



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

An Roinn
**Talmhaíochta,
Bia agus Mara**

Pesticide Usage in Ireland

**Vegetable Crops Survey
Report 2011.**

Pesticide Usage in Ireland

VEGETABLE CROPS SURVEY REPORT 2011

Pesticide Controls Division
DAFM
Backweston
Celbridge
Co. Kildare

Tel: 01 6157578

Fax: 01 6157574

email: pcs@agriculture.gov.ie

Contents

List of Tables	4
Summary	7
Definitions and notes	9
Background	9
Methods	11
Results	
Crops	12
Regional distribution of crops and Pesticide Usage	14
Pesticide Usage on Crops	19
Pesticide Usage on Individual crops	
Broccoli	20
Brussels sprouts	22
Autumn cabbage	24
Spring cabbage	26
Winter cabbage	28
Summer cabbage	30
Savoy cabbage	32
White cabbage	34
Red cabbage	36
Autumn cauliflower	38
Summer cauliflower	40
Winter cauliflower	42
Pea	44
Courgette	46
Pumpkin	48
Carrot	50
Parsnip	52

Contents (cont.)

Turnip and swede	54
Beetroot	56
Bulb onion	58
Summer scallion	60
Winter scallion	62
Soup leek	64
Table leek	66
Lettuce	68
Table celery	70
Parsley	72
Other herb crops	74
Rhubarb	76
Sweetcorn	76
Celeriac	76
Broad bean	77
Marrow	77
Kale	77
Tables	78
Acknowledgements	110

List of Tables

Table		Page
1	Estimated area (hectares) of vegetable crops grown regionally in Ireland, 2011.	78
2a	Estimated area (spray hectares) of vegetable crops treated regionally in Ireland with each Pesticide type.	79
2b	Estimated weight (kgs) of pesticide applied regionally in Ireland with each pesticide type.	79
3	The total area (spray hectares) and the basic area (hectares) of vegetable crops in Ireland 2011 treated with each pesticide type.	80
4	The total quantities (kilograms) of each pesticide type used on vegetable crops in Ireland 2011.	81
5	Average number of treatments applied for each pesticide group to all crops grown in Ireland, 2011.	82
6	Estimated quantity (kg), spray area (spha) and basic area (ha) active substance for broccoli 2011.	83
7	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for brussel sprouts 2011.	84
8	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for autumn cabbage 2011.	85
9	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for spring cabbage 2011.	86
10	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter cabbage 2011.	87
11	Estimated quantity (kg), spray area (spha) and basic area (ha) of substance for summer cabbage 2011.	88
12	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for savoy cabbage 2011.	89
13	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for white cabbage 2011.	90
14	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for red cabbage 2011.	91

List of Tables (cont.)

Table		Page
15	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for autumn cauliflower 2011.	92
16	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for summer cauliflower 2011.	93
17	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter cauliflower 2011.	94
18	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for kale 2011.	95
19	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for peas 2011.	95
20	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for broad beans 2011.	95
21	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for courgettes 2011.	96
22	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for marrows 2011.	96
23	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for pumpkins 2011.	96
24	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for carrots 2011.	97
25	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for parsnips 2011.	98
26	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for turnips and swedes 2011.	99
27	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for beetroot 2011.	100
28	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for onions, 2011.	100

List of Tables (cont.)

Table		Page
29	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for summer scallions 2011.	101
30	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter scallions 2011.	101
31	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for soup leeks 2011.	102
32	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for table leeks 2011.	102
33	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for lettuce 2011.	103
34	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for table celery 2011.	104
35	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for parsley 2011.	104
36	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for other herbs including mint, sage etc. 2011.	105
37	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for rhubarb 2011.	105
38	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for sweet corn 2011.	106
39	Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for celeriac 2011.	106
40	The fifty active ingredients most extensively used on vegetable crops in Ireland 2011, ranked by treated area (spray hectares).	107
41	The fifty active ingredients most extensively used on vegetable crops in Ireland 2011, ranked by weight (kilograms).	108
42	The proportional area (%) of all crops treated with each pesticide group in Ireland, 2011.	109

Summary

This is the first survey of pesticide usage on outdoor vegetable crops in Ireland carried out by the Department of Agriculture, Food and the Marine (DAFM). Information on all aspects of pesticide usage was collected from 76 holdings across Ireland representing 60% of the total area of outdoor vegetable crops grown. Quantitative data have been adjusted to provide estimates of total pesticide usage.

In 2011 an estimated 4,447 hectares of outdoor vegetable crops were grown consisting of 34 crop types. The total grown area of five of the vegetable crop types namely broccoli, carrots, turnips and swedes, parsnips and winter cabbage collectively account for 53% of total area of vegetables grown in 2011. Carrots accounted for 14% of the total area of vegetables grown and pesticides applied to carrots accounted for 29% of the total treated area and 35% of the total weight of pesticides used. Broccoli accounted for 13% of the total grown area of vegetables and pesticides applied to broccoli accounted for 7% of the total treated area and 7% of the total weight of pesticides used. Turnips and swedes collectively accounted for 12% of the total area of vegetables grown and pesticides applied to turnips and swedes accounted for 7% of the total treated area and 7% of the total weight of pesticides used. Parsnips account for 7% of the total area of vegetables grown and pesticides applied to parsnips account for 8% of the total treated area and 5% of the total weight of pesticides used. Winter cabbage accounted for 6% of the total area of vegetables grown and pesticides applied to winter cabbage accounted for 5% of the total treated area and 3% of the total weight of pesticides applied.

Fungicides, applied to 39% of the total pesticide-treated area, accounted for 51% of the weight of pesticides applied to vegetable crops. Herbicides, applied to 26% of the pesticide-treated area, accounted for 37% of the total weight of pesticides used. Insecticides, applied to 29% of the pesticide-treated area, accounted for 8% of the total weight of pesticides applied to outdoor vegetable crops. Vegetable crops grown from pesticide treated seed accounted for 1% of the pesticide-treated area and represented less than 1% of the total weight of pesticides applied. Molluscicides, applied to 3% of the total pesticide-treated area accounted for less than 1% of the total weight of pesticides applied. Growth regulators, applied to less than 1% of the pesticide-treated area, accounted for 2% of the total weight of pesticides applied. Biological controls, applied

to less than 1% of the pesticide-treated area, accounted for less than 1% of the total weight of pesticides applied.

Carrot and parsnip crops collectively accounted for 44% of the weight of fungicide applied, representing 37% of the total area treated with fungicides. Leafy and flowerhead brassica crops received 22% of the weight of fungicides applied to all vegetable crops, representing 31% of the total area of vegetable crops treated with fungicides.

Herbicide applications to carrot crops represented 31% of the herbicide-treated area and 28% of the weight of herbicides applied.

Insecticide applications to leafy and flowerhead brassicas accounted for 42% and 33% of the total insecticide-treated area and weight applied, respectively. Carrot and parsnip crops collectively accounted for 35% of the total insecticide-treated area, representing 19% of the weight of insecticide active substances applied.

Applications of molluscicides to leafy and flowerhead brassica crops for slug control, represented 75% of the total molluscicide-treated area and 74% of the weight of molluscicides applied.

Applications of growth regulators to carrot and parsnips crops represented 100% of the total growth regulator treated area and 100% of the total weight of growth regulators applied.

The most extensively used active ingredient by area was Mancozeb applied to 5,176 spray hectares representing 12% of the total pesticide treated area. Mancozeb was also the most extensively used active ingredient by weight (7,656 kgs), representing 35% of total weight of active ingredients applied to outdoor vegetable crops.

Definitions and notes

- ‘Basic area’: refers to the actual planted area of crop, which was treated with a given pesticide.
- ‘Treated area’: refers to the total area treated with a pesticide, which includes all repeated applications to the basic area, and is referred to in spray hectares (spha).
- ‘Rounding’: due to rounding of figures, there may be slight differences in totals both within and between tables.
- PPP: Plant protection product
- ‘*Allium*’: collectively refers to onions, scallions and leeks.
- ‘Brassica’: collectively refers to Brussels sprouts, Cauliflower and all Cabbage.

Background

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

Legislation has been put in place at both EU and national level to minimise the risks associated with the use of PPPs while ensuring necessary crop protection. Previously legislation has concentrated mainly on the authorisation of PPPs for specific uses and the laboratory testing of food samples for PPP residues. New legislation (Sustainable Use of Pesticides Directive) based on the EU ‘Thematic strategy on the sustainable use of pesticides’ aims to achieve a balance between ensuring human and environmental safety while maintaining continued viability of the farming and amenity sectors. This will involve training and registration of advisers, distributors, operators and inspectors of pesticide application equipment, controls on storage, supply and use, adoption of the principles of IPM and improved statistics on PPP use. To address the requirement for improved statistics, Regulation (EC) No 1185/2009 was adopted on 25 November 2009 which requires each member state to collect statistics on PPP use. It is the area

identified above as “improved statistics on PPP use” that this survey and future surveys will be addressing.

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

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

Methods

The sample of holdings to be surveyed was selected from each of the 26 counties, on the basis of the total area of vegetable crops grown, using data from the Department of Agriculture Food and Marine. For the purpose of the survey the country was divided into 4 geographical regions namely North East, South East, South West and the West. The sample was stratified into three size groups, according to the total area of vegetable 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 vegetable crops grown.

Table A: Regions selected for survey and respective counties.

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

The purpose of the survey was explained to the occupiers of selected holdings in preliminary correspondence. A total of 76 holdings were visited during the period March to June 2012 and data collected by personal interview for vegetable crops grown in 2011.

The data collected included; the area of crops grown, area treated, target crop, pesticide used, application rate and number of treatments applied. Growers selected in the original sample who were unable to provide data were replaced with ones from the same county and size group held on a reserve list. The total number of farms in each size group and the number of farms sampled are shown in Table B. The collected data

were entered using Oracle, a relational database programme. Validated data were downloaded for analysis using SPSS software.

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

<i>Region</i>	< 10		Size group (hectares)				Total	
	A	B	10 < 40	A	B	40+	A	B
North East	30	6	32	15	26	19	88	40
South East	23	9	16	5	6	5	45	19
South West	24	7	11	3	3	2	38	12
West	18	4	0	0	1	1	19	5
<i>Ireland</i>	95	26	59	23	36	27	190	76

Crops

The number and areas of crops surveyed are shown in Table C. Data from 76 farms provided information on 565 examples of 34 crop types. The total area of crops sampled in the survey (2,673 ha) was representative of the area of vegetable crops grown in Ireland in 2011 (4,447 ha).

Table C: Total number, area of crops surveyed (hectares) and estimated area in Ireland, 2011.

<i>Crop</i>	<i>Number of Crops Surveyed</i>	<i>Surveyed area (ha)</i>	<i>Estimated area (ha)</i>
Broccoli	56	289.62	596.00
Brussel sprouts	17	143.69	177.00
Autumn cabbage	27	62.19	137.00
Spring cabbage	27	71.42	154.71
Winter cabbage	37	133.01	289.01
Summer cabbage	36	106.02	219.97
Savoy cabbage	8	18.22	38.34
White cabbage	12	36.15	72.36
Red cabbage	4	3.80	9.60
Autumn cauliflower	18	67.08	113.28
Summer cauliflower	28	94.90	169.58
Winter cauliflower	21	79.05	140.32
Kale	1	1.14	1.56
Peas (not for animals)	1	1.21	6.05
Broad beans	1	0.40	2.00
Courgettes	5	8.91	41.11
Marrow	1	1.00	1.37
Pumpkin	7	14.60	24.00
Carrots	31	517.71	651.00
Parsnips	22	294.71	343.00
Turnips & Swedes	42	255.60	517.10
Beetroot	6	5.00	8.36
Onions	9	90.91	171.00
Summer scallions	8	47.94	61.03
Winter scallions	4	37.22	45.97
Soup leeks	5	6.65	12.55
Table leeks	14	49.60	47.45
Lettuce	93	153.48	183.00
Table celery	6	13.90	45.00
Parsley	5	19.02	56.00
Other herbs e.g. mint, sage,	8	27.95	60.05
Rhubarb	3	16.82	45.00
Sweetcorn	1	0.60	3.00
Celeraic	1	3.00	4.11
All crops	565	2672.55	4446.89

Leafy and flower head brassica crops were grown on an estimated 47% of the total area of vegetable crops. Summer cabbage, winter cabbage and broccoli accounted for 10%, 13% and 28% of the area of leafy and flower head brassica grown respectively. Carrot and parsnip collectively represented 22% of the vegetable growing area, while turnip/swede accounted for 11% of the total area grown. Alliums including leek, scallion and bulb onion, collectively accounted for 7% of the total area of outdoor vegetable crops grown in Ireland in 2011.

Regional distribution of crops and pesticide usage

The North East region was the largest producer of vegetable crops in Ireland during 2011, accounting for 66% of the area of vegetables grown and 64% of the total pesticide-treated area. Overall, 62% of the weight of herbicides, 51% of the weight of fungicides, 75% of the weight of insecticides, 60% of the weight of molluscicides and 95% of the weight of seed treatments were applied to vegetables in this region. The South East region accounted for 20% of the total area of vegetables grown and 28% of the total pesticide-treated area. The South West accounted for 12% of the total vegetable growing area and 7% of the pesticide treated area. The West accounted for 2% of the total vegetable growing area and 1% of the pesticide treated area.

Figure 1: Regional distribution of vegetable crops grown in Ireland (ha), 2011.

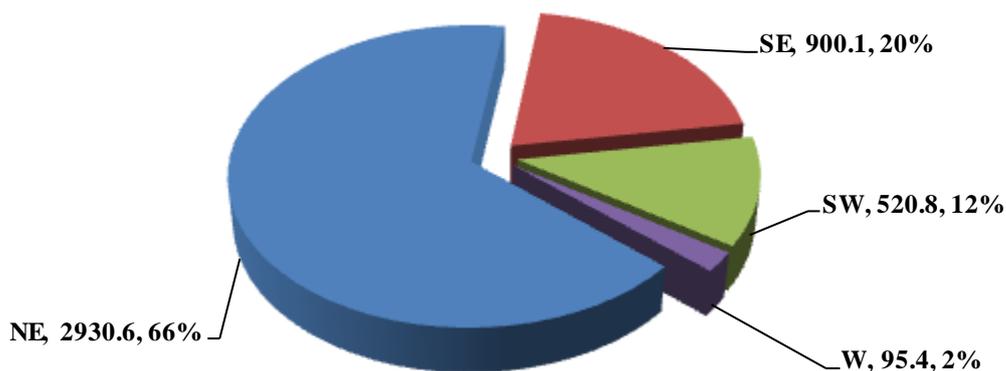


Figure 2: Regional distribution (ha) of individual vegetable crops in Ireland 2011

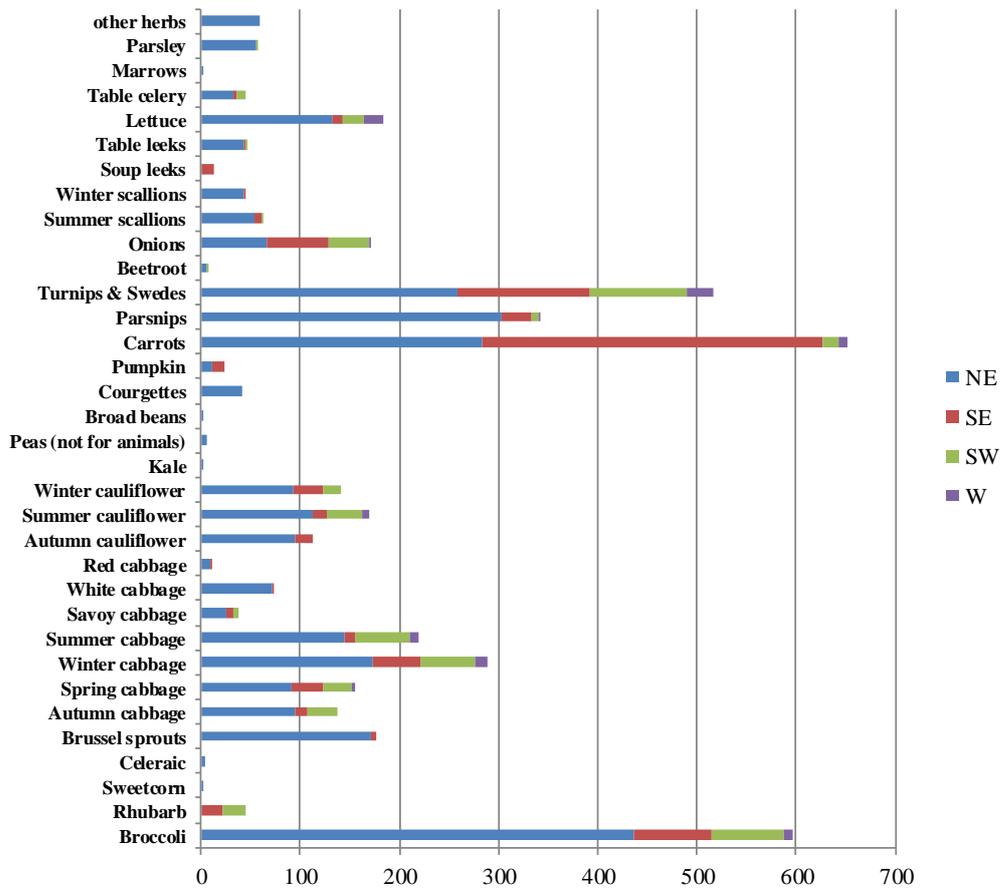


Figure 3: Regional distribution of leafy and flower head brassica crops grown in Ireland (ha), 2011.

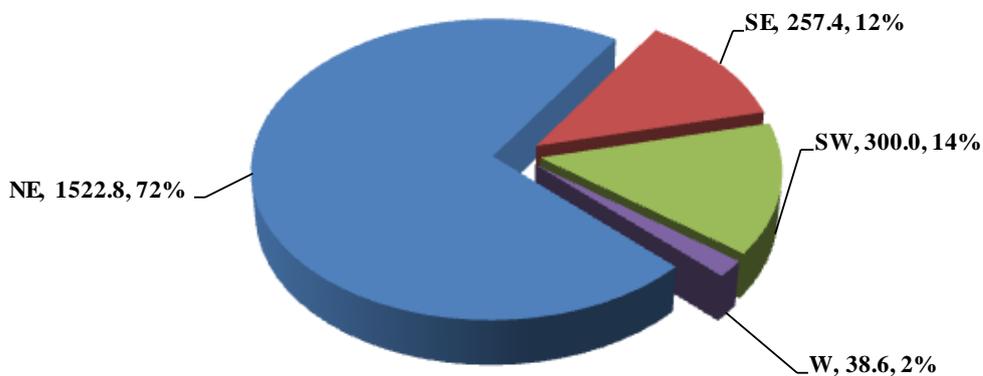


Figure 4: Regional distribution of carrot crops grown in Ireland (ha), 2011.

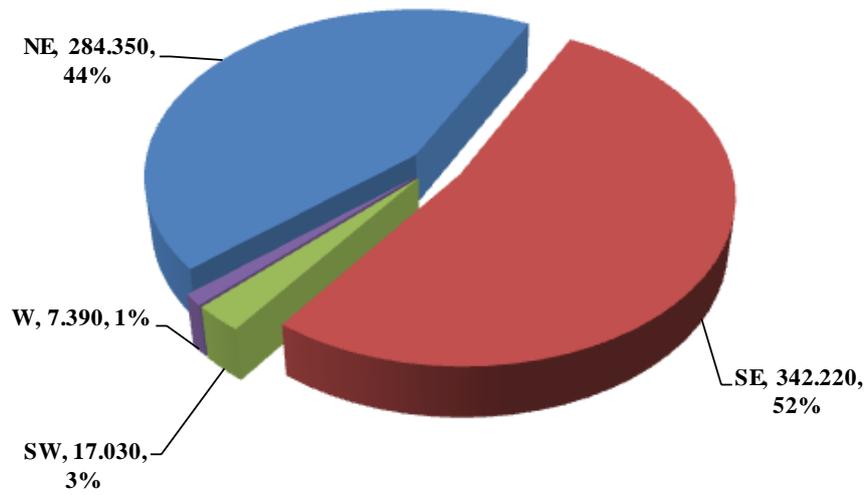


Figure 5: Regional distribution of turnip and swede crops grown in Ireland (ha), 2011.

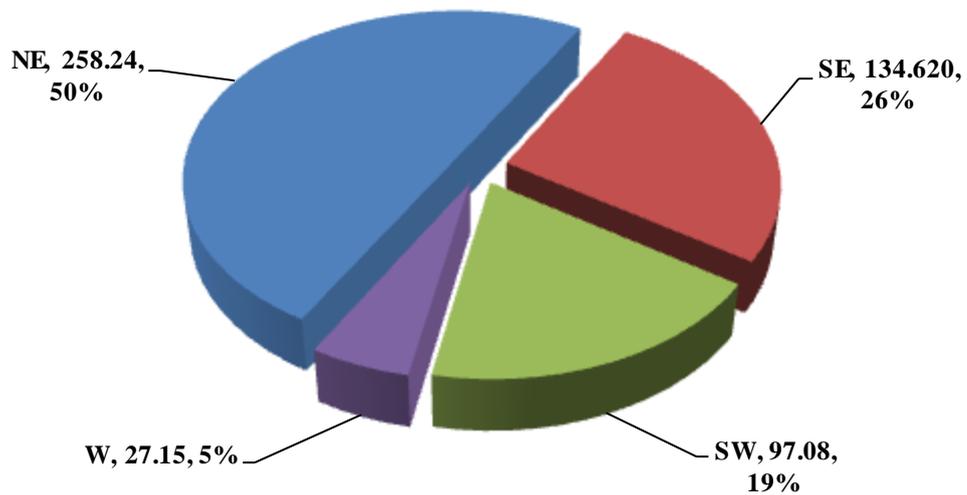


Figure 6: Regional distribution of parsnip crops grown in Ireland (ha), 2011

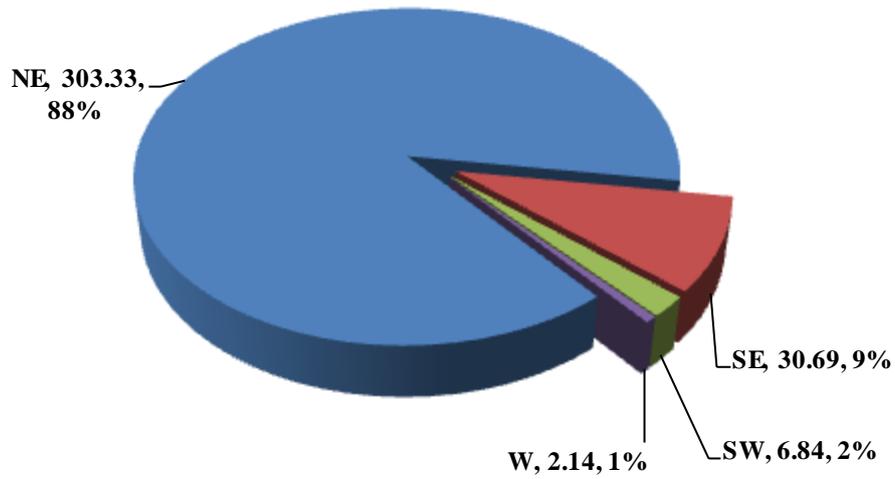


Figure 7: Regional distribution of broccoli crops grown in Ireland (ha), 2011

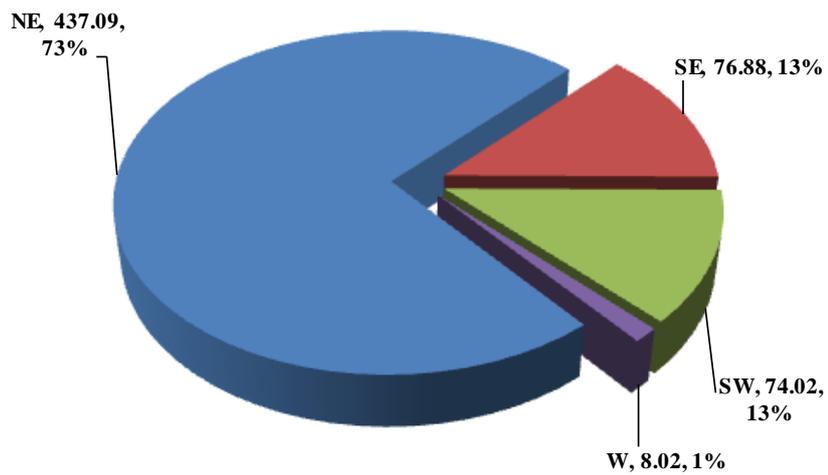
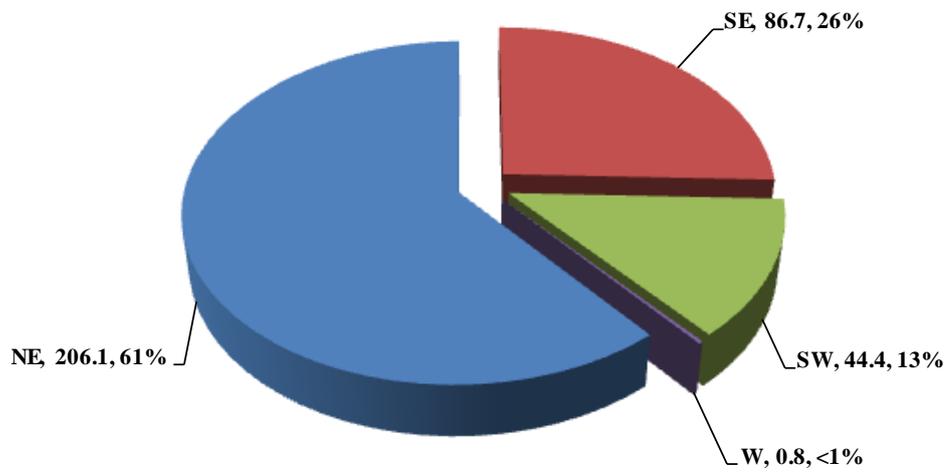


Figure 8: Regional distribution of allium crops grown in Ireland (ha), 2011.



Pesticide usage on crops

Applications of fungicides accounted for 39% of the pesticide treated area and 51% of the total weight of pesticides applied. Applications of herbicides accounted for 27% of the pesticide treated area and 37% of the total weight of pesticides applied. Applications of insecticides accounted for 30% of the pesticide treated area and 9% of the total weight of pesticides applied. Applications of molluscicides, biological controls, growth regulators and seed treatments collectively accounted for 4% of the pesticide-treated area and 3% of the total weight of pesticides applied.

Figure 9: Pesticide usage on vegetable crops in Ireland (spha), 2011.

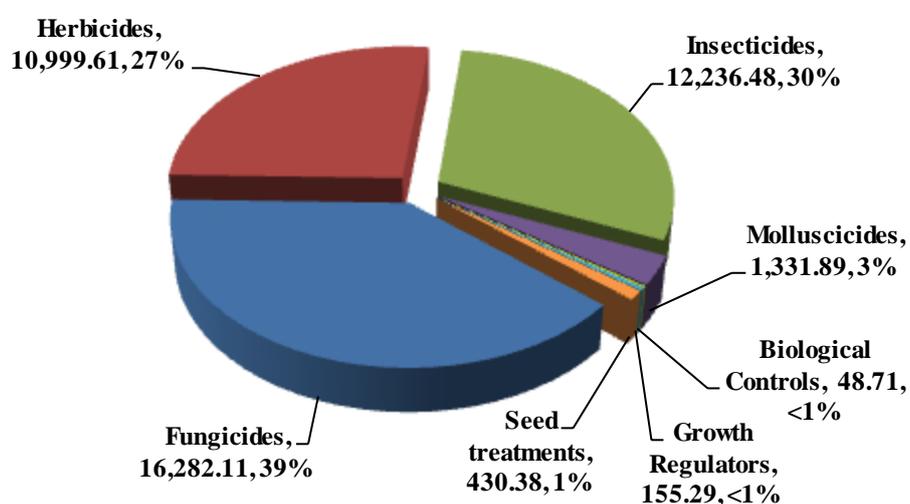
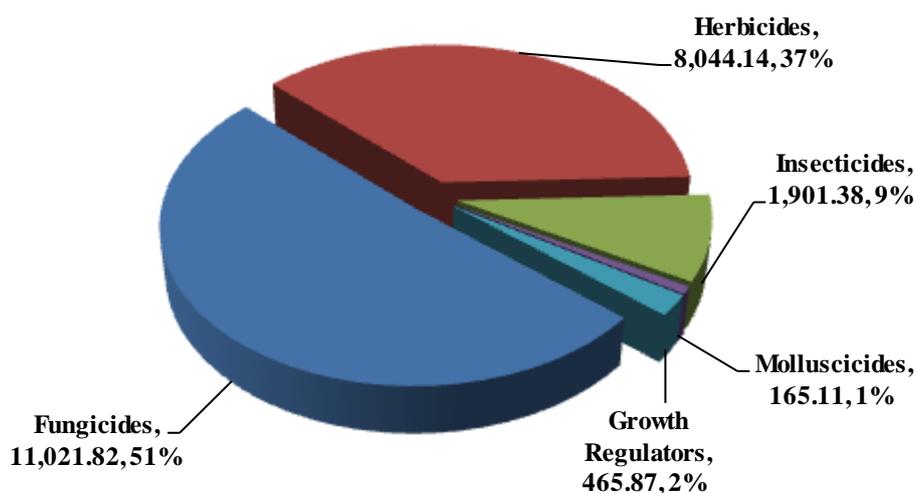


Figure 10: Weight of pesticides applied to vegetable crops in Ireland (kg), 2011.



(Note: Biological control (1.7kg) and seed treatments (1.42kg) not included in chart above)

Pesticide Usage on broccoli crops:

596.00 hectares of broccoli crops were grown in Ireland

3,014.71 treated hectares

1,512.03 kg applied

100% of crops received at least one treatment

Broccoli crops received on average 4.85 treatments consisting of 1.75 fungicide, 1.04 herbicide, 1.74 insecticide, 0.18 molluscicide and 0.14 seed treatment applications.

Figure 11: Pesticide usage on broccoli crops in Ireland (spha), 2011.

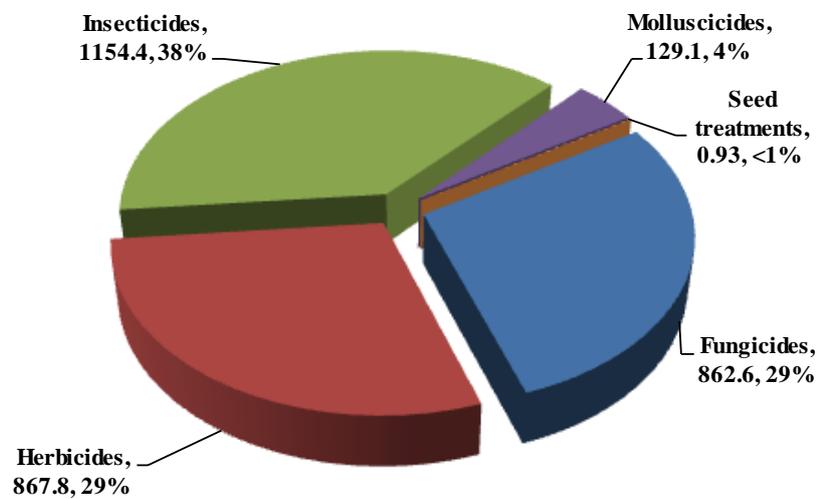


Figure 12: Weight of pesticides applied to broccoli crops in Ireland (Kg), 2011.

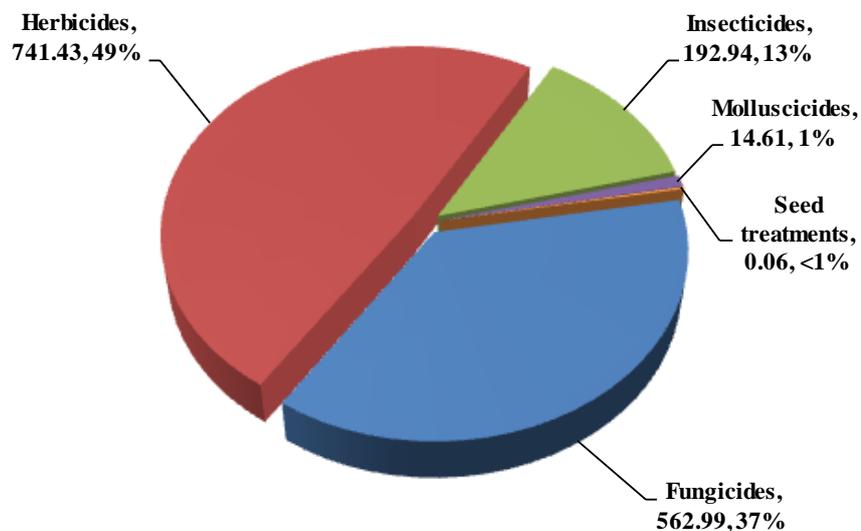


Figure 13: Proportional area of broccoli crops treated with each pesticide group in Ireland, 2011.

