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PESTICIDE USAGE SURVEY REPORT 281

OUTDOOR VEGETABLE CROPS IN NORTHERN IRELAND 2017

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https://www.afbini.gov.uk/articles/pesticide-usage-monitoring-surveys

Department of Agriculture, Environment and Rural Affairs
https://www.daera-ni.gov.uk/articles/departmental-responsibilities-regarding-pesticides

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The County Regions of Northern Ireland

SUMMARY

This is the ninth survey of pesticide usage on outdoor vegetable crops in Northern Ireland, providing comparative data to that obtained in the previous surveys in 1991 (Jess *et al*., 1993), 1995 (Kidd *et al*., 1998), 1999 (Kearns *et al*., 2002), 2004 (Kearns *et al*., 2005), 2007 (Withers *et al*., 2009), 2011 (Withers *et al*., 2012), 2013 (Withers *et al*., 2014) and 2015 (Lavery *et al*., 2016). Information on all aspects of pesticide usage was collected from 42 holdings throughout the province. Quantitative data have been adjusted to provide estimates of total pesticide usage. The area of outdoor vegetable crops grown in Northern Ireland in 2017 was an estimated 1,178 hectares; a 2% decrease compared with 2015.

Totals of 93 products and 64 active substances were recorded in use in this survey. By comparison with 2015, the pesticide-treated area increased by 6%, to 12,173 spray hectares, while the quantity of pesticide (active substances) decreased by 5% to approximately 4,208 kilograms. The fungicide-treated area decreased by 19% and the quantity of fungicide active substances applied decreased by 33%. The area treated with herbicides increased by 10% and the weight applied increased by 8%. The insecticide-treated area increased by 4% and the weight of insecticide active substances decreased by 23%. The area treated with molluscicides increased almost 3-fold and the quantity applied increased 5-fold when compared with 2015. This is possibly due to an increased use of the active substance metaldehyde which is applied at a higher dose than previously reported actives applied at lower doses. Growth regulators were recorded in use for the first time since 2013 and accounted for less than 1% of the total area and total quantity applied.

The area of vegetable crops grown from treated seed (direct sown or propagated and transplanted) increased by 59% since 2015 and the weight of active substances used significantly increased by almost 5-fold. In 2015, seed treatments applied to propagated vegetables to be transplanted outdoors were recorded only in the edible protected survey. In this survey, any seed treated at propagation stage then transplanted outdoors is also included in the seed treatment totals.

Fungicides, applied to 19% of the pesticide-treated area, accounted for 17% of the weight of pesticides applied. Herbicides accounted for 39% of the pesticide-treated area and 69% of the total quantity of pesticides used. Insecticides, applied to 27% of the pesticide-treated area, accounted for 13% of the total quantity of pesticides used. Growth regulators accounted for less than 1% of the pesticide treated area and quantity applied. Molluscicides accounted for 1% of both the total pesticide-treated area and the quantity of pesticides applied. Seed treatments applied to outdoor vegetable crops grown in 2017 accounted for 13% of the pesticide-treated area representing less than 1% of the quantity of active ingredients applied.

Carrots and parsnips collectively accounted for 61% of the quantity of fungicide active ingredients applied, representing 61% of the area treated with fungicides, with the active substance prothioconazole being most frequently used on carrots and active substance formulation azoxystrobin/difenoconazole being most frequently used on parsnips. Brassica crops received 25% of the total weight of fungicides applied, representing 25% of the area of vegetable crops treated with fungicides. The single most commonly used fungicide active substance applied to brassicas was the curative fungicide difenoconazole and active substance formulation azoxystrobin/difenoconazole, primarily for general fungal control.

Clomazone and linuron were the herbicide active ingredients most commonly applied to outdoor vegetable crops, particularly to turnips and swede and carrots and parsnips respectively. Overall, 52% of all herbicide applications were applied to carrot and parsnip crops, with 23% applied to turnips and swedes.

Carrots and parsnips collectively accounted for 69% of the insecticide-treated area, representing 91% of the quantity of insecticide active substances applied mainly due to garlic extract being applied at high application rates for the control of nematodes. Leafy and flowerhead brassicas accounted for 23% of the insecticide-treated area representing 8% of the weight of insecticides applied. The pyrethroid insecticide lambda-cyhalothrin was the most frequently used insecticide accounting for 45% of all insecticide active substances applied to carrot crops, primarily for general insect control.

With exception of the use of garlic oil in carrots for the control of nematodes there were no records of biopesticides/biological control in NI vegetable crops in 2017.

Crops which were propagated from seed and/or grown under glass or polythene for the duration of their life cycle are recorded in the Edible Protected Crops in Northern Ireland 2017 report (Lavery *et al*., 2018). These crops have previously been included in the totals for outdoor vegetable crops. The proportion of total treated area of vegetable crops attributed to propagation (edible protected) is estimated at <0.20%.

A number of new active substances and formulated mixtures, which were not recorded in the previous report have been used during this survey period. The fungicides chlorothalonil/cyproconazole, cyprodinil/isopyrazam, epoxiconazole/metconazole and isopyrazam, the herbicides bentazone, bromoxynil, clethodim, dimethenamid-P/metazachlor, ethametsulfuron-methyl (not currently approved for use in the UK), fluroxypyr/halauxifen-methyl, metsulfuron-methyl/tribenuron-methy, pyridate and S-metolachlor, insecticides acetamiprid, chlorantraniliprole and cyantraniliprole and the growth regulator trinexapac-ethyl were all recorded as used in 2017. Conversely, a number of active substances and formulated mixtures which were used in 2015 have not been recorded during this survey period. These include the fungicides azoxystrobin/chlorothalonil, copper oxychloride, cyproconazole/trifloxystrobin, fenhexamid, mancozeb, mandipropamid and sulphur, the herbicides chloridazon, ethofumesate ioxynil (withdrawn 2016), triflusulfuron-methyl and the insecticide oxamyl.

DEFINITIONS AND NOTES

- ‘Grown area’ refers to the actual planted area of crop, and is referred to in hectares (ha).
- ‘Basic area’ refers to the actual planted area of crop which received at least one pesticide application and is referred to in hectares (ha).
- ‘Treated area’ refers to the total area treated with a pesticide, including all repeated applications to the basic area, and is referred to in spray hectares (spha).
- ‘Quantity applied’ refers to the weight of pesticides applied, including all repeated applications, and is referred to in kilograms (kg).
- ‘Reasons for use’: the reasons reported for the use of pesticides are the **growers** stated reason for use and may sometimes seem inappropriate.
- ‘Rounding’: due to rounding of figures, there may be slight differences in totals both within and between tables.
- ‘Leafy and flowerhead brassica’: refers to Brussels sprouts, broccoli/calabrese, all cauliflower, all cabbage and kale. ‘Cauliflower’ refers to those crops which were not classified as either ‘summer’ or ‘autumn’ cauliflowers.
- Cabbage refers to: Savoy, Spring, Summer, Autumn, Winter, Red, White, Pointed and Hard cabbage. ‘Hard cabbage’ refers to cabbage used for coleslaw, the majority of which is classified as summer cabbage for comparison purposes.
- ‘Onions and leeks’: refers to soup leeks, table leeks, salad onions and summer scallions. ‘Leeks’ refer to those crops which were not classified as either soup or table leeks.
- ‘Celery and parsley’: refers to soup celery, table celery, celeriac and parsley.
- ‘Peas and beans’: refers to peas and broad beans.
- ‘Other vegetables’: refers to beetroot, pumpkin, rhubarb and squash.
- ‘Curcurbit crops’: refers to pumpkin and squash.
- ‘Ground preparation’ herbicides are also known as pre-cultivation or pre-sowing herbicides. ‘Sealers’ are also referred to as pre-emergence herbicides.
- ‘Leaf spot’ refers to leaf spot fungus.
- ‘Unknown fungicide’, ‘Unknown herbicide’, ‘Unknown insecticide’ and ‘Unknown seed treatment’ refer to a small number of products, for which the information regarding the product name and quantity applied was deemed unreliable, however, the area treated with these products has been included.

INTRODUCTION

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

Principally, the data collected provides information for consideration by the UK Expert Committee on Pesticides. In addition, the information may be used by those involved in residue testing, environmental impact studies, public information and for the evaluation and regulation of trends in pesticide usage. Pesticide usage monitoring forms part of an obligation under the Food and Environment Act (1985) for post-registration monitoring of pesticides approved for use. In addition, regulation EC 1185/2009 also provides a statutory requirement for the collection of pesticide statistics. The programme forms an integral part of the government's pesticide safety control arrangements, in providing quantitative and qualitative data on the usage of pesticides in agriculture, horticulture, food storage and associated industries.

This work is also undertaken in England and Wales by FERA Science Ltd (FERA) and in Scotland by Science and Advice for Scottish Agriculture (SASA). Pesticide usage reports from these regions may be obtained at the following sites:
(https://secure.fera.defra.gov.uk/pusstats/surveys/)
(https://www.sasa.gov.uk/pesticides/pesticide-usage/pesticide-usage-survey-reports)

This is the ninth survey examining pesticide usage practices on vegetable crops grown in Northern Ireland. Summary results from the previous surveys conducted in 1991 (Jess *et al*., 1993), 1995 (Kidd *et al*., 1998), 1999 (Kearns *et al*., 2002), 2004 (Kearns *et al*., 2005), 2007 (Withers *et al*., 2009), 2011 (Withers *et al*., 2012), 2013 (Withers *et al*., 2014) and 2015 (Lavery *et al*., 2016) are included in the report for comparative purposes.

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

METHODS

The sample of holdings to be surveyed was selected from each of the six counties, on the basis of the total area of vegetable crops grown, using a combination of data from the Northern Ireland Agricultural Census, June 2016 (*Anon*., 2015), farm level information from Single Farm Payment and from previous surveys. However, due to sampling procedures and the distribution of vegetable production in Northern Ireland, no holdings were selected from County Fermanagh.

The sample was stratified into five 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. The growers were contacted to confirm if they had grown outdoor vegetable crops in 2017. This information was used to estimate the total number of Northern Ireland growers.

The purpose of the survey was explained to the occupiers of selected holdings in preliminary correspondence. Forty-two holdings, representing 49% of holdings growing outdoor vegetable crops, were visited during the period January 2018 to April 2018 and data collected by personal interview. The data collected included: the area of crops grown, area treated, target crop, pesticide group, active substance used and number of treatments applied. The growers' stated reasons for pesticide use were also included but may not always seem appropriate. Holdings selected in the original sample unable to provide data were replaced with those 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 1. The collected data were entered using SQL, a relational database programme. Validated data were downloaded for analysis using IBM SPSS Statistics Version 22 software.

TRENDS

Figure 1: Comparison of the area of outdoor vegetable crops grown (ha) in Northern Ireland between 1991- 2017.

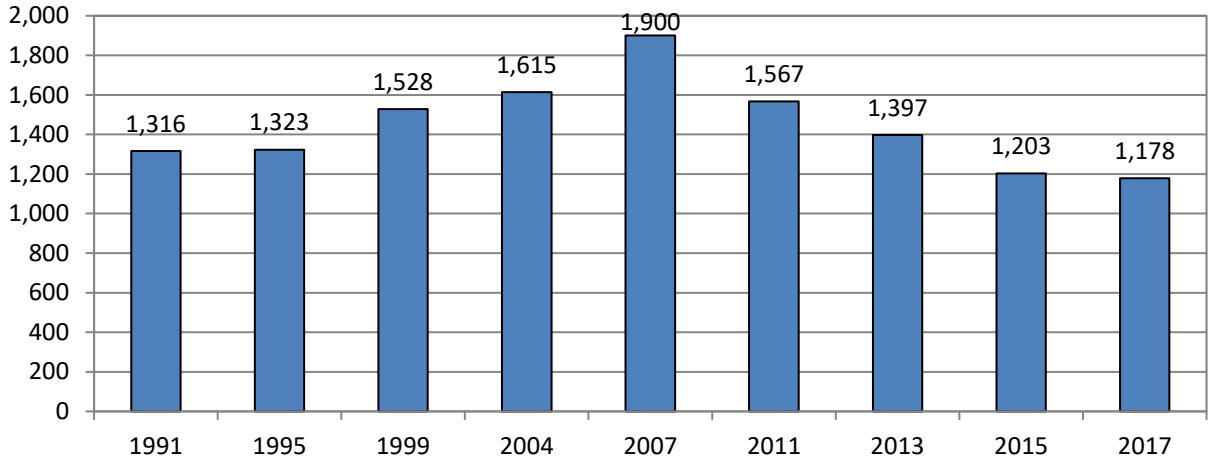


Figure 2: Comparison of the area of outdoor vegetable crops treated (spha) in Northern Ireland between 1991- 2017.

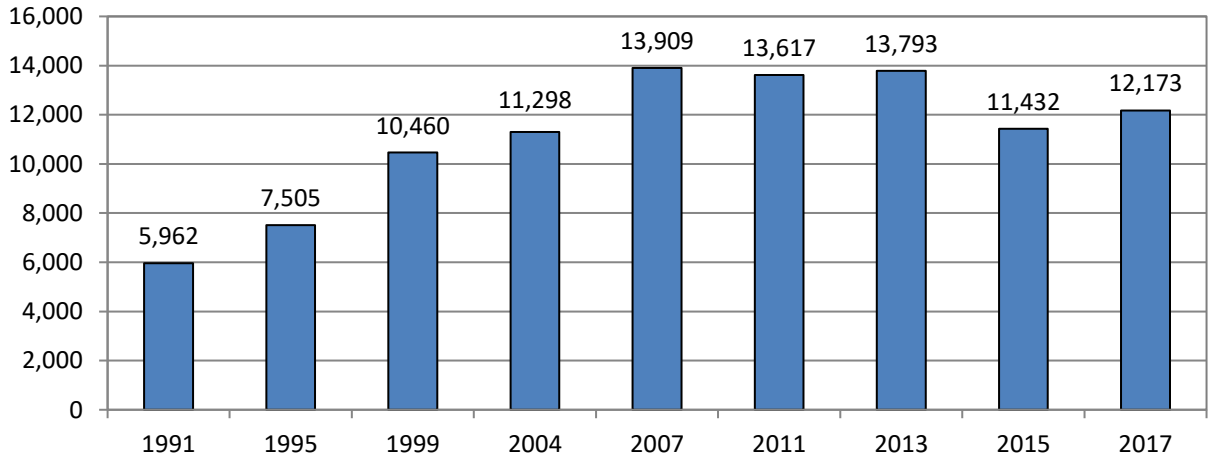


Figure 3: Comparison of the weight of pesticides applied (kg) to outdoor vegetable crops in Northern Ireland between 1991- 2017.

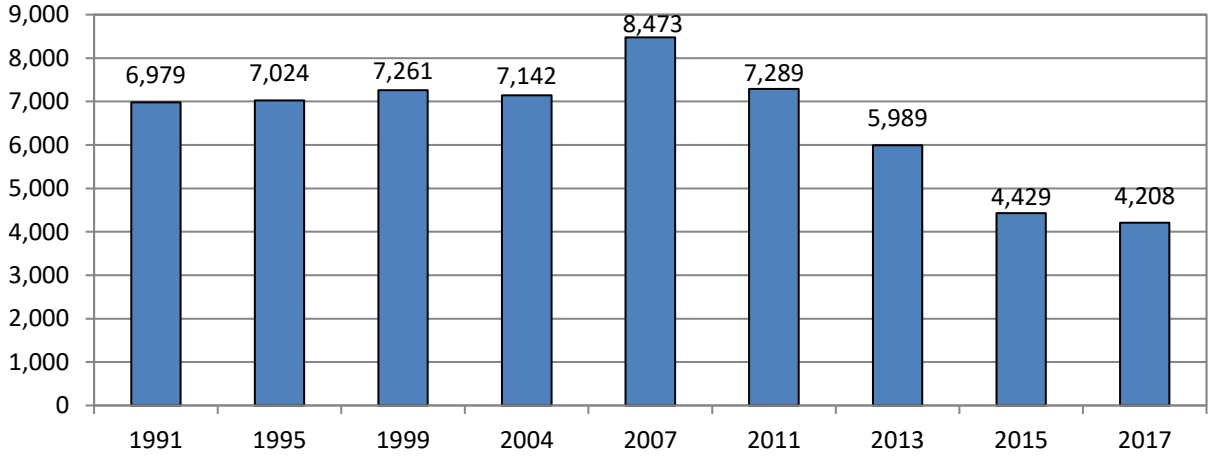


Figure 4: Changes in the area treated (spha) with the major pesticide groups applied to outdoor vegetable crops in Northern Ireland between 1991- 2017.

