region			
	East	South	North/West	Ireland
Spring barley	34,846	63,829	6,602	105,277
Winter barley	34,067	29,567	5,261	68,895
Spring wheat	4,181	2,559	-	6,740
Winter wheat	49,274	18,866	3,408	71,548
Spring oats	943	12,285	699	13,927
Winter oats	7,896	4,565	654	13,115
Oilseed rape	11,796	4,296	588	16,679
Peas and beans	6,719	3,624	290	10,633
Seed potatoes	155	-	52	207
Early potatoes	375	196	97	668
Maincrop potatoes	4,658	3,652	1,062	9,371
Total	154,910	143,438	18,712	317,060

Table 37. Estimated area (spray-hectares) of arable crops treated regionally with each pesticide type in Ireland, 2022.

Crop	Region			
	East	South	North/West	Ireland
Fungicides	629,652	591,346	68,562	1,289,560
Herbicides	398,039	338,869	46,520	783,428
Insecticides	80,614	88,349	6,944	175,907
Molluscicides	9,543	5,778	766	16,087
Growth Regulators	220,433	149,744	19,540	389,717
Seed treatments	50,311	31,591	304	82,206
Total	1,388,593	1,205,676	142,636	2,736,904

Table 38. Estimated weight (kgs) of pesticides applied to arable crops treated in Ireland, 2022.

Crop	Region			
	East	South	North/West	Ireland
Fungicides	172,345	168,967	22,020	363,332
Herbicides	111,825	96,805	14,667	223,296
Insecticides	605	476	41	1,121
Molluscicides	1,517	1,053	153	2,723
Growth Regulators	99,936	70,123	7,256	177,315
Seed treatments	1,316	845	5	2,166
Total	387,543	338,269	44,142	769,954

Table 39. The total area (spray hectares) and the basic area (hectares), of arable crops in Ireland 2022 treated with each pesticide type.

Crop type	Pesticide Type														
	Fungicides		Herbicides		Insecticides		Molluscicides		Growth regulators		Seed treatments		Total all pesticides		
	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha) treated	(ha) grown
Spring barley	371,495	100,034	274,166	101,983	70,234	66,473	-	-	49,050	38,206	-	23,303	764,946	103,742	105,277
Winter barley	276,307	67,454	180,323	64,133	42,965	37,544	2,943	2,136	136,900	62,774	-	24,671	639,438	67,454	68,895
Spring wheat	21,832	6,740	15,038	5,284	4,568	4,401	-	-	8,174	6,740	-	3,721	49,611	6,740	6,740
Winter wheat	390,465	70,784	193,015	68,016	43,321	40,864	7,512	6,373	149,047	67,243	-	22,456	783,359	71,385	71,548
Spring oats	22,800	7,035	14,056	6,732	5,222	5,222	-	-	11,437	5,552	-	2,068	53,515	7,133	13,927
Winter oats	45,886	10,549	14,884	8,280	3,177	3,177	-	-	28,897	10,514	-	3,009	92,844	11,246	13,115
Oilseed rape (S&W)	44,912	15,134	41,081	16,272	625	625	2,679	2,679	6,212	5,297	23,303	2,978	118,811	16,679	16,679
Peas and beans	17,295	9,037	18,771	9,416	3,053	2,803	290	290	-	-	2,068	-	41,476	10,392	10,633
Seed potatoes	2,916	207	599	207	154	31	52	52	-	-	-	-	3,722	207	207
Early potatoes	5,639	668	1,650	582	-	-	-	-	-	-	3,721	-	11,010	668	668
Maincrop potatoes	90,015	8,661	29,846	8,037	2,588	2,192	2,611	1,306	-	-	24,671	-	149,730	8,661	9,371
Total	1,289,560	296,305	783,428	288,942	175,907	163,330	16,087	12,835	389,717	196,327	53,763	82,206	2,708,462	304,308	317,060

Table 40. The total quantities (kilograms) of each pesticide type used on arable crops in Ireland 2022.

Crop	Pesticide Type						Total
	Fungicides	Herbicides	Insecticides	Molluscicides	Growth regulators	Seed treatments	
Spring barley	98,517	41,803	321	-	16,445	612	157,697
Winter barley	70,994	51,987	344	686	60,029	734	184,774
Spring wheat	6,405	2,036	22	-	5,400	97	13,961
Winter wheat	126,490	50,161	352	1,000	74,853	613	253,470
Spring oats	4,074	4,389	23	-	5,374	39	13,898
Winter oats	6,627	2,376	16	-	13,638	71	22,727
Oilseed rape	6,619	32,442	5	521	1,576	1	41,164
Peas and beans	3,965	15,730	19	58	-	-	19,772
Seed potatoes	1,099	415	4	10	-	-	1,528
Early potatoes	2,054	1,441	-	-	-	-	3,495
Maincrop potatoes	36,488	20,516	15	447	-	-	57,467
Total	363,332	223,296	1,121	2,723	177,315	2,166	769,954

Table 41. Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2022.

Pesticide type and formulation	Crops											
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	All crops
Fungicides												
Ametoctradin									30.85	82.17		113.02
Amisulbrom									30.85	82.17	2,448.98	2,561.99
Azoxystrobin	4,129.92	4,472.49		26,770.20	54.77	2,540.59	2,437.13	2,603.50		374.99	975.03	44,358.62
Benthiavdicarb-isopropyl/mancozeb								326.94	21.52			348.46
Benthiavdicarb/oxathiapiprolin									413.94	539.33	13,109.86	14,063.13
Benzovindiflupyr	1,656.84	5,568.92		5,516.66		1,335.03		66.15				14,143.60
Benzovindiflupyr/propiconazole	3,014.50	1,849.60		719.30	1,102.25	1,509.17		852.49				9,047.31
Benzovindiflupyr/prothioconazole	10,138.94	7,395.04		5,569.93	3,416.45	4,584.77		1,408.44				32,513.56
Bixafen	2,985.74	2,573.39										5,559.13
Bixafen/fluopyram/prothioconazole	3,129.19	2,870.53	251.60	12,113.82		439.74						18,804.87
Bixafen/fluoxastrobin/prothioconazole	7,075.41	3,444.23										10,519.64
Bixafen/prothioconazole	22,612.61	22,104.39	3,365.08		1,831.35	1,099.41						51,012.85
Bixafen/prothioconazole/spiroxamine	2,068.06	1,306.53	1,456.45	2,688.98	1,367.75	2,192.39						11,080.15
Boscalid							8,877.71					8,877.71
Boscalid/pyraclostrobin								9,103.15				9,103.15
Cyazofamid									86.07	1,332.16	16,510.94	17,929.18
Cyflufenamid		1,127.38	251.60	296.70	933.75	3,146.31						5,755.73
Cymoxanil									599.39	857.25	6,424.86	7,881.50
Cymoxanil/propamocarb hydrochloride									370.90	427.55	9,409.42	10,207.87
Cyprodinil/isoprazam	1,849.13	3,457.36				577.50						5,883.99
Difenoconazole				1,260.94								1,260.94
Dimethomorph/fluazinam											2,049.54	2,049.54
Fenpicoxamid			134.38	37,065.30								37,199.67
Fenpropidin	211.87	304.40	430.01		2,228.34	1,438.85						4,613.46
Fluazinam									340.05	24.48	2,270.33	2,634.86
Fluopicolide/propamocarb hydrochloride									404.61	871.31	17,746.54	19,022.46
Fluoxastrobin	1,295.76											1,295.76
Fluoxastrobin/prothioconazole				8,352.83								8,352.83
Fluoxastrobin/prothioconazole/trifloxystrobin	7,423.66	4,998.65										12,422.31
Fluxapyroxad	6,661.43	12,846.40	356.23	593.00								20,457.06
Fluxapyroxad/mefentrifluconazole	505.95	1,980.77	1,047.63	57,410.54						164.34		61,109.23
Fluxapyroxad/metconazole			1,623.19	4,772.28								6,395.47
Fluxapyroxad/pyraclostrobin	35,801.69	14,155.60	318.50	1,136.85	1,372.86	534.11		657.91				53,977.51
Folpet	84,812.29	61,251.33	6,225.38	118,516.98				657.91				271,463.89
Isoprazam	960.48	1,717.15										2,677.63
Mancozeb										24.48	46.40	70.88