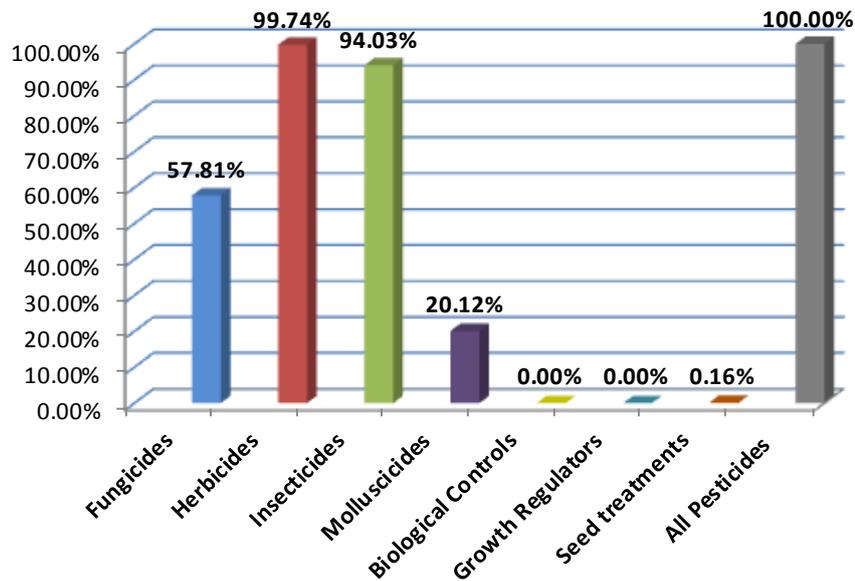


Figure 14: The top 10 active ingredients most extensively used on broccoli in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Metazachlor	552.5	552.5	399.2	16.4
Deltamethrin	371.6	340.1	2.6	11.0
Chlorpyrifos	265.4	236.5	143.7	7.9
Metaxyl-m	255.6	211.0	18.6	7.6
Mancozeb	255.0	210.5	297.7	7.6
Difenoconazole	209.2	180.3	35.9	6.2
Glyphosate	150.3	150.3	169.5	4.5
Methiocarb	129.0	119.9	14.5	3.8
Lambda-cyhalothrin	127.3	111.6	0.7	3.8
Azoxystrobin	112.8	105.4	27.2	3.3

Figure 15: The top 10 active ingredients most extensively used on broccoli in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Metazachlor	399.2	552.5	552.5	26.4
Mancozeb	297.7	255.0	210.5	19.7
Glyphosate	169.5	150.3	150.3	11.2
Chlorpyrifos	143.7	265.4	236.5	9.5
Pendimethalin	108.9	85.6	85.6	7.2
Pyridate	57.4	71.7	71.7	3.8
Chlorothalonil	53.3	50.5	43.1	3.5
Propamocarb	45.9	1.4	1.4	3.0
Difenoconazole	35.9	209.2	180.3	2.4
Boscalid	30.0	96.4	96.1	2.0

Pesticide Usage on Brussels sprout crops

177.00 hectares of brussels sprout crops were grown in Ireland.

2739.64 treated hectares

676.62 kg applied

100% of crops received at least one treatment

Brussels sprout crops received on average 9.06 treatments consisting of 3.04 fungicide, 1.21 herbicide, 3.17 insecticide, 1.38 molluscicide and 0.26 seed treatment applications.

Figure 16: Pesticide usage on brussel sprout crops in Ireland (spha), 2011.

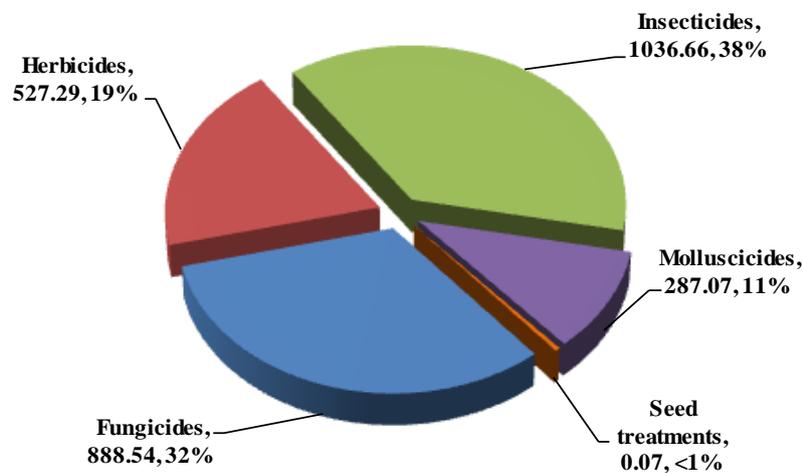


Figure 17: Weight of pesticides applied to brussel sprout crops in Ireland (kg), 2011.

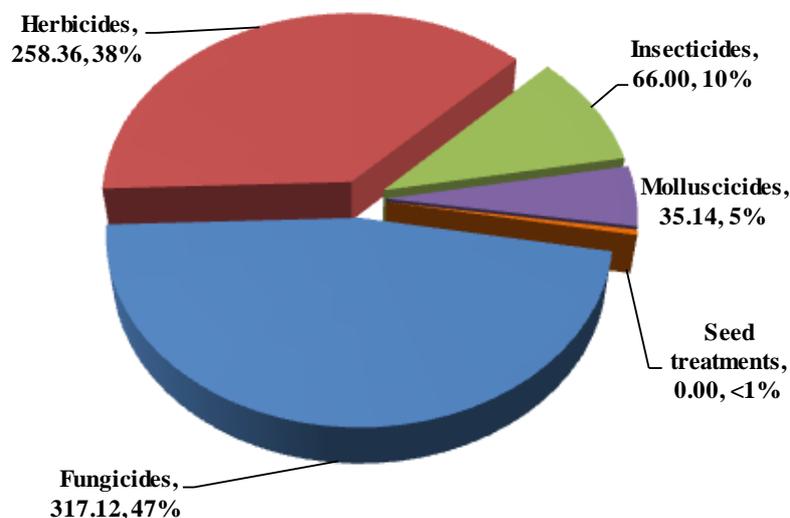


Figure 18: Proportional area of brussels sprout crops treated with each pesticide group in Ireland, 2011.

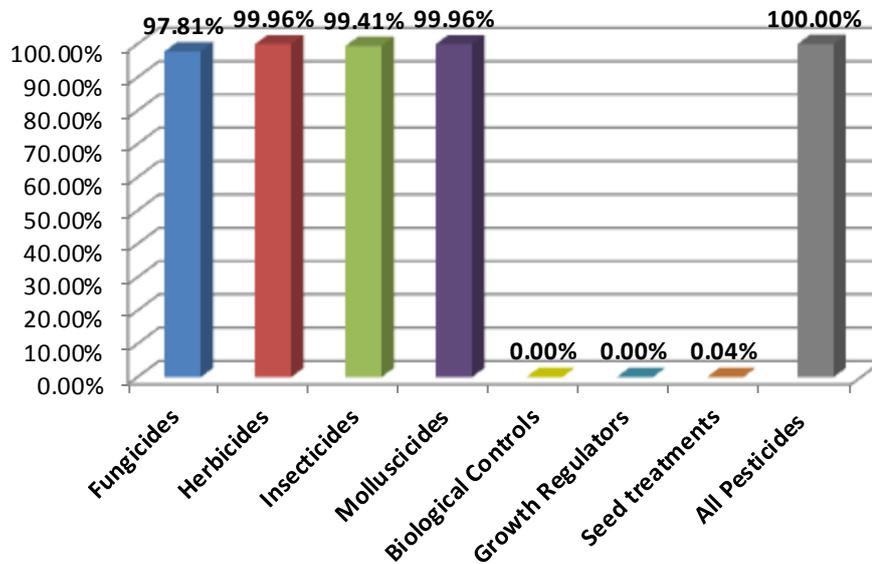


Figure 19: The top 10 active ingredients most extensively used on brussels sprout in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Difenoconazole	453.0	156.2	50.3	14.8
Methiocarb	287.1	176.9	35.1	9.4
Cypermethrin	236.9	118.5	5.9	7.7
Boscalid	216.6	216.6	57.8	7.1
Pyraclostrobin	216.6	216.6	14.5	7.1
Pirimicarb	188.9	100.7	30.4	6.2
Metazachlor	171.4	171.4	104.6	5.6
Lambda-cyhalothrin	140.9	97.3	0.7	4.6
Metalaxyl-m	109.4	66.8	7.7	3.6
Pymetrozine	98.5	98.5	12.2	3.2

Figure 20: The top 10 active ingredients most extensively used on brussels sprout in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Mancozeb	111.5	96.8	54.2	16.5
Metazachlor	104.6	171.4	171.4	15.5
Pendimethalin	77.4	84.7	84.7	11.4
Boscalid	57.8	216.6	216.6	8.5
Iprodione	56.3	95.0	66.0	8.3
Difenoconazole	50.3	453.0	156.2	7.4
Pyridate	36.1	88.1	88.1	5.3
Methiocarb	35.1	287.1	176.9	5.2
Pirimicarb	30.4	188.9	100.7	4.5
Glyphosate	18.6	11.2	11.2	2.7

Pesticide Usage on autumn cabbage crops:

137.00 hectares of autumn cabbage crops were grown in Ireland.

918.71 treated hectares

394.31 kg applied

92.10% of crops received at least one treatment

Autumn cabbage received on average 5.27 treatments consisting of 1.99 fungicide, 1.10 herbicide, 1.75 insecticide, 0.38 molluscicide and 0.05 seed treatment applications.

Figure 21: Pesticide usage on autumn cabbage crops in Ireland (spha), 2011.

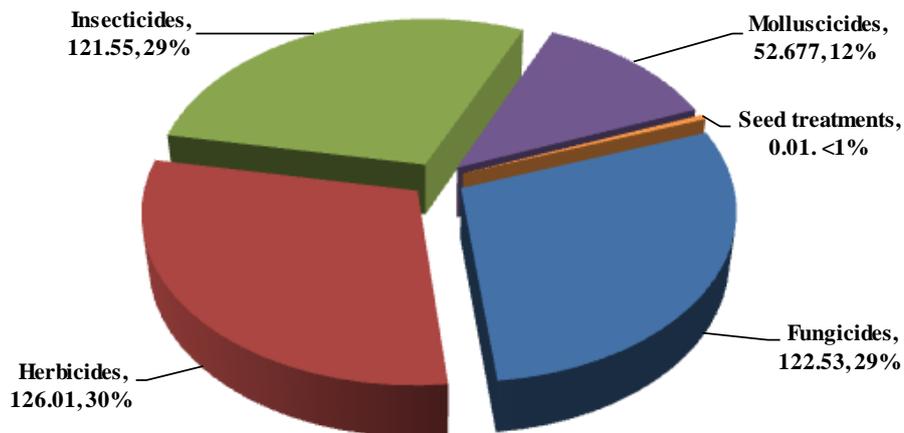


Figure 22: Weight of pesticides applied to autumn cabbage crops in Ireland (kg), 2011.

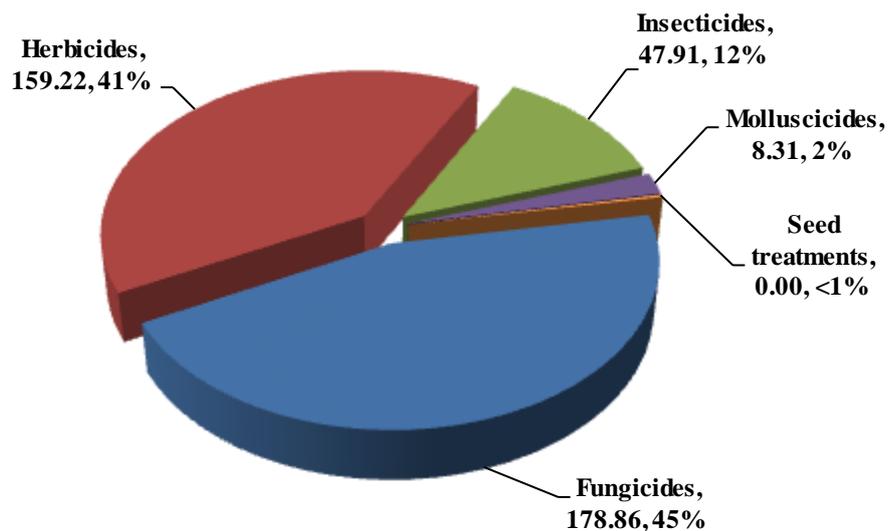


Figure 23: Proportional area of autumn cabbage crops treated with each pesticide group in Ireland, 2011.

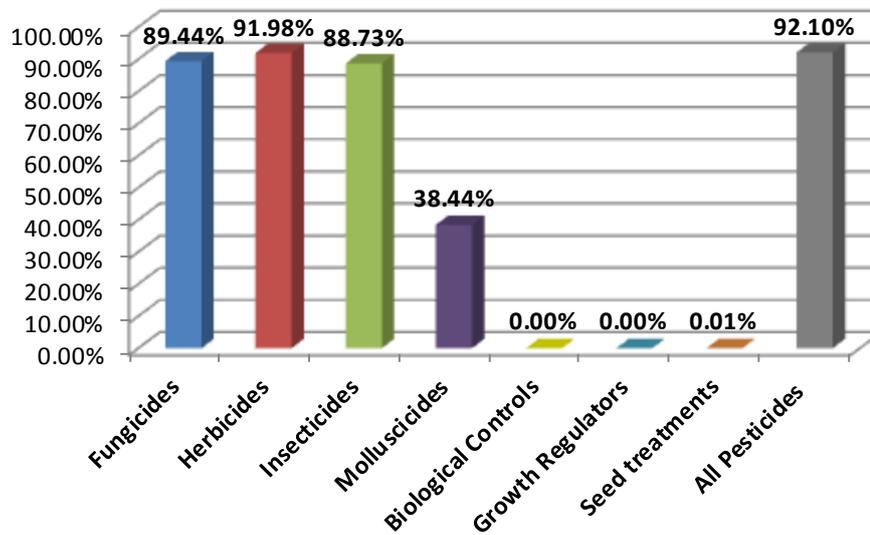


Figure 24: The top 10 active ingredients most extensively used on autumn cabbage in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Difenoconazole	134.0	112.3	17.3	13.1
Metazachlor	122.4	122.4	89.3	12.0
Methiocarb	65.5	52.7	8.3	6.4
Lambda-cyhalothrin	63.9	47.0	0.3	6.2
Azoxystrobin	62.4	56.8	15.6	6.1
Metalaxyl-m	59.7	44.7	5.6	5.8
Mancozeb	59.7	44.7	89.2	5.8
Boscalid	44.7	44.7	13.1	4.4
Pyraclostrobin	44.7	44.7	3.3	4.4
Chlorpyrifos	43.9	38.3	25.1	4.3

Figure 25: The top 10 active ingredients most extensively used on autumn cabbage in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Metazachlor	89.3	122.4	122.4	22.6
Mancozeb	89.2	59.7	44.7	22.6
Pendimethalin	35.7	33.5	33.5	9.1
Chlorothalonil	25.8	34.9	34.9	6.5
Chlorpyrifos	25.1	43.9	38.3	6.4
Glyphosate	21.2	20.6	20.6	5.4
Difenoconazole	17.3	134.0	112.3	4.4
Azoxystrobin	15.6	62.4	56.8	4.0
Boscalid	13.1	44.7	44.7	3.3
Pyridate	10.8	13.5	13.5	2.7

Pesticide Usage on spring cabbage crops:

154.71 hectares of spring cabbage crops were grown in Ireland

896.45 treated hectares

346.64 kg applied

100% of crops received at least one treatment

Spring cabbage received on average 5.08 treatments consisting of 2.33 fungicide, 1.01 herbicide, 1.30 insecticide, 0.41 molluscicide and 0.03 seed treatment applications.

Figure 26: Pesticide usage on spring cabbage crops in Ireland (spha), 2011.

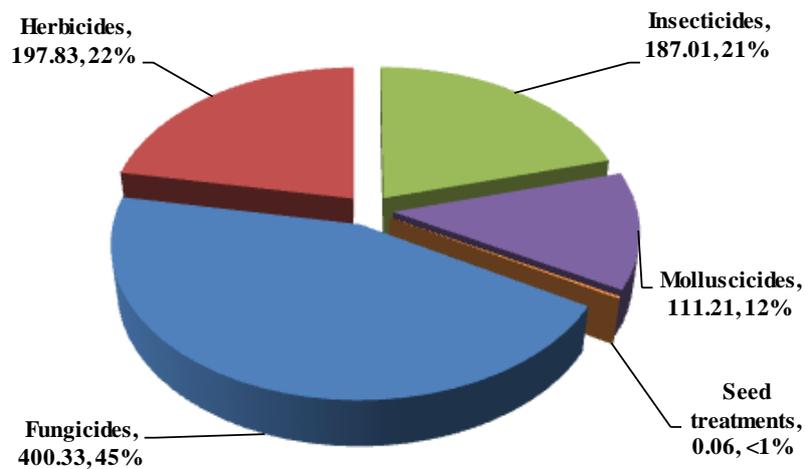


Figure 27: Weight of pesticides applied to spring cabbage crops in Ireland (kg), 2011

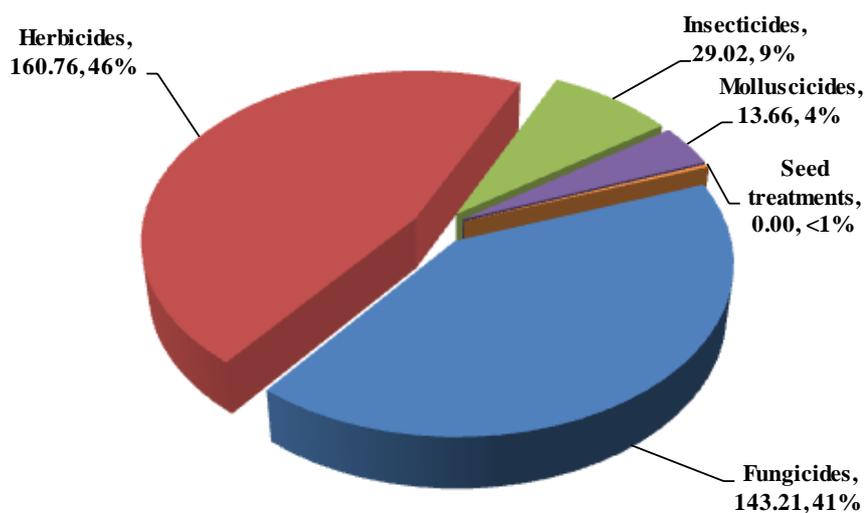


Figure 28: Proportional area of spring cabbage crops treated with each pesticide group in Ireland, 2011.

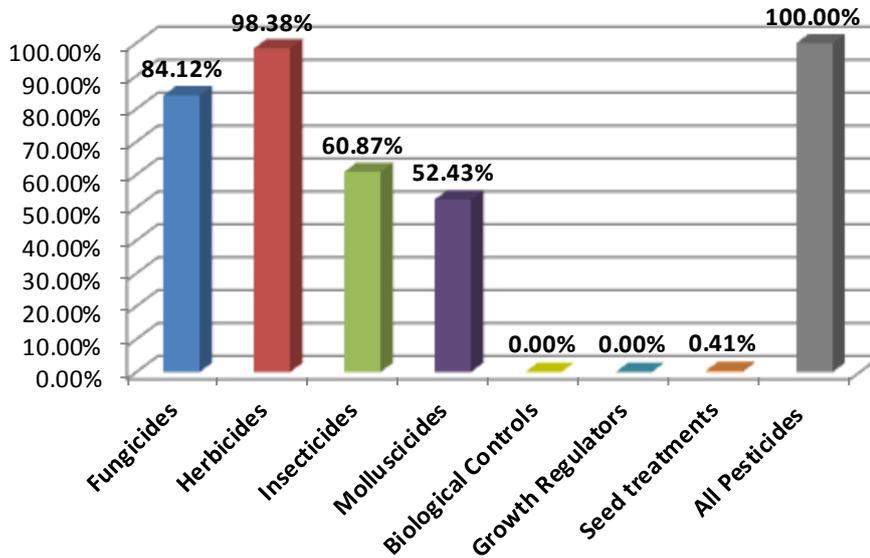


Figure 29: The top 10 active ingredients most extensively used on spring cabbage in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Difenoconazole	207.9	106.5	24.6	20.1
Metazachlor	152.2	152.2	106.6	14.7
Methiocarb	111.2	81.1	13.7	10.8
Metalaxyl-m	94.9	52.6	5.1	9.2
Mancozeb	94.9	52.6	82.1	9.2
Chlorpyrifos	51.2	33.0	22.9	5.0
Lambda-cyhalothrin	45.5	38.9	0.2	4.4
Tebuconazole	40.3	34.5	9.4	3.9
Pendimethalin	34.3	34.3	41.6	3.3
Boscalid	27.9	20.7	8.6	2.7

Figure 30: The top 10 active ingredients most extensively used on spring cabbage in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Metazachlor	106.6	152.2	152.2	30.7
Mancozeb	82.1	94.9	52.6	23.7
Pendimethalin	41.6	34.3	34.3	12.0
Difenoconazole	24.6	207.9	106.5	7.1
Chlorpyrifos	22.9	51.2	33.0	6.6
Methiocarb	13.7	111.2	81.1	3.9
Tebuconazole	9.4	40.3	34.5	2.7
Boscalid	8.6	27.9	20.7	2.5
Napropamide	8.6	6.8	6.8	2.5
Azoxystrobin	5.2	22.0	22.0	1.5

Pesticide Usage on winter cabbage crops:

289.02 hectares of winter cabbage crops were grown in Ireland

2312.73 treated hectares

822.73 kg applied

100% of crops received at least one treatment

Winter cabbage received on average 5.50 treatments consisting of 2.25 fungicide, 0.95 herbicide, 1.89 insecticide, 0.36 molluscicide and 0.05 seed treatment applications.

Figure 31: Pesticide usage on winter cabbage crops in Ireland (spha), 2011.

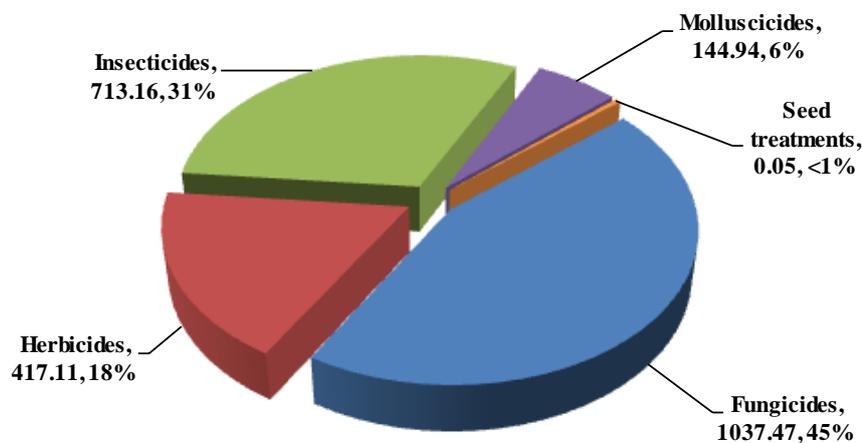


Figure 32: Weight of pesticides applied to winter cabbage crops in Ireland (kg), 2011

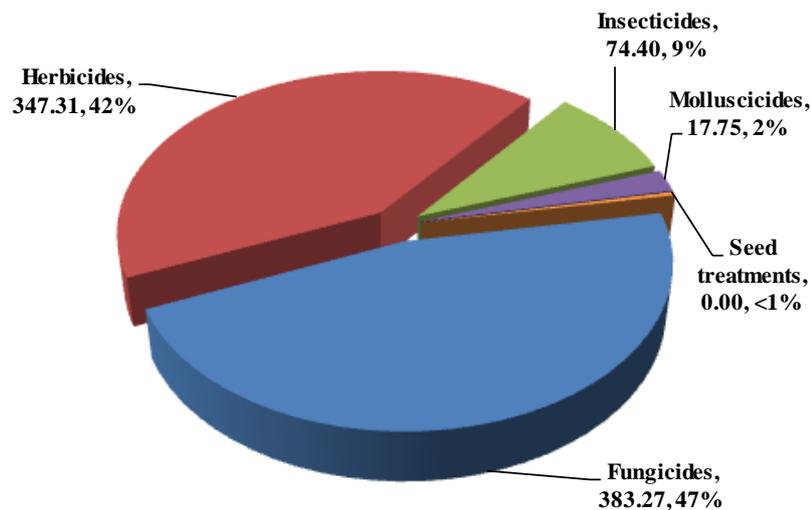


Figure 33: Proportional area of winter cabbage crops treated with each pesticide group in Ireland, 2011.

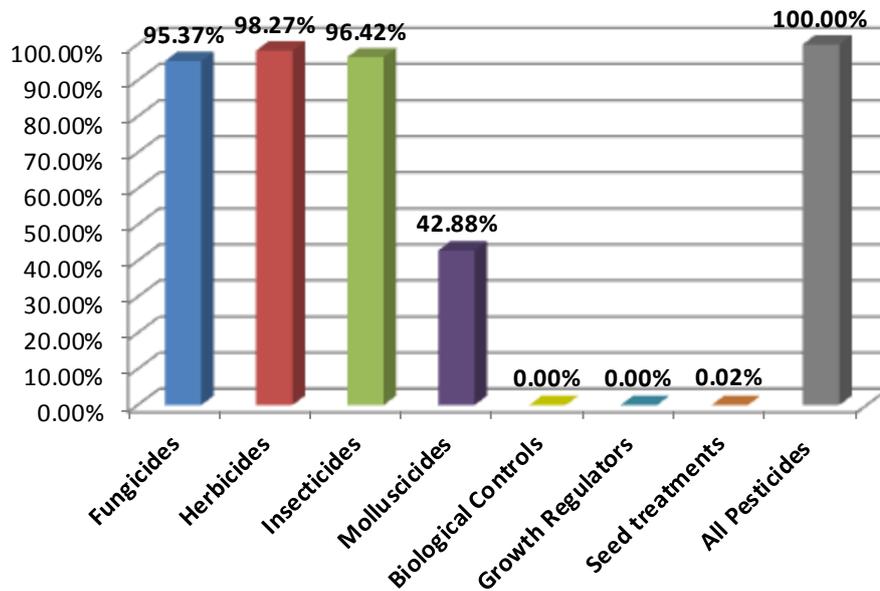


Figure 34: The top 10 active ingredients most extensively used on winter cabbage in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Difenoconazole	354.0	218.8	41.1	13.1
Metazachlor	241.5	241.5	168.3	8.9
Mancozeb	195.5	137.9	187.1	7.2
Metalaxyl-m	195.5	137.9	11.7	7.2
Azoxystrobin	173.2	126.2	43.1	6.4
Tebuconazole	172.8	101.0	38.3	6.4
Lambda-cyhalothrin	165.9	130.2	1.0	6.1
Methiocarb	144.9	123.9	17.7	5.3
Spirotetramat	129.4	100.6	9.7	4.8
Boscalid	110.1	94.2	29.4	4.1

Figure 35: The top 10 active ingredients most extensively used on winter cabbage in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Mancozeb	187.1	195.5	137.9	22.7
Metazachlor	168.3	241.5	241.5	20.5
Glyphosate	66.6	52.2	52.2	8.1
Pendimethalin	62.1	54.8	54.8	7.6
Azoxystrobin	43.1	173.2	126.2	5.2
Difenoconazole	41.1	354.0	218.8	5.0
Tebuconazole	38.3	172.8	101.0	4.7
Napropamide	31.4	24.9	24.9	3.8
Boscalid	29.4	110.1	94.2	3.6
Chlorpyrifos	24.3	44.0	29.9	3.0

Pesticide Usage on summer cabbage crops:

219.97 hectares of summer cabbage crops were grown in Ireland.

1370.76 treated hectares.

633.63 kg applied.

100% of crops received at least one treatment

Summer cabbage received on average 4.03 treatments consisting of 1.36 fungicide, 0.88 herbicide, 1.31 insecticide, 0.39 molluscicide and 0.09 seed treatment applications.

Figure 36: Pesticide usage on summer cabbage crops in Ireland (spha), 2011.

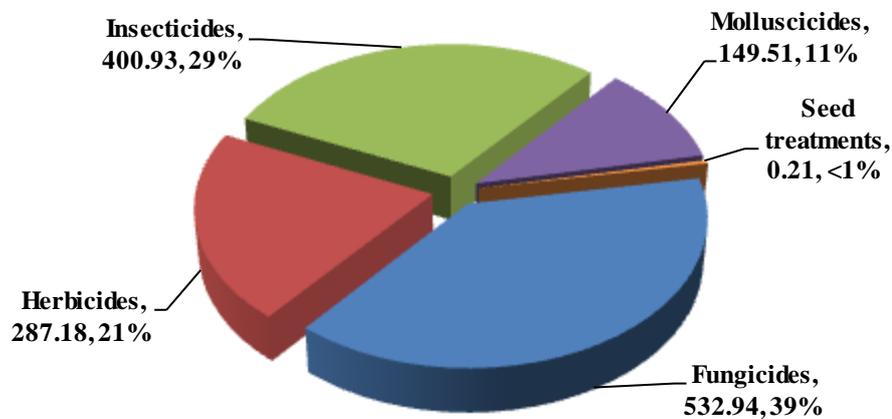


Figure 37: Weight of pesticides applied to summer cabbage crops in Ireland (kg), 2011.

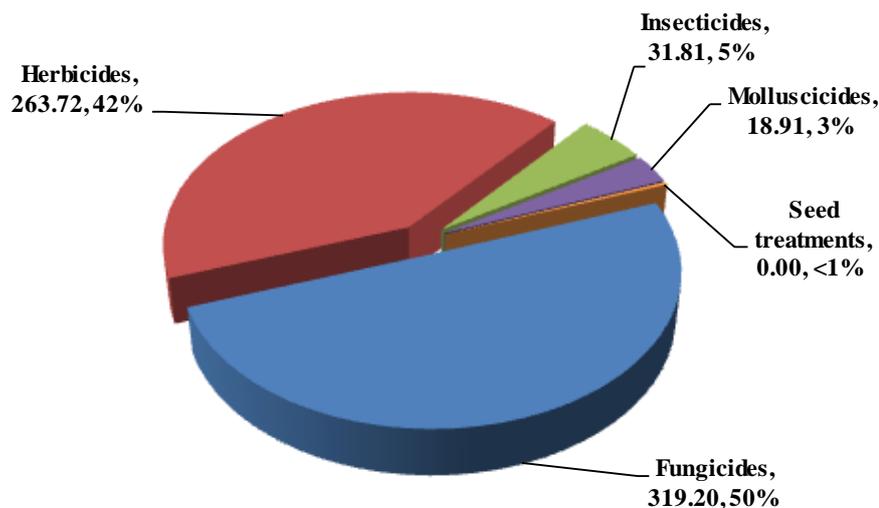


Figure 38: Proportional area of summer cabbage crops treated with each pesticide group in Ireland, 2011.