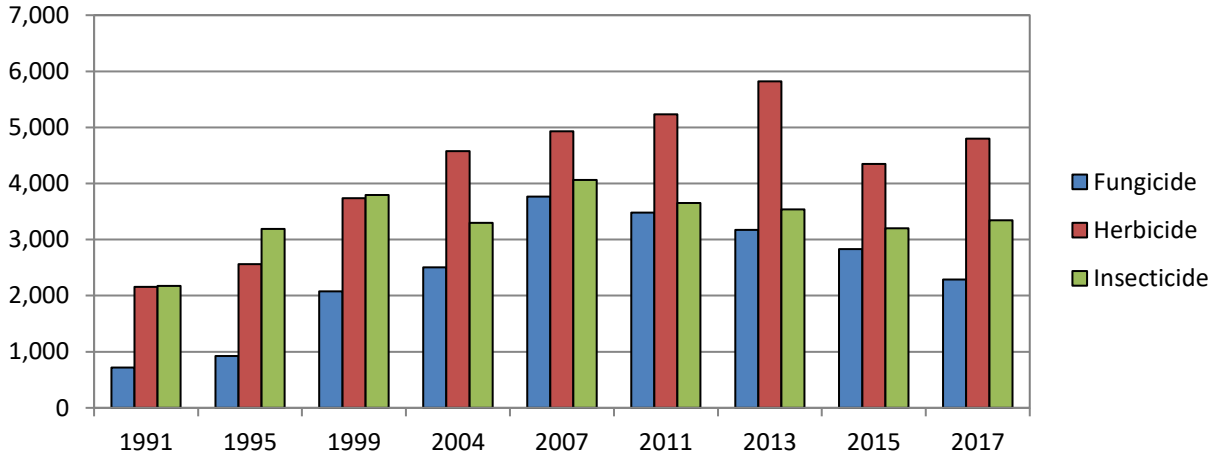
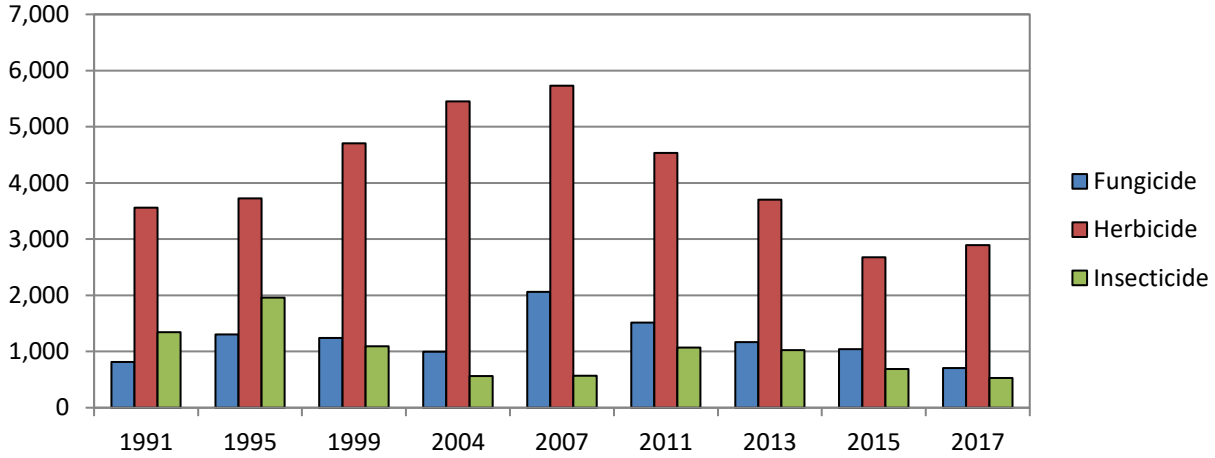


Figure 5: Changes in the weight (kg) of the major pesticide groups applied to outdoor vegetable crops in Northern Ireland between 1991- 2017.



RESULTS AND DISCUSSION

CROPS

The number and areas of crops surveyed are shown in Table 2 and figures 6 and 7. Data from 42 farms provided information on 210 examples of 30 crop types. Crops include Brussels sprouts, cabbage, cauliflower, turnips, swedes, beans, peas, leeks, onions, carrots, parsnips, celery, parsley, lettuce, beetroot, kale, rhubarb, squash and pumpkin. The total area of crops sampled in the survey was representative of the area of vegetable crops grown in Northern Ireland in 2017.

Since the first pesticide usage survey on vegetable crops in 1991 (Jess *et al*., 1993), carrots continue to be the most common outdoor vegetable crop grown in Northern Ireland. Carrots and parsnips collectively represented 39% of the total outdoor vegetable growing area and 59% of the weight of pesticides applied while turnips and swedes accounted for 23% of the area grown and 11% of the weight applied. Leafy and flowerhead brassicas were grown on an estimated 21% of the total area of outdoor vegetable crops, accounting for 14% of the weight of pesticides applied with cabbage accounting for 47% of the area of all brassicas grown and 39% of the weight applied. Alliums including leeks, scallions and onions, collectively accounted for 9% of the total grown area and 11% of the weight applied. Celery and parsley accounted for 3% of both the total area of outdoor vegetable crops grown and the weight of pesticides applied. Lettuce crops accounted for a further 3% of the total area grown and 2% of the total weight applied. Other vegetables accounted for 2% of the total area and less than 1% weight of pesticides applied.

In contrast with Great Britain, where peas and beans accounted for the majority of outdoor vegetable crops grown, less than 1% of the total area of outdoor vegetable crops grown in Northern Ireland in 2017 belonged to this crop group, accounting for less than 1% of the total weight of pesticides applied.

Figure 6a: Regional distribution of outdoor vegetable crops grown (ha) in Northern Ireland, 2017.

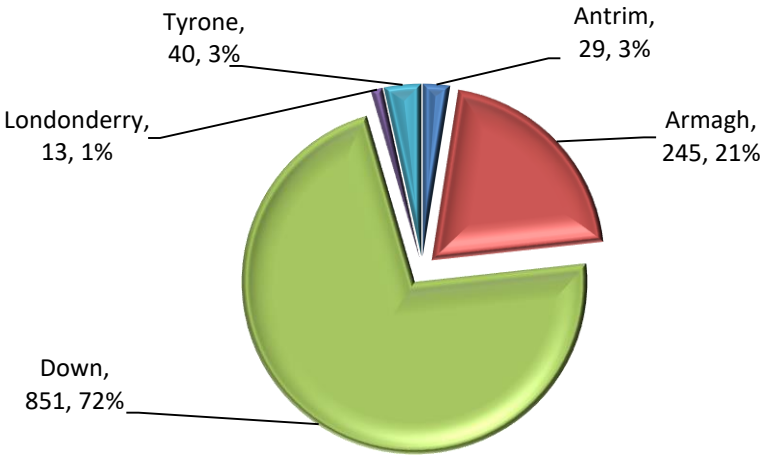


Figure 6b: Proportional areas of the different outdoor vegetable crops grown (ha) in Northern Ireland, 2017.

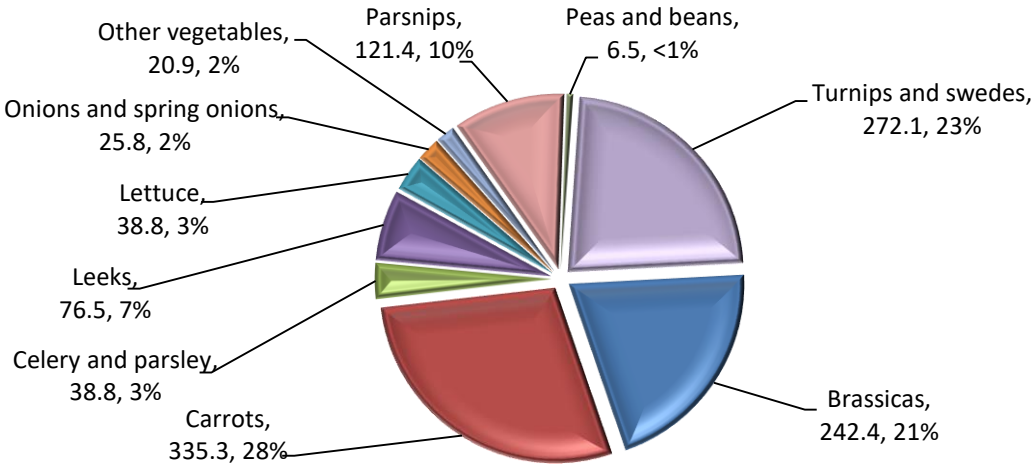


Figure 7a: Pesticide usage (spha) on outdoor vegetable crops in Northern Ireland, 2017.

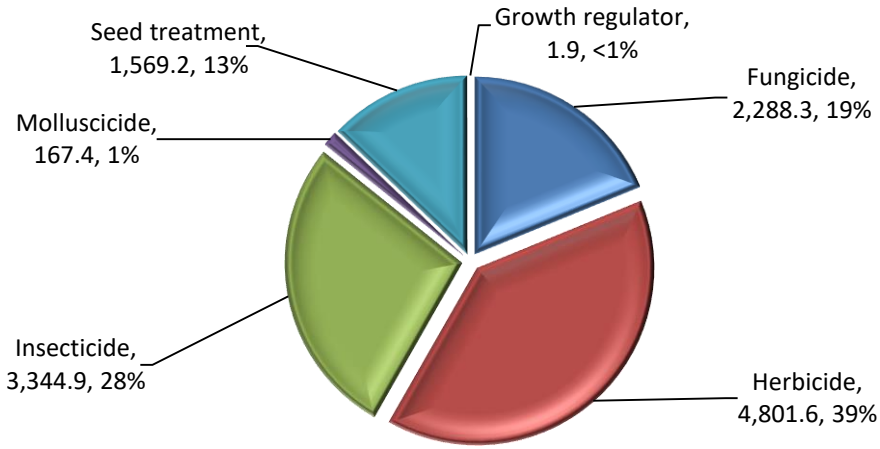


Figure 7b: Pesticide usage (kg) on outdoor vegetable crops in Northern Ireland, 2017.

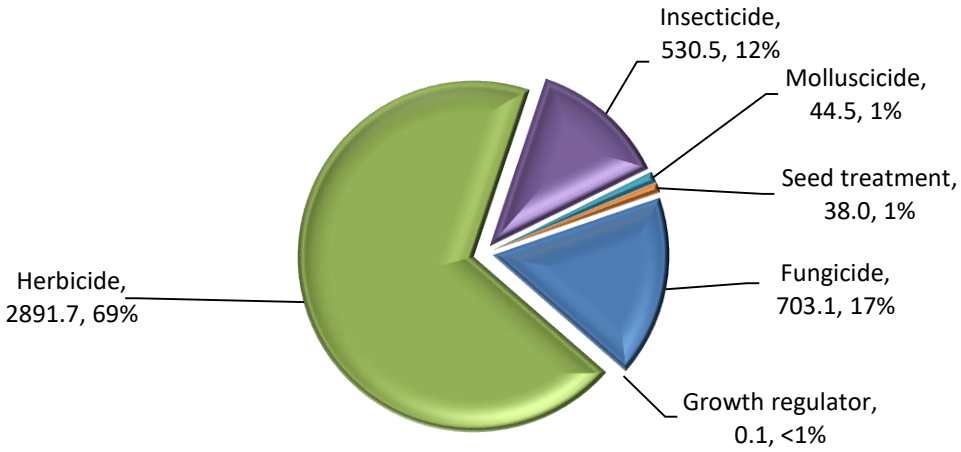


Figure 8: The ten most commonly used pesticide active substances by area treated (spha) in Northern Ireland, 2017.

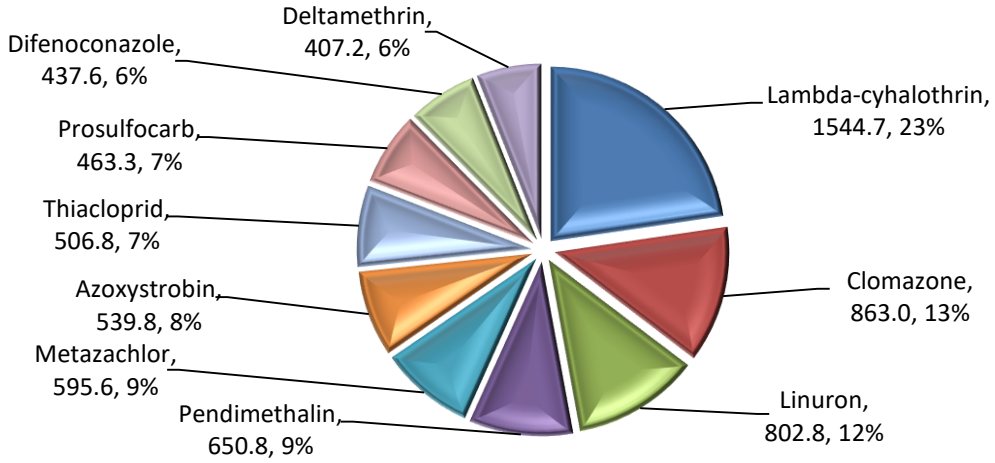


Figure 9: The ten most commonly used pesticide active substances by weight applied (kg) in Northern Ireland, 2017.

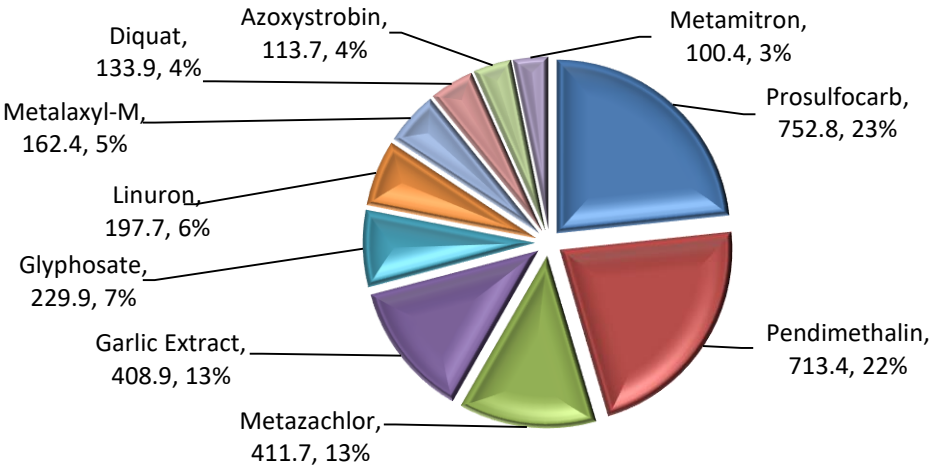


Figure 10: Comparison of the areas of outdoor vegetable crops treated (spha) with fungicides in Northern Ireland, 1991-2017.

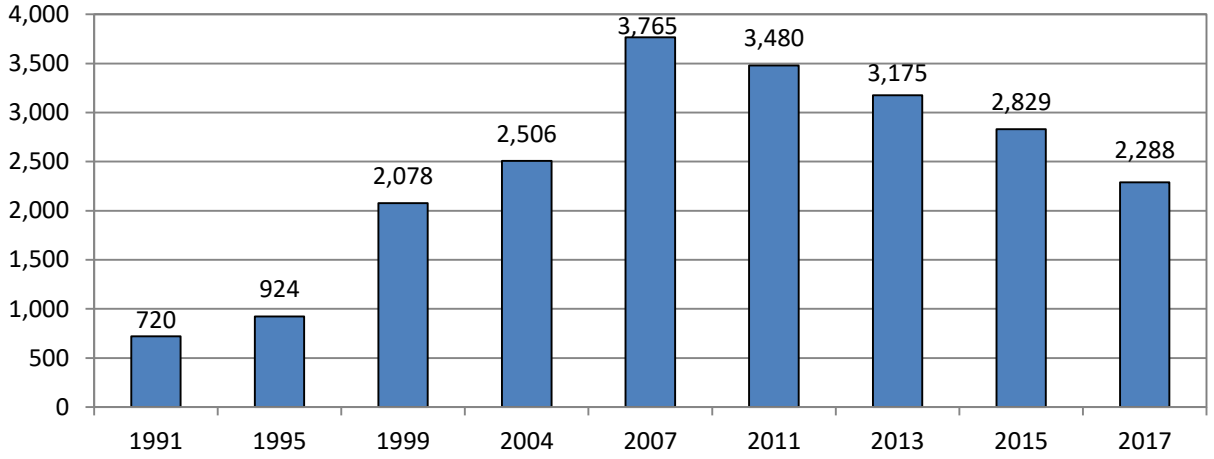


Figure 11: Comparison of the weight of fungicides applied (kg) to outdoor vegetable crops in Northern Ireland, 1991-2017.