Mandipropamid									618.04	858.37	16,306.05	17,782.47
Metconazole		716.16	166.74	7,677.13			4,350.83	1,440.98				14,351.83
Metrafenone		557.76	860.01	3,925.22	454.80	2,524.20						8,321.98
Oxathiapiprolin											2,448.98	2,448.98
Proquinazid	1,649.39	1,669.85	1,623.19	1,155.47	1,627.51	6,390.24						14,115.65
Prothioconazole	99,167.49	81,478.72	2,367.27	28,585.01	4,163.42	8,530.93	17,902.76					242,195.61
Prothioconazole/spiroxamine	25,148.89	12,582.72		3,608.90	415.47	1,212.57						42,968.55
Prothioconazole/spiroxamine/tebuconazole	166.41		251.60									418.00
Prothioconazole/tebuconazole		169.78	784.36	41,315.95		317.79	4,633.71					47,221.60
Prothioconazole/trifloxystrobin	5,439.05	1,778.12										7,217.17
Pyraclostrobin	43,590.21	23,296.91	318.50	11,093.93	3,415.80	6,549.93						88,265.27
Sulphur		632.55		919.62							267.60	1,819.77
Tebuconazole				9,399.70	415.47	962.04	6,709.72	177.27				17,664.20
All fungicides	371,494.90	276,306.73	21,831.69	390,465.22	22,799.98	45,885.56	44,911.84	17,294.74	2,916.21	5,638.60	90,014.54	1,289,560.02

Table 42 (cont.) Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2022.

Pesticide type and formulation	Crops											
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	All crops
Herbicides												
Aclonifen								1,383.16	185.45	292.82	3,402.89	5,264.32
Amidosulfuron/iodosulfuron-methyl-sodium/mesosulfuron-methyl				19,532.47								19,532.47
Aminopyralid/propyzamide							6,495.44					6,495.44
Bentazone								1,087.90				1,087.90
Carfentrazone-ethyl									21.52		7,873.45	7,894.97
Chlorotoluron/diflufenican/pendimethalin		15,195.68		9,214.26								24,409.94
Clodinafop-Propargyl				2,061.46								2,061.46
Clomazone/pendimethalin								263.08				263.08
Clopyralid		706.71		296.70			467.24					1,470.66
Clopyralid/florasulam/fluroxypyr	53,031.19	5,261.74	915.24	1,905.92	1,830.32	1,312.81						64,257.21
Clopyralid/fluroxypyr/MCPA	996.46											996.46
Cycloxydim								2,654.65				2,654.65
Dicamba/mecoprop-P	3,817.31											3,817.31
Diflufenican		19,829.58		15,028.12	248.21	4,370.51						39,476.43
Diflufenican/flufenacet		30,861.18		21,378.12		577.50		256.95				53,073.75
Diflufenican/flufenacet/metribuzin		3,755.52		3,217.63								6,973.15
Diflufenican/iodosulfuron-methyl-sodium/mesosulfuron-methyl				10,071.40								10,071.40
Dimethenamid-P/metazachlor/quinmerac							6,016.29					6,016.29

Diquat											625.49	625.49
Fenoxaprop-P-ethyl	107.39	5,062.56		4,060.70								9,230.65
Florasulam		1,524.60		3,032.05								4,556.65
Florasulam/fluroxypyr	4,208.73											4,208.73
Florasulam/haloxifen-methyl	5,686.89	4,970.34		6,593.79								17,251.02
Florasulam/metsulfuron-methyl/tribenuron-methyl	3,238.50				415.47	577.50						4,231.47
Florasulam/pyroxulam				15,331.65								15,331.65
Flufenacet		4,475.23		2,872.32		521.91						7,869.46
Fluroxypyr	30,700.47	4,798.82	4,301.20	7,898.52	3,799.97	1,612.97						53,111.96
Fluroxypyr/haloxifen-methyl	6,965.64	2,707.87		7,649.73								17,323.24
Fluroxypyr/metsulfuron-methyl/thifensulfuron-methyl	364.00											364.00
Glyphosate	15,762.71	11,511.31	742.20	15,254.80	2,326.42	1,650.67	16,388.80	4,243.66	30.85	585.64	2,747.10	71,244.15
Imazamox/metazachlor							154.18					154.18
Imazamox/pendimethalin								3,587.29				3,587.29
Mecoprop-P	5,783.54	1,272.62		3,299.40	877.72							11,233.28
Metazachlor							88.01					88.01
Metazachlor/quinmerac							393.56					393.56
Metribuzin				296.30					206.97	581.95	7,868.67	8,953.88
Metsulfuron-methyl	3,372.68	1,900.96		997.51	190.26	546.53	424.06					7,431.99
Metsulfuron-methyl/thifensulfuron-methyl	11,546.54	1,318.19	3,365.08	453.18								16,683.00
Metsulfuron-methyl/tribenuron-methyl	15,983.68	2,248.00	841.46	3,124.60	54.77	570.10						22,822.61
Pendimethalin		7,120.01		5,379.55				173.80	154.60		757.17	13,585.13
Pendimethalin/picolinafen		717.04		2,596.81								3,313.85
Pinoxaden	55,594.71	37,708.82	3,795.09	12,984.47				228.46				110,311.55
Propaquizafop							6,570.76	2,693.86				9,264.62
Propyzamide							2,794.84	488.36				3,283.20
Prosulfocarb		1,812.39		4,069.87			1,076.51	1,597.60		189.44	4,259.28	13,005.09
Pyraflufen-ethyl											1,346.94	1,346.94
Quizalofop-P-ethyl								111.82				111.82
Quizalofop-P-tefuryl				296.70			211.58					508.28
Rimsulfuron											964.99	964.99
Thifensulfuron-methyl/tribenuron-methyl	55,329.20	13,572.41	943.00	11,575.04	4,312.98	2,694.91						88,427.54
Tribenuron-methyl	1,676.43	1,991.31	134.38	2,541.76		448.11						6,791.99
All herbicides	274,166.07	180,322.89	15,037.64	193,014.83	14,056.11	14,883.52	41,081.26	18,770.58	599.39	1,649.85	29,845.97	783,428.11

Table 43 (cont.) Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2022.