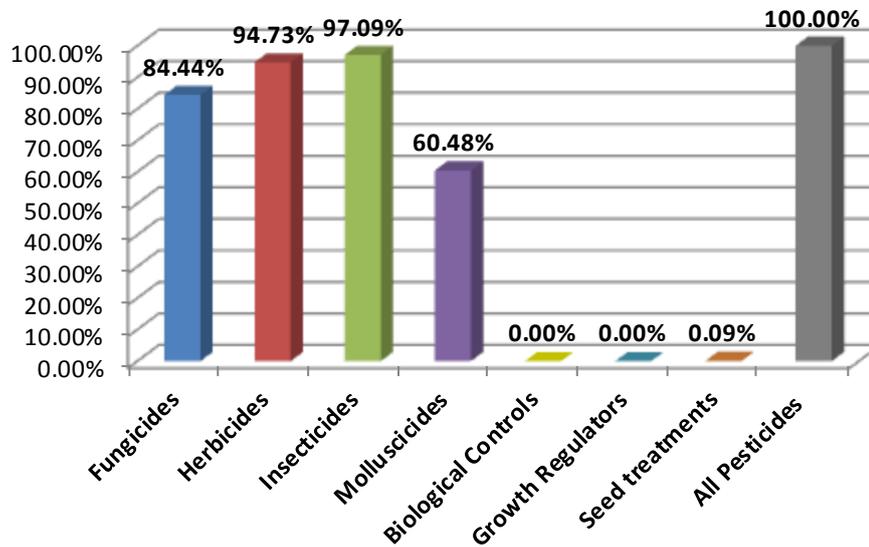


Figure 39: The top 10 active ingredients most extensively used on summer cabbage in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Mancozeb	210.9	136.2	239.2	13.1
Metalaxyl-m	210.9	136.2	15.0	13.1
Difenoconazole	193.9	137.3	24.4	12.1
Metazachlor	177.5	168.5	113.5	11.1
Lambda-cyhalothrin	154.5	137.2	0.8	9.6
Methiocarb	149.5	133.0	18.9	9.3
Glyphosate	95.4	95.4	138.9	5.9
Deltamethrin	69.7	69.7	0.6	4.3
Chlorpyrifos	55.9	37.6	19.7	3.5
Tebuconazole	45.0	45.0	4.5	2.8

Figure 40: The top 10 active ingredients most extensively used on summer cabbage in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Mancozeb	239.2	210.9	136.2	37.8
Glyphosate	138.9	95.4	95.4	21.9
Metazachlor	113.5	177.5	168.5	17.9
Difenoconazole	24.4	193.9	137.3	3.8
Chlorpyrifos	19.7	55.9	37.6	3.1
Methiocarb	18.9	149.5	133.0	3.0
Metalaxyl-m	15.0	210.9	136.2	2.4
Pendimethalin	11.4	14.3	14.3	1.8
Azoxystrobin	10.0	35.7	30.3	1.6
Iprodione	9.1	18.1	18.1	1.4

Pesticide Usage on savoy cabbage crops:

38.35 hectares of savoy cabbage crops were grown in Ireland

290.78 treated hectares

120.52 kg applied

100% of crops received at least one treatment

Savoy cabbage received on average 7.49 treatments consisting of 3.14 fungicide, 1.47 herbicide, 2.11 insecticide and 0.77 molluscicide applications.

Figure 41: Pesticide usage on savoy cabbage crops in Ireland (spha), 2011.

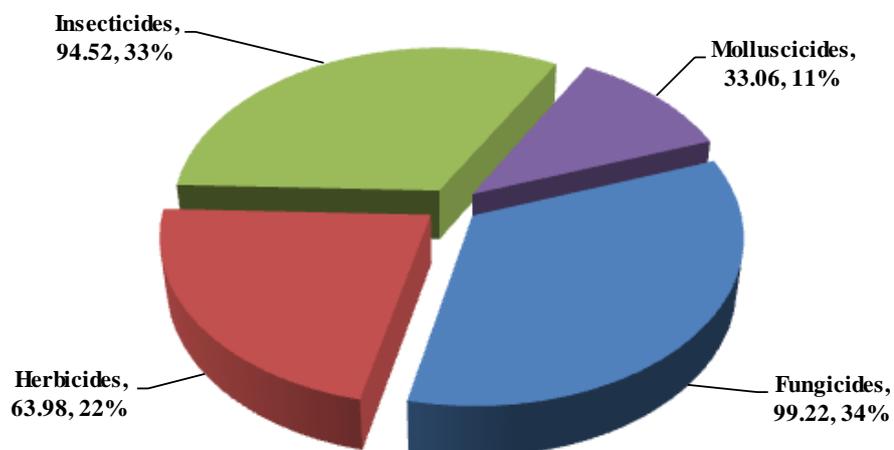


Figure 42: Weight of pesticides applied to savoy cabbage crops in Ireland (kg), 2011.

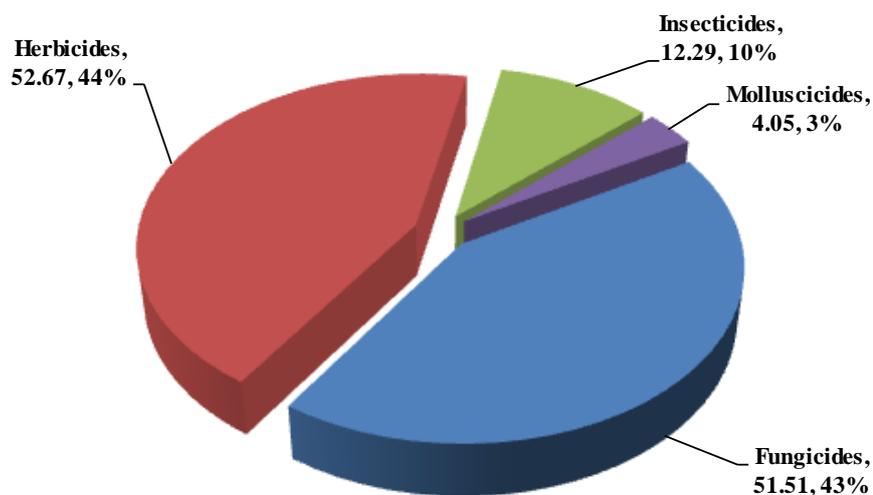


Figure 43: Proportional area of savoy cabbage crops treated with each pesticide group in Ireland, 2011.

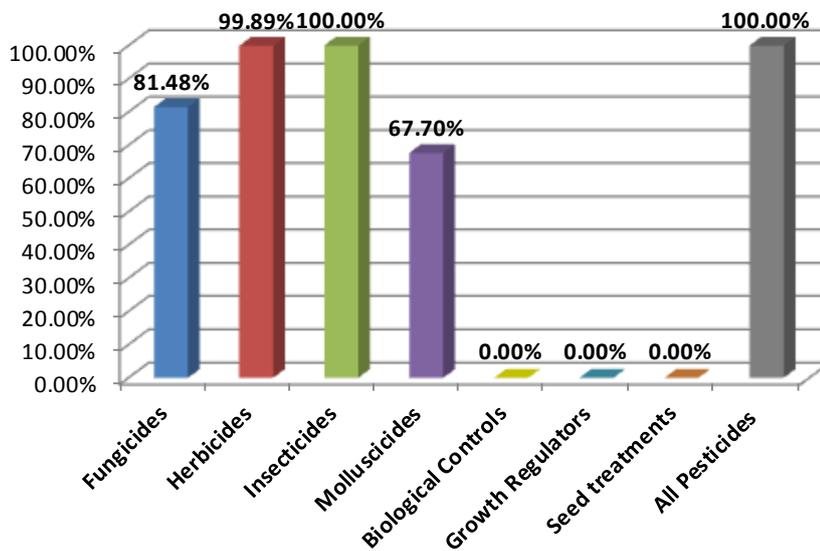


Figure 44: The top 10 active ingredients most extensively used on savoy cabbage in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Metazachlor	38.31	38.31	25.84	11.2
Methiocarb	33.06	25.96	4.05	9.6
Boscalid	30.20	25.68	11.36	8.8
Pyraclostrobin	30.20	25.68	2.85	8.8
Chlorothalonil	26.69	26.69	19.97	7.8
Pirimicarb	24.69	12.34	6.17	7.2
Cypermethrin	21.16	21.16	.60	6.2
Lambda-cyhalothrin	18.15	12.63	.13	5.3
Azoxystrobin	14.56	10.04	3.64	4.2
Tebuconazole	13.32	8.82	2.66	3.9

Figure 45: The top 10 active ingredients most extensively used on savoy cabbage in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Metazachlor	25.84	38.31	38.31	21.4
Chlorothalonil	19.97	26.69	26.69	16.6
Boscalid	11.36	30.20	25.68	9.4
Glyphosate	11.11	12.34	12.34	9.2
Pendimethalin	10.03	8.82	8.82	8.3
Mancozeb	8.47	8.82	8.82	7.0
Pirimicarb	6.17	24.69	12.34	5.1
Napropamide	5.69	4.52	4.52	4.7
Methiocarb	4.05	33.06	25.96	3.4
Chlorpyrifos	3.99	5.56	5.56	3.3

Pesticide Usage on white cabbage crops:

72.36 hectares of white cabbage crops were grown in Ireland

349.71 treated hectares

131.50 kg applied

100% of crops received at least one treatment

White cabbage received on average 5.21 treatments consisting of 2.07 fungicide, 1.02 herbicide, 1.65 insecticide, 0.33 molluscicide & 0.14 seed treatment applications.

Figure 46: Pesticide usage on white cabbage crops in Ireland (spha), 2011.

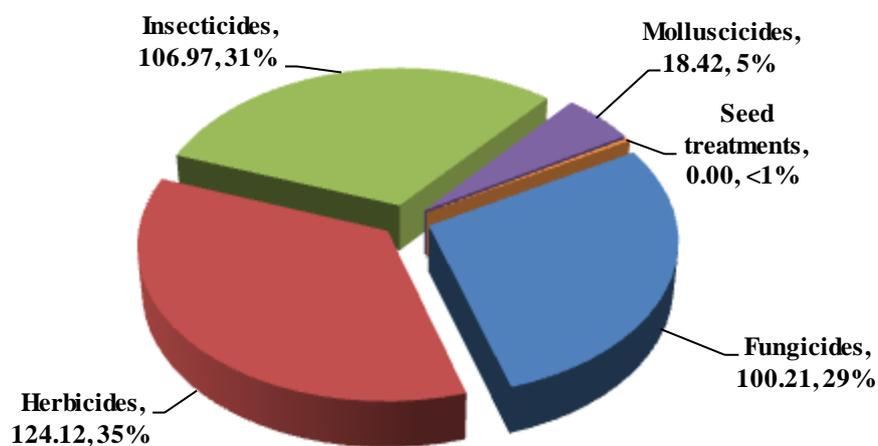


Figure 47: Weight of pesticides applied to white cabbage crops in Ireland (kg), 2011.

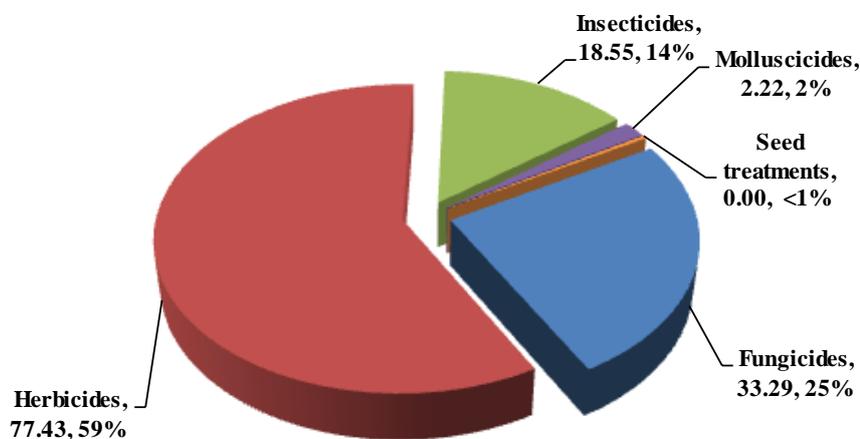


Figure 48: Proportional area of white cabbage crops treated with each pesticide group in Ireland, 2011.

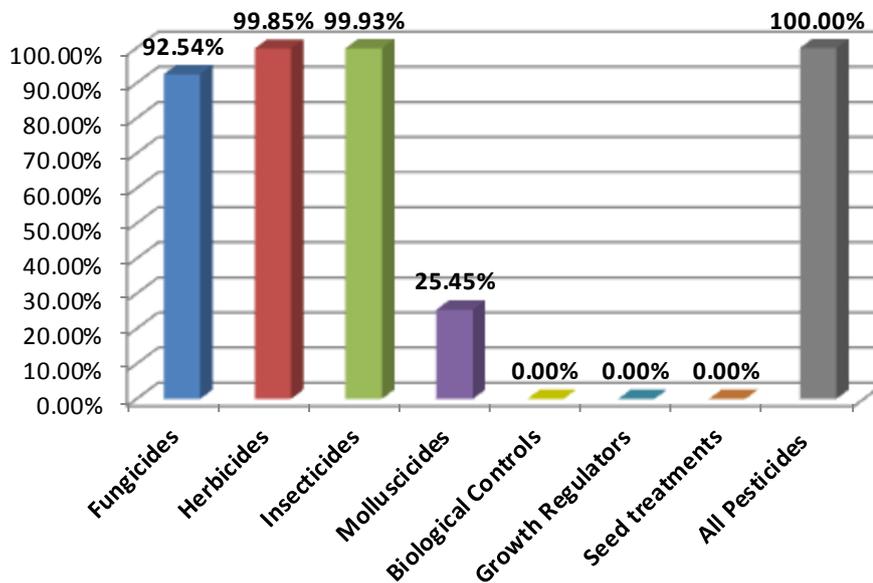


Figure 49: The top 10 active ingredients most extensively used on white cabbage in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Metazachlor	72.2	72.2	45.8	19.2
Glyphosate	51.4	51.4	31.2	13.7
Chlorpyrifos	36.3	20.9	17.4	9.6
Lambda-cyhalothrin	35.0	34.6	0.2	9.3
Azoxystrobin	34.6	34.6	8.7	9.2
Difenoconazole	31.2	15.8	3.9	8.3
Methiocarb	18.4	18.4	2.2	4.9
Deltamethrin	18.0	18.0	0.1	4.8
Boscalid	16.8	16.8	9.0	4.5
Pyraclostrobin	16.8	16.8	2.3	4.5

Figure 50: The top 10 active ingredients most extensively used on white cabbage in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Metazachlor	45.8	72.2	72.2	34.8
Glyphosate	31.2	51.4	51.4	23.7
Chlorpyrifos	17.4	36.3	20.9	13.2
Boscalid	9.0	16.8	16.8	6.8
Azoxystrobin	8.7	34.6	34.6	6.6
Mancozeb	7.6	10.0	10.0	5.7
Difenoconazole	3.9	31.2	15.8	3.0
Pyraclostrobin	2.3	16.8	16.8	1.7
Methiocarb	2.2	18.4	18.4	1.7
Tebuconazole	1.4	7.2	7.2	1.0

Pesticide Usage on red cabbage crops:

9.60 hectares of red cabbage crops were grown in Ireland

72.74 treated hectares

29.89 kg applied

100% of crops received at least one treatment

Red cabbage received on average 6.94 treatments consisting of 1.95 fungicide, 1.46 herbicide, 2.75 insecticide, 0.46 molluscicide and 0.32 seed treatment applications.

Figure 51: Pesticide usage on red cabbage crops in Ireland (spha), 2011.

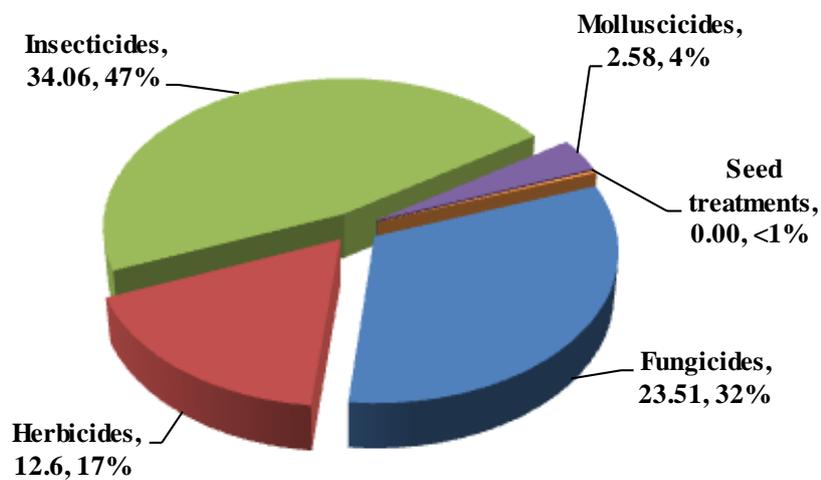


Figure 52: Weight of pesticides applied to red cabbage crops in Ireland (kg), 2011.

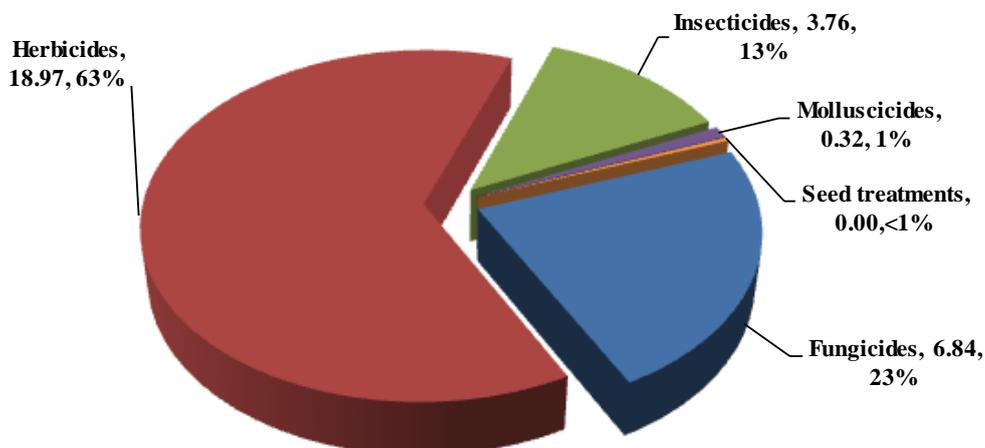


Figure 53: Proportional area of red cabbage crops treated with each pesticide group in Ireland, 2011.

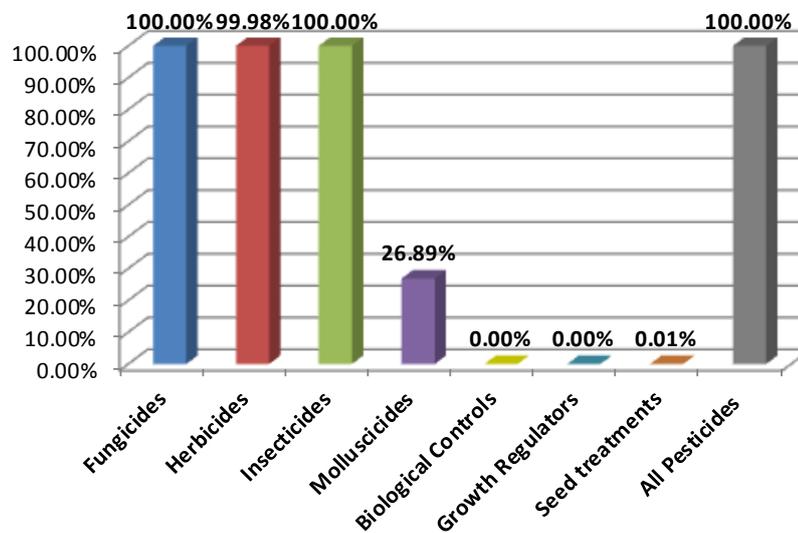


Figure 54: The top 10 active ingredients most extensively used on red cabbage in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Cypermethrin	16.2	9.2	0.4	20.4
Difenoconazole	14.4	7.4	1.8	18.2
Pirimicarb	14.0	7.0	2.8	17.7
Glyphosate	7.4	7.4	13.0	9.4
Metazachlor	2.6	2.6	3.0	3.3
Pendimethalin	2.6	2.6	2.9	3.3
Methiocarb	2.6	2.6	0.3	3.3
Mancozeb	2.2	2.2	2.1	2.7
Metalaxyl-m	2.2	2.2	0.1	2.7
Boscalid	2.2	2.2	0.6	2.7

Figure 55: The top 10 active ingredients most extensively used on red cabbage in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Glyphosate	13.0	7.4	7.4	43.5
Metazachlor	3.0	2.6	2.6	10.1
Pendimethalin	2.9	2.6	2.6	9.8
Pirimicarb	2.8	14.0	7.0	9.4
Mancozeb	2.1	2.2	2.2	6.9
Difenoconazole	1.8	14.4	7.4	6.0
Chlorothalonil	1.4	2.2	2.2	4.5
Boscalid	0.6	2.2	2.2	1.9
Tebuconazole	0.4	2.2	2.2	1.4
Cypermethrin	0.4	16.2	9.2	1.4

Pesticide Usage on autumn cauliflower crops:

113.28 hectares of autumn cauliflower crops were grown in Ireland

650.11 treated hectares

289.64 kg applied

100% of crops received at least one treatment

Autumn cauliflower crops received on average 5.73 treatments consisting of 1.82 fungicide, 1.19 herbicide, 2.28 insecticide, 0.27 molluscicide and 0.17 seed treatment applications.

Figure 56: Pesticide usage on autumn cauliflower crops in Ireland (spha), 2011.

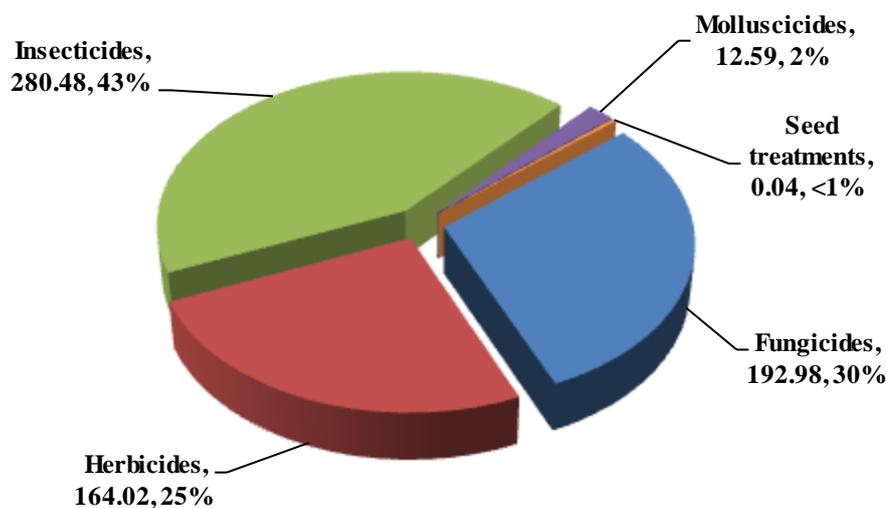


Figure 57: Weight of pesticides applied to autumn cauliflower crops in Ireland (kg), 2011.

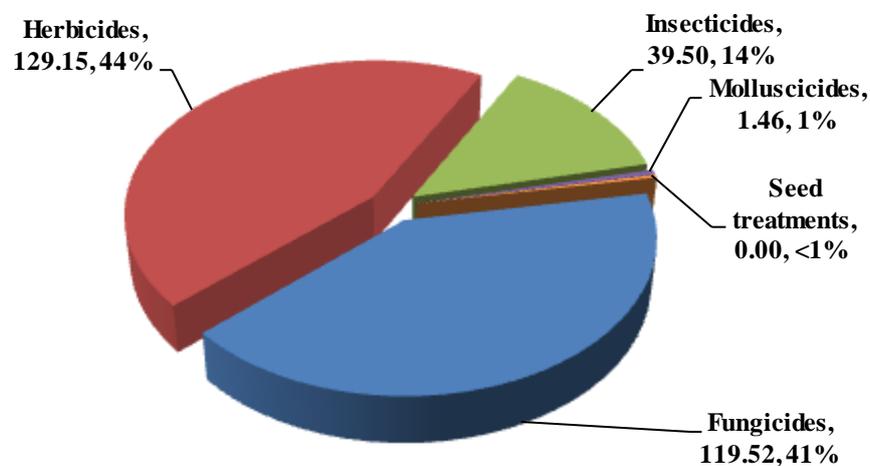


Figure 58: Proportional area of autumn cauliflower crops treated with each pesticide group in Ireland, 2011.

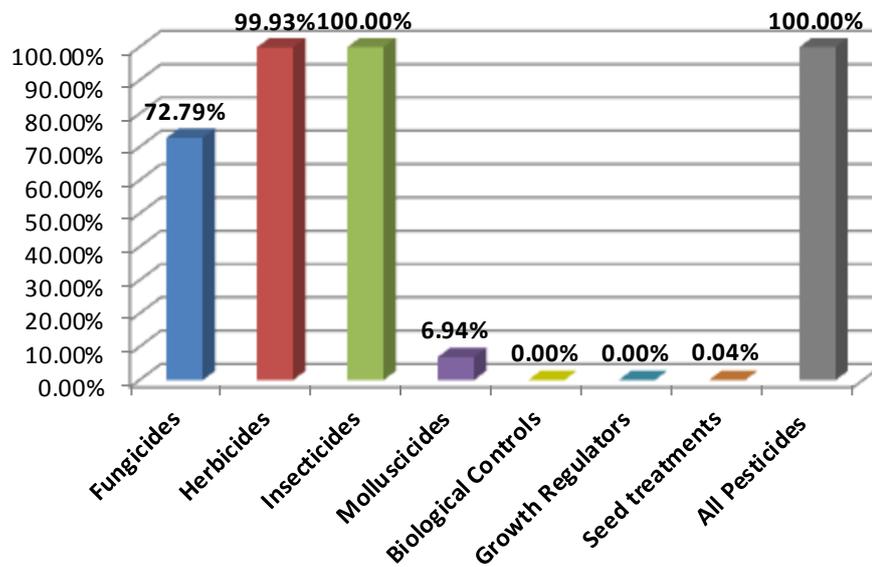


Figure 59: The top 10 active ingredients most extensively used on autumn cauliflower in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Metazachlor	113.2	113.2	82.9	15.3
Cypermethrin	61.7	53.0	1.6	8.3
Pymetrozine	56.5	44.3	11.3	7.6
Boscalid	54.0	45.3	16.7	7.3
Pyraclostrobin	54.0	45.3	4.2	7.3
Metalaxyl-m	38.2	38.2	3.9	5.1
Mancozeb	38.1	38.1	63.0	5.1
Deltamethrin	34.6	34.6	0.2	4.7
Thiacloprid	32.4	32.4	3.1	4.4
Lambda-cyhalothrin	32.2	31.5	0.2	4.3

Figure 60: The top 10 active ingredients most extensively used on autumn cauliflower in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Metazachlor	82.9	113.2	113.2	28.6
Mancozeb	63.0	38.1	38.1	21.8
Pendimethalin	26.7	21.5	21.5	9.2
Chlorothalonil	18.1	31.8	23.0	6.2
Boscalid	16.7	54.0	45.3	5.8
Chlorpyrifos	14.3	19.8	14.6	4.9
Glyphosate	13.8	14.9	14.9	4.8
Pymetrozine	11.3	56.5	44.3	3.9
Pirimicarb	6.4	26.0	14.3	2.2
Azoxystrobin	6.3	25.3	25.3	2.2

Pesticide Usage on summer cauliflower crops:

169.58 hectares of summer cauliflower crops were grown in Ireland

787.00 treated hectares

352.46 kg applied

100% of crops received at least one treatment

Summer cauliflower received on average 4.05 treatments consisting of 1.06 fungicide, 1.05 herbicide, 1.53 insecticide, 0.29 molluscicide and 0.12 seed treatment applications.

Figure 61: Pesticide usage on summer cauliflower crops in Ireland (spha), 2011.

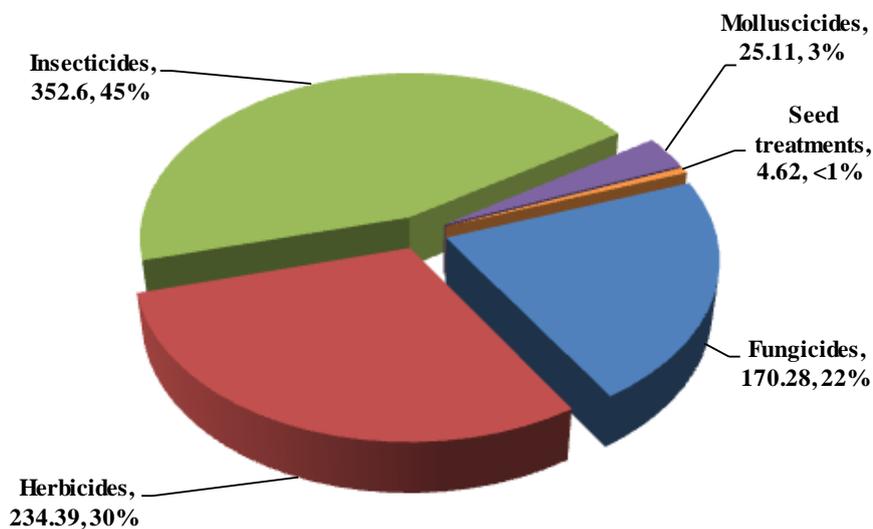


Figure 62: Weight of pesticides applied to summer cauliflower crops in Ireland (kg), 2011.

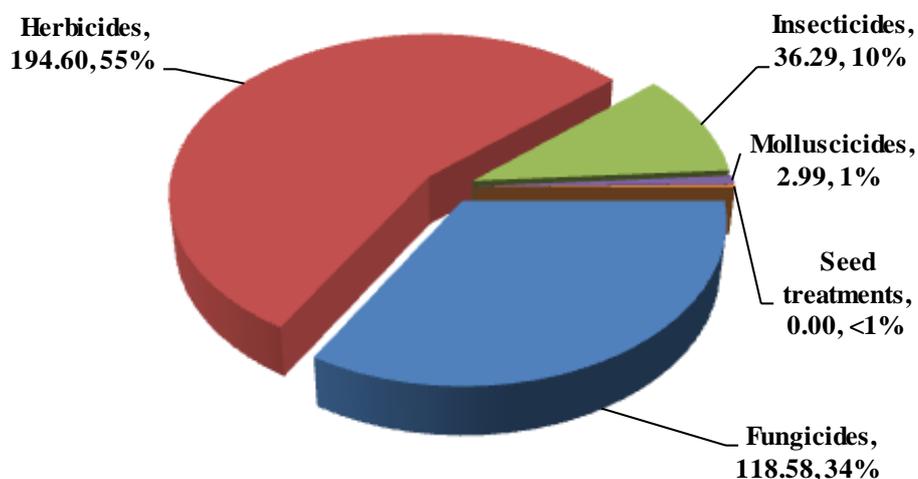


Figure 63: Proportional area of summer cauliflower crops treated with each pesticide group in Ireland, 2011.

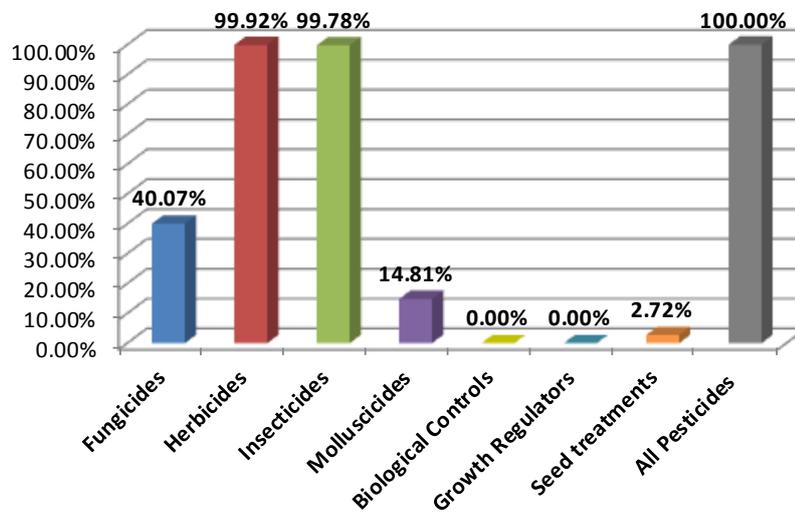


Figure 64: The top 10 active ingredients most extensively used on summer cauliflower in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Metazachlor	157.6	157.6	121.4	18.5
Lambda-cyhalothrin	94.1	72.6	0.4	11.0
Cypermethrin	60.5	51.8	1.6	7.1
Deltamethrin	50.8	50.8	0.4	6.0
Thiacloprid	49.7	40.9	5.5	5.8
Pymetrozine	42.9	30.8	8.6	5.0
Boscalid	36.0	27.2	11.8	4.2
Pyraclostrobin	36.0	27.2	3.0	4.2
Metalaxyl-m	35.0	23.2	3.9	4.1
Mancozeb	35.0	23.2	62.7	4.1

Figure 65: The top 10 active ingredients most extensively used on summer cauliflower in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Metazachlor	121.4	157.6	157.6	34.5
Mancozeb	62.7	35.0	23.2	17.8
Glyphosate	36.5	30.8	30.8	10.3
Pendimethalin	26.7	21.5	21.5	7.6
Chlorothalonil	21.6	24.6	15.9	6.1
Chlorpyrifos	13.0	17.7	12.5	3.7
Boscalid	11.8	36.0	27.2	3.4
Pyridate	10.0	24.4	24.4	2.9
Pymetrozine	8.6	42.9	30.8	2.4
Pirimicarb	6.6	29.9	29.9	1.9

Pesticide Usage on winter cauliflower crops:

140.32 hectares of winter cauliflower crops were grown in Ireland

1106.31 treated hectares

524.46 kg applied

100% of crops received at least one treatment

Winter cauliflower received on average 6.11 treatments consisting of 2.57 fungicide, 0.99 herbicide, 2.21 insecticide, 0.28 molluscicide and 0.06 seed treatment applications.