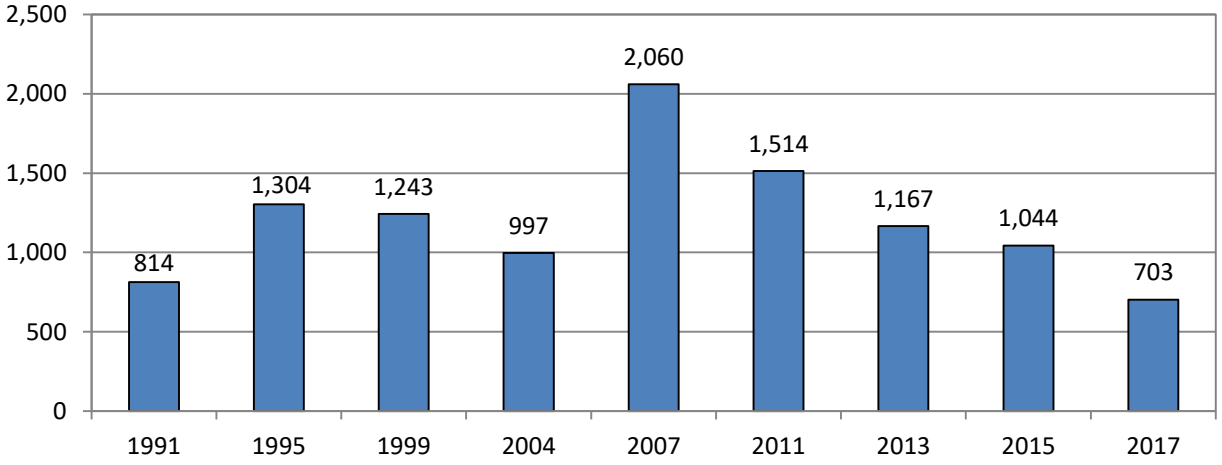


Figure 12: Comparison of the areas (spha) of outdoor vegetable crops treated with herbicides in Northern Ireland, 1991-2017.

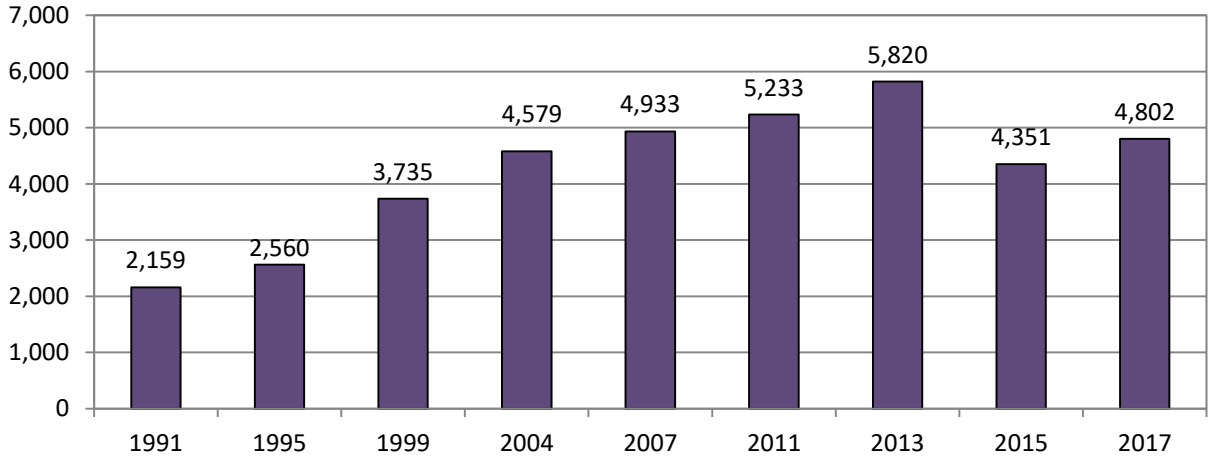


Figure 13: Comparison of the weight (kg) of herbicides applied to outdoor vegetable crops in Northern Ireland, 1991-2017.

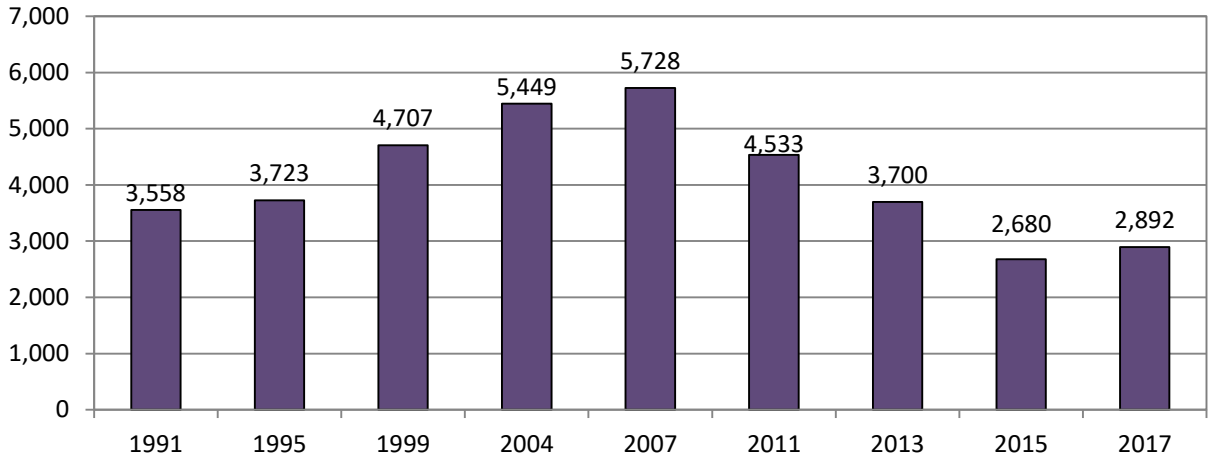


Figure 14: Comparison of the areas (spha) of outdoor vegetable crops treated with insecticides in Northern Ireland, 1991-2017.

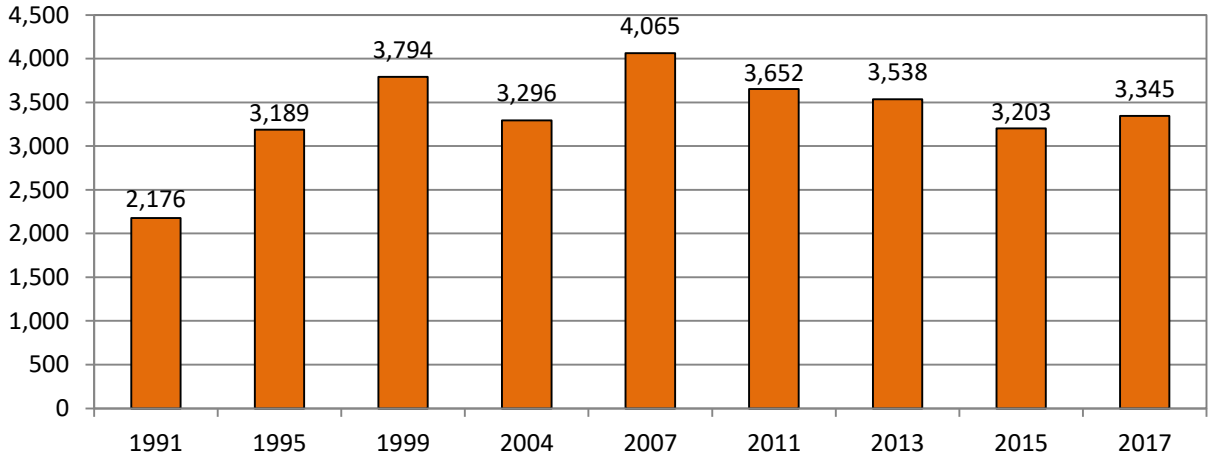


Figure 15: Comparison of the weight (kg) of insecticides applied to outdoor vegetable crops in Northern Ireland, 1991-2017.

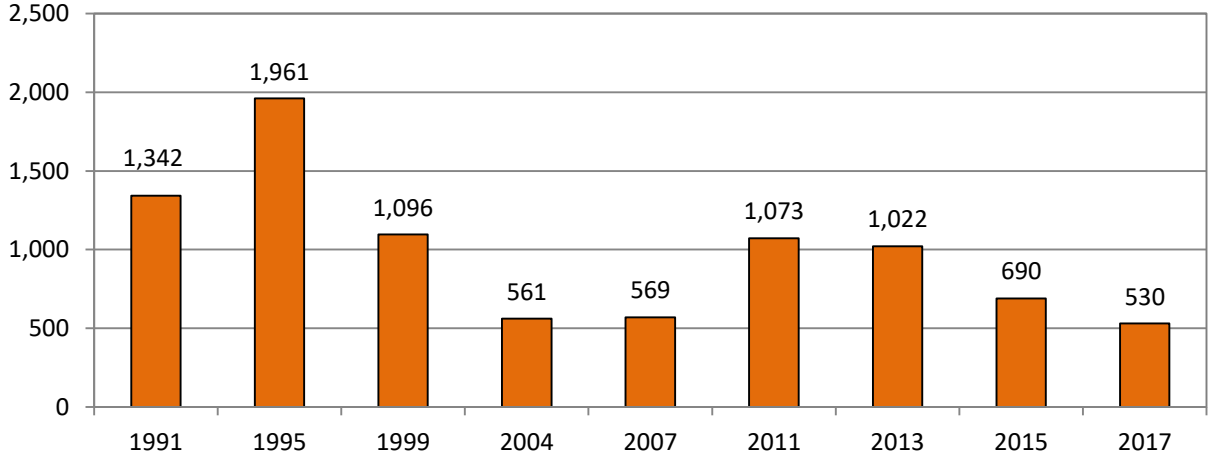


Figure 16: Comparison of the areas (spha) of outdoor vegetable crops treated with molluscicides in Northern Ireland, 1991-2017.

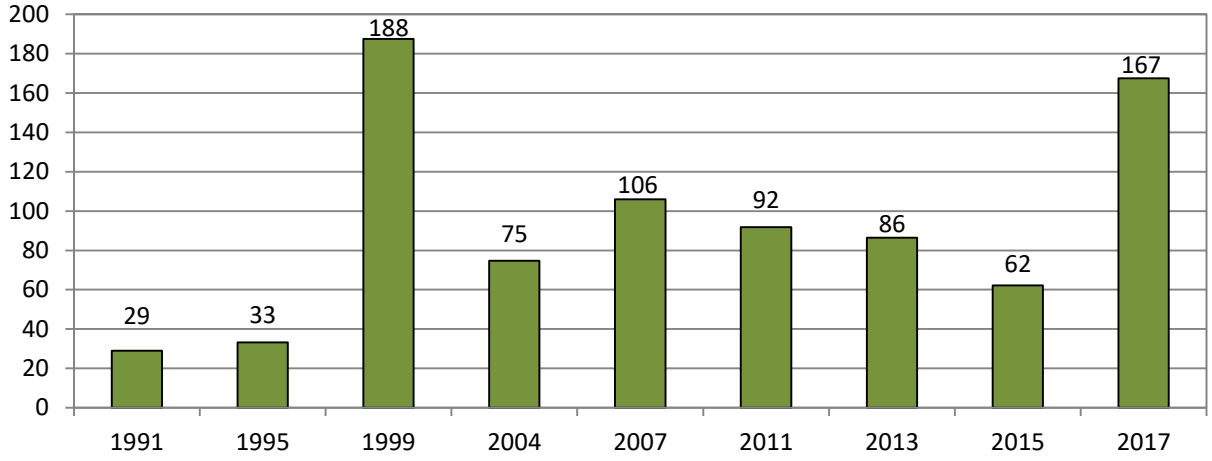


Figure 17: Comparison of the weight (kg) of molluscicides applied to outdoor vegetable crops in Northern Ireland, 1991-2017.

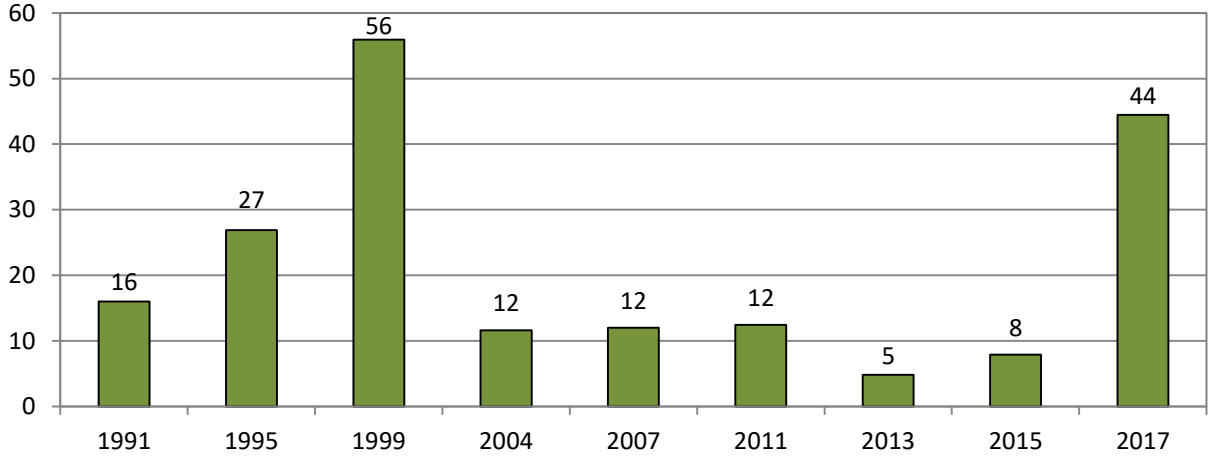


Figure 18: Comparison of the areas (spha) of outdoor vegetable crops with treated seed in Northern Ireland, 1991-2017.

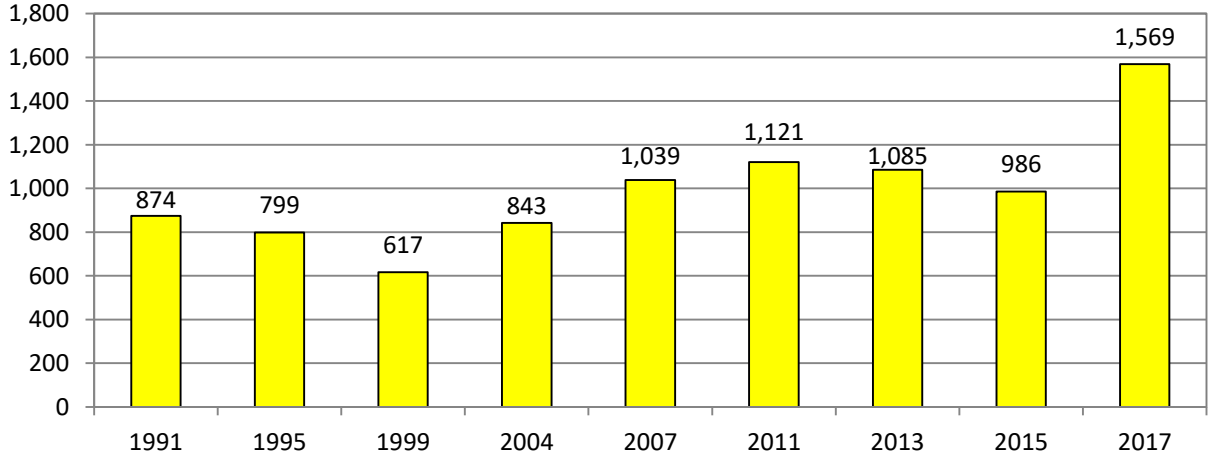
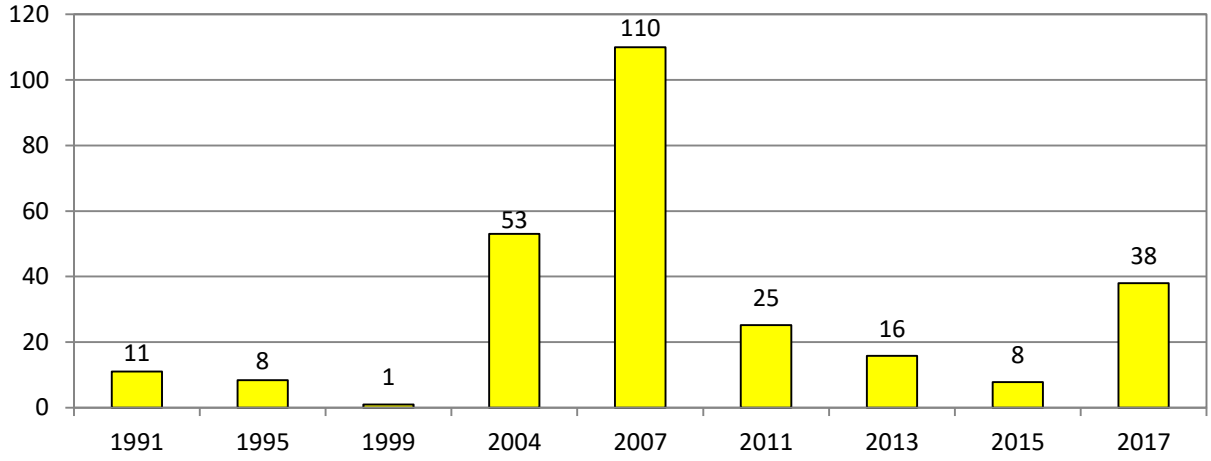


Figure 19: Comparison of the weight (kg) of seed treatments applied to outdoor vegetable crops in Northern Ireland, 1991-2017.