Pesticide type and formulation	Crops											
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	All crops
Insecticides												
Acetamiprid									61.69			61.69
Deltamethrin	166.41	1,382.01		2,168.88								3,717.30
Esfenvalerate	2,573.24	6,257.24	251.60	5,772.00	687.46	786.56						16,328.09
Lambda-cyhalothrin	67,494.83	27,841.52	4,316.19	28,070.40	4,534.75	2,390.45	624.80	3,052.71	92.54		2,587.79	141,005.98
Sulfoxaflor		7,484.48		7,309.39								14,793.87
All insecticides	70,234.48	42,965.25	4,567.78	43,320.66	5,222.21	3,177.01	624.80	3,052.71	154.23		2,587.79	175,906.93

Table 44 (cont.) Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2022.

Pesticide type and formulation	Crops											
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	All crops
Molluscicides												
Metaldehyde		2,943.42		7,511.55			2,678.87	289.59	52.36		2,611.38	16,087.18
All Molluscicides		2,943.42		7,511.55			2,678.87	289.59	52.36		2,611.38	16,087.18

Table 45 (cont.) Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2022.

Pesticide type and formulation	Crops											All crops
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	
Growth Regulators												
2-chloroethylphosphonic acid		3,417.29	356.23	517.32								4,290.83
2-chloroethylphosphonic acid/mepiquat chloride	2,313.60	21,934.54		5,152.55								29,400.69
Chlormequat	5,341.20	20,154.64		11,297.03	206.59	3,900.22						40,899.68
Chlormequat chloride	16,818.09	42,747.06	6,991.96	75,222.20	5,846.32	12,787.52						160,413.15
Mepiquat chloride/metconazole							6,211.66					6,211.66
Prohexadione-calcium	946.20			919.62								1,865.82
Prohexadione-calcium/trinexapac-ethyl	6,047.89	12,022.63	134.38	9,747.63	81.72	1,706.94						29,741.19
Trinexapac-ethyl	17,583.12	36,623.57	691.40	46,190.62	5,302.08	10,502.79						116,893.57
All growth regulators	49,050.10	136,899.72	8,173.96	149,046.97	11,436.71	28,897.47	6,211.66					389,716.59

Table 46 (cont.) Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2022.

Pesticide type and formulation	Crops											All crops
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	
Seed treatments												
Bacillus amyloliquefaciens strain MBI 600							2,978.06					2,978.06
Fludioxonil				1,600.56	688.29							2,288.85
Fludioxonil/flu xapyroxad/trit iconazole	16,571.03	21,720.68	3,721.31	17,059.54	1,379.62	2,717.59						63,169.77
Fluopyram/pr othioconazole /tebuconazole	2,406.88	304.40										2,711.28

Imazalil/ipconazole	1,560.45	981.39										2,541.84
Prothioconazole/tebuconazole	639.74	306.29		190.16		291.35						1,427.53
Silthiofam	1,278.97	672.75		3,605.45								5,557.17
Total all seed treatments	22,457.07	23,985.51	3,721.31	22,455.70	2,067.92	3,008.94	2,978.06	-	-	-	-	80,674.51

Table 47 (cont.) Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Ireland, 2022.

Pesticide type and formulation	Crops											
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	All crops
Total all pesticides	787,402.62	663,423.51	53,332.39	805,814.93	55,582.93	95,852.51	98,486.50	39,407.62	3,722.19	7,288.45	125,059.68	2,735,373.33

Table 48. Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2022.

Pesticide type and formulation	Crops											
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	All crops
Fungicides												
Ametoctradin									6.17	19.72		25.89
Amisulbrom									1.85	4.93	146.94	153.72
Azoxystrobin	919.14	671.97		4,332.39	3.42	358.79	435.16	428.18		208.04	493.47	7,850.56
Benthiavalicarb-isopropyl/mancozeb								375.33	24.70			400.03
Benthiavalicarb/oxathiapiprolin									15.02	19.52	481.94	516.48
Benzovindiflupyr	80.66	319.47		395.79		85.28		3.61				884.82
Benzovindiflupyr/propiconazole	532.10	263.54		161.84	248.01	247.06		110.31				1,562.86
Benzovindiflupyr/prothioconazole	1,616.62	1,076.64		1,086.31	606.88	842.34		229.16				5,457.96
Bixafen	137.55	118.64										256.20
Bixafen/fluopyram/prothioconazole	765.95	840.66	22.31	2,255.61		100.61						3,985.14
Bixafen/fluoxastrobin/prothioconazole	1,112.99	742.27										1,855.26
Bixafen/prothioconazole	3,307.38	3,487.77	568.70		290.29	124.74						7,778.88
Bixafen/prothioconazole/spiroxamine	789.23	671.55	524.32	1,458.11	627.88	1,053.24						5,124.33