Figure 66: Pesticide usage on winter cauliflower crops in Ireland (spha), 2011.

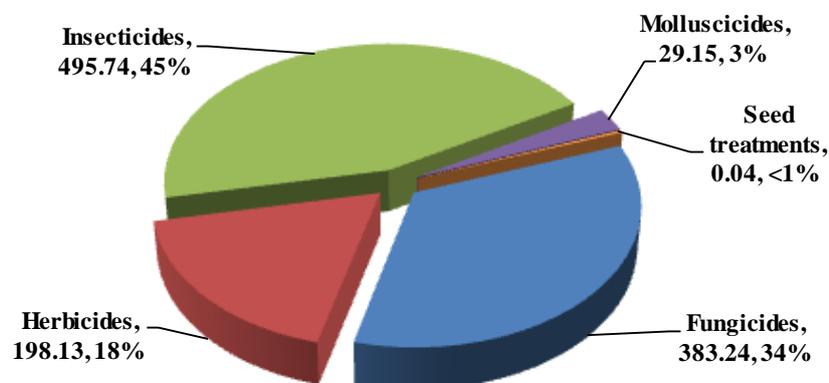


Figure 67: Weight of pesticides applied to winter cauliflower crops in Ireland (kg), 2011.

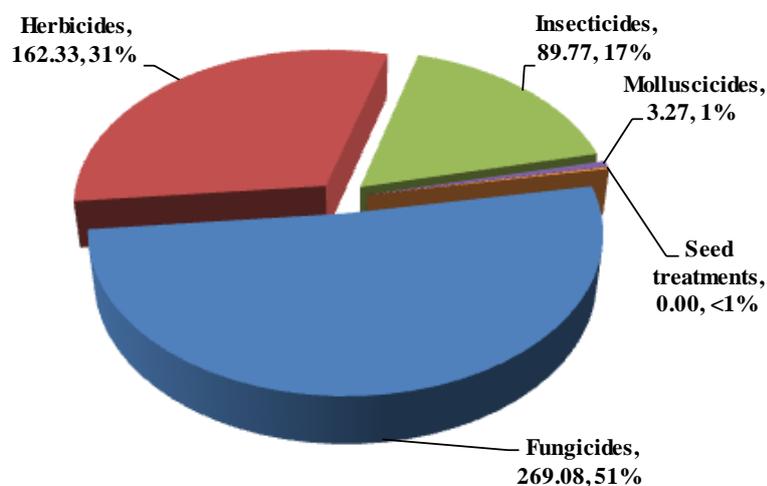


Figure 68: Proportional area of winter cauliflower crops treated with each pesticide group in Ireland, 2011.

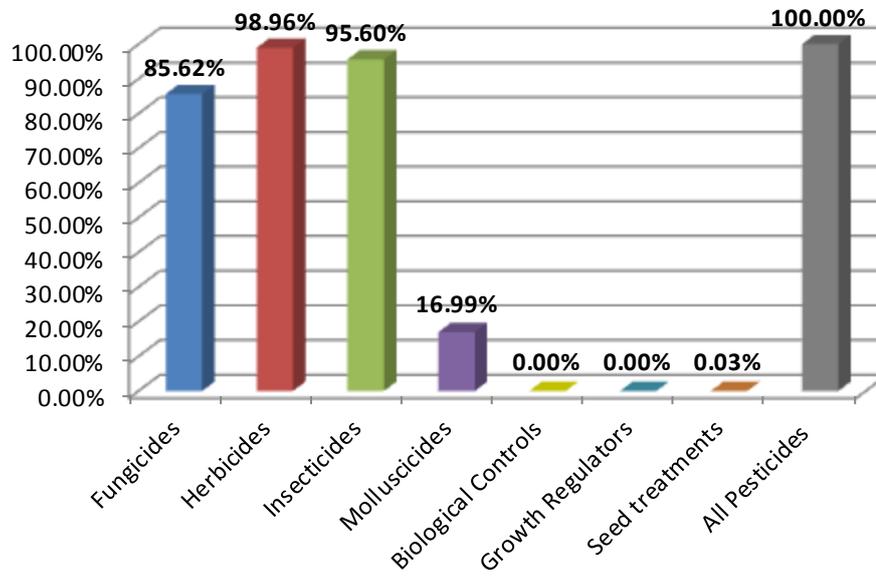


Figure 69: The top 10 active ingredients most extensively used on winter cauliflower in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Deltamethrin	137.6	88.4	0.9	10.9
Metazachlor	134.6	134.6	101.3	10.7
Tebuconazole	109.7	74.1	20.5	8.7
Pymetrozine	105.7	66.4	21.1	8.4
Cypermethrin	92.0	70.5	2.4	7.3
Chlorothalonil	76.2	39.8	41.7	6.1
Trifloxystrobin	71.6	44.4	5.8	5.7
Metalaxyl-m	61.8	39.6	5.5	4.9
Mancozeb	60.6	39.2	87.4	4.8
Azoxystrobin	55.9	46.7	11.8	4.4

Figure 70: The top 10 active ingredients most extensively used on winter cauliflower in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Metazachlor	101.3	134.6	134.6	19.3
Mancozeb	87.4	60.6	39.2	16.7
Propamocarb hydrochloride	69.6	1.3	1.3	13.3
Chlorpyrifos	54.1	9.9	9.9	10.3
Pendimethalin	46.8	42.8	42.8	8.9
Chlorothalonil	41.7	76.2	39.8	8.0
Pymetrozine	21.1	105.7	66.4	4.0
Tebuconazole	20.5	109.7	74.1	3.9
Tolclofos-methyl	12.7	1.3	1.3	2.4
Azoxystrobin	11.8	55.9	46.7	2.2

Pesticide Usage on pea crops:

6.05 hectares of pea crops were grown in Ireland

24.20 treated hectares

22.39 kg applied

100% of crops received at least one treatment

Pea crops received on average 4 treatments consisting of 1.00 fungicide, 2.00 herbicide and 1.00 insecticide applications.

Figure 71: Pesticide usage on pea crops in Ireland (spha), 2011.

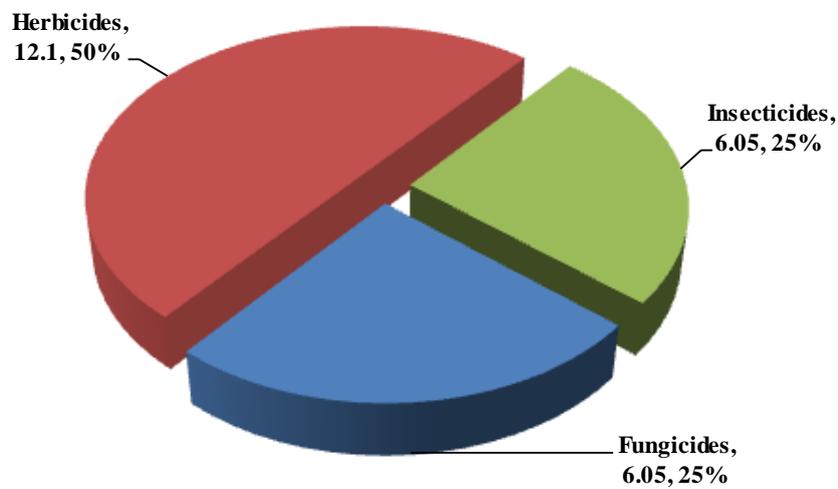


Figure 72: Weight of pesticides applied to pea crops in Ireland (kg), 2011.

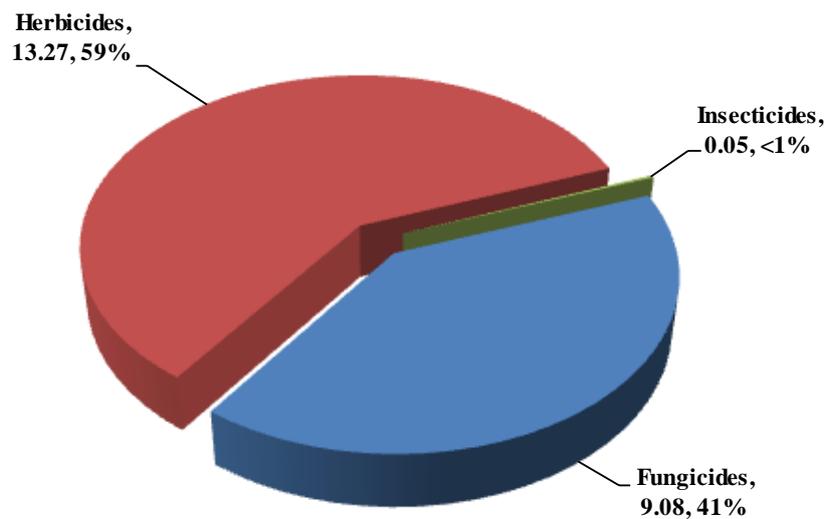


Figure 73: Proportional area of pea crops treated with each pesticide group in Ireland, 2011.

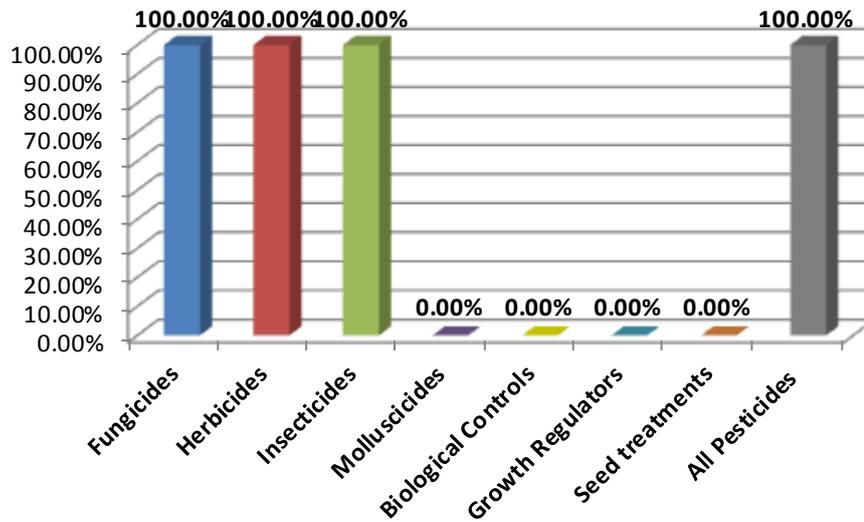


Figure 74: The top 6 active ingredients most extensively used on peas in Ireland in 2011, ranked by area treated (spha-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Azoxystrobin	6.1	6.1	1.5	16.7
Chlorothalonil	6.1	6.1	7.6	16.7
Deltamethrin	6.1	6.1	0.0	16.7
Glyphosate	6.1	6.1	7.6	16.7
Imazamox	6.1	6.1	0.4	16.7
Pendimethalin	6.1	6.1	5.3	16.7

Figure 75: The top 6 active ingredients most extensively used on peas in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Glyphosate	7.6	6.1	6.1	34.0
Chlorothalonil	7.6	6.1	6.1	33.8
Pendimethalin	5.3	6.1	6.1	23.6
Azoxystrobin	1.5	6.1	6.1	6.8
Imazamox	0.4	6.1	6.1	1.6
Deltamethrin	0.0	6.1	6.1	0.2

Pesticide Usage on courgette crops:

41.11 hectares of courgette crops were grown in Ireland.

410.16 treated hectares

118.60 kg applied

100% of crops received at least one treatment

Courgettes received on average 4.53 treatments consisting of 1.67 fungicide, 1.04 herbicide, 1.30 insecticide, 0.26 molluscicide and 0.26 seed treatment applications.

Figure 76: Pesticide usage on courgette crops in Ireland (spha), 2011.

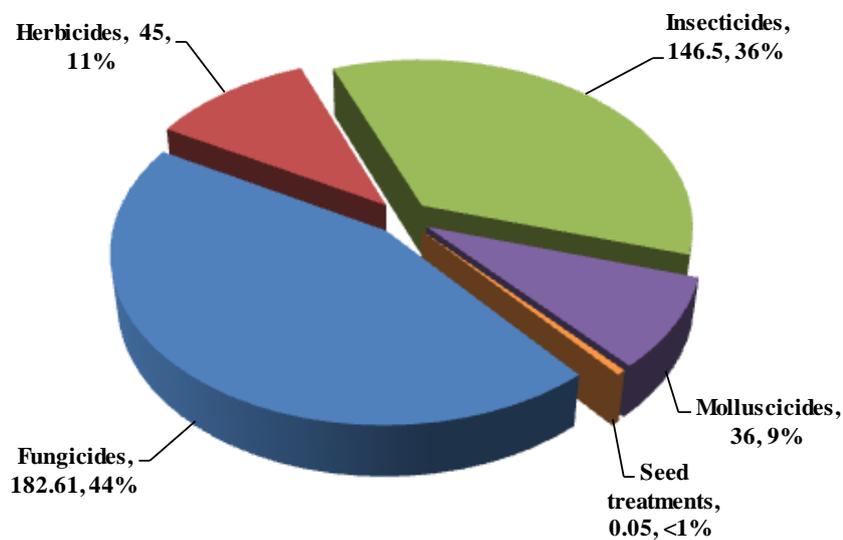


Figure 77: Pesticide usage on courgette crops in Ireland (kg), 2011.

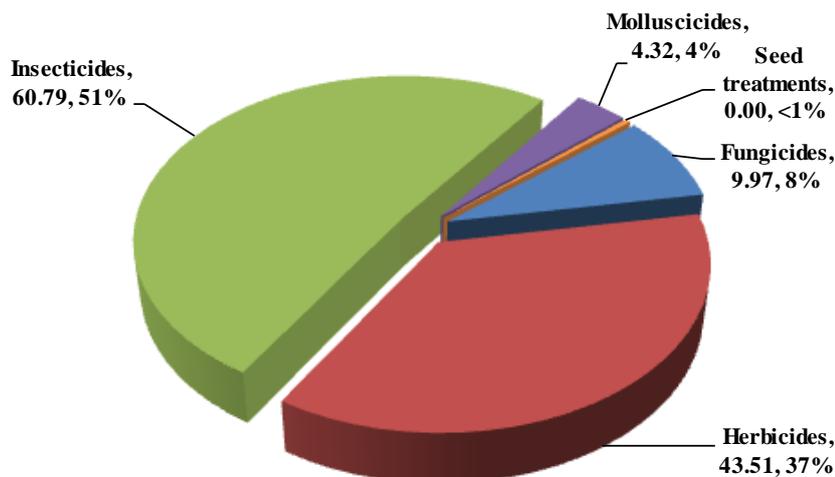


Figure 78: Proportional area of courgette crops treated with each pesticide group in Ireland, 2011.

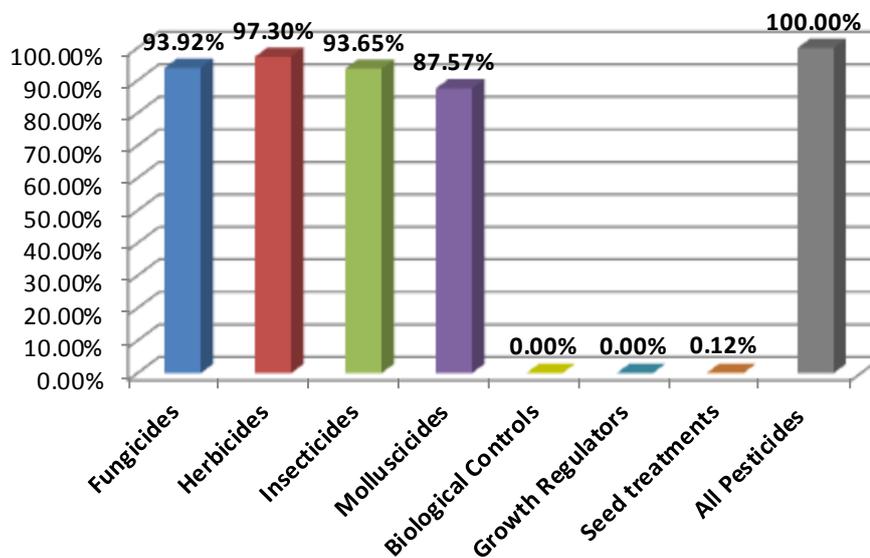


Figure 79: The top 7 active ingredients most extensively used on courgettes in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Azoxystrobin	180.0	36.0	9.0	43.9
Spiromesifen	144.0	36.0	60.5	35.1
Glyphosate	41.0	38.5	41.0	10.0
Methiocarb	36.0	36.0	4.3	8.8
Metazachlor	4.0	4.0	2.5	1.0
Bupirimate	2.6	2.6	1.0	0.6
Pirimicarb	2.5	2.5	0.3	0.6

Figure 80: The top 7 active ingredients most extensively used on courgettes in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Spiromesifen	60.5	144.0	36.0	51.0
Glyphosate	41.0	41.0	38.5	34.6
Azoxystrobin	9.0	180.0	36.0	7.6
Methiocarb	4.3	36.0	36.0	3.6
Metazachlor	2.5	4.0	4.0	2.1
Bupirimate	1.0	2.6	2.6	0.8
Pirimicarb	0.3	2.5	2.5	0.3

Pesticide Usage on pumpkin crops:

24.00 hectares of pumpkin crops were grown in Ireland

116.47 treated hectares

90.99 kg applied

100% of crops received at least one treatment

Pumpkins received on average 5.16 treatments consisting of 2.39 fungicide, 0.59 herbicide, 1.52 insecticide, 0.26 molluscicide and 0.40 seed treatment applications.

Figure 81: Pesticide usage on pumpkin crops in Ireland (spha), 2011.

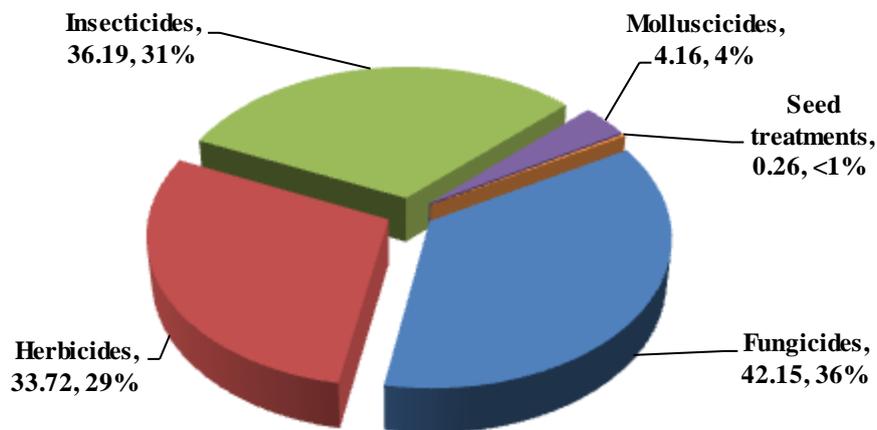


Figure 82: Pesticide usage on pumpkin crops in Ireland (kg), 2011.

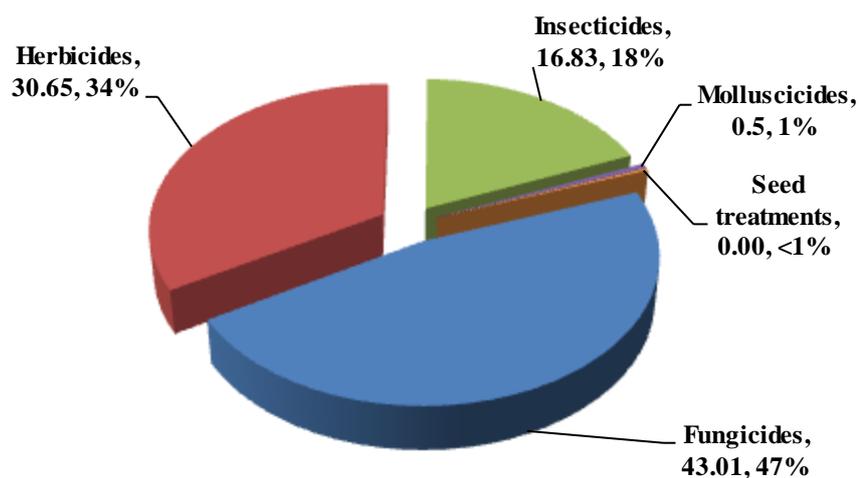


Figure 83: Proportional area of pumpkin crops treated with each pesticide group in Ireland, 2011.

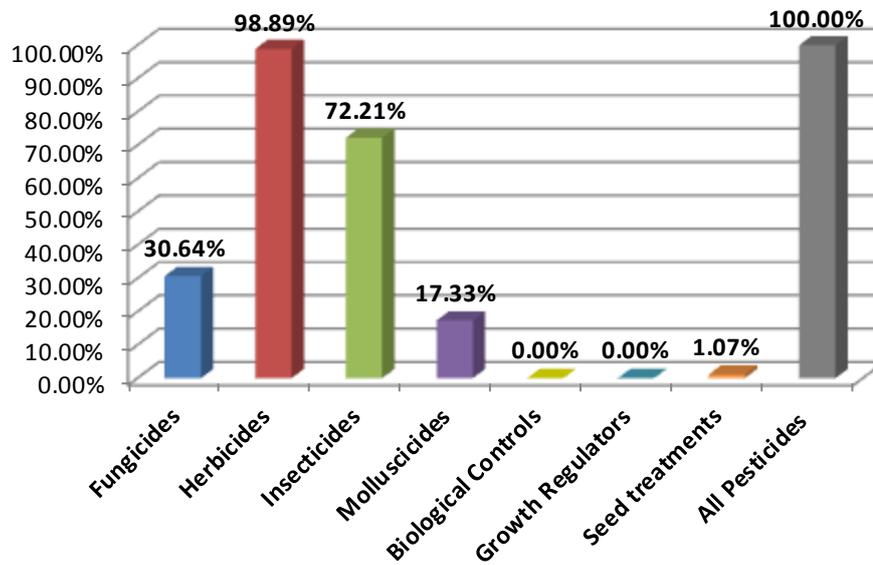


Figure 84: The top 10 active ingredients most extensively used on pumpkins in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Glyphosate	23.7	23.7	28.8	19.4
Azoxystrobin	16.6	4.2	0.8	13.6
Spiromesifen	16.6	4.2	7.0	13.6
Mancozeb	15.9	3.2	29.6	13.0
Isoxaben	10.0	10.0	1.9	8.1
Chlorpyrifos	10.0	10.0	7.2	8.1
Chlorothalonil	9.6	3.2	12.0	7.8
Metalaxyl-m	6.4	3.2	0.6	5.2
Dimethoate	6.4	3.2	2.6	5.2
Methiocarb	4.2	4.2	0.5	3.4

Figure 85: The top 10 active ingredients most extensively used on pumpkins in Ireland in 2011, ranked by weight (kg).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Glyphosate	23.7	23.7	28.8	19.4
Azoxystrobin	16.6	4.2	0.8	13.6
Spiromesifen	16.6	4.2	7.0	13.6
Mancozeb	15.9	3.2	29.6	13.0
Isoxaben	10.0	10.0	1.9	8.1
Chlorpyrifos	10.0	10.0	7.2	8.1
Chlorothalonil	9.6	3.2	12.0	7.8
Metalaxyl-m	6.4	3.2	0.6	5.2
Dimethoate	6.4	3.2	2.6	5.2
Methiocarb	4.2	4.2	0.5	3.4

Pesticide Usage on carrot crops:

651.00 hectares of carrot crops were grown in Ireland

12,179.33 treated hectares

7699.98 kg applied

100% of crops received at least one treatment

Carrot crops received on average 10.64 treatments consisting of 2.78 fungicide, 3.37 herbicide, 4.22 insecticide, 0.08 molluscicide, 0.02 growth regulator and 0.17 seed treatment applications.

Figure 86: Pesticide usage on carrot crops in Ireland (spha), 2011.

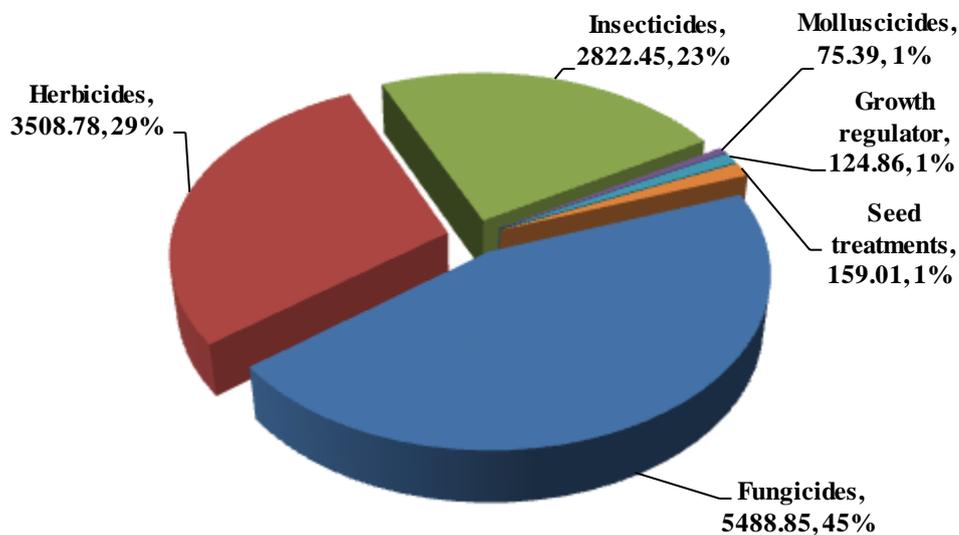


Figure 87: Weight of pesticides applied to carrot crops in Ireland (kg), 2011.

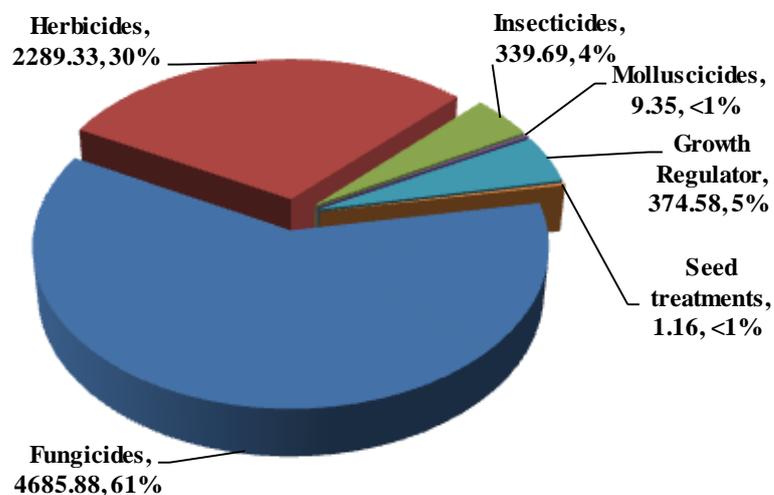


Figure 88: Proportional area of carrot crops treated with each pesticide group in Ireland, 2011.

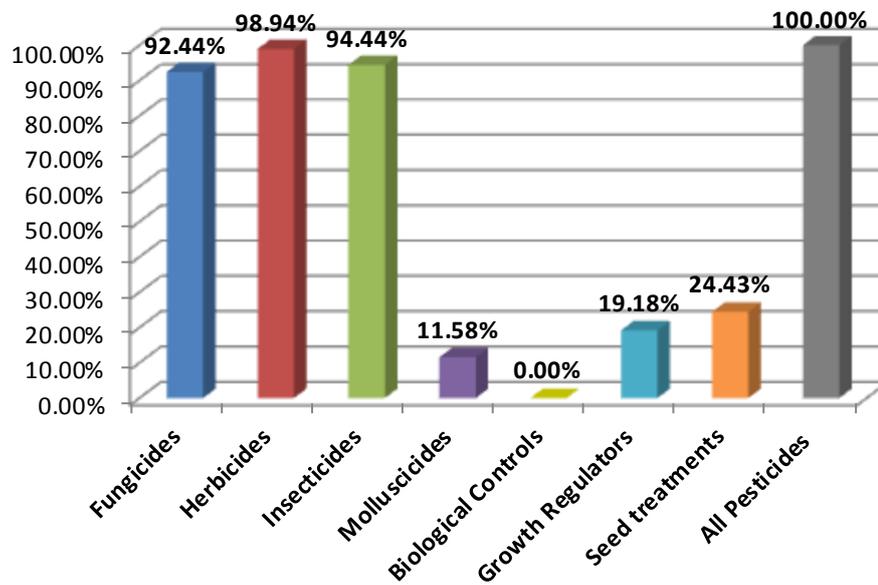


Figure 89: The top 10 active ingredients most extensively used on carrots in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Mancozeb	2209.3	657.7	3771.8	16.4
Lambda-cyhalothrin	1868.5	763.6	23.7	13.9
Tebuconazole	1457.5	563.2	250.4	10.8
Linuron	1152.4	645.3	427.4	8.6
Boscalid	765.2	512.3	201.3	5.7
Pyraclostrobin	765.2	512.3	50.5	5.7
Metribuzin	704.5	498.1	102.4	5.2
Pendimethalin	627.4	627.4	786.2	4.7
Trifloxystrobin	612.5	405.7	45.6	4.5
Azoxystrobin	573.2	385.6	138.9	4.3

Figure 90: The top 10 active ingredients most extensively used on carrots in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Mancozeb	3771.8	2209.3	657.7	49.0
Pendimethalin	786.2	627.4	627.4	10.2
Prosulfocarb	666.9	421.2	293.6	8.7
Linuron	427.4	1152.4	645.3	5.6
Maleic hydrazide	374.6	124.9	124.9	4.9
Glyphosate	268.2	241.6	241.6	3.5
Tebuconazole	250.4	1457.5	563.2	3.3
Boscalid	201.3	765.2	512.3	2.6
Oxamyl	187.3	124.9	124.9	2.4
Fenpropimorph	174.3	298.0	254.2	2.3

Pesticide Usage on parsnip crops:

343.00 hectares of parsnip crops were grown in Ireland

3531.26 treated hectares

1237.35 kg applied

100% of crops received at least one treatment

Parsnip crops received on average 7.50 treatments consisting of 0.74 fungicide, 2.90 herbicide, 3.50 insecticide, 0.05 molluscicide, 0.05 growth regulator and 0.26 seed treatment applications.

Figure 91: Pesticide usage on parsnip crops in Ireland (spha), 2011.

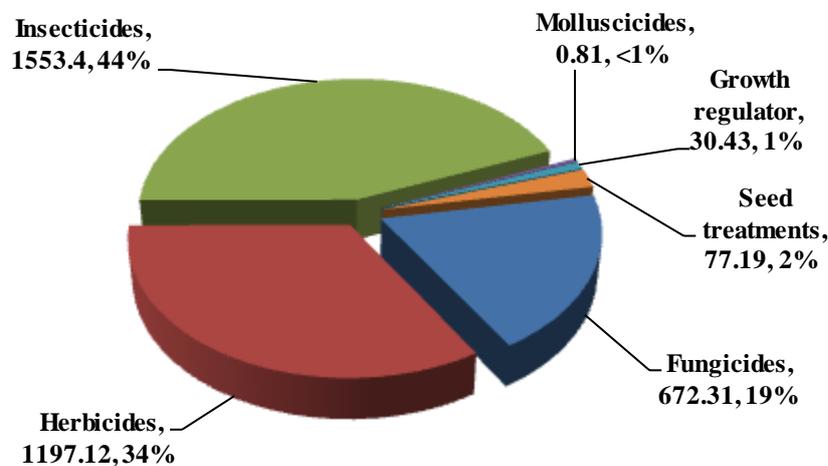


Figure 92: Weight of pesticides applied to parsnip crops in Ireland (kg), 2011.

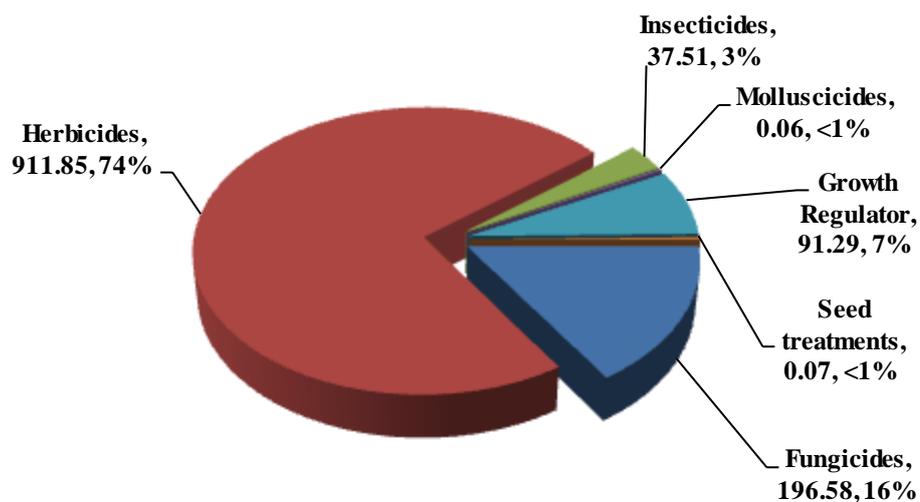


Figure 93: Proportional area of parsnip crops treated with each pesticide group in Ireland, 2011.