PESTICIDE USAGE ON CROPS (Tables 5 & 6)

An in-depth analysis of pesticide usage on the specific crops is contained on pages 18-55 and contains the following crop groupings: Carrots and parsnips, Turnips and swedes, Leafy and flowerhead brassicas, Onions and leeks, Celery and parsley, Lettuce, Peas and beans and Other vegetables (see Definitions and notes). Information relating to the basic grown area (ha), basic treated area (ha), total treated area (spha) and quantity applied (kg) of the three main pesticide types (fungicides, herbicides and insecticides) is included along with the reasons given for their use. Information relating to the use of molluscicides and seed treatments is included on pages 56-58.

PROPORTION OF CROPS TREATED (Table 7)

The proportional areas of crops treated with different pesticide groups, together with the number of spray applications (in parentheses) are shown in Table 7. Rhubarb and squash were the only crops not to receive any treatments.

All crop types, with the exception of autumn cabbage, autumn cauliflower, beetroot, pumpkin, swede and turnip received fungicide treatments. All purple broccoli received four applications of fungicide active substances while only 7% of soup celery received a single fungicide application. All crops were treated with an average of 2.7 herbicide applications.

Autumn cabbage, autumn cauliflower, beetroot, onions, pumpkin, summer scallions and soup leeks were the only crops not to receive an insecticide treatment with the remainder receiving on average 3.3 insecticide applications. An estimated 16% of table leeks received two applications of insecticide. All spring cabbage received 4.8 insecticide applications and 92% of red cabbage received 5.2 applications.

Brussels sprouts (61%) received 2.2 molluscicide applications while broccoli (8%), spring cabbage (60%), savoy cabbage (12%) summer cauliflower (19%), swede (69%) and white cabbage (13%) were the only crops to receive a single molluscicide application.

TOTAL PESTICIDE USAGE (Tables 8 & 9)

An estimated 4,208 kilograms of pesticide active ingredients were applied to 12,173 spray hectares of outdoor vegetable crops grown in Northern Ireland in 2017.

An estimated 61% of all fungicide applications were made to carrot and parsnip crops, with a further 25% applied to brassica crops. The active substance prothioconazole was the most frequently used fungicide, mainly on carrot crops, accounting for 17% of the total fungicide-treated area and 11% of the weight of fungicides used. The fungicide formulation boscalid/pyraclostrobin, mainly applied to carrots, accounted for 15% of the total fungicide-treated area and 17% of the total quantity used. Azoxystrobin, applied to 13% of the total fungicide-treated area, accounted for 9% of the quantity of fungicides used and was applied mainly to lettuce crops.

Carrot and parsnip crops collectively accounted for 52% of all herbicide applications, with a further 23% being applied to turnip and swedes. Clomazone was the herbicide active ingredient most frequently used (accounting for 18% of the total herbicide treated area and 2% of the quantity used), followed by linuron (accounting for 17% of the total herbicide treated area and 7% of the quantity used). An estimated 93% of all linuron applications were to carrot and parsnip crops. With the exception of five formulations, herbicides were applied as single active substances. Glyphosate was used on all crop types except lettuce and all curcurbit crops, accounting for 5% of the herbicide treated area and 8% of the quantity applied.

Lambda-cyhalothrin accounted for 46% of the total insecticide-treated area but only 3% of the quantity of insecticides applied. An estimated 69% of all applications of this active ingredient were applied to carrot and parsnip crops, for general insect control, aphids and carrot fly. Garlic extract, a naturally occurring animal repellent, accounted for only 2% of the total area treated with insecticides but 77% of the total weight applied, for the control of nematodes only on carrot crops. This was due to the high application rates of these products.

Molluscicide treatments were applied to 1% of both the total pesticide-treated area and quantity of pesticides applied to vegetable crops. Turnip and swede crops received 74% of all molluscicide applications accounting for 58% of the weight of all molluscicides applied.

Seed treatments applied to outdoor vegetable crops grown in 2017, accounted for 13% of the total pesticide-treated area while representing less than 1% of the quantity of active ingredients applied. Seed treatments were mainly applied to carrot and parsnip seeds (48%) and turnip and swede seeds (22%). The neonicotinoid active substance thiamethoxam was used to treat 26% of all seed, 62% of which was applied to turnip and swede seed. The formulation cymoxanil/fludioxonil/metalaxyl-M was used to treat 24% of all seed, 98% of which were applied to carrot and parsnip seeds.

The fifty most commonly used active ingredients, ranked by spray area (spha) and weight (kg), are shown in Tables 10 and 11, respectively.

PESTICIDE USAGE ON CARROTS AND PARSNIPS

- 457 hectares of carrot and parsnip crops grown in Northern Ireland.
- 457 basic treated area (ha)
- 6,945 total treated area (spha)
- 2,468 kg applied
- Refer to Table 7 for individual breakdown of proportional area treated and number of spray applications applied to carrot and parsnip crops.

Figure 20: Pesticide usage on carrot and parsnip crops in Northern Ireland, 2017.

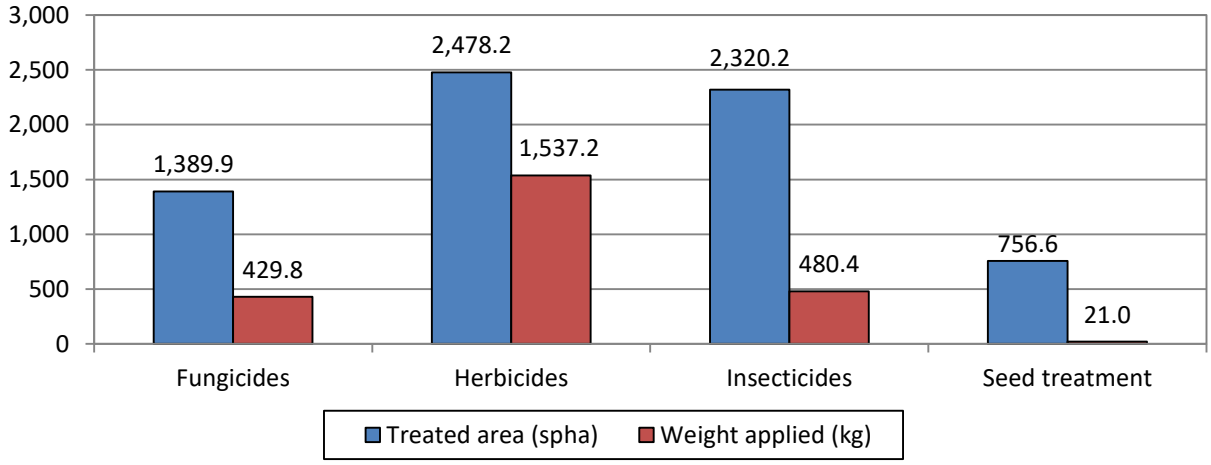


Figure 21: Regional distribution of carrot and parsnip crops grown (ha) in Northern Ireland, 2017.

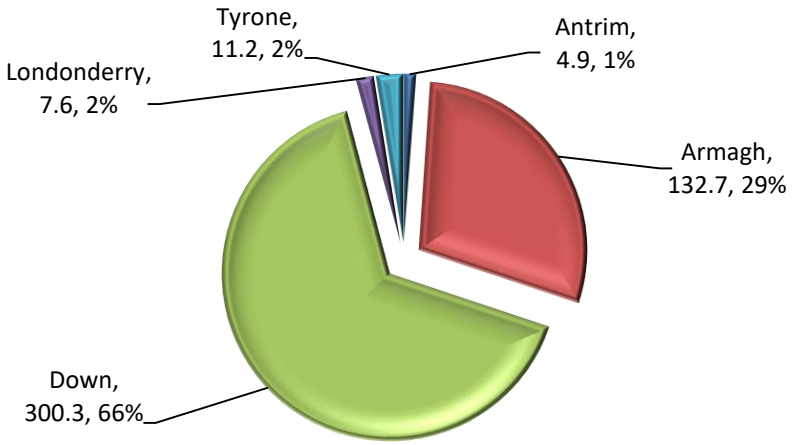


Figure 22: Pesticide usage (spha) on carrot and parsnip crops in Northern Ireland, 2017.

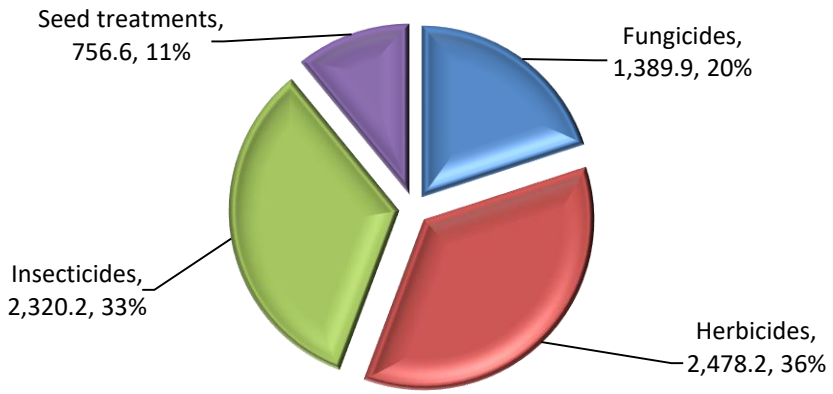
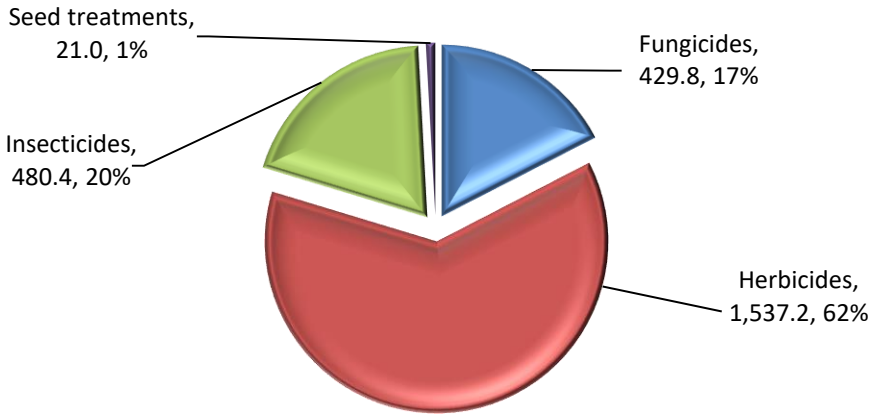


Figure 23: Weight of pesticides (kg) applied to carrot and parsnip crops in Northern Ireland, 2017.



Carrots and parsnips – Fungicides

- Basic treated area: 371 hectares
- Total treated area: 1,390 spray hectares
- Weight of active substances applied: 430 kg
- The five most commonly applied formulations and active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Prothioconazole	293	227	57	21
Boscalid/pyraclostrobin	291	291	101	21
Metalaxyl-M	283	283	157	20
Isopyrazam	214	194	27	15
Azoxystrobin/difenoconazole	89	86	28	6

Figure 24: Fungicide active substance usage (spha) on carrot and parsnip crops in Northern Ireland, 2017.

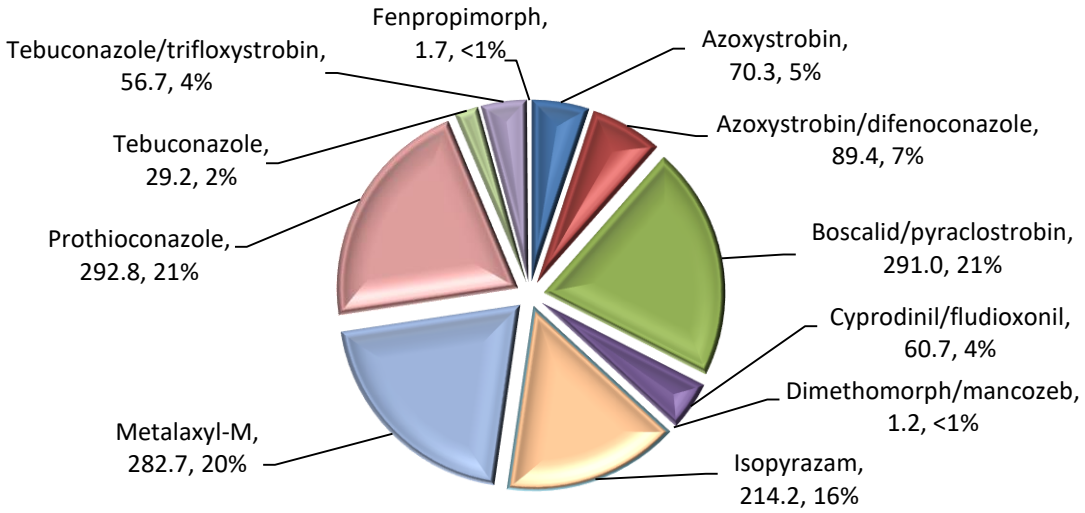


Figure 25: Weight of fungicide active substances (kg) applied to carrot and parsnip crops in Northern Ireland, 2017.

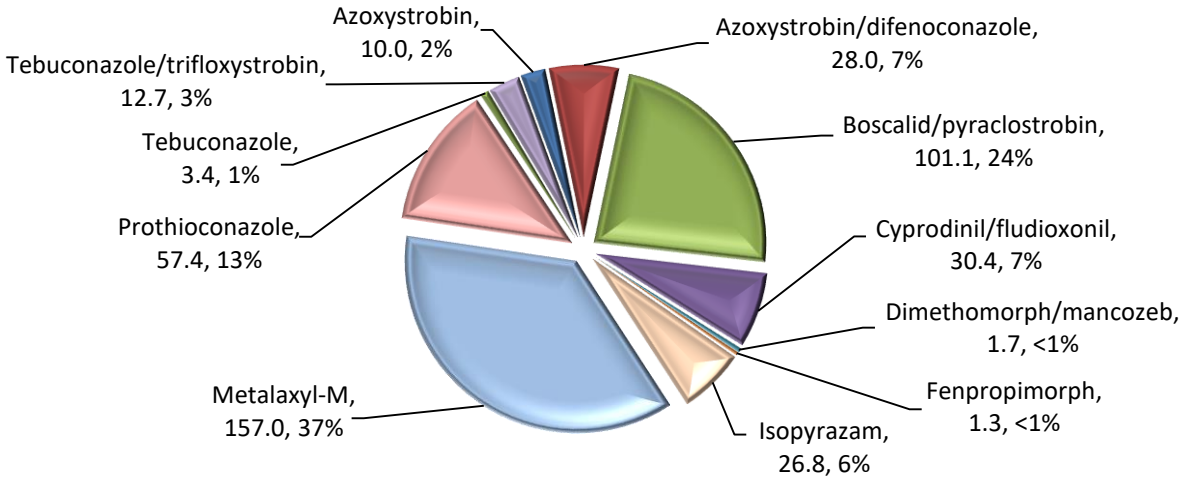
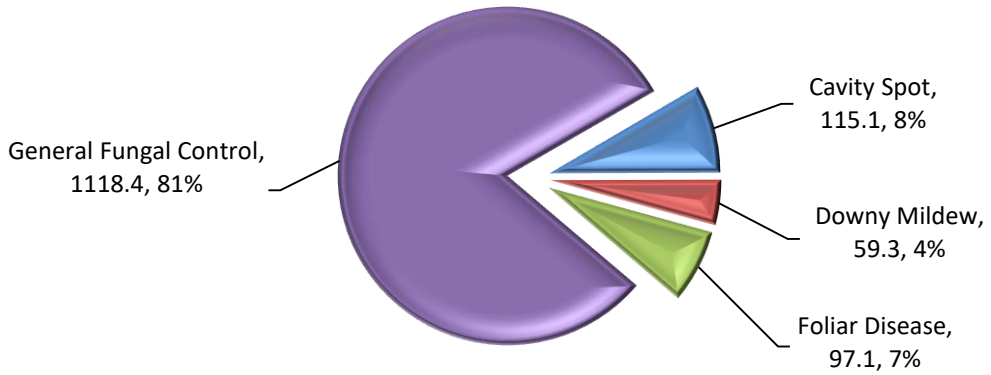


Figure 26: Carrots and parsnips: reasons for fungicide use (spha).



Carrots and parsnips – Herbicides

- Basic treated area: 457 hectares
- Total treated area: 2,478 spray hectares
- Weight of active substances applied: 1,537 kg
- The active substance metribuzin was only applied to carrot crops
- The five most commonly applied formulations and active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Linuron	749	411	173	30
Pendimethalin	456	395	522	18
Prosulfocarb	338	304	541	14
Clomazone	283	283	19	11
Metribuzin	263	207	41	11

Figure 27: Herbicide active substance usage (spha) on carrot and parsnip crops in Northern Ireland, 2017.