Boscalid							2,028.78					2,028.78
Boscalid/pyraclostrobin								2,054.99				2,054.99
Cyazofamid									6.89	94.86	1,259.11	1,360.86
Cyflufenamid		13.70	2.89	3.26	14.91	55.58						90.34
Cymoxanil									58.66	90.33	677.74	826.73
Cymoxanil/propamocarb hydrochloride									416.85	480.99	10,285.75	11,183.59
Cyprodinil/isopyrazam	231.14	1,043.94				202.13						1,477.21
Difenoconazole				63.05								63.05
Dimethomorph/fluazinam											524.00	524.00
Fenpicoxamid			5.25	2,936.97								2,942.21
Fenpropidin	59.59	114.15	161.25		795.61	416.44						1,547.04
Fluazinam									37.09	3.06	447.63	487.78
Fluopicolide/propamocarb hydrochloride									442.95	942.16	19,267.69	20,652.80
Fluoxastrobin	129.58											129.58
Fluoxastrobin/prothioconazole				1,626.21								1,626.21
Fluoxastrobin/prothioconazole/trifloxystrobin	1,512.30	734.40										2,246.70
Fluxapyroxad	335.74	861.07	22.26	64.85								1,283.92
Fluxapyroxad/mefentrifluconazole	85.76	184.43	178.58	10,894.44						30.81		11,374.02
Fluxapyroxad/metconazole			203.81	805.01								1,008.82
Fluxapyroxad/pyraclostrobin	7,681.83	2,903.92	57.33	383.69	463.34	135.47		148.03				11,773.61
Folpet	53,556.77	38,962.75	3,936.07	79,061.09				493.43				176,010.11
Isopyrazam	60.03	165.69										225.72
Mancozeb										30.75	74.24	104.99
Mandipropamid									89.24	128.76	2,351.19	2,569.18
Metconazole		25.78	15.01	557.38			202.50	77.81				878.48
Metrafenone		50.20	64.50	341.33	37.83	191.37						685.23
oxathiapiprolin											36.73	36.73
Proquinazid	49.48	57.30	56.43	37.63	57.17	249.33						507.35
Prothioconazole	12,151.43	9,265.16	277.82	4,614.17	411.94	1,103.58	1,752.96					29,577.05
Prothioconazole/spiroxamine	7,749.40	4,375.48		1,562.86	95.56	353.90						14,137.20
Prothioconazole/spiroxamine/tebuconazole	74.88		87.18									162.06
Prothioconazole/tebuconazole		42.45	177.03	9,140.61		66.78	852.62					10,279.48
Prothioconazole/trifloxystrobin	663.21	334.14										997.35
Pyraclostrobin	4,914.17	2,622.93	44.59	1,351.24	379.61	836.74						10,149.28
Sulphur		1,043.70		1,896.72							441.55	3,381.96
Tebuconazole				1,459.50	41.55	203.21	1,346.67	44.32				3,095.25
All fungicides	98,516.92	70,993.73	6,405.33	126,490.06	4,073.99	6,626.57	6,618.69	3,965.18	1,099.40	2,053.93	36,488.00	363,331.80

Table 49. (cont.) Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2022.

Pesticide type and formulation	Crops											Total
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	
Herbicides												
Aclonifen								1,676.45	96.96	131.77	1,531.30	3,436.48
Amidosulfuron/iodosulfuron-methyl-sodium/mesosulfuron-methyl				580.21								580.21
Aminopyralid/propyzamide							5,351.51					5,351.51
Bentazone								542.83				542.83
Carfentrazone-ethyl									1.29		336.61	337.90
Chlorotoluron/diflufenican/pendimethalin		16,391.71		10,872.82								27,264.53
Clodinafop-Propargyl				123.69								123.69
Clomazone/pendimethalin								270.92				270.92
Clopyralid		50.88		14.84			92.51					158.23
Clopyralid/florasulam/fluroxypyr	7,360.99	828.92	121.14	196.48	317.52	199.31						9,024.35
Clopyralid/fluroxypyr/MCPA	619.80											619.80
Cycloxydim								596.40				596.40
Dicamba/mecoprop-P	3,192.19											3,192.19
Diflufenican		1,598.88		1,444.65	31.03	502.11						3,576.66
Diflufenican/flufenacet		6,456.41		3,979.47		103.95		92.50				10,632.33
Diflufenican/flufenacet/metribuzin		1,062.67		914.45								1,977.12
Diflufenican/iodosulfuron-methyl-sodium/mesosulfuron-methyl				1,307.74								1,307.74
Dimethenamid-P/metazachlor/quinmerac							6,832.98					6,832.98
Diquat											90.25	90.25
Fenoxaprop-P-ethyl	6.67	291.96		253.70								552.33
Florasulam		11.43		22.74								34.17
Florasulam/fluroxypyr	364.99											364.99
Florasulam/halaxifen-methyl	48.16	38.60		48.89								135.65
Florasulam/metsulfuron-methyl/tribenuron-methyl	26.06				5.63	7.83						39.52
Florasulam/pyroxsulam				291.74								291.74
Flufenacet		769.07		474.99		87.68						1,331.74

Fluroxypyr	3,639.83	742.17	629.25	1,364.62	545.78	245.26						7,166.92
Fluroxypyr/halauxifen-methyl	693.90	296.51		846.23								1,836.64
Fluroxypyr/metsulfuron-methyl/thifensulfuron-methyl	43.32											43.32
Glyphosate	17,249.48	9,233.81	981.69	13,534.07	2,699.60	1,160.03	16,357.32	3,479.14	36.57	448.01	1,712.73	66,892.47
Imazamox/metazachlor							121.03					121.03
Imazamox/pendimethalin								3,447.30				3,447.30
Mecoprop-P	4,856.97	843.18		1,979.64	684.92							8,364.71
Metazachlor							66.01					66.01
Metazachlor/quinmerac							393.56					393.56
Metribuzin				103.70					94.32	254.90	3,622.81	4,075.73
Metsulfuron-methyl	18.70	11.41		5.74	1.14	3.28	2.54					42.80
Metsulfuron-methyl/thifensulfuron-methyl	433.45	50.09	154.12	29.06								666.72
Metsulfuron-methyl/tribenuron-methyl	150.52	19.90	6.92	25.44	0.49	6.01						209.27
Pendimethalin		7,594.94		4,937.10				197.69	185.52		861.28	13,776.54
Pendimethalin/picolinafen		934.32		1,402.85								2,337.18
Pinoxaden	1,655.35	1,241.57	106.73	423.70				5.03				3,432.37
Propaquizafop							375.40	208.78				584.18
Propyzamide							2,149.61	195.34				2,344.95
Prosulfocarb		3,152.84		4,654.42			688.97	5,013.66		606.21	12,323.88	26,439.98
Pyraflufen-ethyl											28.56	28.56
Quizalofop-P-ethyl								4.19				4.19
Quizalofop-P-tefuryl				4.75			10.58					15.33
Rimsulfuron											8.78	8.78
Thifensulfuron-methyl/tribenuron-methyl	1,422.93	340.42	34.94	287.68	102.68	55.05						2,243.69
Tribenuron-methyl	19.56	25.74	1.57	35.75		5.41						88.03
All herbicides	41,802.85	51,987.44	2,036.37	50,161.16	4,388.79	2,375.91	32,442.02	15,730.23	414.67	1,440.89	20,516.19	223,296.50

Table 50. (cont.) Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2022.

Pesticide type and formulation	Crops											Total
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	
Insecticides												
Acetamiprid									3.07			3.07
Deltamethrin	1.04	8.64		13.56								23.23
Esfenvalerate	11.83	27.42	1.26	23.26	3.44	3.93						71.14
Lambda-cyhalothrin	308.49	149.38	21.19	144.37	19.29	11.79	4.69	19.08	0.68		15.32	694.28
Sulfoxaflor		158.79		170.65								329.43
All insecticides	321.36	344.23	22.45	351.83	22.73	15.72	4.69	19.08	3.74		15.32	1,121.15

Table 51. (cont.) Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2022.