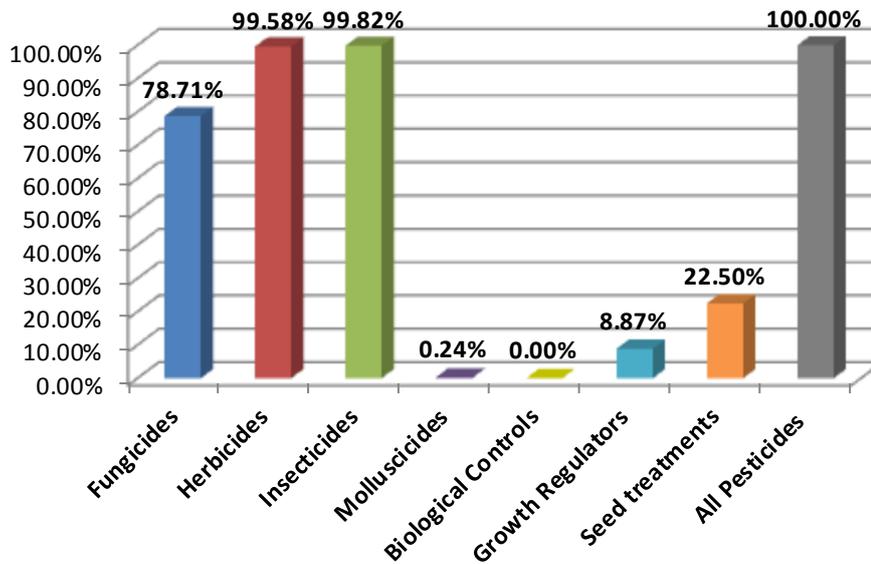


Figure 94: The top 10 active ingredients most extensively used on parsnips in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Lambda-cyhalothrin	894.5	429.8	10.1	24.6
Linuron	444.0	341.6	198.1	12.2
Pendimethalin	332.3	332.3	322.5	9.1
Chlorantraniliprole	271.2	189.7	9.5	7.5
Pyrethrins	206.5	125.0	0.5	5.7
Difenoconazole	196.1	114.5	24.5	5.4
Boscalid	184.8	103.2	40.6	5.1
Pyraclostrobin	184.8	103.2	10.2	5.1
Thiacloprid	181.2	99.7	17.4	5.0
Fenpropimorph	177.3	177.3	71.8	4.9

Figure 95: The top 10 active ingredients most extensively used on parsnips in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Pendimethalin	322.5	332.3	332.3	26.1
Metamitron	204.7	161.4	161.4	16.5
Linuron	198.1	444.0	341.6	16.0
Prosulfocarb	170.4	158.5	148.9	13.8
Maleic hydrazide	91.3	30.4	30.4	7.4
Fenpropimorph	71.8	177.3	177.3	5.8
Boscalid	40.6	184.8	103.2	3.3
Difenoconazole	24.5	196.1	114.5	2.0
Azoxystrobin	21.9	87.7	72.5	1.8
Mancozeb	21.7	16.7	16.7	1.8

Pesticide Usage on turnip & swede crops:

517.10 hectares of turnip & swede crops were grown in Ireland

3241.28 treated hectares

1540.56 kg applied

98.80% of crops received at least one treatment

Turnip & swede crops received on average 5.19 treatments consisting of 1.59 fungicide, 1.16 herbicide, 1.91 insecticide, 0.22 molluscicide, 0.13 biological control and 0.18 seed treatment applications.

Figure 96: Pesticide usage on turnip & swede crops in Ireland (spha), 2011.

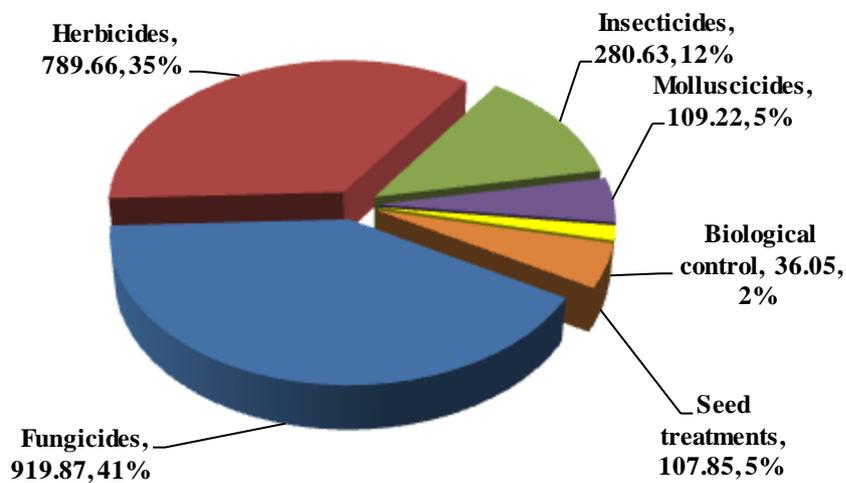


Figure 97: Weight of pesticides applied to turnip & swede crops in Ireland (kg), 2011.

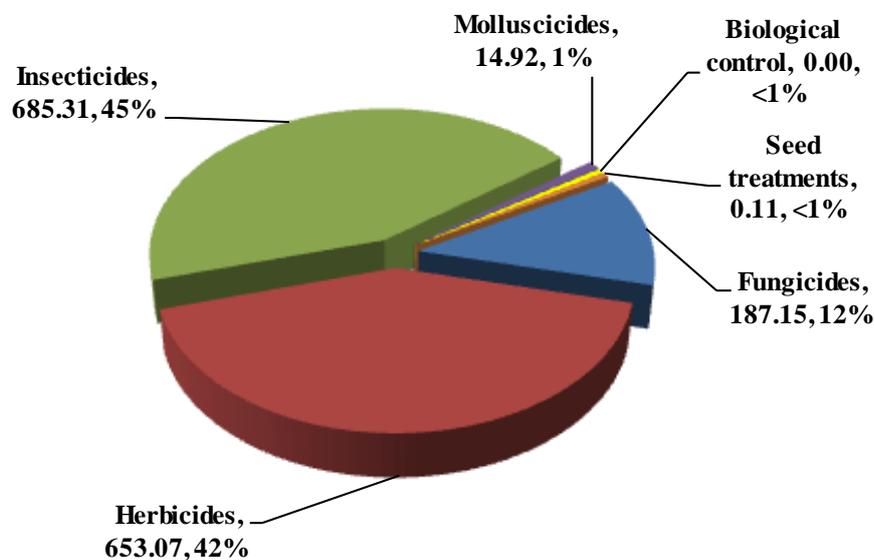


Figure 98: Proportional area of turnip and swede crops treated with each pesticide group in Ireland, 2011.

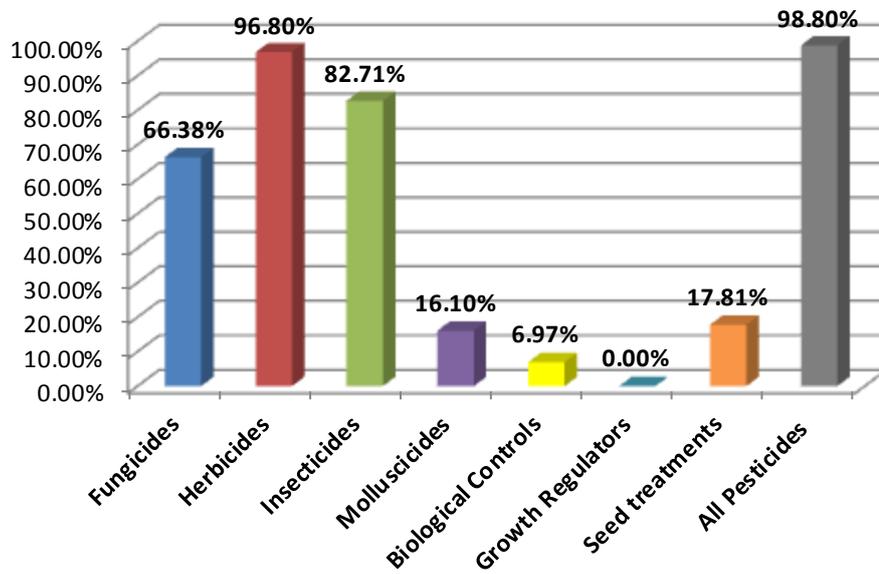


Figure 99: The top 10 active ingredients most extensively used on turnip and swede crops in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Metazachlor	484.5	484.5	355.3	15.4
Chlorpyrifos	467.1	369.8	330.6	14.8
Lambda-cyhalothrin	404.2	196.2	6.0	12.8
Azoxystrobin	300.5	201.3	69.4	9.5
Difenoconazole	272.0	251.5	32.9	8.6
Glyphosate	246.5	246.5	277.0	7.8
Thiacloprid	172.5	115.0	16.6	5.5
Fenpropimorph	122.9	122.9	48.6	3.9
Methiocarb	109.2	83.3	14.9	3.5
Tebuconazole	101.6	94.9	15.2	3.2

Figure 100: The top 10 active ingredients most extensively used on turnip and swede crops in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Metazachlor	355.3	484.5	484.5	23.1
Chlorpyrifos	330.6	467.1	369.8	21.5
Garlic extract	324.2	100.9	92.3	21.0
Glyphosate	277.0	246.5	246.5	18.0
Azoxystrobin	69.4	300.5	201.3	4.5
Fenpropimorph	48.6	122.9	122.9	3.2
Difenoconazole	32.9	272.0	251.5	2.1
Mancozeb	19.7	17.2	10.8	1.3
Thiacloprid	16.6	172.5	115.0	1.1
Napropamide	16.4	29.4	29.4	1.1

Pesticide Usage on beetroot crops:

8.36 hectares of beetroot crops were grown in Ireland

33.60 treated hectares

45.85 kg applied

87% of crops received at least one treatment

Beetroot crops received on average 1.89 treatments consisting of 0.62 fungicide, 0.76 herbicide, 0.40 insecticide and 0.11 molluscicide applications.

Figure 101: Pesticide usage on beetroot crops in Ireland (spha), 2011.

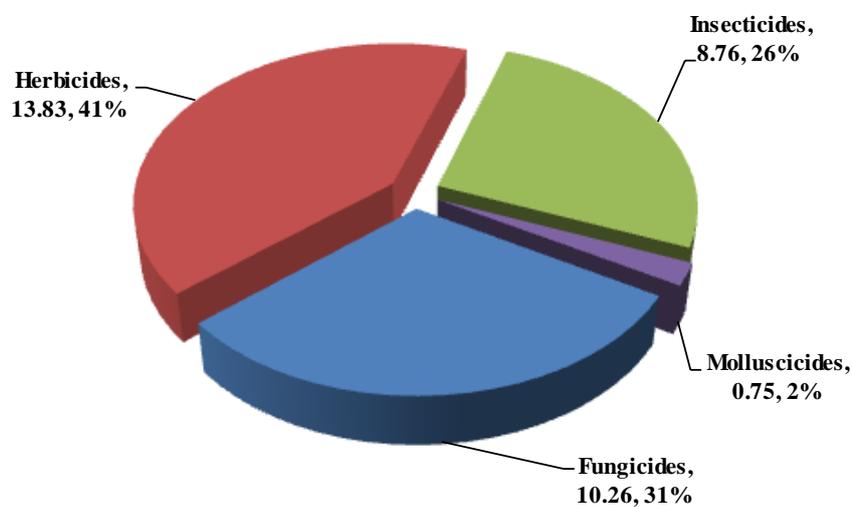


Figure 102: Weight of pesticides applied to beetroot crops in Ireland (kg), 2011.

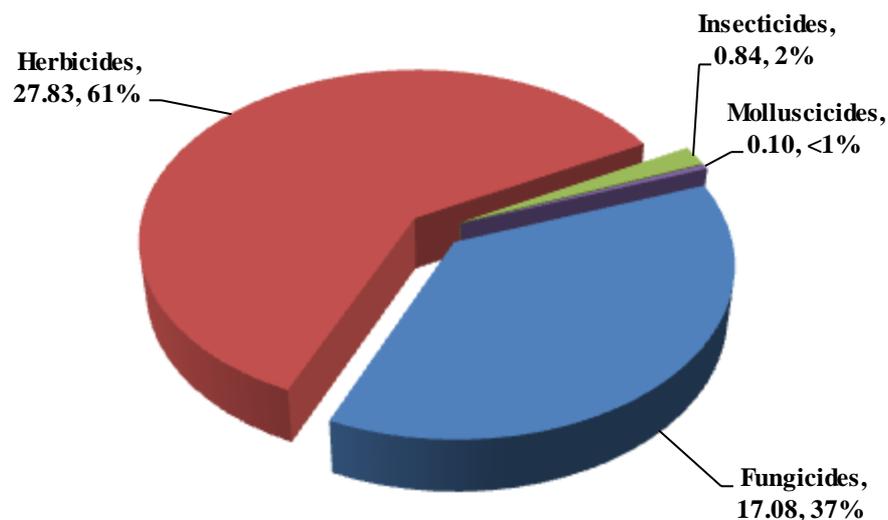


Figure 103: Proportional area of beetroot crops treated with each pesticide group in Ireland, 2011.

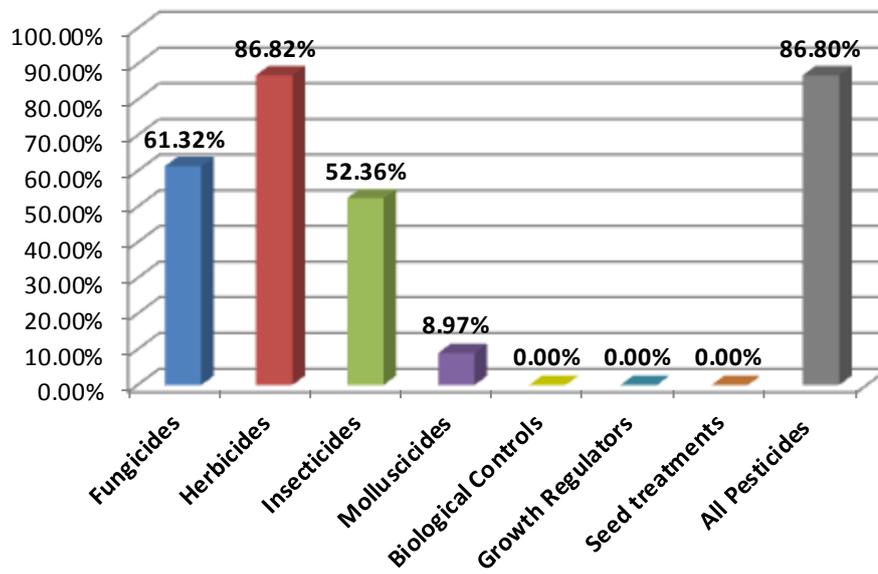


Figure 104: The top 9 active ingredients most extensively used on beetroot in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Mancozeb	8.8	4.4	16.4	26.1
Thiacloprid	8.8	4.4	0.8	26.1
Pendimethalin	5.1	5.1	4.6	15.3
Metamitron	4.4	4.4	15.3	13.0
Prosulfocarb	2.2	2.2	5.3	6.5
Metazachlor	2.1	2.1	2.7	6.4
Difenoconazole	0.8	0.8	0.1	2.2
Fenpropimorph	0.8	0.8	0.6	2.2
Methiocarb	0.8	0.8	0.1	2.2

Figure 105: The top 9 active ingredients most extensively used on beetroot in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Mancozeb	16.4	8.8	4.4	35.8
Metamitron	15.3	4.4	4.4	33.4
Prosulfocarb	5.3	2.2	2.2	11.5
Pendimethalin	4.6	5.1	5.1	10.0
Metazachlor	2.7	2.1	2.1	5.8
Thiacloprid	0.8	8.8	4.4	1.8
Fenpropimorph	0.6	0.8	0.8	1.2
Methiocarb	0.1	0.8	0.8	0.2
Difenoconazole	0.1	0.8	0.8	0.2

Pesticide Usage on bulb onion crops:

171.00 hectares of bulb onion crops were grown in Ireland

3621.42 treated hectares

3316.55 kg applied

100% of crops received at least one treatment

Bulb onion crops received on average 10.87 treatments consisting of 7.18 fungicide, 3.56 herbicide and 0.13 seed treatment applications.

Figure 106: Pesticide usage on bulb onion crops in Ireland (spha), 2011.

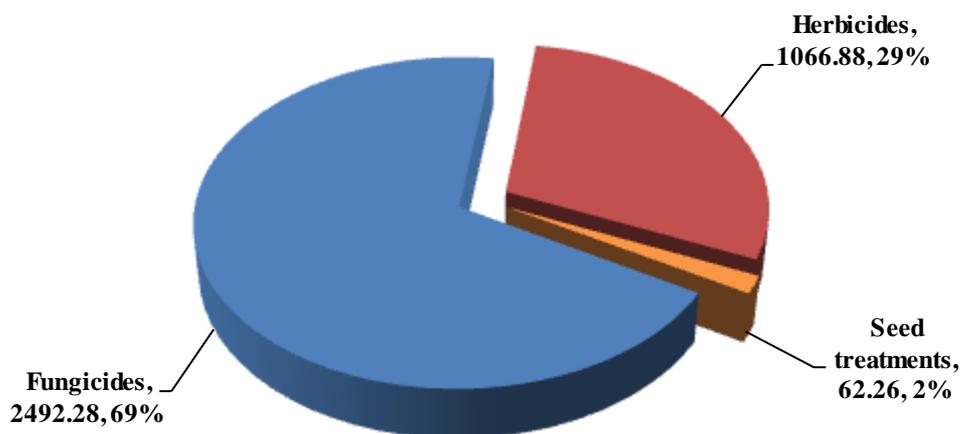


Figure 107: Weight of pesticides applied to bulb onion crops in Ireland (kg), 2011.

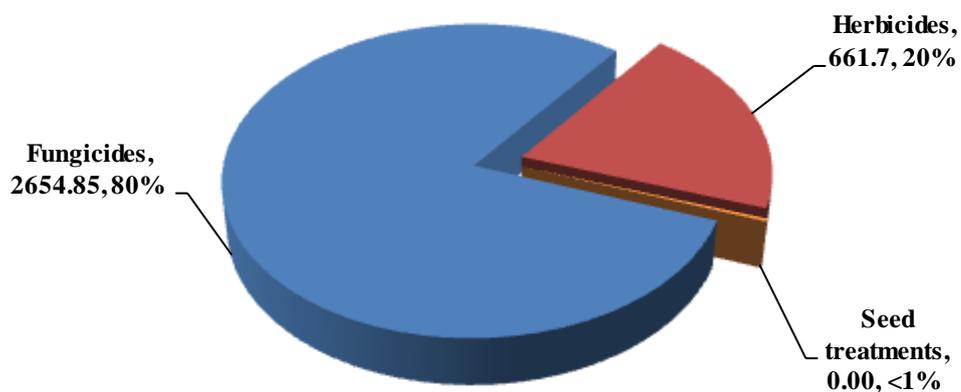


Figure 108: Proportional area of bulb onion crops treated with each pesticide group in Ireland, 2011.

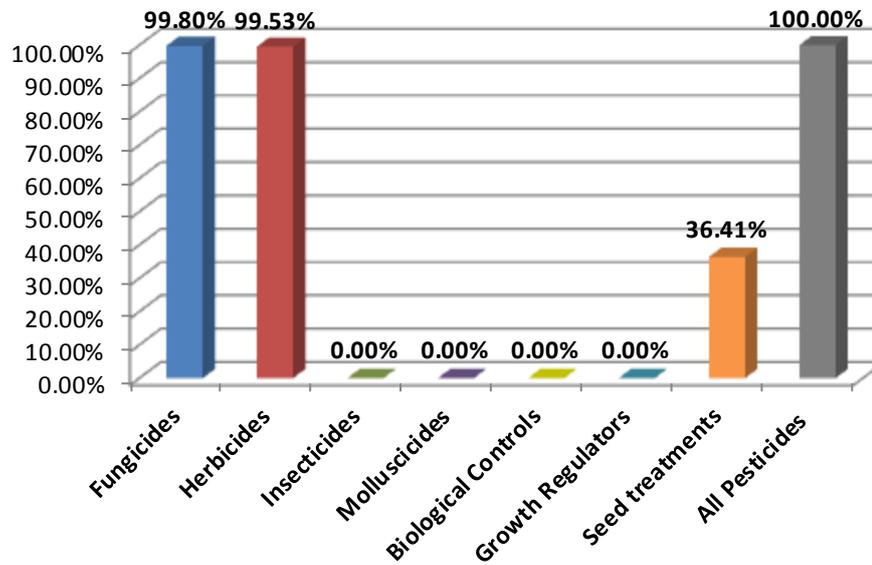


Figure 109: The top 10 active ingredients most extensively used on bulb onions in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Mancozeb	1572.01	170.65	2295.97	36.1
Dimethomorph	476.35	159.94	71.45	10.9
loxynil	400.59	167.43	31.06	9.2
Copper oxychloride	396.88	101.17	78.79	9.1
Azoxystrobin	366.06	167.20	91.52	8.4
Benthiavdicarb-isopropyl	296.54	159.94	8.30	6.8
Pendimethalin	229.58	167.32	285.58	5.3
Prosulfocarb	209.59	108.43	201.92	4.8
Chlorothalonil	135.55	128.29	99.63	3.1
Tepraloxym	108.43	108.43	5.69	2.5

Figure 110: The top 10 active ingredients most extensively used on bulb onions in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Mancozeb	2295.97	1572.01	170.65	69.2
Pendimethalin	285.58	229.58	167.32	8.6
Prosulfocarb	201.92	209.59	108.43	6.1
Glyphosate	126.30	101.39	101.39	3.8
Chlorothalonil	99.63	135.55	128.29	3.0
Azoxystrobin	91.52	366.06	167.20	2.8
Copper oxychloride	78.79	396.88	101.17	2.4
Dimethomorph	71.45	476.35	159.94	2.2
loxynil	31.06	400.59	167.43	0.9
Benthiavdicarb-	8.30	296.54	159.94	0.3

Pesticide Usage on summer scallion crops:

61.03 hectares of summer scallion crops were grown in Ireland

492.03 treated hectares

233.23 kg applied

100% of crops received at least one treatment

Summer scallion received on average 4.42 treatments consisting of 1.58 fungicide, 1.81 herbicide, 0.41 insecticide, 0.16 molluscicide, 0.14 biological control and 0.32 seed treatment applications.

Figure 111: Pesticide usage on summer scallion crops in Ireland (spha), 2011.

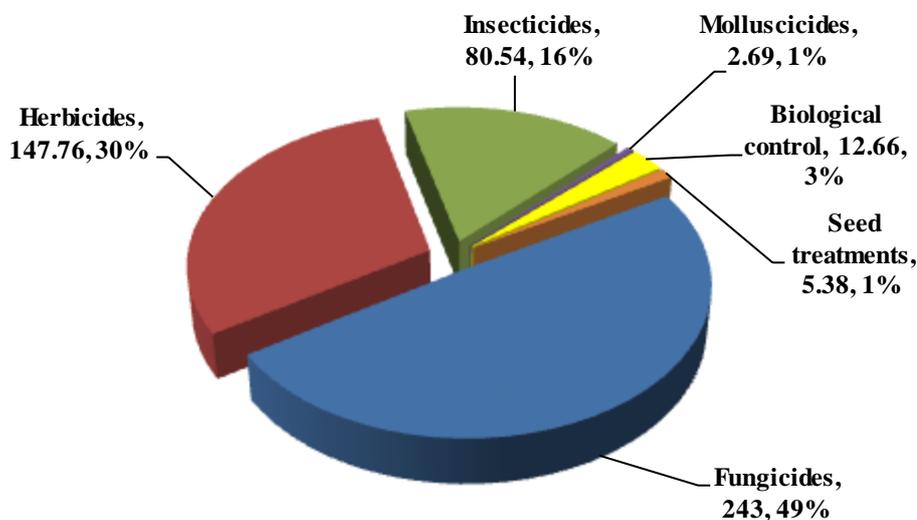


Figure 112: Weight of pesticides applied to summer scallion crops in Ireland (kg), 2011.

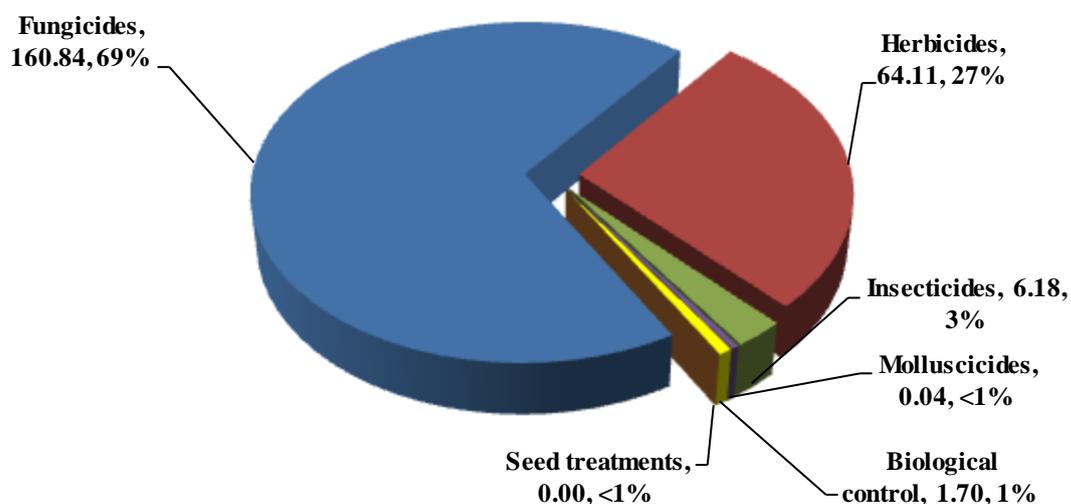


Figure 113: Proportional area of summer scallion crops treated with each pesticide group in Ireland, 2011.

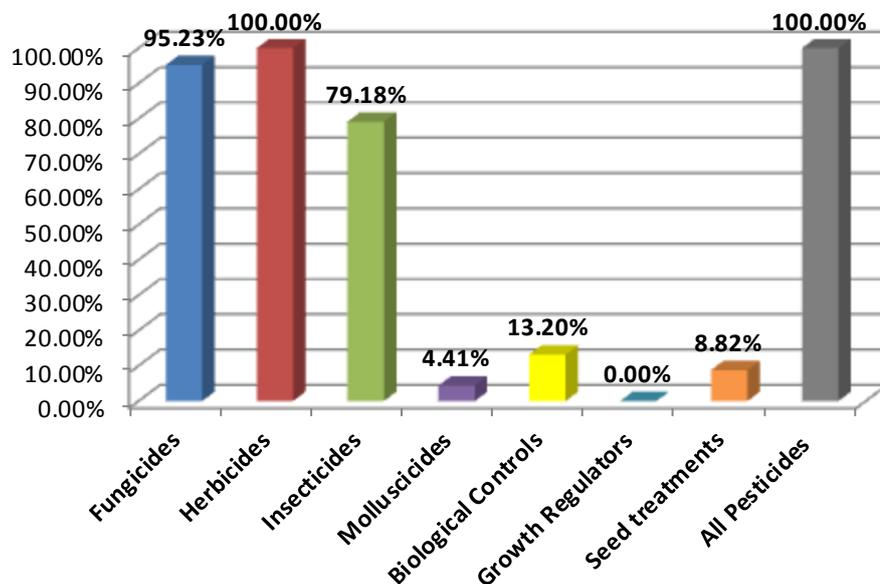


Figure 114: The top 10 active ingredients most extensively used on summer scallions in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Mancozeb	114.5	58.1	84.1	16.6
Metalaxyl-m	113.9	57.5	5.2	16.5
Boscalid	80.5	40.3	32.3	11.7
Pyraclostrobin	80.5	40.3	8.1	11.7
loxynil	72.0	61.0	12.9	10.4
Pendimethalin	40.3	40.3	18.3	5.8
Tefluthrin	40.3	40.3	4.0	5.8
Iprodione	33.4	17.3	19.6	4.8
Pyrethrins	24.2	8.1	0.6	3.5
Prosulfocarb	22.6	14.6	31.4	3.3

Figure 115: The top 10 active ingredients most extensively used on summer scallions in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Mancozeb	84.1	114.5	58.1	36.1
Boscalid	32.3	80.5	40.3	13.8
Prosulfocarb	31.4	22.6	14.6	13.5
Iprodione	19.6	33.4	17.3	8.4
Pendimethalin	18.3	40.3	40.3	7.9
loxynil	12.9	72.0	61.0	5.5
Pyraclostrobin	8.1	80.5	40.3	3.5
Chlorothalonil	6.5	6.5	6.5	2.8
Metalaxyl-m	5.2	113.9	57.5	2.2
Tefluthrin	4.0	40.3	40.3	1.7

Pesticide Usage on winter scallion crops:

45.97 hectares of summer cauliflower crops were grown in Ireland

383.59 treated hectares

171.57 kg applied

100% of crops received at least one treatment

Winter scallion crops received on average 6.81 treatments consisting of 3.30 fungicide, 3.34 herbicide and 0.17 insecticide applications.

Figure 116: Pesticide usage on winter scallion crops in Ireland (spha), 2011.

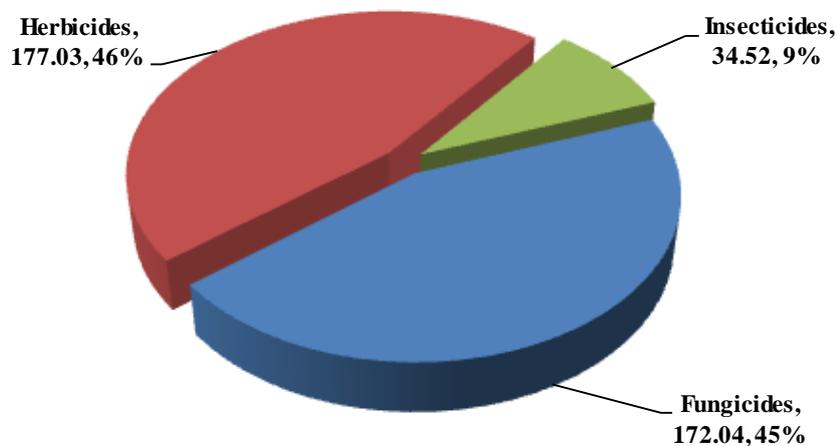


Figure 117: Weight of pesticides applied to winter scallion crops in Ireland (kg), 2011.

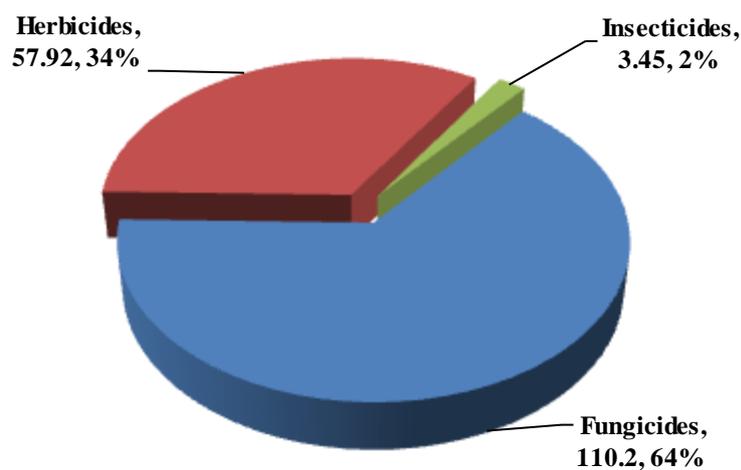


Figure 118: Proportional area of winter scallion crops treated with each pesticide group in Ireland, 2011.