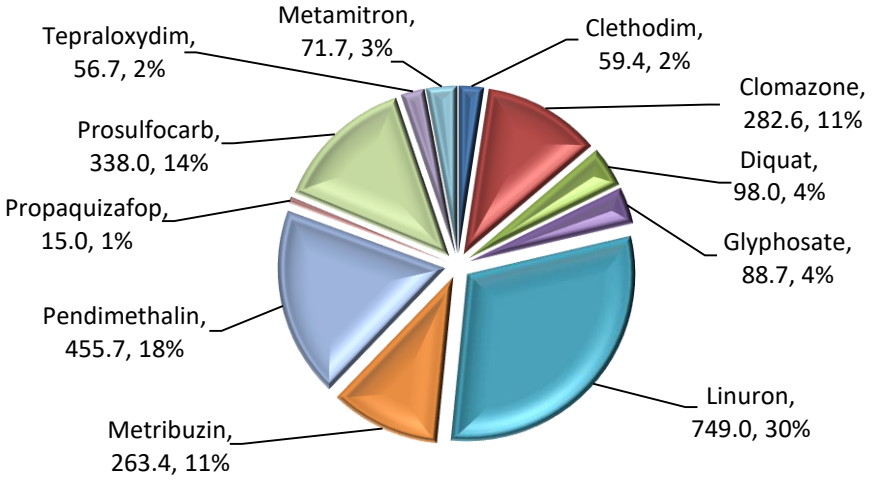


Figure 28: Weight of herbicide active substances (kg) applied to carrot and parsnip crops in Northern Ireland, 2017.

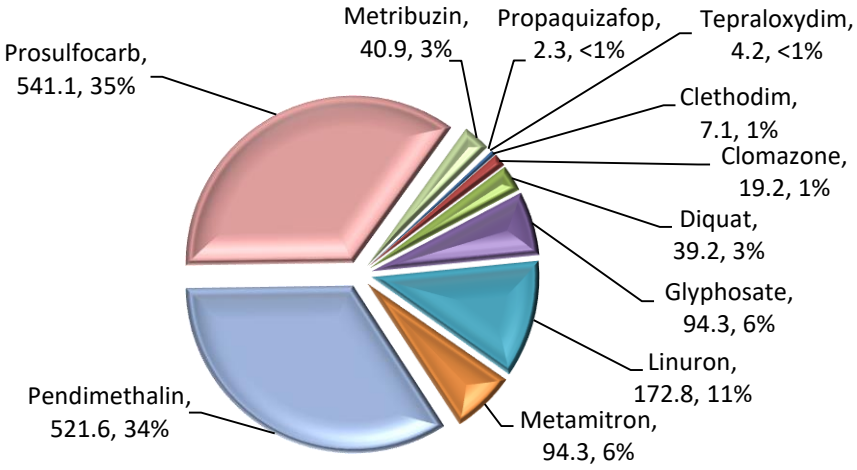
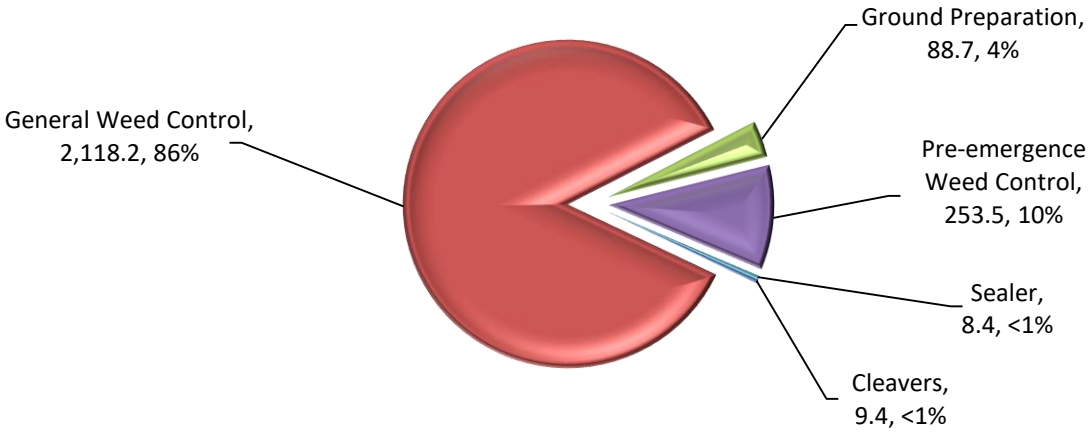


Figure 29: Carrots and parsnips: reasons for herbicide use (spha).



Carrots and parsnips – Insecticides

- Basic treated area: 402 hectares
- Total treated area: 2,320 spray hectares
- Weight of active substances applied: 480 kg
- The five most commonly applied formulations and active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Lambda-cyhalothrin	1,061	386	12	46
Deltamethrin	384	214	3	17
Thiacloprid	351	296	34	15
Spirotetramat	293	214	14	13
Chlorantraniliprole	123	66	4	5

Figure 30: Insecticide active substance usage (spha) on carrot and parsnip crops in Northern Ireland, 2017.

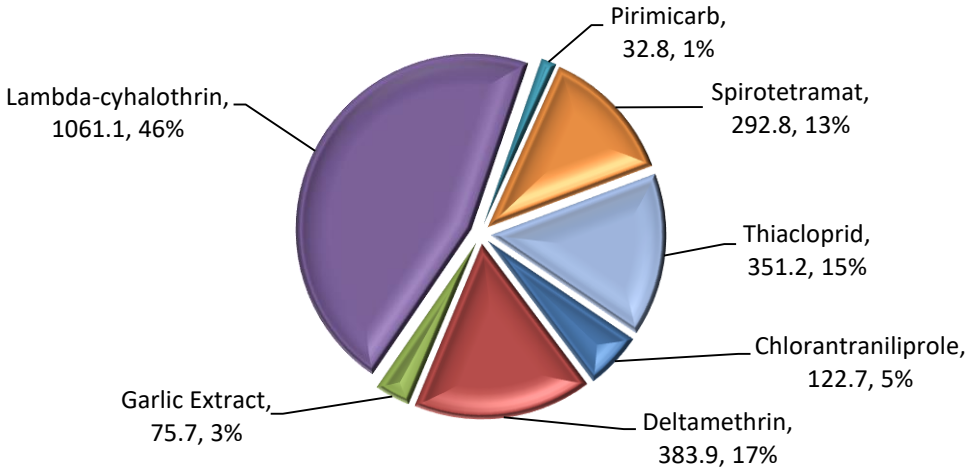


Figure 31: Weight of insecticide active substances (kg) applied to carrot and parsnip crops in Northern Ireland, 2017.

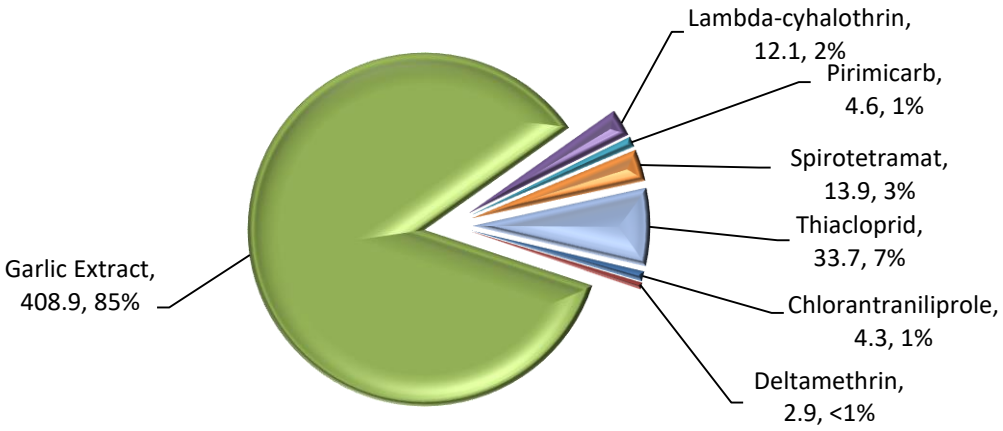
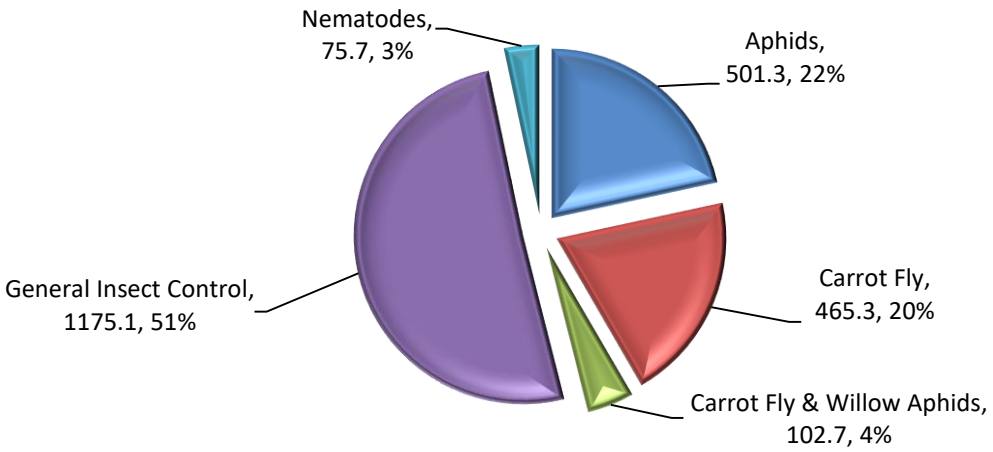


Figure 32: Carrots and parsnips: reasons for insecticide use (spha).



PESTICIDE USAGE ON TURNIPS AND SWEDES

- 272 hectares of turnip and swede crops grown in Northern Ireland.
- 272 basic treated area (ha)
- 1,657 total treated area (spha)
- 442 kg applied
- Turnips and swedes received no fungicide treatments
- Refer to Table 7 for individual breakdown of proportional area treated and number of spray applications applied to turnip and swede crops.

Figure 33: Pesticide usage on turnip and swede crops in Northern Ireland, 2017.

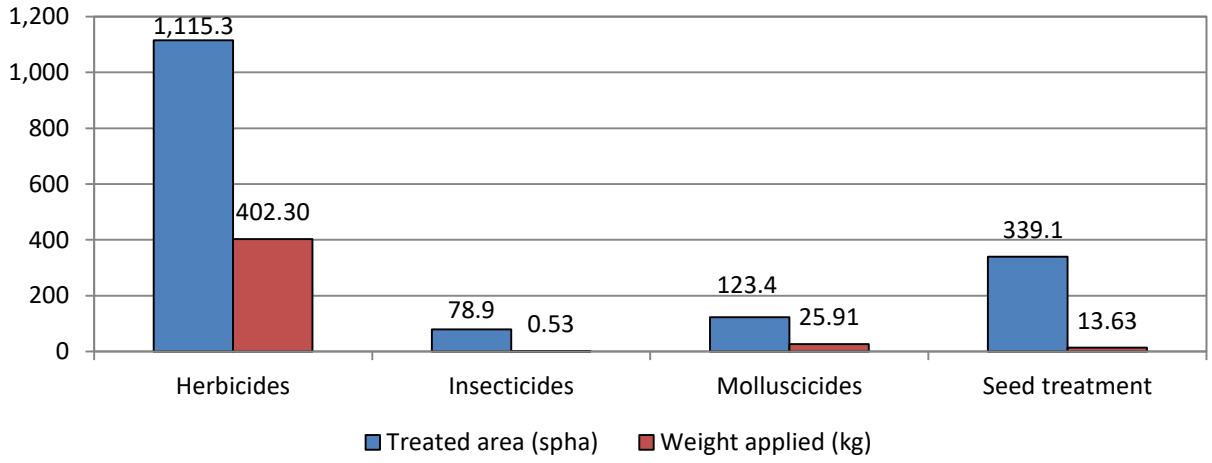


Figure 34: Regional distribution of turnip and swede crops grown (ha) in Northern Ireland, 2017.

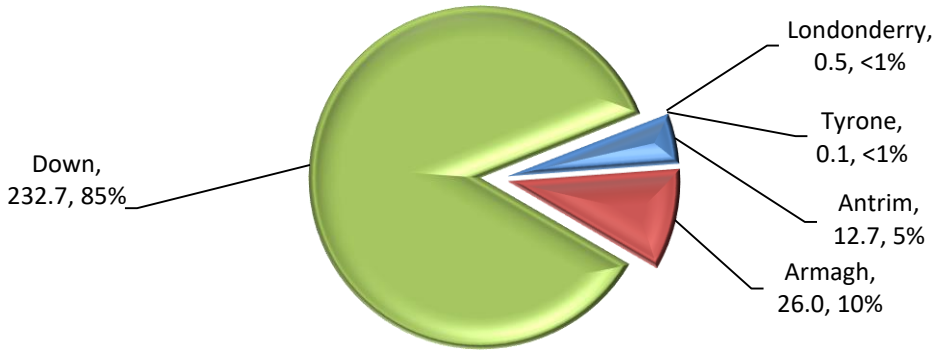


Figure 35: Pesticide usage (spha) on turnip and swede crops in Northern Ireland, 2017.

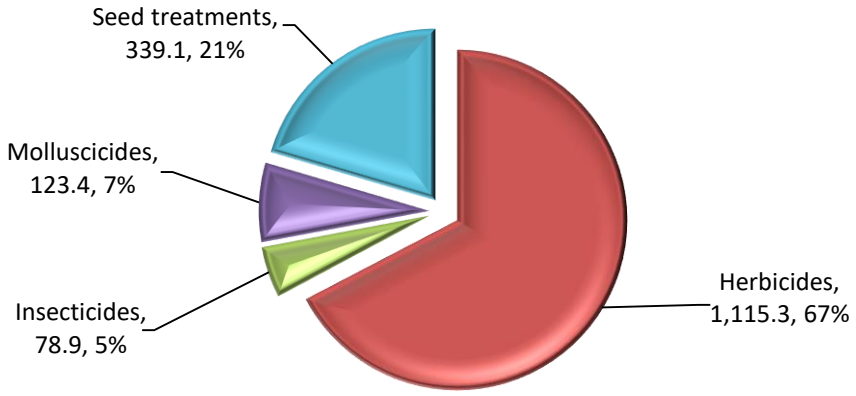
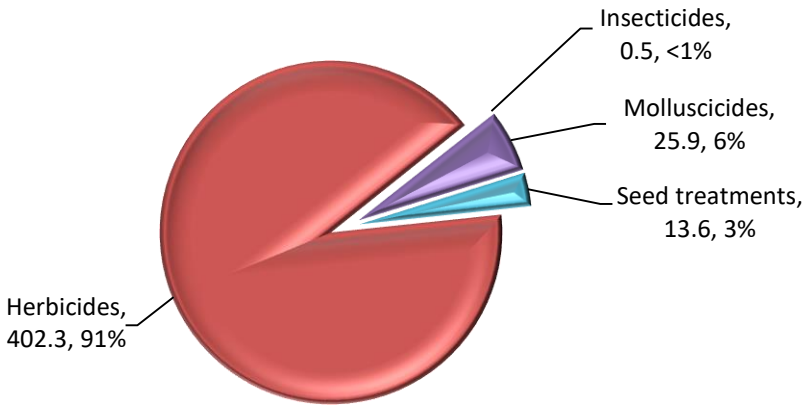


Figure 36: Weight of pesticides (kg) applied to turnip and swede crops in Northern Ireland, 2017.



Turnips and swedes – Herbicides

- Basic treated area: 269 hectares
- Total treated area: 1,115 spray hectares
- Weight of active substances applied: 402 kg
- The herbicide active substances applied were:

Active substance	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**	**% of the treated area**
Clomazone	414	268	24	37
Metazachlor	261	115	182	23
Diquat	237	164	95	21
Ethametsulfuron-methyl	73	36	2	7
Glyphosate	45	38	49	4

Figure 37: Herbicide active substance usage (spha) on turnip and swede crops in Northern Ireland, 2017.

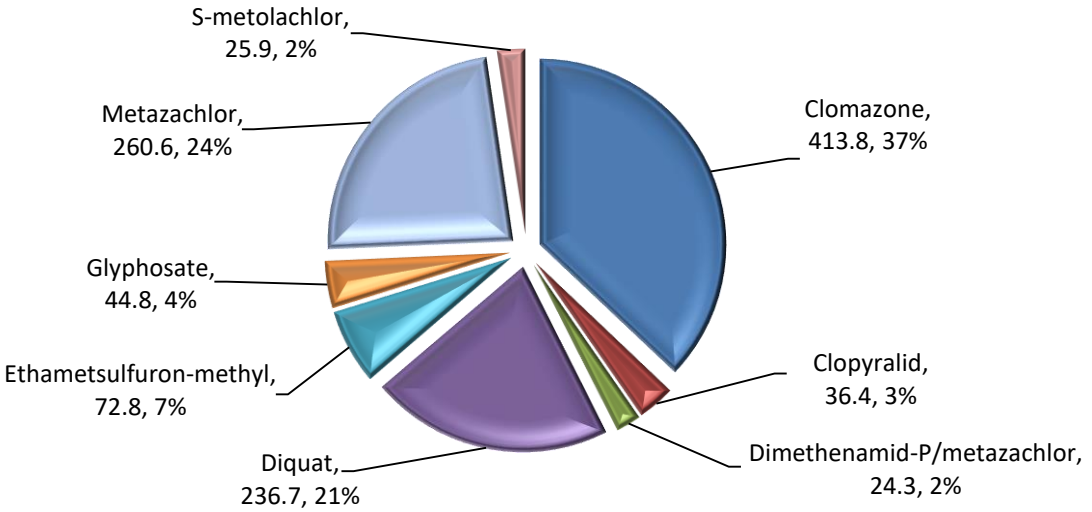


Figure 38: Weight of herbicide active substance usage (kg) on turnip and swede crops in Northern Ireland, 2017.