Pesticide type and formulation	Crops											Total
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	
Molluscicides												
Metaldehyde		686.38		1,000.26			521.09	57.92	10.47		447.02	2,723.14
All molluscicides		686.38		1,000.26			521.09	57.92	10.47		447.02	2,723.14

Table 52. (cont.) Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2022.

Pesticide type and formulation	Crops											Total
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	
Growth Regulators												
2-chloroethylphosphonic acid		873.86	85.49	133.04								1,092.39
2-chloroethylphosphonic acid/mepiquat chloride	683.14	9,765.06		1,423.27								11,871.47
Chlormequat	3,063.10	13,996.85		5,507.55	160.11	2,498.42						25,226.03

Chlormequat chloride	11,326.13	32,785.72	5,282.10	65,185.74	4,984.86	10,577.47						130,142.03
Mepiquat chloride/metconazole							1,576.32					1,576.32
Prohexadione-calcium	26.02			25.53								51.55
Prohexadione-calcium/trinexapac-ethyl	209.63	480.01	3.68	452.96	2.04	72.67						1,220.98
Trinexapac-ethyl	1,136.58	2,127.01	29.19	2,124.65	227.30	489.71						6,134.45
All growth regulators	16,444.61	60,028.51	5,400.47	74,852.74	5,374.31	13,638.27	1,576.32					177,315.24

Table 53. (cont.) Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2022.

Pesticide type and formulation	Crops											Total
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	
Seed treatments												
<i>Bacillus amyloliquefaciens</i> strain MBI 600							1.02					1.02
Fludioxonil/fluxapyroxad/triticonazole	430.42	629.27	96.66	443.10	33.08	65.16						1,697.68
Fluopyram/prothioconazole/tebuconazole	43.32	4.93										48.26
Imazalil/ipconazole	18.57	13.05										31.62
Prothioconazole/tebuconazole	11.96	6.77		3.56		5.45						27.74
Silthiofam	54.36	31.96		153.23								239.54
All seed treatments	558.63	685.98	96.66	613.50	38.58	70.61	1.02	-	-	-	-	2,064.97

Table 54. (cont.) Estimated quantities (kilograms) of pesticide formulations used on arable crops in Ireland, 2022.

Pesticide type and formulation	Crops											
	Spring barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Winter oats	Oilseed rape	Peas and beans	Seed Potatoes	Early Potatoes	Maincrop potatoes	Total
Total all pesticides	158,255.91	185,460.10	14,057.94	254,083.03	13,936.99	22,797.69	41,164.85	19,772.40	1,528.29	3,494.82	57,466.52	772,018.54

Table 55. The active ingredients most extensively used on arable crops in Ireland in 2022 ranked by area treated (spray-hectares).

No.	Active Ingredient	Treated area (sp ha)
1	Prothioconazole	484,727
2	Folpet	271,464
3	Chlormequat chloride	160,413
4	Pyraclostrobin	151,346
5	Trinexapac-ethyl	146,635
6	Fluxapyroxad	141,939
7	Lambda-cyhalothrin	141,006
8	Fluroxypyr	140,262
9	Diflufenican	134,005
10	Tribenuron-methyl	122,274
11	Pinoxaden	110,312
12	Florasulam	109,837
13	Thifensulfuron-methyl	105,475
14	Bixafen	96,977
15	Glyphosate	71,244
16	Flufenacet	67,916
17	Clopyralid	66,724
18	Tebuconazole	65,304
19	Mefentrifluconazole	61,109
20	Benzovindiflupyr	55,704
21	Spiroxamine	54,467
22	Metsulfuron-methyl	51,533
23	Pendimethalin	45,159
24	Azoxystrobin	44,359
25	Chlormequat	40,900
26	Fenpicoxamid	37,200
27	Mepiquat chloride	35,612
28	Halauxifen-methyl	34,574
29	2-chloroethylphosphonic acid	33,692
30	Fluoxastrobin	32,591
31	Prohexadione-calcium	31,607
32	Iodosulfuron-methyl-sodium	29,604
33	Mesosulfuron-methyl	29,604
34	Propamocarb hydrochloride	29,230
35	Metconazole	26,959
36	Chlorotoluron	24,410
37	Trifloxystrobin	19,639
38	Amidosulfuron	19,532
39	Fluopicolide	19,022
40	Fluopyram	18,805
41	Cymoxanil	18,089
42	Boscalid	17,981
43	Cyazofamid	17,929
44	Mandipropamid	17,782
45	Oxathiapiprolin	16,512

Table 56. The active ingredients most extensively used on arable crops in Ireland in 2022 ranked by weight (kilograms).

No.	Active Ingredient	Quantity (kgs)
1	Folpet	176,010
2	Chlormequat chloride	130,142
3	Glyphosate	66,892
4	Prothioconazole	57,208
5	Pendimethalin	33,405
6	Propamocarb hydrochloride	28,716
7	Prosulfocarb	26,440
8	Chlormequat	25,226
9	Pyraclostrobin	18,411
10	Fluroxypyr	14,363
11	Spiroxamine	12,513
12	Chlorotoluron	11,553
13	Mecoprop-P	11,181
14	Di flufenican	10,868
15	Fluxapyroxad	9,669
16	Flufenacet	9,329
17	Mepiquat chloride	9,251
18	Tebuconazole	8,271
19	Azoxystrobin	7,851
20	Propyzamide	7,630
21	Mefentrifluconazole	7,500
22	Trinexapac-ethyl	6,867
23	2-chloroethylphosphonic acid	5,093
24	Metribuzin	4,395
25	Clopyralid	4,170
26	Sulphur	3,728
27	Bixafen	3,682
28	Boscalid	3,672
29	Aclonifen	3,436
30	Pinoxaden	3,432
31	Benzovindiflupyr	3,225
32	Metazachlor	3,210
33	Fenpicoxamid	2,942
34	Dimethenamid-P	2,733
35	Metaldehyde	2,723
36	Mandipropamid	2,569
37	Cymoxanil	2,069
38	Thifensulfuron-methyl	1,939
39	Fluopicolide	1,878
40	Fluoxastrobin	1,722
41	Fenpropidin	1,547
42	Metconazole	1,498
43	Quinmerac	1,465
44	Cyazofamid	1,361

Table 57. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for spring barley, 2022.