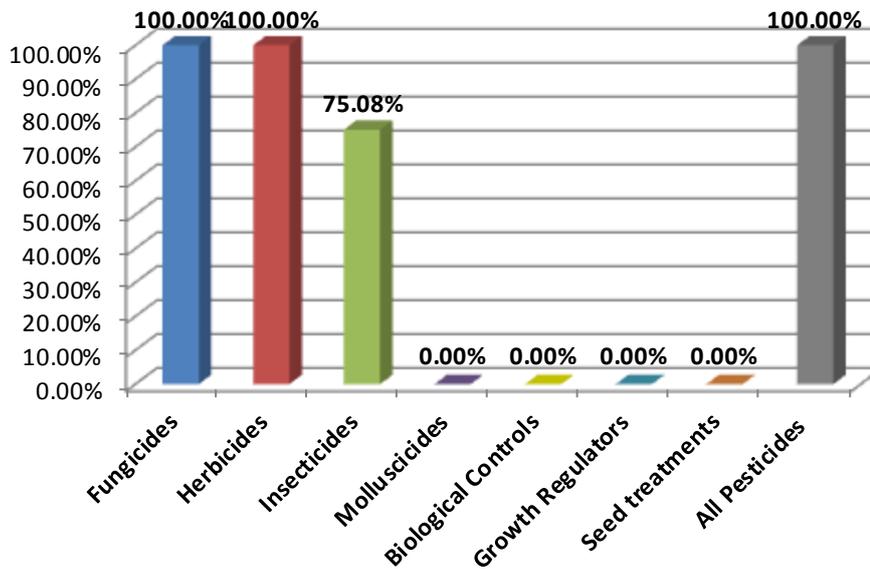


Figure 119: The top 10 active ingredients most extensively used on winter scallions in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
loxynil	126.1	46.0	26.2	23.3
Metalaxyl-m	83.7	46.0	3.5	15.5
Mancozeb	79.1	41.4	50.7	14.6
Boscalid	69.0	34.5	27.6	12.8
Pyraclostrobin	69.0	34.5	6.9	12.8
Pendimethalin	34.5	34.5	15.7	6.4
Tefluthrin	34.5	34.5	3.5	6.4
Iprodione	14.7	11.5	13.9	2.7
Prosulfocarb	12.8	8.2	15.9	2.4
Chlorothalonil	4.6	4.6	4.6	0.9

Figure 120: The top 10 active ingredients most extensively used on winter scallions in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Mancozeb	50.7	79.1	41.4	29.6
Boscalid	27.6	69.0	34.5	16.1
loxynil	26.2	126.1	46.0	15.3
Prosulfocarb	15.9	12.8	8.2	9.3
Pendimethalin	15.7	34.5	34.5	9.2
Iprodione	13.9	14.7	11.5	8.1
Pyraclostrobin	6.9	69.0	34.5	4.0
Chlorothalonil	4.6	4.6	4.6	2.7
Metalaxyl-m	3.5	83.7	46.0	2.0
Tefluthrin	3.5	34.5	34.5	2.0

Pesticide Usage on soup leek crops:

12.55 hectares of soup leek crops were grown in Ireland

73.35 treated hectares

24.74 kg applied

99% of crops received at least one treatment

Soup leek crops received on average 3.35 treatments consisting of 1.31 fungicide and 2.04 herbicide applications.

Figure 121: Pesticide usage on soup leek crops in Ireland (spha), 2011.

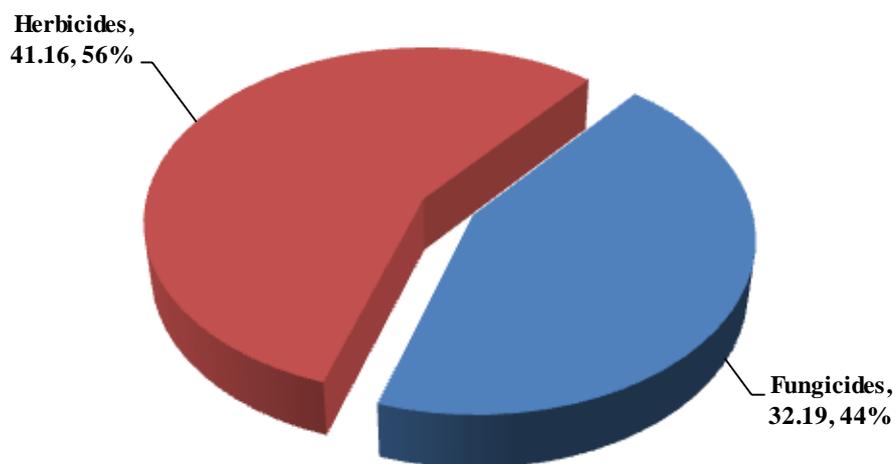


Figure 122: Weight of pesticides applied to soup leek crops in Ireland (kg), 2011.

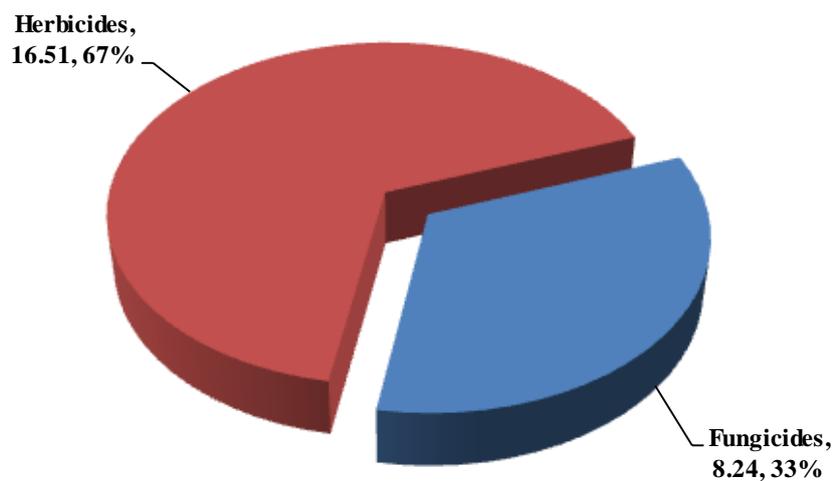


Figure 123: Proportional area of soup leek crops treated with each pesticide group in Ireland, 2011.

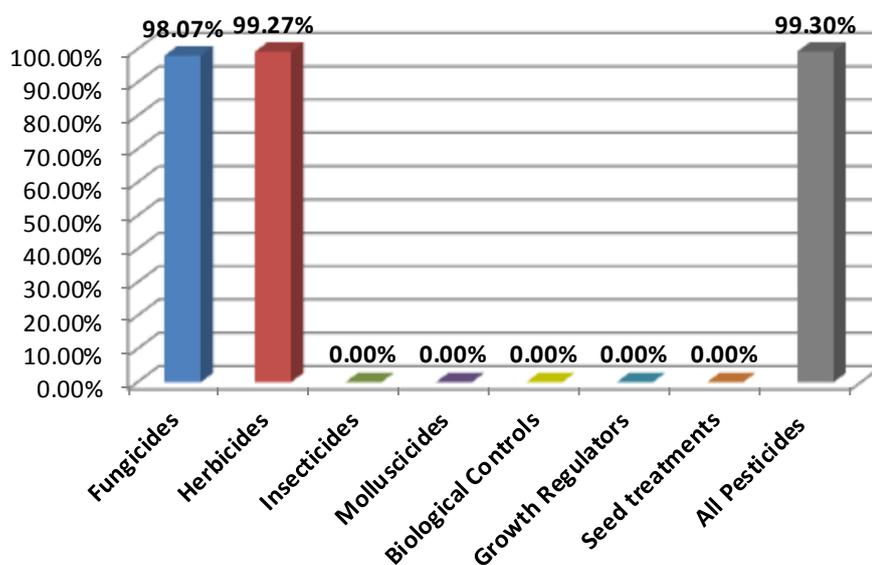


Figure 124: The top 9 active ingredients most extensively used on soup leeks in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Tebuconazole	16.1	12.3	2.3	20.9
loxynil	12.6	12.5	1.5	16.3
Fenpropimorph	12.3	12.3	4.6	16.0
Metazachlor	12.3	12.3	4.6	16.0
Pendimethalin	12.3	12.3	4.2	16.0
Azoxystrobin	3.8	3.8	0.9	4.9
Trifloxystrobin	3.8	3.8	0.4	4.9
Prosulfocarb	3.8	3.8	6.1	4.9
Glyphosate	0.2	0.2	0.2	0.2

Figure 125: The top 9 active ingredients most extensively used on soup leeks in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Prosulfocarb	6.1	3.8	3.8	24.5
Fenpropimorph	4.6	12.3	12.3	18.7
Metazachlor	4.6	12.3	12.3	18.7
Pendimethalin	4.2	12.3	12.3	17.0
Tebuconazole	2.3	16.1	12.3	9.3
loxynil	1.5	12.6	12.5	6.0
Azoxystrobin	0.9	3.8	3.8	3.8
Trifloxystrobin	0.4	3.8	3.8	1.5
Glyphosate	0.2	0.2	0.2	0.6

Pesticide Usage on table leek crops:

47.45 hectares of table leek crops were grown in Ireland

340.86 treated hectares

140.44 kg applied

99% of crops received at least one treatment

Table leek crops received on average 3.41 treatments consisting of 1.57 fungicide, 1.59 herbicide, 0.17 insecticide and 0.08 molluscicide treatment applications.

Figure 126: Pesticide usage on table leek crops in Ireland (spha), 2011.

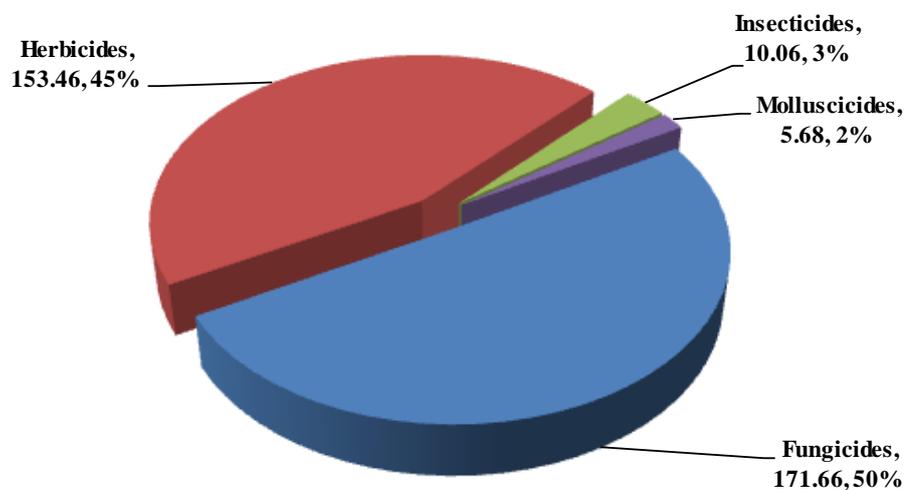


Figure 127: Weight of pesticides applied to table leek crops in Ireland (kg), 2011.

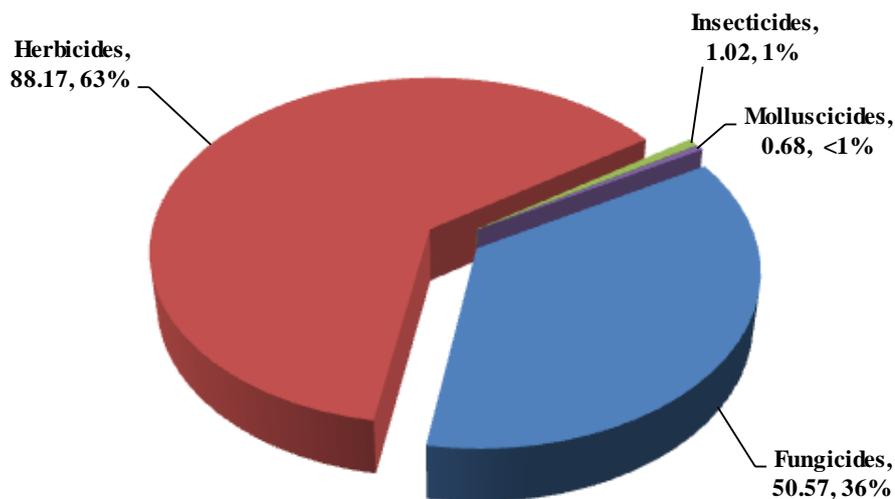


Figure 128: Proportional area of table leek crops treated with each pesticide group in Ireland, 2011.

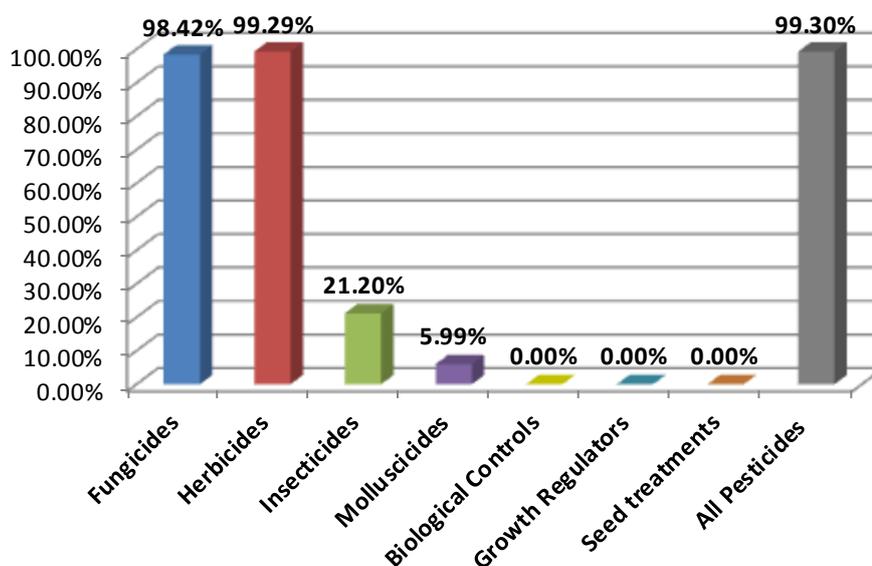


Figure 129: The top 10 active ingredients most extensively used on table leeks in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Tebuconazole	115.6	57.6	19.3	28.7
loxynil	80.5	43.8	8.5	20.0
Trifloxystrobin	58.1	54.0	5.1	14.4
Fenpropimorph	41.9	40.7	18.4	10.4
Pendimethalin	28.5	28.5	37.0	7.1
Prosulfocarb	19.8	19.8	31.6	4.9
Tepraloxymid	14.1	14.1	0.9	3.5
Azoxystrobin	10.2	10.2	2.5	2.5
Spinosad	10.0	10.0	0.6	2.5
Glyphosate	7.3	7.3	7.7	1.8

Figure 130: The top 10 active ingredients most extensively used on table leeks in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Pendimethalin	37.0	28.5	28.5	26.4
Prosulfocarb	31.6	19.8	19.8	22.5
Tebuconazole	19.3	115.6	57.6	13.7
Fenpropimorph	18.4	41.9	40.7	13.1
loxynil	8.5	80.5	43.8	6.1
Glyphosate	7.7	7.3	7.3	5.5
Trifloxystrobin	5.1	58.1	54.0	3.6
Chlorothalonil	4.0	4.0	4.0	2.9
Azoxystrobin	2.5	10.2	10.2	1.8
Metazachlor	2.1	2.8	2.8	1.5

Pesticide Usage on lettuce crops:

183.00 hectares of lettuce crops were grown in Ireland

1548.83 treated hectares

547.08 kg applied

89% of crops received at least one treatment

Lettuce crops received on average 1.61 treatments consisting of 0.44 fungicide, 0.53 herbicide, 0.17 insecticide, 0.46 molluscicide and 0.01 seed treatment applications.

Figure 131: Pesticide usage on lettuce crops in Ireland (spha), 2011.

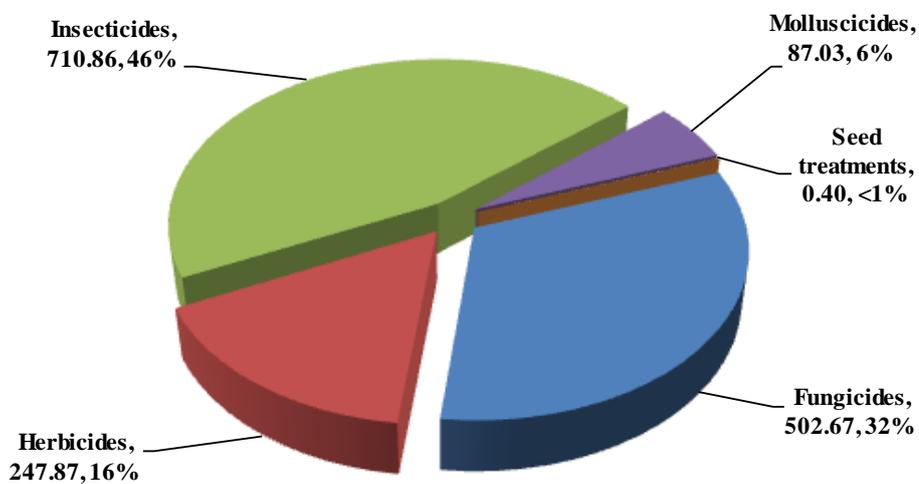


Figure 132: Weight of pesticides applied to lettuce crops in Ireland (kg), 2011.

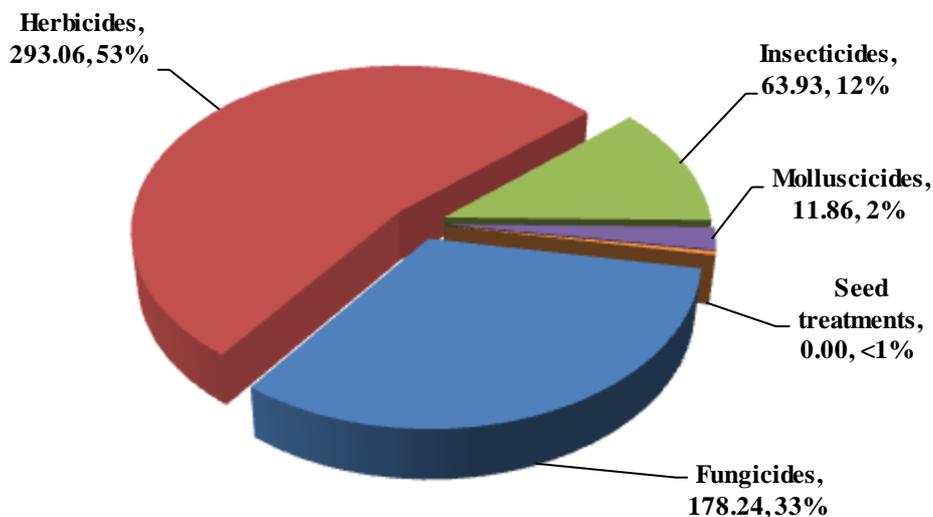


Figure 133: Proportional area of lettuce crops treated with each pesticide group in Ireland, 2011.

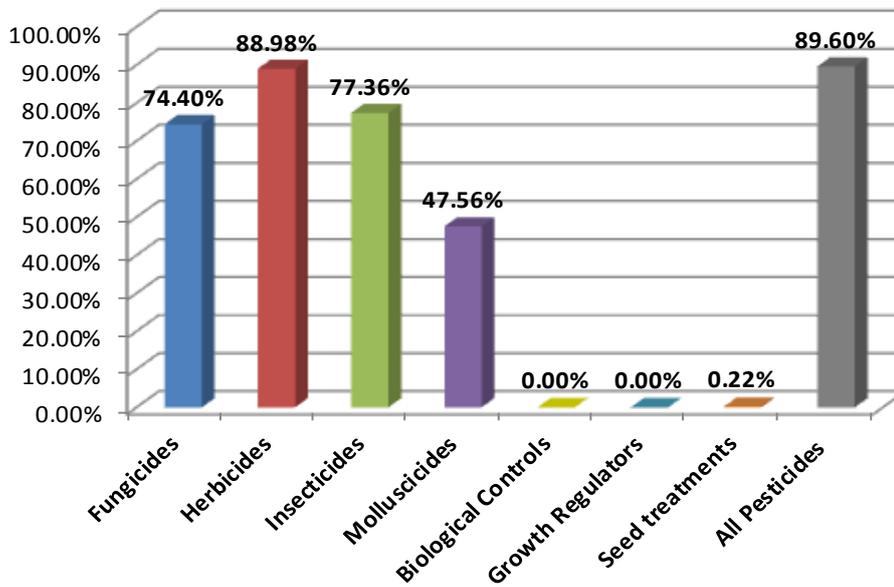


Figure 134: The top 10 active ingredients most extensively used on lettuce in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Pymetrozine	192.9	145.8	38.6	11.2
Boscalid	180.8	133.8	60.9	10.5
Pyraclostrobin	180.8	133.8	15.3	10.5
Spirotetramat	162.4	125.4	12.2	9.4
Mandipropamid	146.1	99.0	21.9	8.4
Pendimethalin	132.6	132.6	143.6	7.7
Azoxystrobin	117.6	117.6	29.4	6.8
Propyzamide	103.5	103.5	140.7	6.0
Lambda-cyhalothrin	98.5	98.5	0.7	5.7
Cypermethrin	97.7	97.7	2.4	5.7

Figure 135: The top 10 active ingredients most extensively used on lettuce in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Pendimethalin	143.6	132.6	132.6	26.2
Propyzamide	140.7	103.5	103.5	25.7
Boscalid	60.9	180.8	133.8	11.1
Propamocarb hydrochloride	39.9	0.5	0.5	7.3
Pymetrozine	38.6	192.9	145.8	7.1
Azoxystrobin	29.4	117.6	117.6	5.4
Mandipropamid	21.9	146.1	99.0	4.0
Pyraclostrobin	15.3	180.8	133.8	2.8
Spirotetramat	12.2	162.4	125.4	2.2
Methiocarb	11.9	87.0	87.0	2.2

Pesticide Usage on table celery crops:

45.00 hectares of table celery crops were grown in Ireland

459.33 treated hectares

250.45 kg applied

100% of crops received at least one treatment

Table celery received on average 7.29 treatments consisting of 3.19 fungicide, 0.74 herbicide, 3.21 insecticide and 0.15 molluscicide applications.

Figure 136: Pesticide usage on table celery crops in Ireland (spha), 2011.

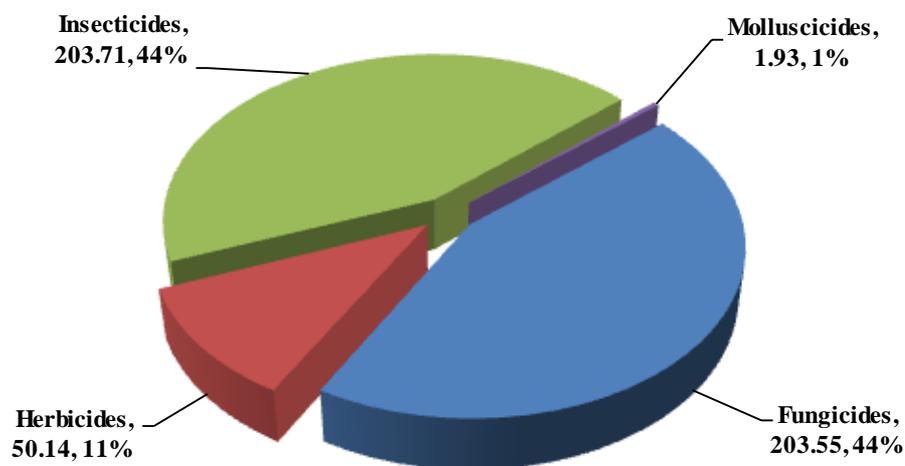


Figure 137: Weight of pesticides applied to table celery crops in Ireland (kg), 2011.

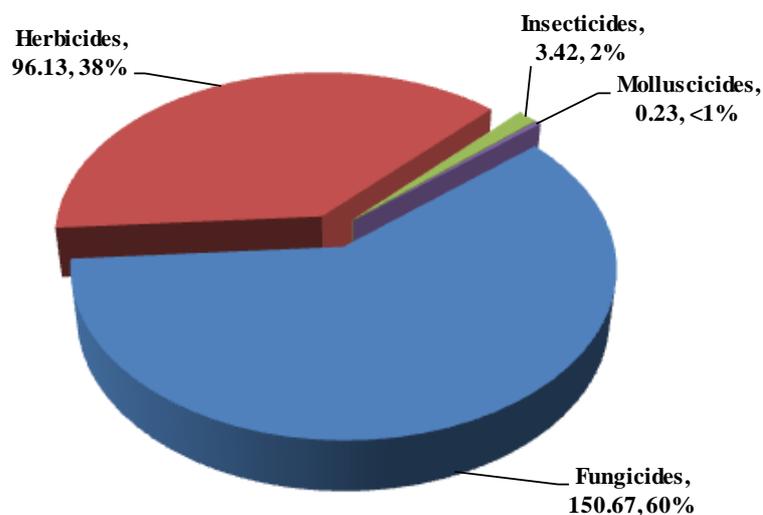


Figure 138: Proportional area of table celery crops treated with each pesticide group in Ireland, 2011.

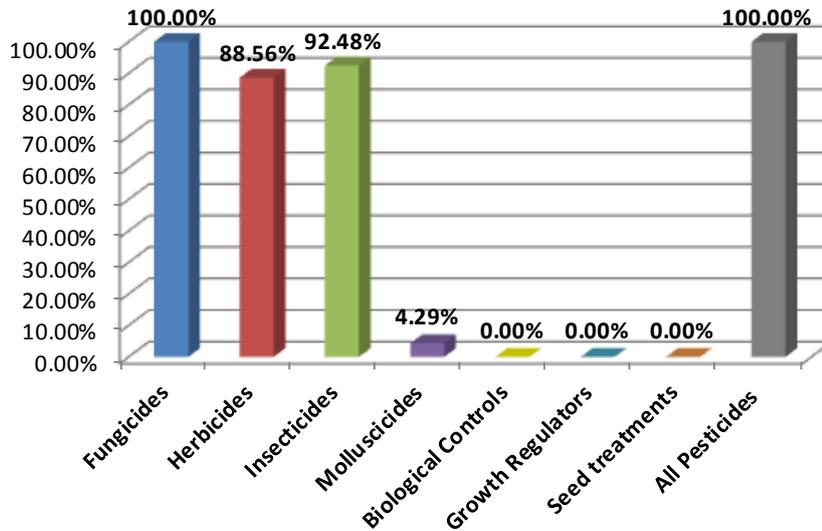


Figure 139: The top 10 active ingredients most extensively used on table celery in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Pyrethrins	79.4	37.6	0.7	17.3
Difenoconazole	76.2	45.0	9.5	16.6
Mancozeb	74.6	39.6	128.0	16.2
Lambda-cyhalothrin	69.9	41.6	0.7	15.2
Cypermethrin	54.4	37.6	1.5	11.8
Azoxystrobin	52.7	42.5	11.9	11.5
Prosulfocarb	31.2	31.2	77.2	6.8
Pendimethalin	10.5	10.5	13.8	2.3
Linuron	8.5	8.5	5.1	1.8
Methiocarb	1.9	1.9	0.2	0.4

Figure 140: The top 10 active ingredients most extensively used on table celery in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Mancozeb	128.0	74.6	39.6	51.1
Prosulfocarb	77.2	31.2	31.2	30.8
Pendimethalin	13.8	10.5	10.5	5.5
Azoxystrobin	11.9	52.7	42.5	4.8
Difenoconazole	9.5	76.2	45.0	3.8
Linuron	5.1	8.5	8.5	2.1
Cypermethrin	1.5	54.4	37.6	0.6
Propamocarb hydrochloride	1.3	0.0	0.0	0.5
Pyrethrins	0.7	79.4	37.6	0.3
Lambda-cyhalothrin	0.7	69.9	41.6	0.3

Pesticide Usage on parsley crops:

56.00 hectares of parsley crops were grown in Ireland

318.95 treated hectares

175.86 kg applied

100% of crops received at least one treatment

Parsley received on average 5.88 treatments consisting of 2.07 fungicide, 1.25 herbicide and 2.56 insecticide applications.

Figure 141: Pesticide usage on parsley crops in Ireland (spha), 2011.

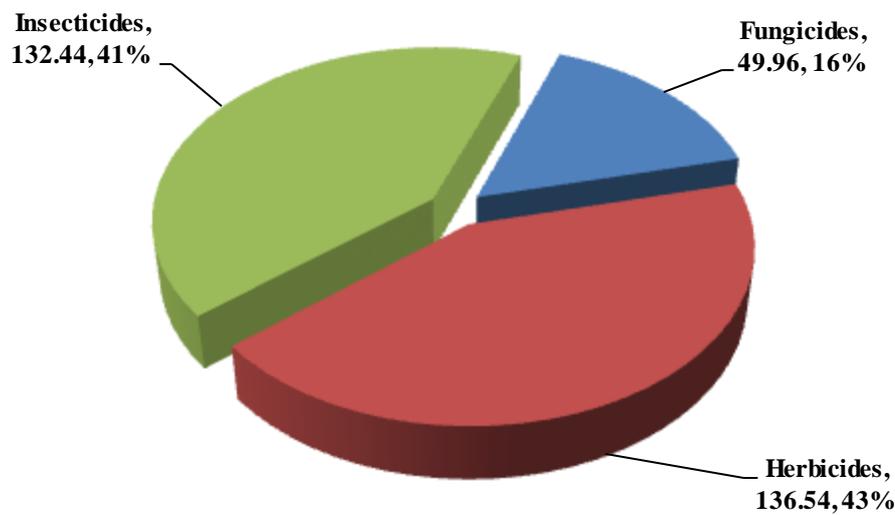


Figure 142: Weight of pesticides applied to parsley crops in Ireland (kg), 2011.

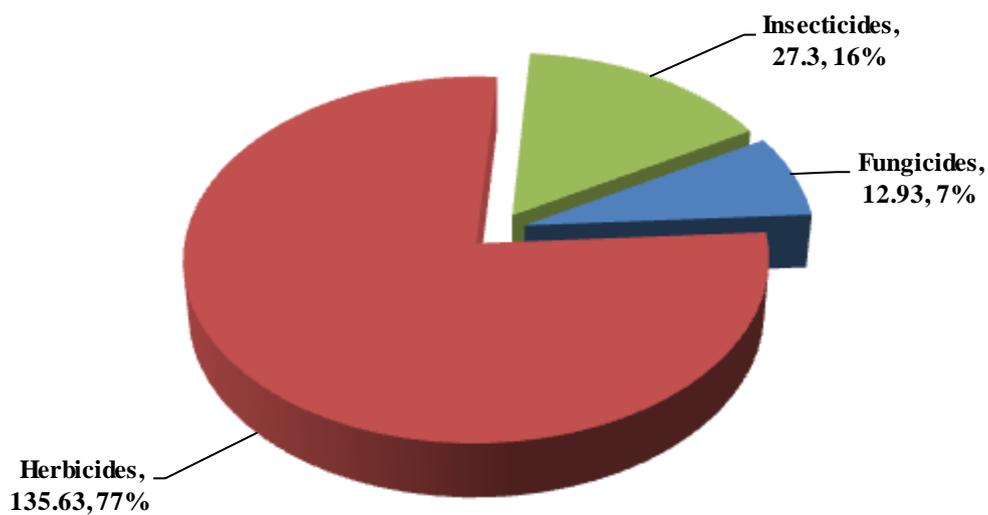


Figure 143: Proportional area of parsley crops treated with each pesticide group in Ireland, 2011.

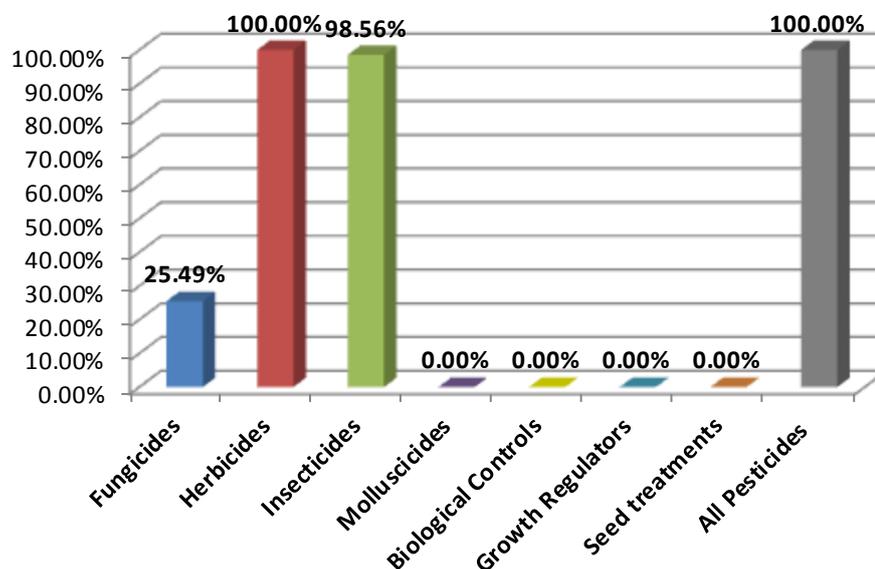


Figure 144: The top 10 active ingredients most extensively used on parsley in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Pirimicarb	76.0	54.5	19.0	23.8
Linuron	56.0	56.0	51.8	17.6
Glyphosate	40.3	40.3	43.5	12.6
Pendimethalin	40.3	40.3	40.3	12.6
Pymetrozine	40.3	40.3	8.1	12.6
Azoxystrobin	14.3	14.3	3.6	4.5
Iprodione	14.3	14.3	0.1	4.5
Mandipropamid	14.3	7.1	2.1	4.5
Tefluthrin	14.3	14.3	0.2	4.5
Dimethomorph	7.1	7.1	7.1	2.2

Figure 145: The top 10 active ingredients most extensively used on parsley in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Linuron	51.8	56.0	56.0	29.5
Glyphosate	43.5	40.3	40.3	24.7
Pendimethalin	40.3	40.3	40.3	22.9
Pirimicarb	19.0	76.0	54.5	10.8
Pymetrozine	8.1	40.3	40.3	4.6
Dimethomorph	7.1	7.1	7.1	4.1
Azoxystrobin	3.6	14.3	14.3	2.0
Mandipropamid	2.1	14.3	7.1	1.2
Tefluthrin	0.2	14.3	14.3	0.1
Iprodione	0.1	14.3	14.3	0.0

Pesticide Usage on other herb crops, eg Mint, Sage etc:

60.05 hectares of other herb crops were grown in Ireland

123.56 treated hectares

96.41 kg applied

89% of crops received at least one treatment

Other herb crops received on average 1.00 treatments consisting of 0.10 fungicide, 0.64 herbicide, 0.18 insecticide and 0.08 seed treatment applications.