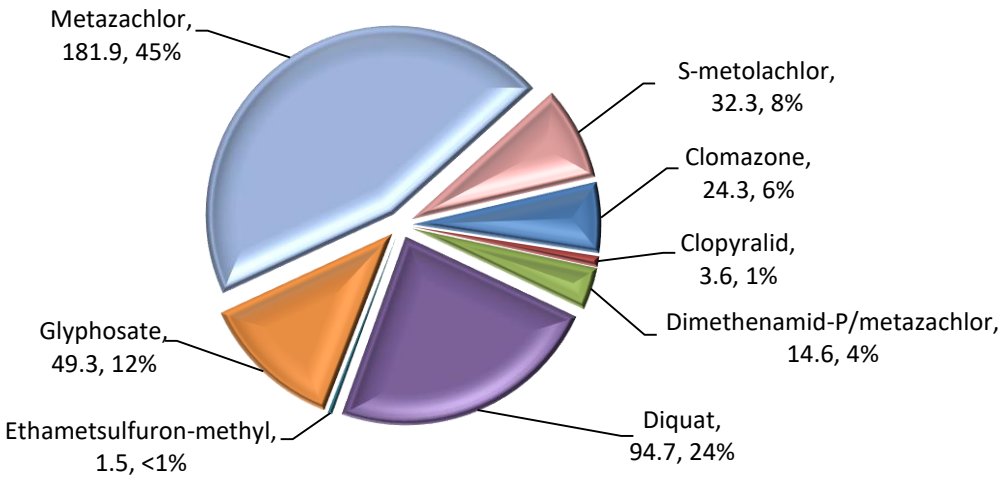
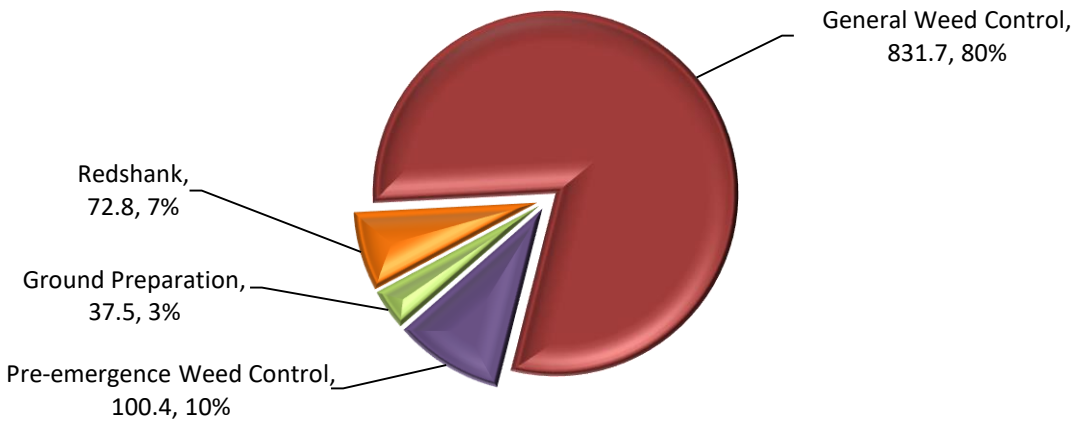


Figure 39: Turnip and swede: reasons for herbicide use (spha).



Turnips and swedes – Insecticides

- Basic treated area: 43 hectares
- Total treated area: 79 spray hectares
- Weight of active substances applied: 0.5 kg
- The only insecticide active substance applied was lambda-cyhalothrin
- The only reason given for use was general insect control

PESTICIDE USAGE ON LEAFY AND FLOWERHEAD BRASSICAS

- 242 hectares of leafy and flowerhead brassica crops grown in Northern Ireland.
- 242 basic treated area (ha)
- 2,178 total treated area (spha)
- 606 kg applied
- Refer to Table 7 for individual breakdown of proportional area treated and number of spray applications applied to each brassica crop.

Figure 40: Pesticide usage on leafy and flowerhead brassica crops in Northern Ireland, 2017.

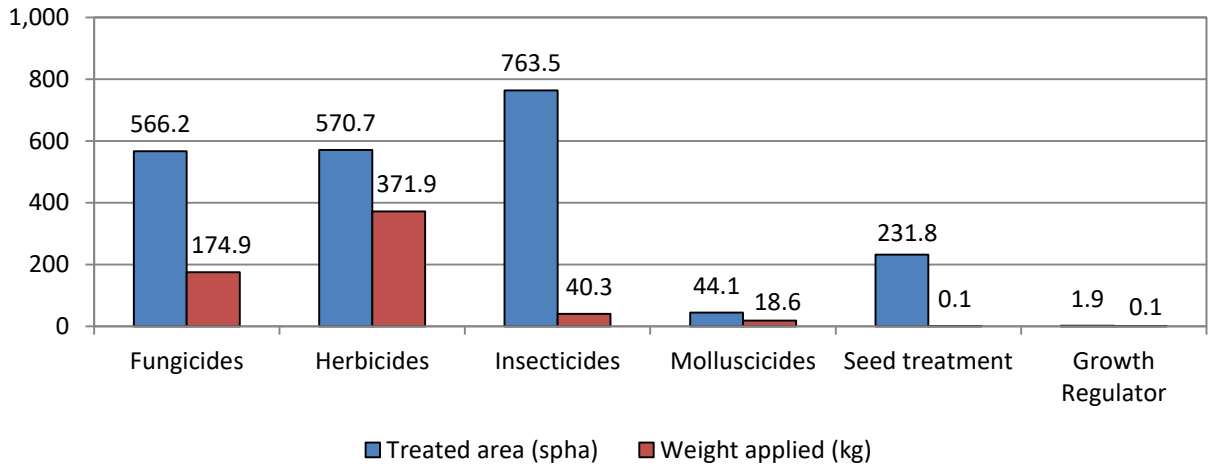


Figure 41: Regional distribution of leafy and flowerhead brassica crops grown (ha) in Northern Ireland, 2017.

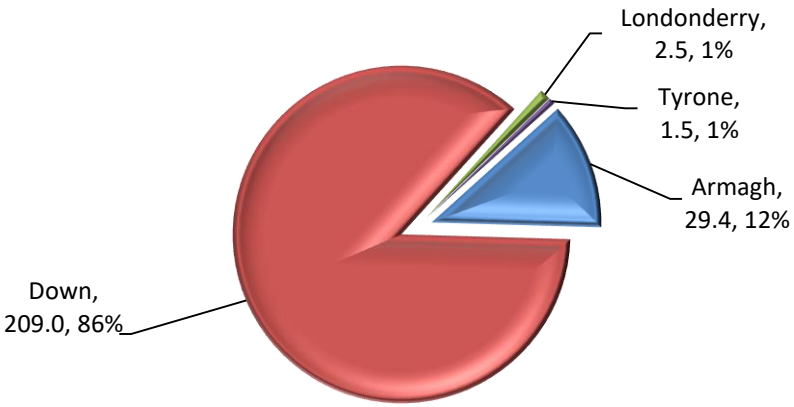


Figure 42: Pesticide usage (spha) on leafy and flowerhead brassica crops in Northern Ireland, 2017.

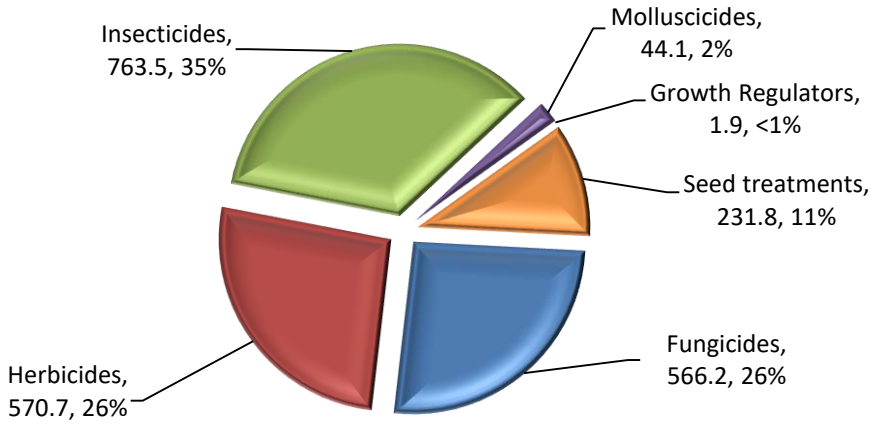
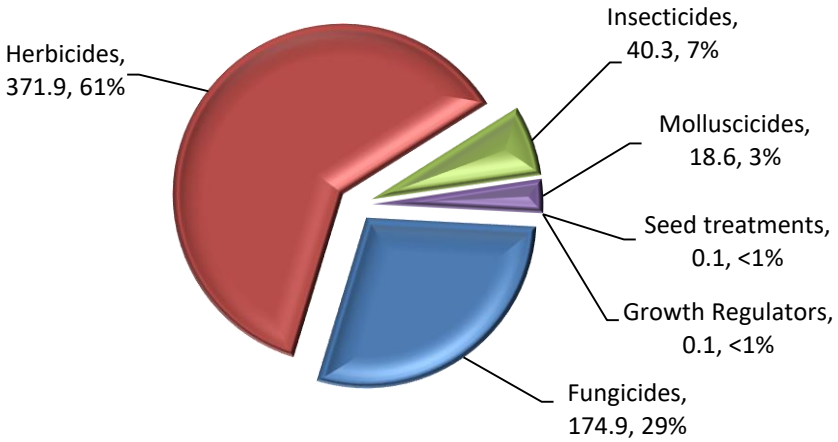


Figure 43: Weight of pesticides (kg) applied to leafy and flowerhead brassica crops in Northern Ireland, 2017.



Leafy and flowerhead brassicas – Fungicides

- Basic treated area: 206 hectares
- Total treated area: 566 spray hectares
- Weight of active substances applied: 175 kg
- The five most commonly applied fungicide active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Difenoconazole	174	129	17	31
Azoxystrobin/difenoconazole	139	112	44	25
Prothioconazole	62	62	12	11
Chlorothalonil/metalaxyl-M	53	56	57	9
Boscalid/pyraclostrobin	47	43	16	8

Figure 44: Fungicide active substance usage (spha) on leafy and flowerhead brassica crops in Northern Ireland, 2017.

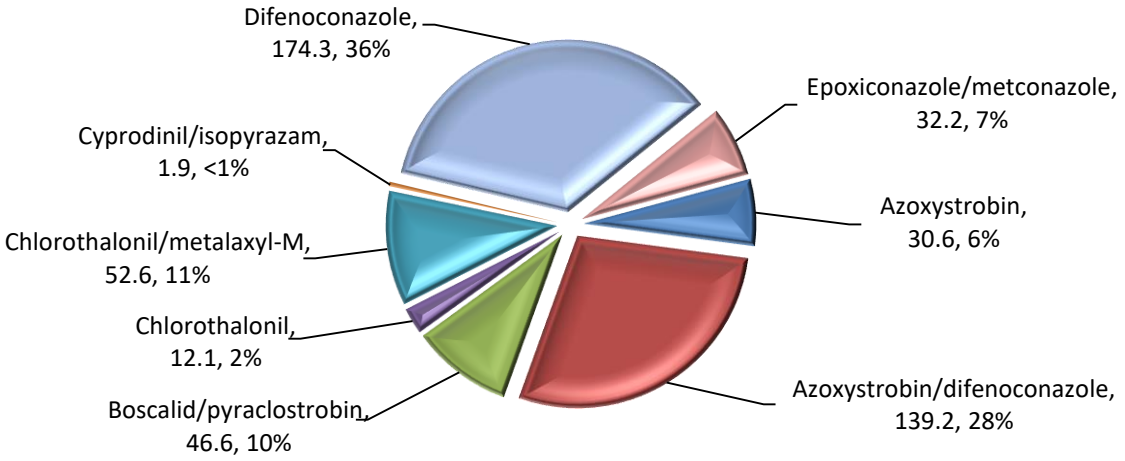


Figure 45: Weight of fungicide active substances (kg) applied to leafy and flowerhead brassica crops in Northern Ireland, 2017.

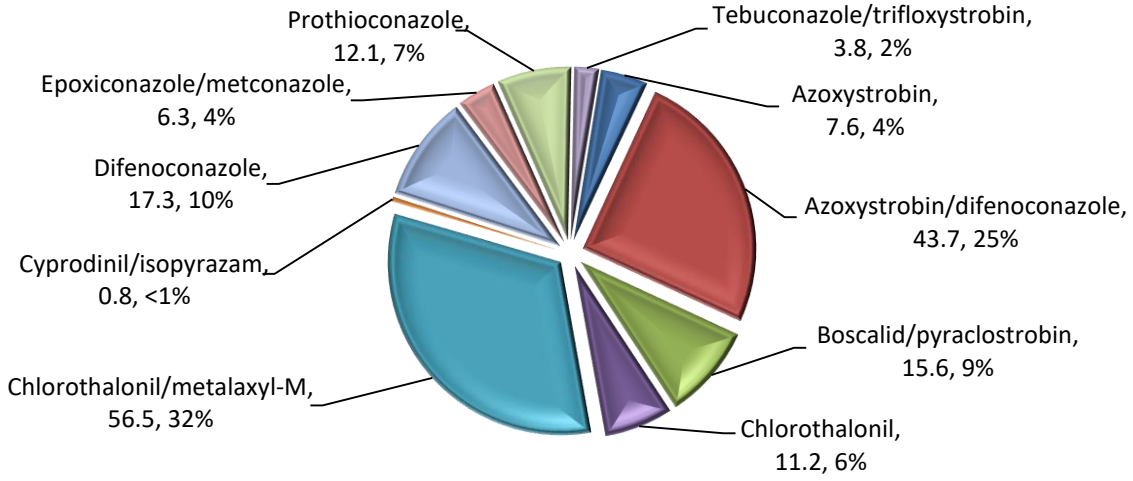
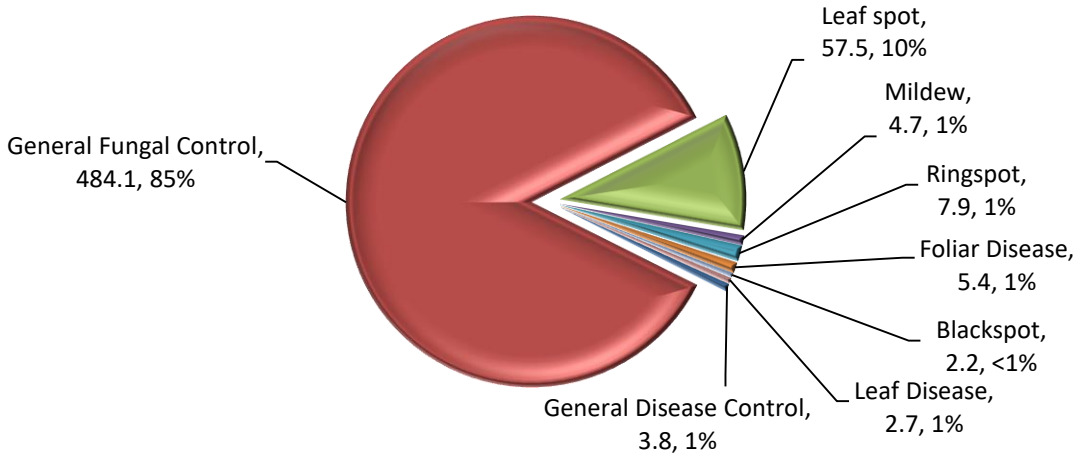


Figure 46: Leafy and flowerhead brassicas: reasons for fungicide use (spha).



Leafy and flowerhead brassicas – Herbicides

- Basic treated area: 229 hectares
- Total treated area: 571 spray hectares
- Weight of active substances applied: 372 kg
- The five most commonly applied herbicide active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Metazachlor	260	227	195	46
Clomazone	167	140	12	29
Glyphosate	68	68	57	12
Dimethenamid-P/pendimethalin	32	32	60	6
Pendimethalin	32	32	42	6

Figure 47: Herbicide active substance usage (spha) on leafy and flowerhead brassica crops in Northern Ireland, 2017.