Crop	Active Ingredient	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Spring barley	Fungicides			
	Azoxystrobin	919	4,130	4,130
	Benzovindiflupyr	797	14,810	14,810
	Bixafen	1,425	37,871	29,998
	Cyprodinil	173	1,849	1,849
	Fenpropidin	60	212	212
	Fluopyram	196	5,536	5,179
	Fluoxastrobin	801	15,795	15,795
	Fluxapyroxad	3,068	59,540	53,288
	Folpet	53,557	84,812	74,815
	Isopyrazam	118	2,810	2,810
	Mefentrifluconazole	57	506	506
	Propiconazole	355	3,015	3,015
	Proquinazid	49	1,649	1,649
	Prothioconazole	20,884	185,416	96,865
	Pyraclostrobin	10,035	79,392	60,242
	Spiroxamine	5,589	27,383	24,059
	Tebuconazole	32	3,213	3,213
	Trifloxystrobin	600	12,863	12,863
	Triticonazole	143	16,571	16,571
	Herbicides			
	Clopyralid	3,283	54,028	54,028
	Dicamba	376	3,817	3,817
	Fenoxaprop-P-ethyl	7	107	107
	Florasulam	141	66,165	66,165
	Fluroxypyr	8,829	96,267	85,290
	Glyphosate	17,249	15,763	15,763
	Halauxifen-methyl	55	12,653	12,653
	MCPA	464	996	996
	Mecoprop-P	7,674	9,601	9,601
	Metsulfuron-methyl	136	34,505	34,505
	Pinoxaden	1,655	55,595	55,595
	Thifensulfuron-methyl	1,250	67,240	65,570
	Tribenuron-methyl	684	76,228	73,900
	Insecticides			
	Deltamethrin	1	166	166
	Esfenvalerate	12	2,573	2,573
	Lambda-cyhalothrin	308	67,495	63,985
	Growth regulators			
	2-chloroethylphosphonic acid	230	2,314	2,314
	Chlormequat	3,063	5,341	5,341
	Chlormequat chloride	11,326	16,818	16,692
	Mepiquat chloride	453	2,314	2,314
	Prohexadione-calcium	110	6,994	6,994
	Trinexapac-ethyl	1,262	23,631	22,191
	Seed treatments			
	Fludioxonil	143	16,571	16,571
	Imazalil	13	1,560	1,560
	Ipconazole	5	1,560	1,560
	Silthiofam	54	1,279	1,279

Table 58. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter barley, 2022.

Crop	Active Ingredient	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Winter barley	Fungicides			
	Azoxystrobin	672	4,472	3,557
	Benzovindiflupyr	766	14,814	14,814
	Bixafen	1,374	32,299	26,920
	Cyflufenamid	14	1,127	1,127
	Cyprodinil	783	3,457	3,457
	Fenpropidin	114	304	304
	Fluopyram	211	3,175	3,175
	Fluoxastrobin	379	8,443	8,443
	Fluxapyroxad	2,100	50,703	37,324
	Folpet	38,963	61,251	46,435
	Isopyrazam	427	5,175	5,175
	Mefentrifluconazole	123	1,981	1,981
	Metconazole	26	716	716
	Metrafenone	50	558	279
	Propiconazole	176	1,850	1,850
	Proquinazid	57	1,670	1,444
	Prothioconazole	15,786	138,739	66,011
	Pyraclostrobin	4,559	37,453	29,776
	Spiroxamine	3,273	13,889	11,678
	Sulphur	1,044	633	633
	Tebuconazole	24	780	696
	Trifloxystrobin	295	6,777	6,777
	Triticonazole	210	21,721	21,721
	Herbicides			
	Chlorotoluron	6,946	15,196	15,196
	Clopyralid	414	5,968	5,968
	Diflufenican	5,227	69,642	53,918
	Fenoxaprop-P-ethyl	292	5,063	5,063
	Florasulam	40	11,757	11,757
	Flufenacet	5,597	39,092	37,654
	Fluroxypyr	1,481	12,768	11,712
	Glyphosate	9,234	11,511	10,757
	Halauxifen-methyl	34	7,678	6,622
	Mecoprop-P	843	1,273	1,273
	Metribuzin	175	3,756	3,756
	Metsulfuron-methyl	25	5,467	5,467
	Pendimethalin	16,843	23,033	20,855
	Picolinafen	21	717	717
	Pinoxaden	1,242	37,709	37,709
	Prosulfocarb	3,153	1,812	1,812
	Thifensulfuron-methyl	250	14,891	13,834
	Tribenuron-methyl	172	17,812	16,755
	Insecticides			
	Deltamethrin	9	1,382	1,382
	Esfenvalerate	27	6,257	5,974
	Lambda-cyhalothrin	149	27,842	25,686
	Sulfoxaflor	159	7,484	7,484
	Growth regulators			
	2-chloroethylphosphonic acid	4,164	25,352	25,352
	Chlormequat	13,997	20,155	17,893
	Chlormequat chloride	32,786	42,747	36,768
	Mepiquat chloride	6,475	21,935	21,935
	Prohexadione-calcium	192	12,023	11,667
	Trinexapac-ethyl	2,415	48,646	42,573
	Molluscicides			
	Metaldehyde	686	2,943	2,136

	Seed treatments			
	Fludioxonil	210	21,721	21,721
	Imazalil	9	981	981
	Ipconazole	4	981	981
	Silthiofam	32	673	673

Table 59. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for spring wheat, 2022.

Crop	Active Ingredient	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Spring wheat	Fungicides			
	Bixafen	198	5,073	5,073
	Cyflufenamid	3	252	252
	Fenpicoxamid	5	134	134
	Fenpropidin	161	430	430
	Fluopyram	1	252	252
	Fluxapyroxad	271	7,067	6,354
	Folpet	3,936	6,225	5,869
	Mefentrifluconazole	100	1,048	1,048
	Metconazole	100	1,790	1,623
	Metrafenone	65	860	430
	Proquinazid	56	1,623	1,623
	Prothioconazole	975	8,476	6,740
	Pyraclostrobin	83	637	318
	Spiroxamine	376	1,708	1,708
	Tebuconazole	108	1,036	1,036
	Triticonazole	32	3,721	3,721
	Herbicides			
	Clopyralid	53	915	915
	Florasulam	2	915	915
	Fluroxypyr	696	5,216	4,898
	Glyphosate	982	742	742
	Metsulfuron-methyl	13	4,207	4,207
	Pinoxaden	107	3,795	3,795
	Thifensulfuron-methyl	168	4,308	4,308
	Tribenuron-methyl	17	1,919	1,919
	Insecticides			
	Esfenvalerate	1	252	252
	Lambda-cyhalothrin	21	4,316	4,149
	Growth regulators			
	2-chloroethylphosphonic acid	85	356	356
	Chlormequat chloride	5,282	6,992	6,740
	Prohexadione-calcium	1	134	134
	Trinexapac-ethyl	31	826	826
	Seed treatments			
	Fludioxonil	32	3,721	3,721

Table 60. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter wheat, 2022.