Figure 146: Pesticide usage on other herb crops in Ireland (spha), 2011.

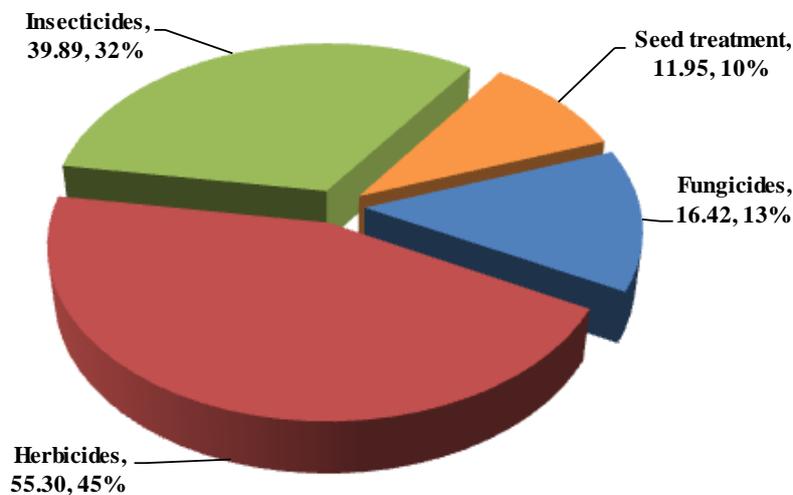


Figure 147: Weight of pesticides applied to other herb crops in Ireland (kg), 2011.

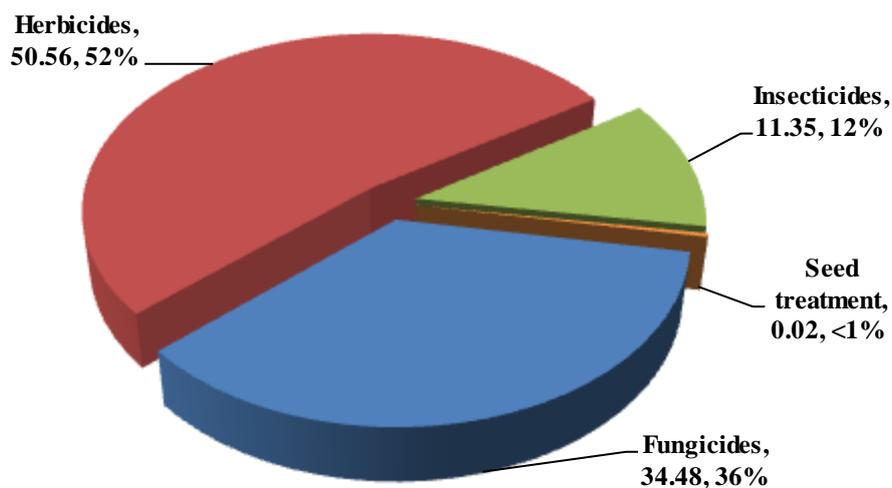


Figure 148: Proportional area of other herb crops treated with each pesticide group in Ireland, 2011.

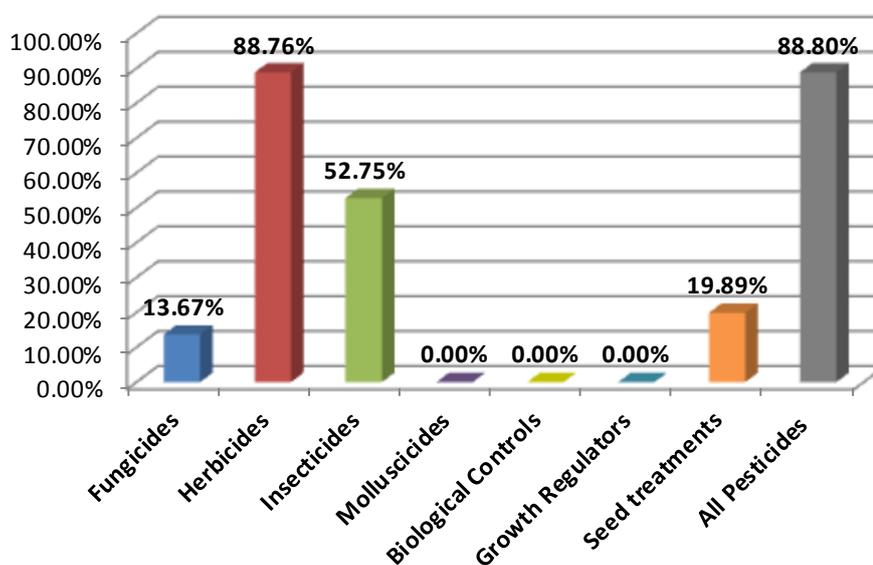


Figure 149: The top 10 active ingredients most extensively used on other herbs in Ireland in 2011, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)	% of the treated area
Lenacil	43.6	43.6	38.4	26.6
Chlorpyrifos	23.5	23.5	11.3	14.3
Fosetyl-aluminium	16.4	8.2	12.7	10.0
Propamocarb	16.4	8.2	21.8	10.0
Pyrethrins	16.4	8.2	0.1	10.0
Cymoxanil	12.0	12.0	0.0	7.3
Fludioxonil	12.0	12.0	0.0	7.3
Metalaxyl-m	12.0	12.0	0.0	7.3
Glyphosate	7.7	7.7	10.4	4.7
Glufosinate-ammonium	4.0	2.0	1.8	2.4

Figure 150: The top 10 active ingredients most extensively used on other herbs in Ireland in 2011, ranked by weight (kg).

Active Substance	Quantity Applied (kg)	Treated area (spha)	Basic area treated (ha)	% of the weight applied
Lenacil	38.4	43.6	43.6	39.8
Propamocarb hydrochloride	21.8	16.4	8.2	22.6
Fosetyl-aluminium	12.7	16.4	8.2	13.2
Chlorpyrifos	11.3	23.5	23.5	11.7
Glyphosate	10.4	7.7	7.7	10.8
Glufosinate-ammonium	1.8	4.0	2.0	1.9
Pyrethrins	0.1	16.4	8.2	0.1
Cymoxanil	0.0	12.0	12.0	0.0
Fludioxonil	0.0	12.0	12.0	0.0
Metalaxyl-m	0.0	12.0	12.0	0.0

Pesticide Usage on rhubarb crops:

45.00 hectares of rhubarb crops were grown in Ireland

21.74 treated hectares

29.77 kg applied

48% of crops received at least one treatment

Rhubarb received on average 0.56 treatments consisting of 0.56 herbicide applications.

Pesticide Usage on sweetcorn crops:

3.00 hectares of sweetcorn crops were grown in Ireland

15.00 treated hectares

10.29 kg applied

100% of crops received at least one treatment

Sweetcorn received on average 5.00 treatments consisting of 3.00 herbicide and 2.00 insecticide applications.

Pesticide Usage on celeriac crops:

4.11 hectares of celeriac crops were grown in Ireland

24.63 treated hectares

5.91 kg applied

100% of crops received at least one treatment

Celeriac received on average 6.00 treatments consisting of 3.00 fungicide and 3.00 insecticide applications.

Pesticide Usage on broad bean crops:

2.00 hectares of broad bean crops were grown in Ireland

8.00 treated hectares

7.64 kg applied

100% of crops received at least one treatment

Broad bean crops received on average 4.00 treatments consisting of 1.00 fungicide, 2.00 herbicide & 1.00 insecticide applications.

Pesticide Usage on marrow crops:

1.37 hectares of marrow crops were grown in Ireland

4.11 treated hectares

0.05 kg applied

100% of crops received at least one treatment

Marrows received on average 3.00 treatments consisting of 3.00 insecticide applications.

Pesticide Usage on kale crops:

1.56 hectares of kale crops were grown Ireland

3.12 treated hectares

1.29 kg applied

100% of crops received at least one treatment

Kale crops received on average 2.00 treatments consisting of 1.00 fungicide and 1.00 herbicide treatment applications.

Table 1: Estimated area (hectares) of vegetable crops grown regionally in Ireland, 2011.

<i>Crop type</i>	Region				Ireland
	NE	SE	SW	W	
Broccoli	437.09	76.88	74.02	8.02	596.00
Brussel sprouts	171.94	5.06	.	.	177.00
Autumn cabbage	95.07	12.90	29.03	.	137.00
Spring cabbage	91.29	32.33	28.73	2.37	154.71
Winter cabbage	172.98	48.88	53.87	13.28	289.01
Summer cabbage	144.71	11.57	55.14	8.55	219.97
Savoy cabbage	25.72	7.10	5.52	.	38.34
White cabbage	71.94	0.42	.	.	72.36
Red cabbage	9.17	0.42	.	.	9.60
Autumn cauliflower	95.30	17.98	.	.	113.28
Summer cauliflower	113.24	13.95	36.00	6.39	169.58
Winter cauliflower	92.75	29.86	17.71	.	140.32
Kale	1.56	.	.	.	1.56
Peas (not for animals)	6.05	.	.	.	6.05
Broad beans	2.00	.	.	.	2.00
Courgettes	41.11	.	.	.	41.11
Marrow	1.37	.	.	.	1.37
Pumpkin	10.58	13.42	.	.	24.00
Carrots	284.35	342.22	17.03	7.39	651.00
Parsnips	303.33	30.69	6.84	2.14	343.00
Turnips & Swedes	258.24	134.62	97.08	27.15	517.10
Beetroot	6.51	.	1.85	.	8.36
Onions	66.04	62.48	41.68	0.80	171.00
Summer scallions	54.85	5.60	0.58	.	61.03
Winter scallions	42.74	3.23	.	.	45.97
Soup leeks	.	12.55	.	.	12.55
Table leeks	42.50	2.86	2.09	.	47.45
Lettuce	132.67	9.91	21.12	19.30	183.00
Table celery	33.13	3.41	8.46	.	45.00
Parsley	55.19	.	0.81	.	56.00
Other herbs (e.g. mint, sage, etc)	60.05	.	.	.	60.05
Rhubarb,	.	21.74	23.26	.	45.00
Sweetcorn	3.00	.	.	.	3.00
Celeraic	4.11	.	.	.	4.11
All crops	2930.57	900.09	520.83	95.39	4446.89

Table 2a: Estimated area (spray hectares) of vegetable crops treated regionally in Ireland with each Pesticide type.

<i>Pesticide type</i>	Region				Ireland
	NE	SE	SW	W	
Fungicides	9,683.14	5,235.30	1,302.15	61.52	16,282.11
Herbicides	6,856.81	3,223.11	780.93	138.75	10,999.61
Insecticides	8,833.67	2,576.44	665.84	160.52	12,236.48
Molluscicides	795.09	361.62	156.16	19.02	1,331.89
Biological Controls	48.71	.	.	.	48.71
Growth Regulators	155.29	.	.	.	155.29
Seed treatments	342.42	83.08	.	4.87	430.38
<i>All pesticides</i>	26,715.13	11,479.56	2,905.08	384.69	41,484.47

Table 2b: Estimated weight (kgs) of pesticide applied regionally in Ireland with each pesticide type.

<i>Pesticide type</i>	Region				Ireland
	NE	SE	SW	W	
Fungicides	5,678.37	4,341.82	977.84	23.79	11,021.82
Herbicides	5,055.17	2,186.91	668.26	133.79	8,044.14
Insecticides	1,432.38	335.74	81.17	52.08	1,901.38
Molluscicides	100.45	43.06	19.32	2.28	165.11
Biological Controls	1.70	.	.	.	1.70
Growth Regulators	465.87	.	.	.	465.87
Seed treatments	1.36	0.06	.	0.00	1.42
<i>All pesticides</i>	12,735.29	6,907.59	1,746.60	211.94	21,601.44

Table 3: The total area (spray hectares) and the basic area (hectares), of vegetable crops in Ireland 2011 treated with each pesticide type.

Crop type	Pesticide Type																
	Fungicides		Herbicides & desiccants		Insecticides		Molluscicides		Biological controls		Growth regulators		Seed treatments		All Pesticides		
	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha) treated	(ha) grown
Broccoli	862.60	344.54	867.75	594.43	1154.36	560.36	129.07	120.00	.	.	.	.	0.93	0.93	3014.71	595.98	596.00
Brussel sprouts	888.54	173.12	527.29	176.93	1036.66	175.96	287.07	176.93	.	.	.	.	0.07	0.07	2739.64	177.00	177.00
Autumn cabbage	371.05	122.53	192.54	126.01	289.59	121.55	65.51	52.68	.	.	.	.	0.01	0.01	918.71	126.16	137.00
Spring cabbage	400.33	130.14	197.83	152.21	187.01	94.17	111.21	81.12	.	.	.	.	0.06	0.06	896.45	154.71	154.71
Winter cabbage	1037.47	275.59	417.11	284.03	713.16	278.64	144.94	123.96	.	.	.	.	0.05	0.05	2312.73	288.93	289.02
Summer cabbage	532.94	185.74	208.18	208.37	400.93	213.56	149.51	133.05	.	.	.	.	0.21	0.21	1370.76	219.97	219.97
Savoy cabbage	99.22	31.24	63.98	38.30	94.52	38.35	33.06	25.96	.	.	.	.	.	.	290.78	38.35	38.35
White cabbage	100.21	66.96	124.12	72.25	106.97	72.31	18.42	18.42	.	.	.	.	0.00	0.00	349.71	72.36	72.36
Red cabbage	23.51	9.60	12.60	9.59	34.06	9.59	2.58	2.58	.	.	.	.	0.00	0.00	72.74	9.60	9.60
Autumn cauliflower	192.98	82.46	164.02	113.21	280.48	113.28	12.59	7.87	.	.	.	.	0.04	0.04	650.11	113.28	113.28
Summer cauliflower	170.28	67.96	234.39	169.44	352.60	169.20	25.11	25.11	.	.	.	.	4.62	4.62	787.00	169.58	169.58
Winter cauliflower	383.24	120.13	198.13	138.85	495.74	134.14	29.15	23.84	.	.	.	.	0.04	0.04	1106.31	140.32	140.32
Kale	1.56	1.56	1.56	1.56	.	.	.	.	.	.	.	.	.	.	3.12	1.56	1.56
Peas (not for animals)	6.05	6.05	12.10	.	6.05	6.05	.	.	.	.	.	.	.	.	24.20	6.05	6.05
Broad beans	2.00	2.00	4.00	2.00	2.00	2.00	.	.	.	.	.	.	.	.	8.00	2.00	2.00
Courgettes	182.61	38.61	45.00	40.00	146.50	38.50	36.00	36.00	.	.	.	.	0.05	0.05	410.16	41.11	41.11
Marrows	.	.	.	.	4.11	1.37	.	.	.	.	.	.	.	.	4.11	1.37	1.37
Pumpkin	42.15	7.35	33.72	23.73	36.19	17.33	4.16	4.16	.	.	.	.	0.26	0.26	116.47	23.99	24.00
Carrots	5488.85	601.77	3508.78	644.10	2822.45	614.78	75.39	75.39	.	.	124.86	124.86	159.01	159.01	12179.33	651.00	651.00
Parsnips	672.31	269.97	1197.12	341.57	1553.40	342.37	0.81	0.81	.	.	30.43	30.43	77.19	77.19	3531.26	343.00	343.00
Turnips & swedes	917.87	304.27	789.66	500.57	1280.63	427.67	109.22	83.27	36.05	36.05	.	.	107.85	92.07	3241.28	511.06	517.10
Beetroot	10.26	5.13	13.83	7.26	8.76	4.38	0.75	0.75	.	.	.	.	.	.	33.60	7.26	8.36
Onions	2492.28	170.65	1066.88	170.20	.	.	.	.	.	.	.	.	62.26	62.26	3621.42	171.00	171.00
Summer scallions	243.00	58.12	147.76	61.03	80.54	48.32	2.69	2.69	12.66	8.05	.	.	5.38	5.38	492.03	61.03	61.03
Winter scallions	172.04	45.97	177.03	45.97	34.52	34.52	.	.	.	.	.	.	.	.	383.59	45.97	45.97
Soup leeks	32.19	12.31	41.16	12.46	.	.	.	.	.	.	.	.	.	.	73.35	12.46	12.55
Table leeks	171.66	46.70	153.46	47.11	10.06	10.06	5.68	2.84	.	.	.	.	.	.	340.86	47.13	47.45
Lettuce	502.67	136.15	247.87	162.84	710.86	141.57	87.03	87.03	.	.	.	.	0.40	0.40	1548.83	163.92	183.00
Table celery	203.55	45.00	50.14	39.85	203.71	41.62	1.93	1.93	.	.	.	.	.	.	459.33	45.00	45.00
Parsley	49.96	14.28	136.54	56.00	132.44	55.19	.	.	.	.	.	.	.	.	318.95	56.00	56.00
Other herbs e.g.mint, sag	16.42	8.21	55.30	53.30	39.89	31.68	.	.	.	.	.	.	11.95	11.95	123.56	53.30	60.05
Rhubarb	.	.	21.74	21.74	.	.	.	.	.	.	.	.	.	.	21.74	21.74	45.00
Sweetcorn	.	.	9.00	3.00	6.00	3.00	.	.	.	.	.	.	.	.	15.00	3.00	3.00
Celeraic	12.32	4.11	.	.	12.32	4.11	.	.	.	.	.	.	.	.	24.63	4.11	4.11
All vegetable crops	16282.11	3388.21	10999.61	4323.97	12236.48	3805.62	1331.89	1086.38	48.71	44.11	155.29	155.29	430.38	414.60	41484.47	4379.28	4446.89

Table 4: The total quantities (kilograms) of each pesticide type used on vegetable crops in Ireland 2011.

<i>Crop type</i>	Pesticide type							Total weight applied (kg)
	Fungicides	Herbicides & desiccants	Insecticides	Molluscicides	Biological control	Growth regulators	Seed treatments	
Broccoli	562.99	741.43	192.94	14.61	.	.	0.06	1512.03
Brussel sprouts	317.12	258.36	66.00	35.14	.	.	.	676.62
Autumn cabbage	178.86	159.22	47.91	8.31	.	.	.	394.31
Spring cabbage	143.21	160.76	29.02	13.66	.	.	.	346.64
Winter cabbage	383.27	347.31	74.40	17.75	.	.	.	822.73
Summer cabbage	319.20	263.72	31.81	18.91	.	.	.	633.63
Savoy cabbage	51.51	52.67	12.29	4.05	.	.	.	120.52
White cabbage	33.29	77.43	18.55	2.22	.	.	.	131.50
Red cabbage	6.84	18.97	3.76	0.32	.	.	.	29.89
Autumn cauliflower	119.52	129.15	39.50	1.46	.	.	.	289.64
Summer cauliflower	118.58	194.60	36.29	2.99	.	.	0.00	352.46
Winter cauliflower	269.08	162.33	89.77	3.27	.	.	.	524.46
Kale	0.12	1.17	.	.	.	.	.	1.29
Peas (not for animals)	9.08	13.27	0.05	.	.	.	.	22.39
Broad beans	3.00	4.39	0.25	.	.	.	.	7.64
Courgettes	9.97	43.51	60.79	4.32	.	.	.	118.60
Marrow	.	.	0.05	.	.	.	.	0.05
Pumpkin	43.01	30.65	16.83	0.50	.	.	.	90.99
Carrots	4685.88	2289.33	339.69	9.35	.	374.58	1.16	7699.98
Parsnips	196.58	911.85	37.51	0.06	.	91.29	0.07	1237.35
Tumips & swedes	187.15	653.07	685.31	14.92	.	.	0.11	1540.56
Beetroot	17.08	27.83	0.84	0.10	.	.	.	45.85
Onions	2654.85	661.70	.	.	.	.	.	3316.55
Summer scallions	160.84	64.11	6.18	0.40	1.70	.	.	233.23
Winter scallions	110.20	57.92	3.45	.	.	.	.	171.57
Soup leeks	8.24	16.51	.	.	.	.	.	24.74
Table leeks	50.57	88.17	1.02	0.68	.	.	.	140.44
Lettuce	178.24	293.06	63.93	11.86	.	.	.	547.09
Table celery	150.67	96.13	3.42	0.23	.	.	.	250.45
Parsley	12.93	135.63	27.30	.	.	.	.	175.86
Other herbs e.g. mint, sage, etc	34.48	50.56	11.35	.	.	.	0.02	96.41
Rhubarb	.	29.77	.	.	.	.	.	29.77
Sweetcorn	.	9.54	0.75	.	.	.	.	10.29
Celeriac	5.48	.	0.44	.	.	.	.	5.91
All vegetable crops	11021.82	8044.14	1901.38	165.11	1.70	465.87	1.42	21601.44

Table 5: Average number of treatments applied for each pesticide group to all crops grown in Ireland, 2011.

Crop	Fungicides sp apps	Herbicides sp apps	Insecticides sp apps	Molluscicides sp apps	Biological Controls sp apps	Growth Regulators sp apps	Seed treatments sp apps	All crops sp apps
Broccoli	1.75	1.04	1.74	0.18	.	.	0.14	4.85
Brussel sprouts	3.04	1.21	3.17	1.38	.	.	0.26	9.06
Autumn cabbage	1.99	1.10	1.75	0.38	.	.	0.05	5.27
Spring cabbage	2.33	1.01	1.30	0.41	.	.	0.03	5.08
Winter cabbage	2.25	0.95	1.89	0.36	.	.	0.05	5.50
Summer cabbage	1.36	0.88	1.31	0.39	.	.	0.09	4.03
Savoy cabbage	3.14	1.47	2.11	0.77	.	.	.	7.49
White cabbage	2.07	1.02	1.65	0.33	.	.	0.14	5.21
Red cabbage	1.95	1.46	2.75	0.46	.	.	0.32	6.94
Autumn cauliflower	1.82	1.19	2.28	0.27	.	.	0.17	5.73
Summer cauliflower	1.06	1.05	1.53	0.29	.	.	0.12	4.05
Winter cauliflower	2.57	0.99	2.21	0.28	.	.	0.06	6.11
Kale	1.00	1.00	.	.	.	.	.	2.00
Peas (not for animals)	1.00	2.00	1.00	.	..	.	.	4.00
Broad beans	1.00	2.00	1.00	.	.	.	.	4.00
Courgettes	1.67	1.04	1.30	0.26	.	.	0.26	4.53
Marrows	.	.	3.00	.	.	.	.	3.00
Pumpkin	2.39	0.59	1.52	0.26	.	.	0.40	5.16
Carrots	2.78	3.37	4.22	0.08	.	0.02	0.17	10.64
Parsnips	0.74	2.90	3.50	0.05	.	0.05	0.26	7.50
Turnips & Swedes	1.59	1.16	1.91	0.22	0.13	.	0.18	5.19
Beetroot	0.62	0.76	0.40	0.11	.	.	.	1.89
Onions	7.18	3.56	.	.	.	.	0.13	10.87
Summer scallions	1.58	1.81	0.41	0.16	0.14	.	0.32	4.42
Winter scallions	3.30	3.34	0.17	.	.	.	.	6.81
Soup leeks	1.31	2.04	.	.	.	.	.	3.35
Table leeks	1.57	1.59	0.17	0.08	.	.	.	3.41
Lettuce	0.44	0.53	0.17	0.46	.	.	0.01	1.61
Table celery	3.19	0.74	3.21	0.15	.	.	.	7.29
Parsley	2.07	1.25	2.56	.	.	.	.	5.88
Other herbs e.g mint, sage, etc	0.10	0.64	0.18	.	.	.	0.08	1.00
Rhubarb	.	0.56	.	.	.	.	.	0.56
Sweetcorn	.	3.00	2.00	.	.	.	.	5.00
Celeriac	3.00	.	3.00	.	.	.	.	6.00

Table 6 : Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for broccoli 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Broccoli	Fungicides			
	Azoxystrobin	27.16	112.75	105.39
	Boscalid	29.96	96.44	96.14
	Chlorothalonil	53.33	50.47	43.10
	Difenoconazole	35.86	209.21	180.27
	Iprodione	25.97	52.14	52.14
	Mancozeb	297.68	255.05	210.46
	Metalaxyl-m	18.61	255.63	211.04
	Propamocarb hydrochloride	45.90	1.35	1.35
	Pyraclostrobin	7.52	96.44	96.14
	Tebuconazole	11.83	83.19	83.19
	Thiram	.06	.58	.58
	Tolclofos-methyl	8.38	.84	.84
	Trifloxystrobin	.74	7.37	7.37
	Herbicides			
	Glyphosate	169.46	150.28	150.28
	Napropamide	6.49	7.59	7.59
	Metazachlor	399.21	552.54	552.54
	Pyridate	57.35	71.69	71.69
	Pendimethalin	108.92	85.65	85.65
	Insecticides			
	Chlorpyrifos	143.71	265.42	236.48
	Deltamethrin	2.63	371.63	340.06
	Cypermethrin	2.10	83.34	83.34
	Indoxacarb	.37	14.73	14.73
	Lambda-cyhalothrin	.73	127.26	111.63
	Pymetrozine	12.22	61.12	52.68
	Pirimicarb	20.97	106.59	99.84
	Spirotetramat	3.60	48.04	39.61
	Thiacloprid	6.55	68.21	60.84
	Esfenvalerate	.05	8.02	8.02
	Molluscicides			
	Metaldehyde	.12	.08	.08
Methiocarb	14.50	128.99	119.92	

Table 7: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for brussel sprouts 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Brussel sprouts	Fungicides			
	Azoxystrobin	2.07	7.74	5.51
	Boscalid	57.84	216.63	216.63
	Chlorothalonil	16.15	17.07	17.07
	Difenoconazole	50.34	453.04	156.18
	Iprodione	56.34	95.03	66.02
	Mancozeb	111.48	96.80	54.19
	Metalaxyl-m	7.68	109.40	66.80
	Propamocarb hydrochloride	.04	.00	.00
	Pyraclostrobin	14.51	216.63	216.63
	Tebuconazole	.45	2.23	2.23
	Trifloxystrobin	.22	2.23	2.23
	Herbicides			
	Clopyralid	10.04	83.67	83.67
	Cycloxydim	8.37	83.67	83.67
	Glyphosate	18.60	11.22	11.22
	Metazachlor	104.64	171.42	171.42
	Napropamide	3.21	4.46	4.46
	Pendimethalin	77.35	84.72	84.72
	Pyridate	36.15	88.13	88.13
	Insecticides			
	Acetamiprid	4.30	85.90	85.90
	Chlorpyrifos	6.30	52.25	9.64
	Cypermethrin	5.92	236.91	118.46
	Deltamethrin	.31	41.48	39.25
	Dimethoate	.83	2.09	1.04
	Esfenvalerate	.35	83.67	83.67
	Indoxacarb	1.82	71.40	44.63
	Lambda-cyhalothrin	.72	140.91	97.26
	Pirimicarb	30.37	188.87	100.74
	Pymetrozine	12.17	98.51	98.51
	Spirotetramat	1.49	19.84	19.84
Thiacloprid	1.42	14.84	14.84	
Molluscicides				
Metaldehyde	.00	.00	.00	
Methiocarb	35.14	287.07	176.93	

Table 8: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for autumn cabbage 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Autumn cabbage	Fungicides			
	Azoxystrobin	15.61	62.44	56.76
	Boscalid	13.14	44.73	44.73
	Chlorothalonil	25.77	34.95	34.95
	Difenoconazole	17.30	133.97	112.29
	Iprodione	.01	.06	.06
	Mancozeb	89.22	59.67	44.71
	Metalaxyl-m	5.57	59.69	44.72
	Pendimethalin	35.73	33.53	33.53
	Propamocarb hydrochloride	.17	.09	.09
	Pyraclostrobin	3.30	44.73	44.73
	Tebuconazole	8.76	35.05	31.89
	Thiram	.01	.06	.06
	Herbicides			
	Glyphosate	21.23	20.58	20.58
	Metazachlor	89.29	122.41	122.41
	Napropamide	2.16	2.53	2.53
	Pyridate	10.81	13.51	13.51
	Insecticides			
	Chlorpyrifos	25.14	43.94	38.33
	Cypermethrin	.53	20.33	20.33
	Deltamethrin	.21	29.21	25.61
	Dimethoate	8.14	20.34	16.97
	Esfenvalerate	.10	17.21	17.21
	Lambda-cyhalothrin	.34	63.92	46.98
	Pirimicarb	2.82	13.78	13.78
	Pymetrozine	7.20	35.99	21.60
	Spirotetramat	3.12	41.63	27.23
	Thiacloprid	.31	3.24	3.24
	Molluscicides			
	Metaldehyde	.02	.01	.01
	Methiocarb	8.29	65.50	52.66

Table 9: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for spring cabbage 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Spring cabbage	Fungicides			
	Azoxystrobin	5.16	21.99	21.99
	Boscalid	8.64	27.88	20.69
	Chlorothalonil	4.50	7.20	7.20
	Difenoconazole	24.64	207.89	106.51
	Iprodione	.00	.03	.03
	Mancozeb	82.14	94.92	52.58
	Metalaxyl-m	5.13	94.93	52.60
	Propamocarb hydrochloride	.08	.04	.04
	Pyraclostrobin	2.17	27.88	20.69
	Tebuconazole	9.44	40.34	34.53
	Thiram	.00	.03	.03
	Trifloxystrobin	1.30	13.01	13.01
	Herbicides			
	Glyphosate	4.04	4.49	4.49
	Metazachlor	106.59	152.21	152.21
	Napropamide	8.56	6.79	6.79
	Pendimethalin	41.58	34.34	34.34
	Insecticides			
	Bifenthrin	.10	13.26	13.26
	Chlorpyrifos	22.90	51.23	32.99
	Cypermethrin	.55	21.60	21.60
	Deltamethrin	.08	11.20	11.20
	Lambda-cyhalothrin	.24	45.46	38.89
	Pirimicarb	1.83	7.86	7.86
	Spirotetramat	.68	9.00	9.00
	Thiacloprid	2.63	27.41	13.01
	Molluscicides			
	Methiocarb	13.66	111.21	81.12

Table 10: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter cabbage 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Winter cabbage	Fungicides			
	Azoxystrobin	43.07	173.18	126.21
	Boscalid	29.40	110.10	94.22
	Chlorothalonil	14.15	28.31	28.31
	Difenoconazole	41.07	354.03	218.81
	Iprodione	1.81	3.62	3.62
	Mancozeb	187.09	195.46	137.86
	Metalaxyl-m	11.70	195.46	137.86
	Pyraclostrobin	7.38	110.10	94.22
	Tebuconazole	38.32	172.76	101.02
	Thiram	.00	.02	.02
	Trifloxystrobin	9.30	92.98	53.03
	Herbicides			
	Clopyralid	1.31	21.85	21.85
	Glyphosate	66.65	52.22	52.22
	Metazachlor	168.33	241.47	241.47
	Napropamide	31.43	24.94	24.94
	Pendimethalin	62.13	54.79	54.79
	Pyridate	17.48	21.85	21.85
	Insecticides			
	Chlorpyrifos	24.31	43.95	29.92
	Cypermethrin	1.18	46.25	37.19
	Deltamethrin	.56	75.68	63.93
	Dimethoate	12.20	30.50	25.45
	Esfenvalerate	.23	48.97	33.09
	Indoxacarb	.09	3.60	3.60
	Lambda-cyhalothrin	.98	165.90	130.24
	Pirimicarb	14.28	78.28	78.28
	Pymetrozine	5.99	39.95	19.98
	Spirotetramat	9.71	129.40	100.60
	Thiacloprid	4.87	50.69	50.69
	Molluscicides			
	Metaldehyde	.02	.02	.02
Methiocarb	17.72	144.93	123.94	