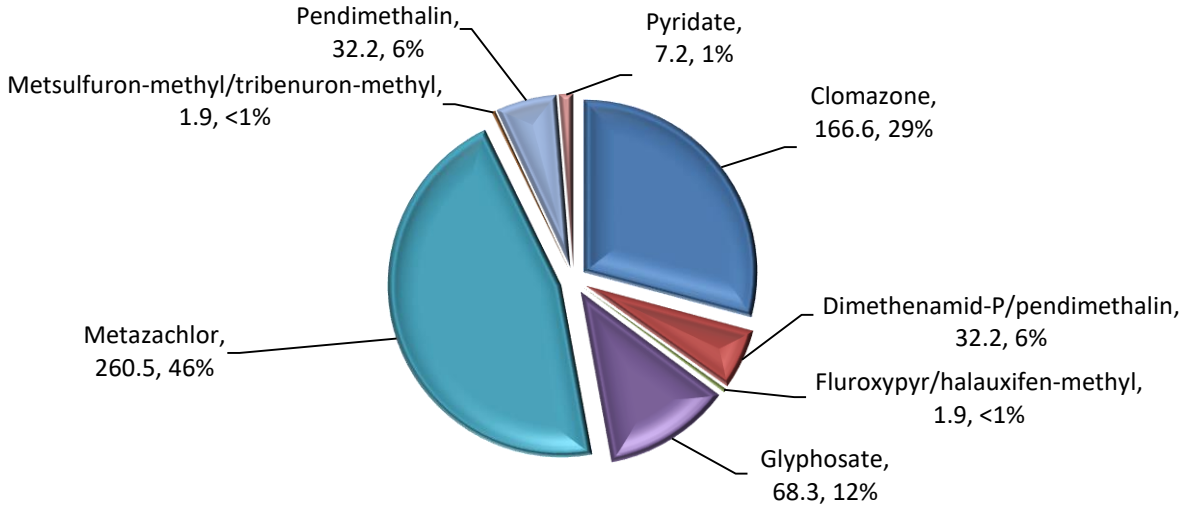


Figure 48: Weight of herbicide active substance usage (kg) on leafy and flowerhead brassica crops in Northern Ireland, 2017.

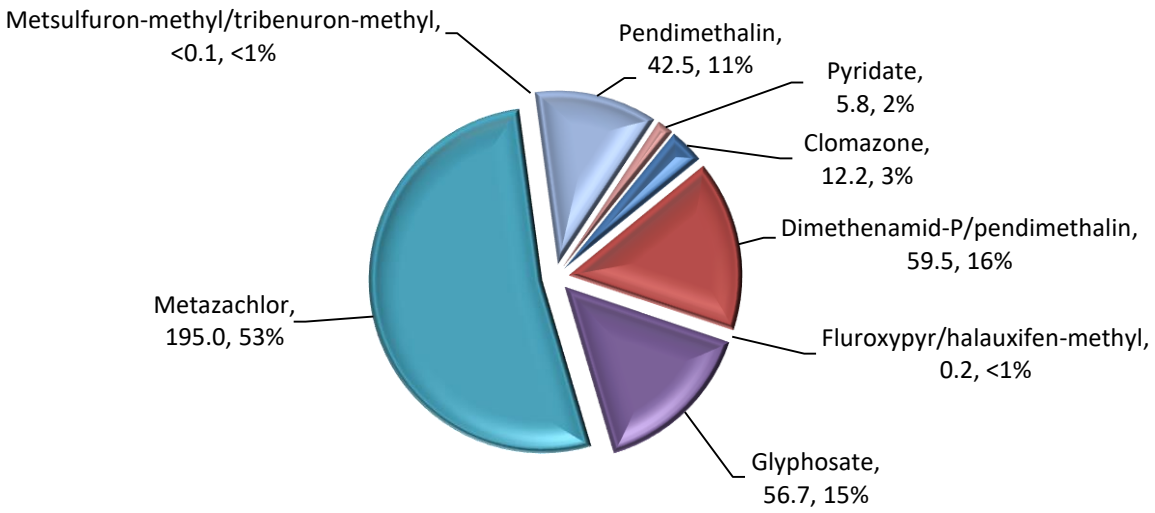
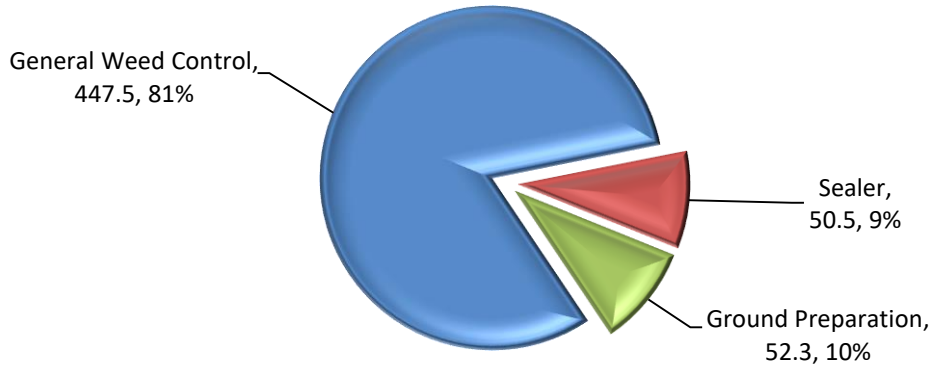


Figure 49: Leafy and flowerhead brassicas: reasons for herbicide use (spha).



Leafy and flowerhead brassicas – Insecticides

- Basic treated area: 227 hectares
- Total treated area: 764 spray hectares
- Weight of active substances applied: 40 kg
- The only insecticide active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Lambda-cyhalothrin	288	212	2	38
Thiacloprid	156	125	14	20
Spirotetramat	113	90	8	15
Indoxacarb	79	55	2	10
Pymetrozine	26	16	5	3

Figure 50: Insecticide active substance usage (spha) on leafy and flowerhead brassica crops in Northern Ireland, 2017.

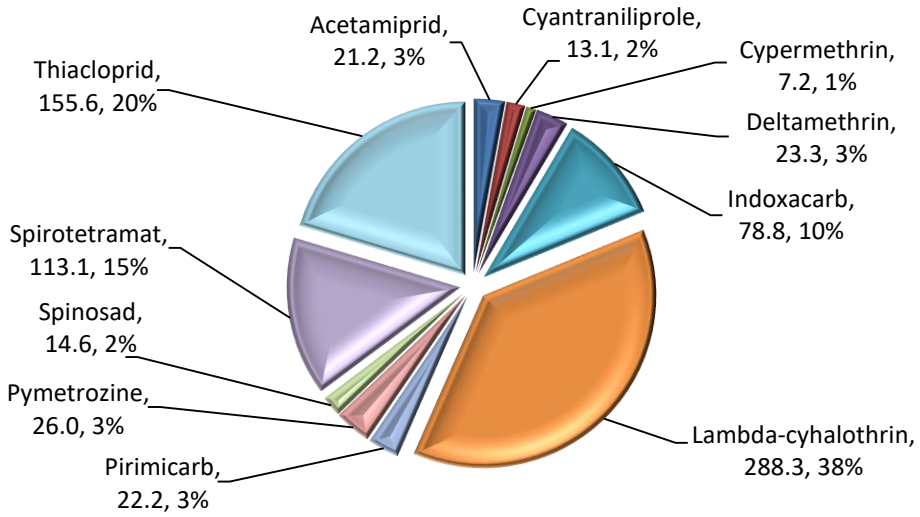


Figure 51: Weight of insecticide active substance usage (kg) on leafy and flowerhead brassica crops in Northern Ireland, 2017.

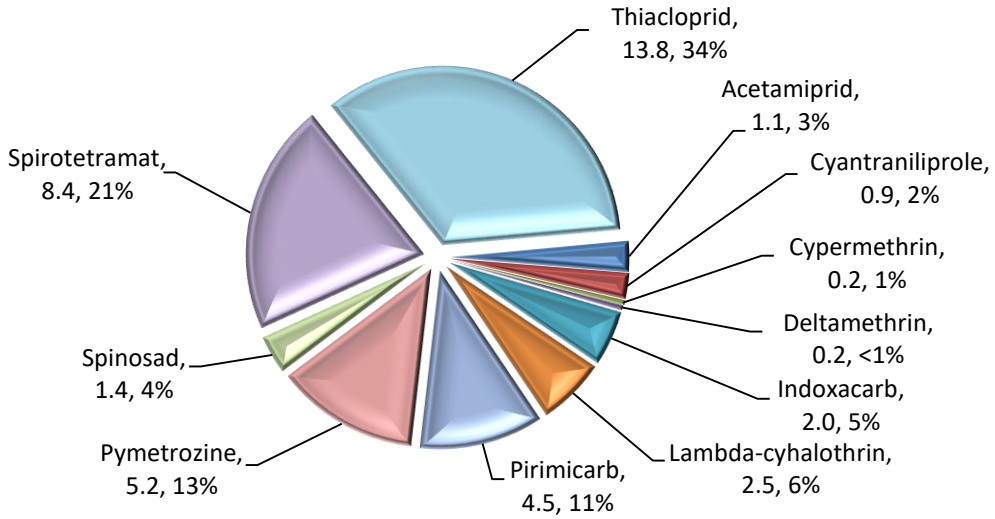
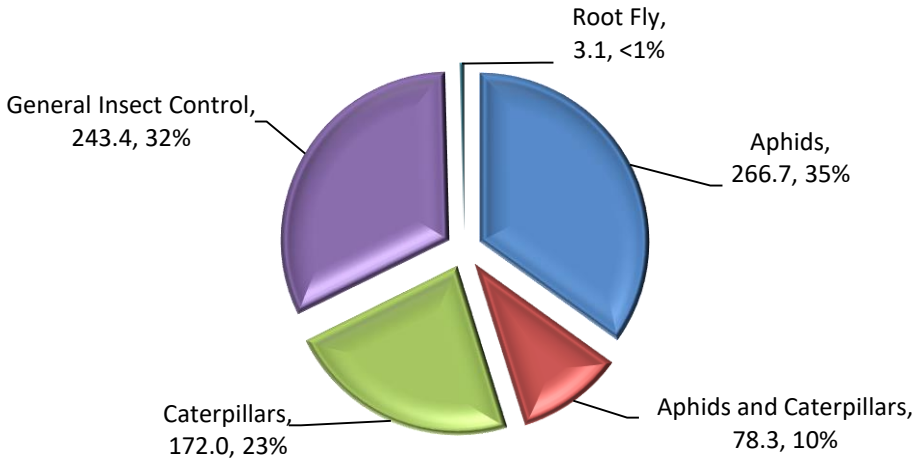


Figure 52: Leafy and flowerhead brassicas: reasons for insecticide use (spha).



Leafy and flowerhead brassicas – Growth Regulators

- Basic treated area: 2 hectares
- Total treated area: 2 spray hectares
- Weight of active substances applied: <1 kg
- Savoy cabbage was the only crop to receive a growth regulator treatment
- The only growth regulator active substance applied was trinexapac-ethyl

PESTICIDE USAGE ON ONIONS AND LEEKS

- 102 hectares of onion and leek crops grown in Northern Ireland
- 102 basic treated area (ha)
- 743 total treated area (spha)
- 449 kg applied
- Onion crops received fungicide, herbicide and seed treatments but were unspecified. These are included as unknown in active substance breakdown.
- Refer to Table 7 for individual breakdown of proportional area treated and number of spray applications applied to onion and leek crops.

Figure 53: Pesticide usage on onion and leek crops in Northern Ireland, 2017.

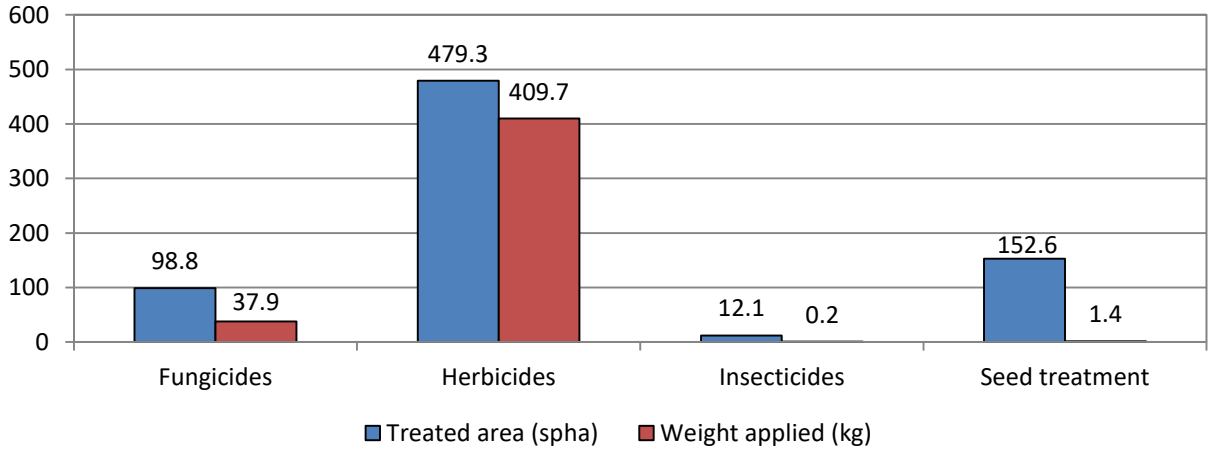


Figure 54: Regional distribution of onion and leek crops grown (ha) in Northern Ireland, 2017.

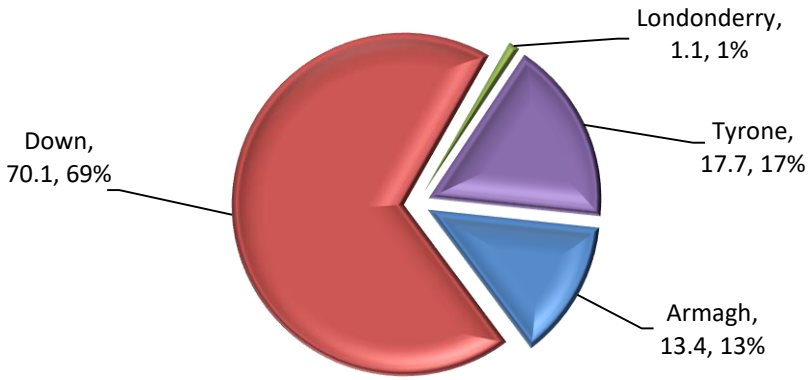


Figure 55: Pesticide usage (spha) on onion and leek crops in Northern Ireland, 2017.

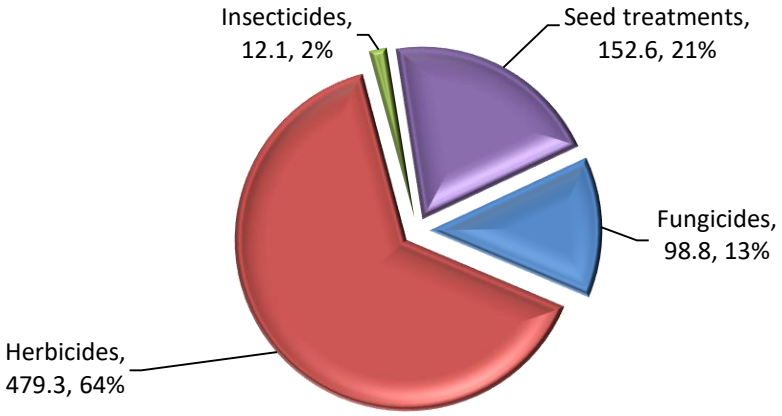
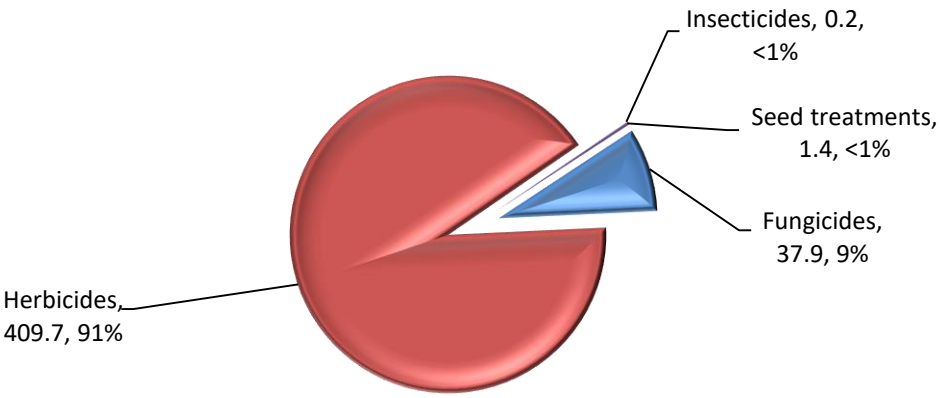


Figure 56: Weight of pesticides (kg) applied to onion and leek crops in Northern Ireland, 2017.



Onions and leeks – Fungicides

- Basic treated area: 46 hectares
- Total treated area: 99 spray hectares
- Weight of active substances applied: 38 kg
- The five most commonly applied fungicide active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Prothioconazole	34	19	7	35
Azoxystrobin/difenoconazole	11	10	4	11
Tebuconazole	8	8	2	8
Chlorothalonil/metalaxyl-M	8	8	9	8
Epoxiconazole/metconazole	6	6	1	6

Figure 57: Fungicide active substance usage (spha) on onion and leek crops in Northern Ireland, 2017.