Crop	Active Ingredient	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Winter wheat	Fungicides			
	Azoxystrobin	4,332	26,770	24,466
	Benzovindiflupyr	812	11,806	11,806
	Bixafen	354	14,803	14,461
	Cyflufenamid	3	297	297
	Difenoconazole	63	1,261	1,261
	Fenpicoxamid	2,937	37,065	35,347
	Fluopyram	171	12,114	11,772
	Fluoxastrobin	542	8,353	8,353
	Fluxapyroxad	4,503	80,972	51,407
	Folpet	79,061	118,517	59,682
	Mefentrifluconazole	7,200	57,411	45,785
	Metconazole	894	12,449	11,408
	Metrafenone	341	3,925	3,925
	Propiconazole	108	719	719
	Proquinazid	38	1,155	1,155
	Prothioconazole	13,817	102,426	60,386
	Pyraclostrobin	1,607	12,231	10,368
	Spiroxamine	1,931	6,298	6,298
	Sulphur	1,897	920	920
	Tebuconazole	6,030	50,906	42,627
	Triticonazole	148	17,060	17,060
	Herbicides			
	Amidosulfuron	322	19,532	19,532
	Chlorotoluron	4,607	9,214	9,214
	Clodinafop-Propargyl	124	2,061	2,061
	Clopyralid	101	2,203	2,203
	Diflufenican	5,043	58,910	44,444
	Fenoxaprop-P-ethyl	254	4,061	4,061
	Florasulam	96	26,863	25,177
	Flufenacet	3,513	27,468	27,468
	Fluroxypyr	2,284	17,454	16,828
	Glyphosate	13,534	15,255	14,524
	Halauxifen-methyl	62	14,244	13,618
	Iodosulfuron-methyl-sodium	136	29,604	29,604
	Mecoprop-P	1,980	3,299	3,299
	Mesosulfuron-methyl	280	29,604	29,604
	Metribuzin	248	3,514	3,514
	Metsulfuron-methyl	20	4,575	3,573
	Pendimethalin	11,837	17,191	14,795
	Picolinafen	31	2,597	2,597
	Pinoxaden	424	12,984	12,984
	Prosulfocarb	4,654	4,070	4,070
	Pyroxsulam	243	15,332	15,332
	Quizalofop-P-tefuryl	5	297	297
	Thifensulfuron-methyl	193	12,028	11,555
	Tribenuron-methyl	171	17,241	15,766
	Insecticides			
	Deltamethrin	14	2,169	2,169
	Esfenvalerate	23	5,772	5,772
	Lambda-cyhalothrin	144	28,070	27,086
	Sulfoxaflor	171	7,309	7,309
	Growth regulators			
	2-chloroethylphosphonic acid	613	5,670	5,217
	Chlormequat	5,508	11,297	8,831
	Chlormequat chloride	65,186	75,222	62,036

	Mepiquat chloride	944	5,153	4,699
	Prohexadione-calcium	207	10,667	10,245
	Trinexapac-ethyl	2,396	55,938	49,933
	Molluscicides			
	Metalddehyde	1,000	7,512	6,373
	Seed treatments			
	Fludioxonil	161	18,660	18,660
	Silthiofam	153	3,605	3,605

Table 61. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for spring oats, 2022.

Crop	Active Ingredient	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Spring oats	Fungicides			
	Azoxystrobin	3	55	55
	Benzovindiflupyr	285	4,519	4,519
	Bixafen	145	3,199	2,512
	Cyflufenamid	15	934	934
	Fenpropidin	796	2,228	1,293
	Fluxapyroxad	165	2,752	2,066
	Metrafenone	38	455	455
	Propiconazole	165	1,102	1,102
	Proquinazid	57	1,628	1,499
	Prothioconazole	1,230	11,194	5,648
	Pyraclostrobin	689	4,789	4,102
	Spiroxamine	455	1,783	1,783
	Tebuconazole	42	415	415
	Triticonazole	11	1,380	1,380
	Herbicides			
	Clopyralid	139	1,830	1,830
	Diflufenican	31	248	248
	Florasulam	7	2,246	2,246
	Fluroxypyr	720	5,630	5,630
	Glyphosate	2,700	2,326	2,021
	Mecoprop-P	685	878	878
	Metsulfuron-methyl	3	660	660
	Thifensulfuron-methyl	51	4,313	4,313
	Tribenuron-methyl	53	4,783	4,783
	Insecticides			
	Esfenvalerate	3	687	687
	Lambda-cyhalothrin	19	4,535	4,535
	Growth regulators			
	Chlormequat	160	207	207
	Chlormequat chloride	4,985	5,846	4,785
	Prohexadione-calcium	1	82	82
	Trinexapac-ethyl	229	5,384	4,311
	Seed treatments			
	Fludioxonil	17	2,068	2,068

Table 62. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter oats, 2022.

Crop	Active Ingredient	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Winter oats	Fungicides			
	Azoxystrobin	359	2,541	2,019
	Benzovindiflupyr	448	7,429	7,429
	Bixafen	186	3,732	3,732
	Cyflufenamid	56	3,146	2,707
	Cyprodinil	152	578	578
	Fenpropidin	416	1,439	1,111
	Fluopyram	25	440	440
	Fluxapyroxad	67	3,252	3,252
	Isopyrazam	51	578	578
	Metrafenone	191	2,524	2,524
	Propiconazole	165	1,509	1,509
	Proquinazid	249	6,390	4,394
	Prothioconazole	2,236	18,669	9,763
	Pyraclostrobin	927	7,084	6,086
	Spiroxamine	889	3,405	3,329
	Tebuconazole	237	1,571	1,407
	Triticonazole	22	2,718	2,718
	Herbicides			
	Clopyralid	87	1,313	1,313
	Diflufenican	537	4,948	4,371
	Florasulam	6	1,890	1,890
	Flufenacet	157	1,099	1,099
	Fluroxypyr	354	2,926	2,926
	Glyphosate	1,160	1,651	1,651
	Metsulfuron-methyl	9	1,694	1,694
	Thifensulfuron-methyl	28	2,695	2,695
	Tribenuron-methyl	38	4,291	3,713
	Insecticides			
	Esfenvalerate	4	787	787
	Lambda-cyhalothrin	12	2,390	2,390
	Growth regulators			
	Chlormequat	2,498	3,900	3,222
	Chlormequat chloride	10,577	12,788	8,491
	Prohexadione-calcium	29	1,707	1,707
	Trinexapac-ethyl	533	12,210	8,295
	Seed treatments			
	Fludioxonil	22	2,718	2,718

Table 63. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for oilseed rape, 2022.