Table 11: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for summer cabbage 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Summer cabbage	Fungicides			
	Azoxystrobin	10.05	35.68	30.32
	Boscalid	7.72	24.41	24.41
	Chlorothalonil	7.10	4.73	4.73
	Difenoconazole	24.35	193.89	137.30
	Iprodione	9.05	18.08	18.08
	Mancozeb	239.20	210.89	136.24
	Metalaxyl-m	14.95	210.89	136.24
	Propamocarb hydrochloride	.38	.14	.14
	Pyraclostrobin	1.94	24.41	24.41
	Tebuconazole	4.45	45.03	45.03
	Thiram	.01	.08	.08
	Herbicides			
	Glyphosate	138.90	95.43	95.43
	Metazachlor	113.45	177.47	168.47
	Pendimethalin	11.38	14.29	14.29
	Insecticides			
	Chlorpyrifos	19.68	55.87	37.64
	Cypermethrin	.94	35.63	35.63
	Deltamethrin	.64	69.67	69.67
	Dimethoate	.67	1.68	1.68
	Esfenvalerate	.05	8.55	8.55
	Lambda-cyhalothrin	.81	154.53	137.17
	Pirimicarb	4.02	19.66	19.66
	Spirotetramat	1.14	15.20	15.20
	Thiacloprid	3.85	40.13	40.13
	Molluscicides			
	Metaldehyde	.02	.01	.01
	Methiocarb	18.89	149.50	133.04

Table 12: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for savoy cabbage 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Savoy cabbage	Fungicides			
	Azoxystrobin	3.64	14.56	10.04
	Boscalid	11.36	30.20	25.68
	Chlorothalonil	19.97	26.69	26.69
	Difenoconazole	.69	5.52	5.52
	Iprodione	.01	.04	.04
	Mancozeb	8.47	8.82	8.82
	Metalaxyl-m	.53	8.86	8.86
	Pyraclostrobin	2.85	30.20	25.68
	Tebuconazole	2.66	13.32	8.82
	Thiram	.01	.04	.04
	Trifloxystrobin	1.33	13.32	8.82
	Herbicides			
	Glyphosate	11.11	12.34	12.34
	Metazachlor	25.84	38.31	38.31
	Napropamide	5.69	4.52	4.52
	Pendimethalin	10.03	8.82	8.82
	Insecticides			
	Chlorpyrifos	3.99	5.56	5.56
	Cypermethrin	.60	21.16	21.16
	Esfenvalerate	.04	9.03	4.52
	Lambda-cyhalothrin	.13	18.15	12.63
	Pirimicarb	6.17	24.69	12.34
	Spirotetramat	.53	7.10	7.10
	Thiacloprid	.85	8.82	8.82
	Molluscicides			
	Methiocarb	4.05	33.06	25.96

Table 13: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for white cabbage 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
White cabbage	Fungicides			
	Azoxystrobin	8.65	34.61	34.61
	Boscalid	8.99	16.83	16.83
	Difenoconazole	3.91	31.23	15.82
	Iprodione	.01	.11	.11
	Mancozeb	7.56	10.01	10.01
	Metalaxyl-m	.47	10.07	10.07
	Propamocarb hydrochloride	.09	.05	.05
	Pyraclostrobin	2.26	16.83	16.83
	Tebuconazole	1.35	7.20	7.20
	Thiram	.01	.11	.11
	Herbicides			
	Glyphosate	31.17	51.45	51.45
	Metazachlor	45.77	72.25	72.25
	Pendimethalin	.49	.42	.42
	Insecticides			
	Chlorpyrifos	17.39	36.27	20.86
	Cypermethrin	.51	16.83	16.83
	Deltamethrin	.13	18.00	18.00
	Dimethoate	.34	.84	.42
Lambda-cyhalothrin	.18	35.03	34.61	
Molluscicides				
Metaldehyde	.00	.00	.00	
Methiocarb	2.22	18.42	18.42	

Table 14: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for red cabbage 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Red Cabbage	Fungicides			
	Azoxystrobin	.11	.42	.42
	Boscalid	.58	2.16	2.16
	Chlorothalonil	1.35	2.16	2.16
	Difenoconazole	1.81	14.45	7.44
	Mancozeb	2.08	2.16	2.16
	Metalaxyl-m	.13	2.16	2.16
	Pyraclostrobin	.15	2.16	2.16
	Tebuconazole	.43	2.16	2.16
	Trifloxystrobin	.22	2.16	2.16
	Herbicides			
	Glyphosate	13.01	7.44	7.44
	Metazachlor	3.02	2.58	2.58
	Pendimethalin	2.94	2.58	2.58
	Insecticides			
	Cypermethrin	.40	16.19	9.17
	Dimethoate	.34	.84	.42
	Lambda-cyhalothrin	.00	.84	.42
	Pirimicarb	2.81	14.03	7.01
	Thiacloprid	.21	2.16	2.16
	Molluscicides			
	Metaldehyde	.00	.00	.00
	Methiocarb	.32	2.58	2.58

Table 15: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for autumn cauliflower 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Autumn cauliflower	Fungicides			
	Azoxystrobin	6.33	25.33	25.33
	Boscalid	16.67	54.04	45.30
	Chlorothalonil	18.08	31.78	23.03
	Difenoconazole	3.49	27.11	21.87
	Iprodione	.00	.03	.03
	Mancozeb	63.01	38.12	38.12
	Metalaxyl-m	3.94	38.16	38.16
	Pyraclostrobin	4.18	54.04	45.30
	Tebuconazole	3.82	16.49	16.49
	Thiram	.00	.03	.03
	Herbicides			
	Glyphosate	13.81	14.92	14.92
	Metazachlor	82.92	113.21	113.21
	Pendimethalin	26.66	21.49	21.49
	Pyridate	5.77	14.41	14.41
	Insecticides			
	Chlorpyrifos	14.29	19.81	14.56
	Cypermethrin	1.63	61.71	52.97
	Deltamethrin	.24	34.57	34.57
	Dimethoate	1.52	3.80	3.17
	Esfenvalerate	.02	2.54	2.54
	Lambda-cyhalothrin	.17	32.17	31.54
	Pirimicarb	6.40	26.01	14.27
	Pymetrozine	11.29	56.46	44.34
	Spirotetramat	.83	11.01	11.01
	Thiacloprid	3.11	32.40	32.40
	Molluscicides			
	Metaldehyde	.00	.00	.00
	Methiocarb	1.45	12.59	7.87

Table 16: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for summer cauliflower 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Summer cauliflower	Fungicides			
	Azoxystrobin	4.85	19.57	19.57
	Boscalid	11.84	35.97	27.22
	Chlorothalonil	21.61	24.63	15.89
	Difenoconazole	4.05	32.37	26.46
	Iprodione	.00	.03	.03
	Mancozeb	62.73	34.96	23.16
	Metalaxyl-m	3.92	34.99	23.19
	Propamocarb hydrochloride	2.59	.06	.06
	Pyraclostrobin	2.97	35.97	27.22
	Tebuconazole	3.43	22.56	22.56
	Thiram	.00	.03	.03
	Tolclofos-methyl	.59	.06	.06
	Herbicides			
	Glyphosate	36.47	30.82	30.82
	Metazachlor	121.43	157.64	157.64
	Pendimethalin	26.66	21.49	21.49
	Pyridate	10.05	24.44	24.44
	Insecticides			
	Chlorpyrifos	13.02	17.71	12.46
Cypermethrin	1.63	60.53	51.79	
Deltamethrin	.36	50.82	50.82	
Dimethoate	.25	.63	.63	
Esfenvalerate	.04	6.39	6.39	
Lambda-cyhalothrin	.39	94.09	72.60	
Pirimicarb	6.56	29.91	29.91	
Pymetrozine	8.57	42.86	30.75	
Thiacloprid	5.47	49.65	40.91	
Molluscicides				
Metaldehyde	.00	.00	.00	
Methiocarb	2.98	25.11	25.11	

Table 17: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter cauliflour 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Winter cauliflour	Fungicides			
	Azoxystrobin	11.75	55.91	46.67
	Boscalid	5.61	21.03	11.78
	Chlorothalonil	41.70	76.25	39.78
	Difenoconazole	6.80	53.64	53.30
	Iprodione	.14	1.17	1.17
	Mancozeb	87.42	60.63	39.20
	Metalaxyl-m	5.47	61.79	39.58
	Propamocarb hydrochloride	69.59	1.28	1.28
	Pyraclostrobin	1.41	21.03	11.78
	Tebuconazole	20.53	109.74	74.13
	Thiram	.13	1.17	1.17
	Tolclofos-methyl	12.74	1.28	1.28
	Trifloxystrobin	5.80	71.58	44.36
	Herbicides			
	Glyphosate	8.50	6.74	6.74
	Metazachlor	101.33	134.64	134.64
	Pendimethalin	46.81	42.83	42.83
	Pyridate	5.70	13.91	13.91
	Insecticides			
	Chlorpyrifos	54.14	9.86	9.86
	Cypermethrin	2.41	92.01	70.53
	Deltamethrin	.95	137.57	88.37
	Dimethoate	1.02	2.54	2.54
	Esfenvalerate	.02	2.54	2.54
	Indoxacarb	.43	16.78	8.39
	Lambda-cyhalothrin	.20	36.63	36.63
	Pirimicarb	2.44	11.74	11.74
	Pymetrozine	21.14	105.70	66.37
	Spirotetramat	2.38	31.69	31.69
	Thiacloprid	4.68	48.70	39.95
Molluscicides				
Methiocarb	3.27	29.15	23.84	

Table 18: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for kale 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Kale	Fungicides			
	Azoxystrobin	.12	1.56	1.56
	Herbicides			
	Metazachlor	1.17	1.56	1.56

Table 19: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for peas 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Peas (not for animals)	Fungicides			
	Azoxystrobin	1.51	6.05	6.05
	Chlorothalonil	7.56	6.05	6.05
	Herbicides			
	Glyphosate	7.62	6.05	6.05
	Imazamox	.35	6.05	6.05
	Pendimethalin	5.29	6.05	6.05
	Insecticides			
	Deltamethrin	.05	6.05	6.05

Table 20: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for broad beans 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Broad beans	Fungicides			
	Azoxystrobin	.50	2.00	2.00
	Chlorothalonil	2.50	2.00	2.00
	Herbicides			
	Glyphosate	2.52	2.00	2.00
	Imazamox	.12	2.00	2.00
	Pendimethalin	1.75	2.00	2.00
	Insecticides			
Pirimicarb	.25	2.00	2.00	

Table 21: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for courgettes 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Courgettes	Fungicides			
	Azoxystrobin	9.01	180.05	36.05
	Bupirimate	.96	2.56	2.56
	Herbicides			
	Glyphosate	41.01	41.00	38.50
	Metazachlor	2.50	4.00	4.00
	Insecticides			
	Pirimicarb	.31	2.50	2.50
	Spiromesifen	60.48	144.00	36.00
	Molluscicides			
	Methiocarb	4.32	36.00	36.00

Table 22: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for marrows 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Marrows	Insecticides			
	Indoxacarb	.04	1.37	1.37
	Pyrethrins	.01	2.74	1.37

Table 23: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for pumpkins 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Pumpkin	Fungicides			
	Azoxystrobin	.83	16.64	4.17
	Chlorothalonil	11.96	9.57	3.19
	Mancozeb	29.58	15.95	3.19
	Metalaxyl-m	.64	6.38	3.19
	Herbicides			
	Glyphosate	28.78	23.73	23.73
	Isoxaben	1.87	9.98	9.98
	Insecticides			
	Chlorpyrifos	7.19	9.98	9.98
	Cypermethrin	.11	3.19	3.19
	Dimethoate	2.55	6.38	3.19
	Spiromesifen	6.99	16.64	4.16
	Molluscicides			
	Methiocarb	.50	4.16	4.16

Table 24: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for carrots 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Carrots	Fungicides			
	Azoxystrobin	138.91	573.16	385.58
	Boscalid	201.31	765.23	512.26
	Cyprodinil	23.13	70.08	70.08
	Difenoconazole	14.45	115.58	71.78
	Fenpropimorph	174.35	298.00	254.20
	Fludioxonil	15.42	70.08	70.08
	Mancozeb	3771.79	2209.29	657.70
	Pyraclostrobin	50.52	765.23	512.26
	Tebuconazole	250.38	1457.49	563.19
	Trifloxystrobin	45.65	612.51	405.70
	Herbicides			
	Aclonifen	12.60	24.50	24.50
	Fluazifop-P-butyl	.66	4.20	4.20
	Glyphosate	268.24	241.62	241.62
	Linuron	427.41	1152.38	645.27
	Metribuzin	102.37	704.48	498.09
	Pendimethalin	786.20	627.43	627.43
	Prosulfocarb	666.88	421.22	293.56
	Tepraloxydim	25.00	332.94	332.94
	Insecticides			
	Chlorantraniliprole	13.74	466.65	340.78
	Deltamethrin	.07	4.52	4.52
	Garlic extract	78.76	31.54	5.26
	Lambda-cyhalothrin	23.67	1868.50	763.64
	Oxamyl	187.29	124.86	124.86
	Pirimicarb	15.40	109.98	82.00
	Thiacloprid	20.77	216.39	216.39
	Molluscicides			
	Methiocarb	9.35	75.39	75.39
	Growth Regulator			
	Maleic hydrazide	374.58	124.86	124.86

Table 25: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for parsnips 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Parsnips	Fungicides			
	Azoxystrobin	21.93	87.73	72.48
	Boscalid	40.62	184.75	103.24
	Difenoconazole	24.51	196.05	114.55
	Fenpropimorph	71.75	177.32	177.32
	Mancozeb	21.66	16.68	16.68
	Metalaxyl-m	5.92	9.78	9.78
	Pyraclostrobin	10.19	184.75	103.24
	Herbicides			
	Glyphosate	6.36	8.01	8.01
	Linuron	198.09	443.96	341.57
	Metamitron	204.71	161.38	161.38
	Pendimethalin	322.53	332.30	332.30
	Propaquizafop	8.90	66.52	66.52
	Prosulfocarb	170.35	158.53	148.89
	Tepraloxym	.91	26.41	26.41
	Insecticides			
	Chlorantraniliprole	9.49	271.18	189.67
	Lambda-cyhalothrin	10.10	894.51	429.75
	Pyrethrins	.52	206.49	124.98
	Thiacloprid	17.40	181.22	99.71
	Growth Regulator			
	Maleic hydrazide	91.29	30.43	30.43
	Molluscicides			
	Methiocarb	.06	.81	.81

Table 26: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for turnips and swedes 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Turnips & Swedes	Fungicides			
	Azoxystrobin	69.37	300.53	201.30
	Difenoconazole	32.92	271.98	251.50
	Fenpropimorph	48.62	122.90	122.90
	Iprodione	.04	33.80	33.80
	Mancozeb	19.69	17.18	10.84
	Metalaxyl-m	1.23	17.18	10.84
	Tebuconazole	15.18	101.62	94.86
	Thiram	.10	69.86	69.86
	Herbicides			
	Clopyralid	2.25	11.27	11.27
	Cycloxydim	2.16	18.03	18.03
	Glyphosate	277.00	246.49	246.49
	Metazachlor	355.27	484.51	484.51
	Napropamide	16.39	29.38	29.38
	Insecticides			
	Chlorpyrifos	330.56	467.11	369.77
	Deltamethrin	.12	15.71	15.71
	Dimethoate	2.16	5.41	2.70
	Esfenvalerate	.16	25.35	25.35
	Garlic extract	324.20	100.86	92.32
	Lambda-cyhalothrin	5.95	404.19	196.18
	Pirimicarb	4.99	23.50	23.50
	Pyrethrins	.61	66.01	66.01
	Thiacloprid	16.56	172.49	115.02
	Molluscicides			
	Methiocarb	14.92	109.22	83.28
	Biological Controls			
	Bacillus subtilis	.	36.05	36.05

Table 27: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for beetroot 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Beetroot	Fungicides			
	Difenoconazole	.09	.75	.75
	Fenpropimorph	.56	.75	.75
	Mancozeb	16.42	8.76	4.38
	Herbicides			
	Metamitron	15.33	4.38	4.38
	Metazachlor	2.67	2.13	2.13
	Pendimethalin	4.59	5.13	5.13
	Prosulfocarb	5.26	2.19	2.19
	Insecticides			
	Thiacloprid	.84	8.76	4.38
	Molluscicides			
	Methiocarb	.10	.75	.75

Table 28: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for onions 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Onions	Fungicides			
	Azoxystrobin	91.52	366.06	167.20
	Benthiavali carb-isopropyl	8.30	296.54	159.94
	Chlorothalonil	99.63	135.55	128.29
	Copper oxychloride	78.79	396.88	101.17
	Dimethomorph	71.45	476.35	159.94
	Iprodione	8.17	21.78	7.26
	Mancozeb	2295.97	1572.01	170.65
	Metalaxyl-m	1.02	19.83	9.91
	Herbicides			
	Chlorpropham	4.36	7.26	7.26
	Cycloxydim	.73	7.26	7.26
	Glyphosate	126.30	101.39	101.39
	Ioxynil	31.06	400.59	167.43
	Linuron	5.97	2.65	2.65
	Pendimethalin	285.58	229.58	167.32
	Prosulfocarb	201.92	209.59	108.43
	Tepraloxym	5.69	108.43	108.43
	Insecticides			
	Pyridate	.10	.12	.12

Table 29: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for summer scallions 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Summer scallions	Fungicides			
	Boscalid	32.26	80.54	40.27
	Chlorothalonil	6.53	6.53	6.53
	Cyprodinil	3.02	8.05	8.05
	Fludioxonil	2.01	8.05	8.05
	Iprodione	19.61	33.38	17.27
	Mancozeb	84.10	114.50	58.12
	Metalaxyl-m	5.22	113.92	57.54
	Pyraclostrobin	8.09	80.54	40.27
	Herbicides			
	Clopyralid	.60	8.05	8.05
	Cycloxydim	.69	4.60	4.60
	Glyphosate	.22	.22	.22
	loxynil	12.89	71.99	61.03
	Pendimethalin	18.32	40.27	40.27
	Prosulfocarb	31.39	22.64	14.58
	Insecticides			
	Pyrethrins	.60	24.16	8.05
	Spinosad	1.55	16.11	8.05
	Tefluthrin	4.03	40.27	40.27
	Molluscicides			
	Methiocarb	.40	2.69	2.69
	Biological Controls			
	Bacillus subtilis	1.70	12.66	12.66

Table 30: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for winter scallions 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Winter scallions	Fungicides			
	Boscalid	27.65	69.03	34.52
	Chlorothalonil	4.60	4.60	4.60
	Cyprodinil	1.73	4.60	4.60
	Fludioxonil	1.15	4.60	4.60
	Iprodione	13.90	14.68	11.45
	Mancozeb	50.72	79.12	41.37
	Metalaxyl-m	3.52	83.72	45.97
	Pyraclostrobin	6.94	69.03	34.52
	Herbicides			
	loxynil	26.20	126.07	45.97
	Pendimethalin	15.71	34.52	34.52
	Prosulfocarb	15.92	12.83	8.23
	Tepraloxym	.09	3.62	3.62
	Insecticides			
	Tefluthrin	3.45	34.52	34.52

Table 31: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for soup leeks 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Soup leeks	Fungicides			
	Azoxystrobin	.95	3.79	3.79
	Fenpropimorph	4.62	12.31	12.31
	Tebuconazole	2.30	16.10	12.31
	Trifloxystrobin	.38	3.79	3.79
	Herbicides			
	Glyphosate	.15	.15	.15
	loxynil	1.48	12.61	12.46
	Metazachlor	4.62	12.31	12.31
	Pendimethalin	4.20	12.31	12.31
	Prosulfocarb	6.06	3.79	3.79

Table 32: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for table leeks 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Table leeks	Fungicides			
	Azoxystrobin	2.54	10.15	10.15
	Chlorothalonil	4.05	4.05	4.05
	Fenpropimorph	18.44	41.89	40.67
	Metalaxyl-m	.30	4.05	4.05
	Propamocarb hydrochloride	.87	.02	.02
	Tebuconazole	19.30	115.55	57.63
	Trifloxystrobin	5.07	58.09	54.04
	Herbicides			
	Glyphosate	7.71	7.32	7.32
	loxynil	8.53	80.52	43.84
	Linuron	.22	.36	.36
	Metazachlor	2.13	2.84	2.84
	Pendimethalin	37.03	28.50	28.50
	Prosulfocarb	31.61	19.76	19.76
	Pyridate	.07	.08	.08
	Tepraloxym	.88	14.09	14.09
	Insecticides			
	Chlorpyrifos	.38	.02	.02
	Spinosad	.63	10.04	10.04
	Molluscicides			
	Methiocarb	.68	5.68	2.84

Table 33: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for lettuce 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Lettuce	Fungicides			
	Azoxystrobin	29.40	117.58	117.58
	Boscalid	60.85	180.83	133.75
	Difenoconazole	.81	6.49	6.49
	Dimethomorph	4.89	4.89	4.89
	Iprodione	5.25	46.27	46.27
	Mandipropamid	21.91	146.06	98.98
	Propamocarb hydrochloride	39.86	.54	.54
	Pyraclostrobin	15.27	180.83	133.75
	Herbicides			
	Glyphosate	1.62	2.24	2.24
	Metazachlor	7.16	9.56	9.56
	Pendimethalin	143.58	132.58	132.58
	Propyzamide	140.70	103.49	103.49
	Insecticides			
	Acetamiprid	4.61	92.27	92.27
	Cypermethrin	2.44	97.71	97.71
	Dimethoate	1.96	4.89	4.89
	Esfenvalerate	.02	.63	.63
	Lambda-cyhalothrin	.74	98.54	98.54
	Pirimicarb	3.38	61.45	61.45
	Pymetrozine	38.59	192.92	145.85
	Spirotetramat	12.18	162.43	125.36
	Molluscicides			
	Methiocarb	11.86	87.02	87.02

Table 34: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for table celery 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Table celery	Fungicides			
	Azoxystrobin	11.90	52.75	42.45
	Difenoconazole	9.52	76.17	44.97
	Mancozeb	127.99	74.62	39.56
	Propamocarb hydrochloride	1.27	.03	.03
	Herbicides			
	Linuron	5.14	8.46	8.46
	Pendimethalin	13.80	10.49	10.49
	Prosulfocarb	77.19	31.20	31.20
	Insecticides			
	Chlorpyrifos	.56	.03	.03
	Cypermethrin	1.47	54.35	37.63
	Lambda-cyhalothrin	.66	69.89	41.59
	Pyrethrins	.73	79.44	37.63
	Molluscicides			
	Methiocarb	.23	1.93	1.93

Table 35: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for parsley 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Parsley	Fungicides			
	Azoxystrobin	3.57	14.28	14.28
	Dimethomorph	7.14	7.14	7.14
	Iprodione	.09	14.28	14.28
	Mandipropamid	2.14	14.28	7.14
	Herbicides			
	Glyphosate	43.49	40.27	40.27
	Linuron	51.83	56.00	56.00
	Pendimethalin	40.31	40.27	40.27
	Insecticides			
	Lambda-cyhalothrin	.03	1.94	.65
	Pirimicarb	18.99	75.96	54.55
	Pymetrozine	8.05	40.27	40.27
	Tefluthrin	.22	14.28	14.28

Table 36: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for other herbs including mint, sage etc. 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Other herbs e.g.mint, sage, etc.	Fungicides			
	Fosetyl-aluminium	12.73	16.42	8.21
	Propamocarb hydrochloride	21.76	16.42	8.21
	Cymoxanil	.01	11.95	11.95
	Fludioxonil	.01	11.95	11.95
	Metalaxyl-m	.01	11.95	11.95
	Herbicides			
	Glufosinate-ammonium	1.80	4.00	2.00
	Glyphosate	10.37	7.68	7.68
	Lenacil	38.39	43.63	43.63
	Insecticides			
	Chlorpyrifos	11.26	23.47	23.47
	Pyrethrins	.08	16.42	8.21

Table 37: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for rhubarb 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Rhubarb	Herbicides			
	Pendimethalin	10.78	8.17	8.17
	Propyzamide	19.00	13.57	13.57

Table 38: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for sweet corn 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Sweetcorn	Herbicides			
	Glyphosate	3.78	3.00	3.00
	Mesotrione	.32	3.00	3.00
	Pendimethalin	3.96	3.00	3.00
	Terbuthylazine	1.49	3.00	3.00
	Insecticides			
	Pirimicarb	.75	6.00	3.00

Table 39: Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for celeriac 2011.

Crop	Active Substance	Quantity (kg) of Active Ingredient	Spray area (spha) of Active Ingredient	Basic area (ha) of Active Ingredient
		Total	Total	Total
Celeriac	Fungicides			
	Azoxystrobin	1.03	4.11	4.11
	Boscalid	1.10	4.11	4.11
	Fenpropimorph	3.08	4.11	4.11
	Pyraclostrobin	.28	4.11	4.11
	Insecticides			
	Pyrethrins	.04	8.21	4.11
	Thiacloprid	.39	4.11	4.11

Table 40: The fifty active ingredients most extensively used on vegetable crops in Ireland 2011, ranked by treated area (spray hectares).

No.	Active substance	Spray area (spha) of Active substance	No.	Active Substance	Spray area (spha) of Active substance
1	Mancozeb	5,176	26	Dimethomorph	488
2	Lambda-cyhalothrin	4,252	27	Tepraloxdim	485
3	Metazachlor	2,453	28	Spirotetramat	475
4	Difenoconazole	2,383	29	Chlorothalonil	473
5	Azoxystrobin	2,301	30	Chlorpyrifos	453
6	Tebuconazole	2,241	31	Pyrethrins	403
7	Pyraclostrobin	1,965	32	Copper oxychloride	397
8	Boscalid	1,965	33	Iprodione	335
9	Pendimethalin	1,918	34	Benthiavalicarb-isopropyl	297
10	Linuron	1,664	35	Pyridate	248
11	Metalaxyl-m	1,337	36	Esfenvalerate	213
12	Methiocarb	1,332	37	Acetamiprid	178
13	Glyphosate	1,189	38	Metamitron	166
14	Thiacloprid	929	39	Spiromesifen	161
15	Prosulfocarb	882	40	Mandipropamid	160
16	Trifloxystrobin	877	41	Maleic hydrazide	155
17	Cypermethrin	868	42	Garlic extract	132
18	Deltamethrin	866	43	Oxamyl	125
19	Pirimicarb	803	44	Clopyralid	125
20	Chlorantraniliprole	738	45	Propyzamide	117
21	Metribuzin	704	46	Cycloxydim	114
22	loxynil	692	47	Indoxacarb	108
23	Pymetrozine	674	48	Tefluthrin	89
24	Fenpropimorph	657	49	Cyprodinil	83
25	Chlorpyrifos	650	50	Fludioxonil	83

Table 41: The fifty active ingredients most extensively used on vegetable crops in Ireland 2011, ranked by weight (kilograms).

No.	Active substance	Quantity (Kg) of Active substance	No.	Active Substance	Quantity (Kg) of Active substance
1	Mancozeb	7,656.0	26	Pymetrozine	125.2
2	Pendimethalin	2,144.3	27	Metribuzin	102.4
3	Metazachlor	1,737.3	28	Metalaxyl-m	96.0
4	Glyphosate	1,358.1	29	Thiacloprid	89.9
5	Prosulfocarb	1,206.6	30	Dimethomorph	83.5
6	Linuron	688.6	31	loxynil	80.2
7	Boscalid	565.5	32	Copper oxychloride	78.8
8	Azoxystrobin	521.5	33	Napropamide	73.9
9	Chlorpyrifos	484.8	34	Trifloxystrobin	70.0
10	Maleic hydrazide	465.9	35	Spiromesifen	67.5
11	Garlic extract	403.0	36	Lambda-cyhalothrin	46.0
12	Tebuconazole	392.6	37	Lenacil	38.4
13	Chlorothalonil	360.5	38	Spirotetramat	35.7
14	Fenpropimorph	321.4	39	Tepraloxymid	32.6
15	Difenoconazole	296.6	40	Dimethoate	32.0
16	Metamitron	220.0	41	Cyprodinil	27.9
17	Chlorpyrifos	211.5	42	Mandipropamid	24.1
18	Oxamyl	187.3	43	Chlorantraniliprole	23.2
19	Propamocarb hydrochloride	182.6	44	Cypermethrin	22.4
20	Methiocarb	164.9	45	Tolclofos-methyl	21.7
21	Propyzamide	159.7	46	Fludioxonil	18.6
22	Pyridate	143.5	47	Clopyralid	14.2
23	Pirimicarb	142.7	48	Fosetyl-aluminium	12.7
24	Pyraclostrobin	141.9	49	Aclonifen	12.6
25	Iprodione	140.4	50	Cycloxydim	11.9

Table 42: The proportional area (%) of all crops treated with each pesticide group in Ireland, 2011.

Crop	Fungicides	Herbicides	Insecticides	Molluscicides	Biological Controls	Growth Regulators	Seed treatments	All Pesticides
Broccoli	57.81	99.74	94.03	20.12	0.00	0.00	0.16	100.00
Brussel sprouts	97.81	99.96	99.41	99.96	0.00	0.00	0.04	100.00
Autumn cabbage	89.44	91.98	88.73	38.44	0.00	0.00	0.01	92.10
Spring cabbage	84.12	98.38	60.87	52.43	0.00	0.00	0.41	100.00
Winter cabbage	95.37	98.27	96.42	42.88	0.00	0.00	0.02	100.00
Summer cabbage	84.44	94.73	97.09	60.48	0.00	0.00	0.09	100.00
Savoy cabbage	81.48	99.89	100.00	67.70	0.00	0.00	0.00	100.00
White cabbage	92.54	99.85	99.93	25.45	0.00	0.00	0.00	100.00
Red cabbage	100.00	99.98	100.00	26.89	0.00	0.00	0.01	100.00
Autumn cauliflower	72.79	99.93	100.00	6.94	0.00	0.00	0.04	100.00
Summer cauliflower	40.07	99.92	99.78	14.81	0.00	0.00	2.72	100.00
Winter cauliflower	85.62	98.96	95.60	16.99	0.00	0.00	0.03	100.00
Kale	100.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Peas (not for animals)	100.00	100.00	100.00	0.00	0.00	0.00	0.00	100.00
Broad beans	100.00	100.00	100.00	0.00	0.00	0.00	0.00	100.00
Courgettes	93.92	97.30	93.65	87.57	0.00	0.00	0.12	100.00
Marrows	0.00	0.00	100.00	0.00	0.00	0.00	0.00	100.00
Pumpkin	30.64	98.89	72.21	17.33	0.00	0.00	1.07	100.00
Carrots	92.44	98.94	94.44	11.58	0.00	19.18	24.43	100.00
Parsnips	78.71	99.58	99.82	0.24	0.00	8.87	22.50	100.00
Turnips & Swedes	66.38	96.80	82.71	16.10	6.97	0.00	17.81	98.80
Beetroot	61.32	86.82	52.36	8.97	0.00	0.00	0.00	86.80
Onions	99.80	99.53	0.00	0.00	0.00	0.00	36.41	100.00
Summer scallions	95.23	100.00	79.18	4.41	13.20	0.00	8.82	100.00
Winter scallions	100.00	100.00	75.08	0.00	0.00	0.00	0.00	100.00
Soup leeks	98.07	99.27	0.00	0.00	0.00	0.00	0.00	99.30
Table leeks	98.42	99.29	21.20	5.99	0.00	0.00	0.00	99.30
Lettuce	74.40	88.98	77.36	47.56	0.00	0.00	0.22	89.60
Table celery	100.00	88.56	92.48	4.29	0.00	0.00	0.00	100.00
Parsley	25.49	100.00	98.56	0.00	0.00	0.00	0.00	100.00
Other herbs e.g mint, sage,	13.67	88.76	52.75	0.00	0.00	0.00	19.89	88.80
Rhubarb	0.00	48.30	0.00	0.00	0.00	0.00	0.00	48.30
Sweetcorn	0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Celeriac	100.00	0.00	100.00	0.00	0.00	0.00	0.00	100.00

Acknowledgements

This report was compiled by James Quirke, with invaluable assistance from Alan Withers AFBI, Michael Lavery AFBI, David Williams AFBI, David Mathews AFBI, Trudyann Kelly AFBI and Amanda Patton, AFBI. Thanks are due to all the growers 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 growers were conducted by John Faughnan, Pdraig Flynn, Colin McElvaney, Fergal McDonald, Pat Morrisson, Cathal O’Gorman, William Larkin and James Quirke.