Crop	Active Ingredient	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Oilseed rape	Fungicides			
	Azoxystrobin	435	2,437	2,437
	Boscalid	2,029	8,878	8,299
	Metconazole	400	10,562	7,042
	Prothioconazole	2,179	22,536	12,694
	Tebuconazole	1,773	11,343	5,184
	Herbicides			
	Aminopyralid	67	6,495	5,544
	Clopyralid	93	467	467
	Dimethenamid-P	2,733	6,016	6,016
	Glyphosate	16,357	16,389	12,577
	Imazamox	5	154	154
	Metazachlor	3,210	6,652	6,652
	Metsulfuron-methyl	3	424	424
	Propaquizafop	375	6,571	6,407
	Propyzamide	7,435	9,290	8,339
	Prosulfocarb	689	1,077	1,077
	Quinmerac	1,465	6,410	6,410
	Quizalofop-P-tefuryl	11	212	212
	Insecticides			
	Lambda-cyhalothrin	5	625	625
	Growth regulators			
	Mepiquat chloride	1,379	6,212	5,297
	Seed treatments			
	Metaldehyde	521	2,679	2,679

Table 64. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for peas and beans, 2022.

Crop	Active Ingredient	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Peas and beans	Fungicides			
	Azoxystrobin	428	2,604	2,159
	Benthiavdicarb-isopropyl	9	327	327
	Benzovindiflupyr	117	2,327	2,327
	Boscalid	1,643	9,103	6,708
	Fluxapyroxad	49	658	658
	Folpet	493	658	658
	Mancozeb	366	327	327
	Metconazole	78	1,441	1,441
	Propiconazole	74	852	852
	Prothioconazole	153	1,408	1,408
	Pyraclostrobin	511	9,761	6,708
	Sulphur	346	130	130
	Tebuconazole	44	177	177
	Herbicides			
	Aclonifen	1,676	1,383	1,383
	Bentazone	543	1,088	1,088
	Clomazone	22	263	263
	Cycloxydim	596	2,655	2,655
	Diffenican	31	257	257
	Flufenacet	62	257	257
	Glyphosate	3,479	4,244	3,424
	Imazamox	216	3,587	3,587
	Pendimethalin	3,678	4,024	4,024
	Pinoxaden	5	228	228

	Propaquizafop	209	2,694	2,694
	Propyzamide	195	488	488
	Prosulfocarb	5,014	1,598	1,598
	Quizalofop-P-ethyl	4	112	112
	Insecticides			
	Lambda-cyhalothrin	19	3,053	2,803
	Molluscicides			
	Metalddehyde	58	290	290

Table 65. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for seed potatoes, 2022.

Crop	Active Ingredient	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Seed potatoes	Fungicides			
	Ametoctradin	6	31	31
	Amisulbrom	2	31	31
	Benthiavalicarb	11	414	207
	Benthiavalicarb-isopropyl	1	22	22
	Cyazofamid	7	86	22
	Cymoxanil	105	970	207
	Fluazinam	37	340	185
	Fluopicolide	40	405	207
	Mancozeb	24	22	22
	Mandipropamid	89	618	185
	Oxathiapiprolin	5	414	207
	Propamocarb hydrochloride	773	776	207
	Herbicides			
	Aclonifen	97	185	185
	Carfentrazone-ethyl	1	22	22
	Glyphosate	37	31	31
	Metribuzin	94	207	207
	Pendimethalin	186	155	155
	Insecticides			
	Acetamiprid	3	62	31
	Lambda-cyhalothrin	1	93	31
	Molluscicides			
	Metalddehyde	10	52	52

Table 66. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for early potatoes, 2022.

Crop	Active Ingredient	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Early Potatoes	Fungicides			
	Ametoctradin	20	82	82
	Amisulbrom	5	82	82
	Azoxystrobin	208	375	375
	Benthiavalicarb	14	539	375
	Cyazofamid	95	1,332	440
	Cymoxanil	144	1,285	440
	Fluazinam	3	24	6
	Fluopicolide	86	871	629
	Fluxapyroxad	10	164	82
	Mancozeb	31	24	6
	Mandipropamid	129	858	597
	Mefentrifluconazole	21	164	82
	Oxathiapiprolin	6	539	375
	Propamocarb hydrochloride	1,284	1,299	629
	Herbicides			
	Aclonifen	132	293	293
	Glyphosate	448	586	293
	Metribuzin	255	582	582
	Prosulfocarb	606	189	189

Table 67. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for maincrop potatoes, 2022.

Crop	Active Ingredient	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Maincrop potatoes	Fungicides			
	Amisulbrom	147	2,449	816
	Azoxystrobin	493	975	975
	Benthiavalicarb	337	13,110	6,295
	Cyazofamid	1,259	16,511	6,886
	Cymoxanil	1,821	15,834	5,630
	Dimethomorph	262	2,050	1,025
	Fluazinam	710	4,320	3,295
	Fluopicolide	1,752	17,747	7,596
	Mancozeb	74	46	9
	Mandipropamid	2,351	16,306	6,712
	Oxathiapiprolin	181	15,559	7,111
	Propamocarb hydrochloride	26,659	27,156	8,652
	Sulphur	442	268	268
	Herbicides			
	Aclonifen	1,531	3,403	3,403
	Carfentrazone-ethyl	337	7,873	4,456
	Diquat	90	625	625
	Glyphosate	1,713	2,747	2,747
	Metribuzin	3,623	7,869	7,869
	Pendimethalin	861	757	757
	Prosulfocarb	12,324	4,259	4,259
	Pyraflufen-ethyl	29	1,347	1,347
	Rimsulfuron	9	965	965
	Insecticides			
	Lambda-cyhalothrin	15	2,588	2,192
	Molluscicides			
	Metaldehyde	447	2,611	1,306

Acknowledgements

This report was compiled by Angela Ryan, DAFM. Sincere thanks to the invaluable assistance from the team in AFBI of Michael Lavery, Joanna Kirbas, David Matthews, Trudyann Kelly and Amanda Browne. Thanks to all the survey participants who co-operated willingly with the survey and provided the detailed information needed to compile this report. Data collection for the survey was carried out by staff of the Agricultural Environment and Structures (AES) Division of the Department of Agriculture, Food and the Marine. Interviews with survey participants were conducted by Audrey Horan, Daniel O' Meara, John Rothwell, Karol Kelly, Kevin McGovern, Laura Elliffe, Mark Freeman, Michael McManus, Patrick Kavanagh, Philip Moynagh and Angela Ryan.

References

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

Pesticide Control Service, Department of Agriculture and Food Laboratories (2013), *Pesticide Usage Survey, Report Number 3, Arable Crops*, (2012).

Pesticide Control Service, Department of Agriculture and Food Laboratories (2017), *Pesticide Usage Survey, Report Number 4, Arable Crops*, (2016).