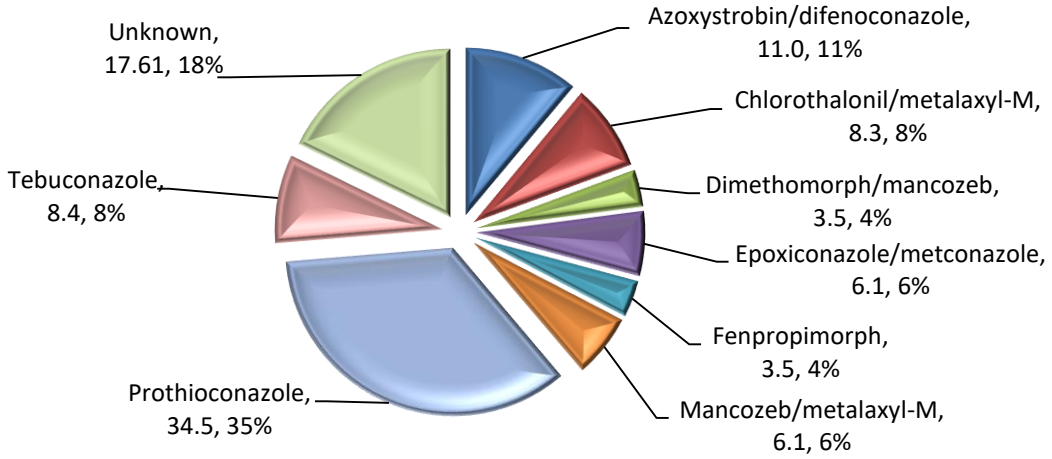


Figure 58: Weight of fungicide active substances (kg) applied to onion and leek crops in Northern Ireland, 2017.

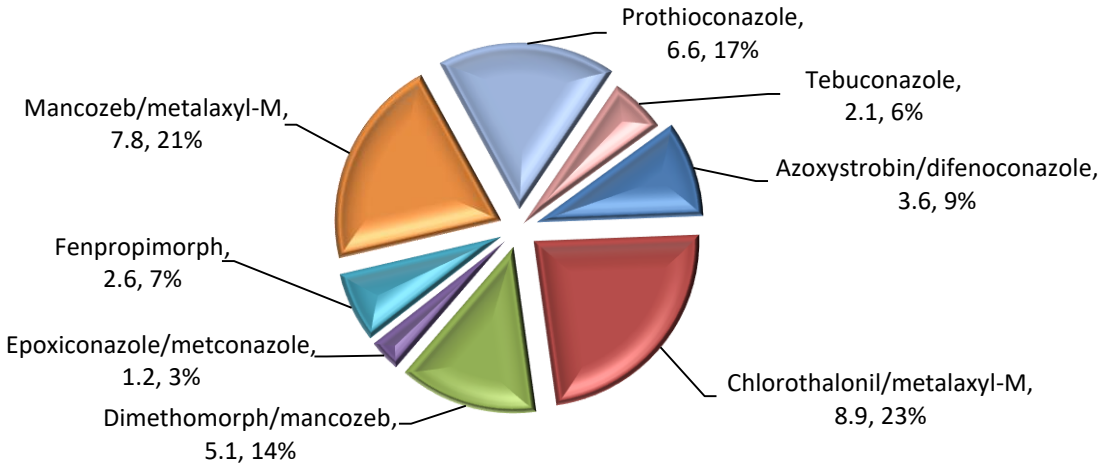
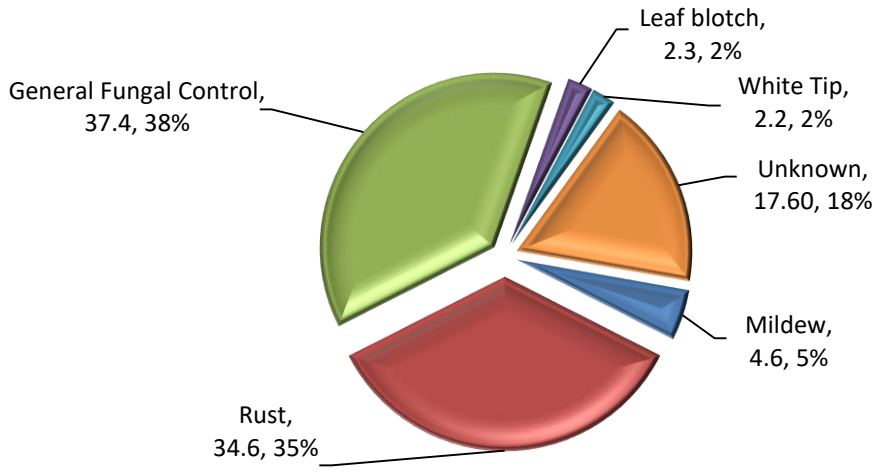


Figure 59: Onions and leeks: reasons for fungicide use (spha).



Onions and leeks – Herbicides

- Basic treated area: 102 hectares
- Total treated area: 479 spray hectares
- Weight of active substances applied: 410 kg
- The most commonly applied herbicide active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Prosulfocarb	91	64	139	19
Dimethenamid-P/pendimethalin	59	59	70	12
Bromoxynil	54	49	15	11
Pendimethalin	53	53	59	11
Fluroxypyr	49	49	3	10

Figure 60: Herbicide active substance usage (spha) on onion and leek crops in Northern Ireland, 2017.

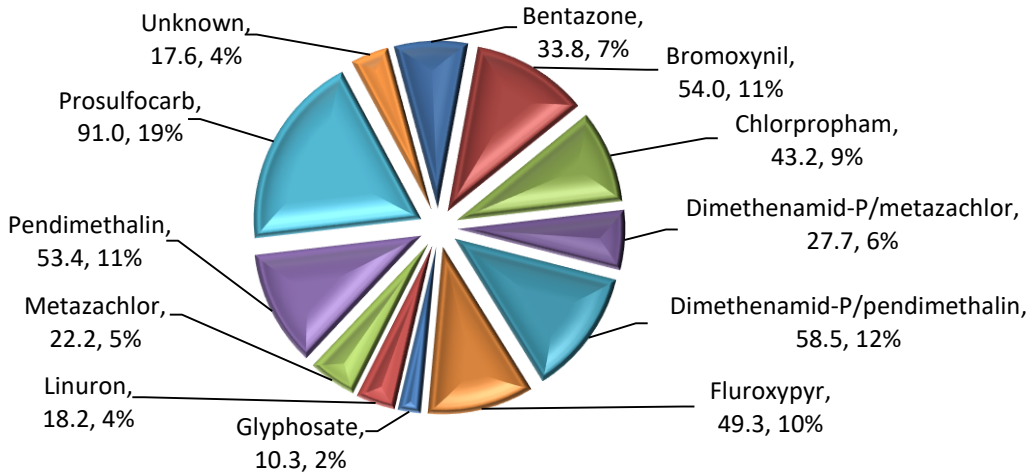


Figure 61: Weight of herbicide active substance usage (kg) on onion and leek crops in Northern Ireland, 2017.

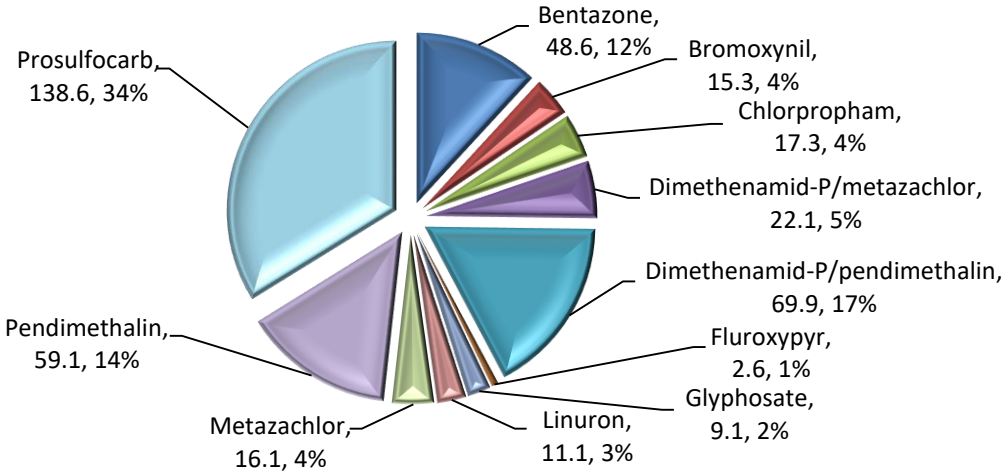
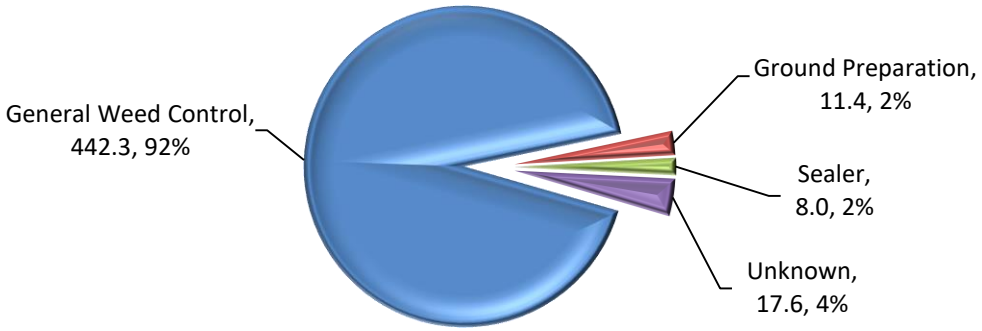


Figure 62: Onions and leeks: reasons for herbicide use (spha).



Onions and leeks – Insecticides

- Basic treated area: 6 hectares
- Total treated area: 12 spray hectares
- Weight of active substances applied: 0.2 kg
- Only table leeks received insecticide treatments
- The only reason given for insecticide use was general insect control
- The insecticide active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Lambda-cyhalothrin	6	6	<1	100
Indoxacarb	6	6	<1	100

Figure 63: Insecticide active substance usage (spha) on table leek crops in Northern Ireland, 2017.

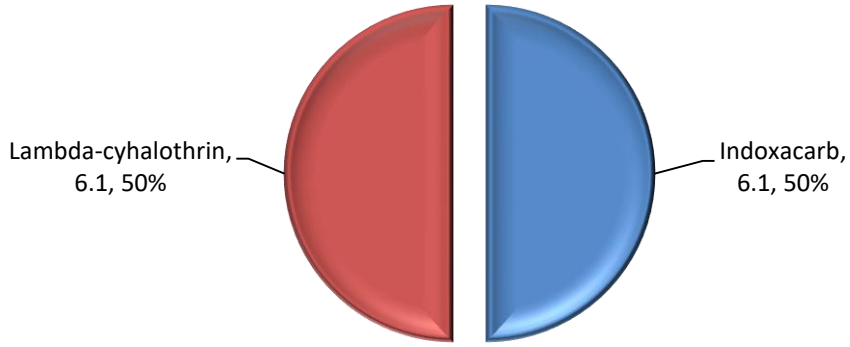
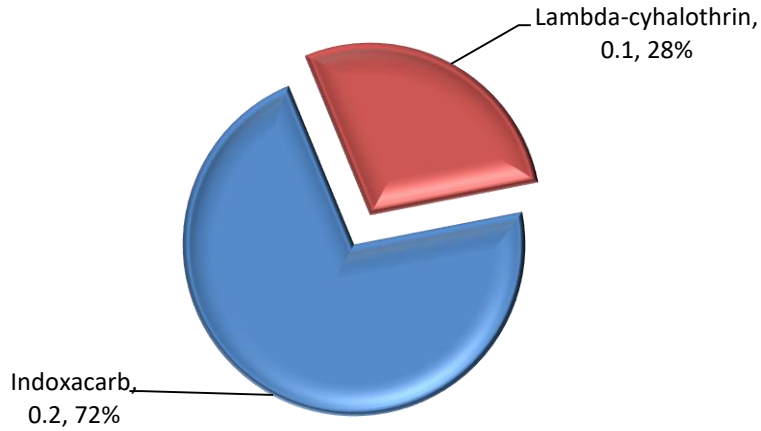


Figure 64: Weight of insecticide active substance usage (kg) on table leek crops in Northern Ireland, 2017.



PESTICIDE USAGE ON CELERY AND PARSLEY

- 39 hectares of celery and parsley crops grown in Northern Ireland
- 39 basic treated area (ha)
- 259 total treated area (spha)
- 130 kg applied
- Refer to Table 7 for individual breakdown of proportional area treated and number of spray applications applied to celery and parsley crops.

Figure 65: Pesticide usage on celery and parsley crops in Northern Ireland, 2017.

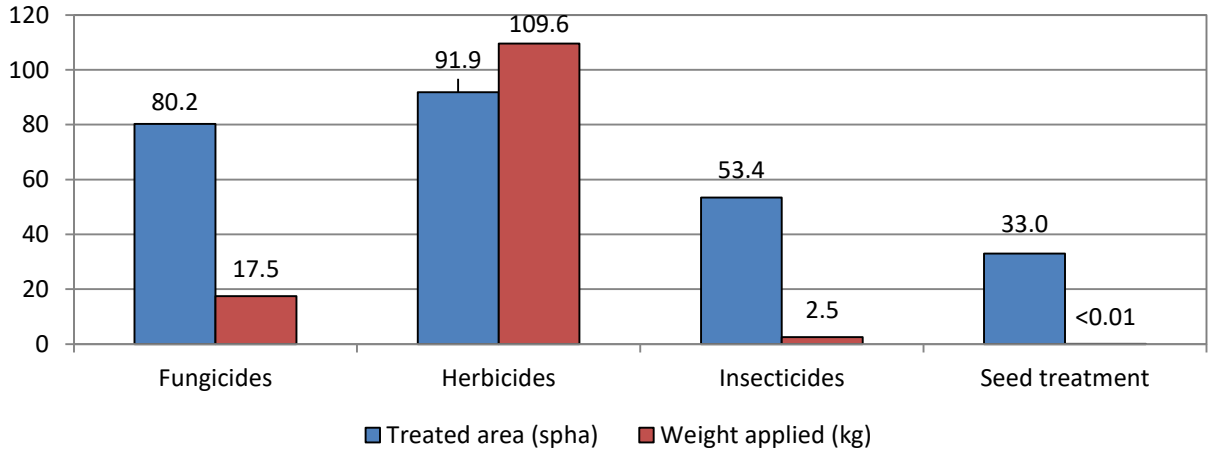


Figure 66: Regional distribution of celery and parsley crops grown (ha) in Northern Ireland, 2017.

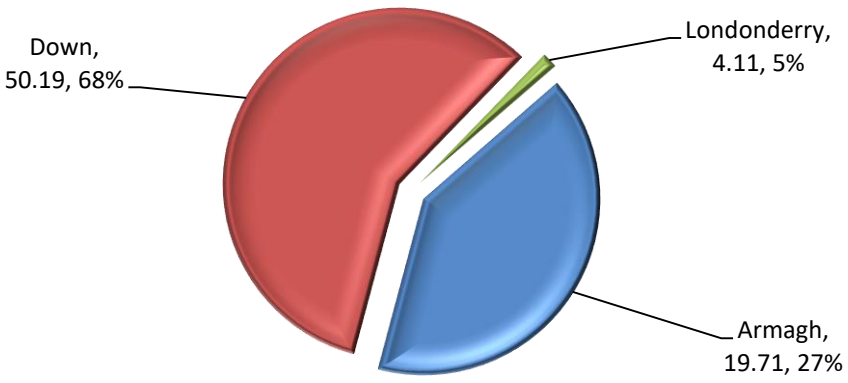


Figure 67: Pesticide usage (spha) on celery and parsley crops in Northern Ireland, 2017.

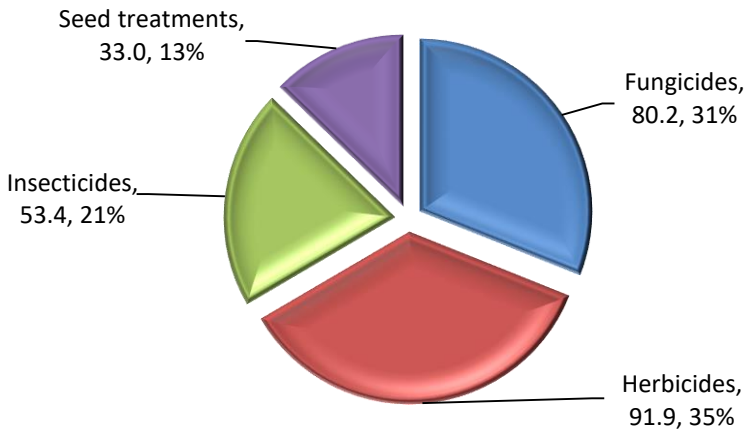
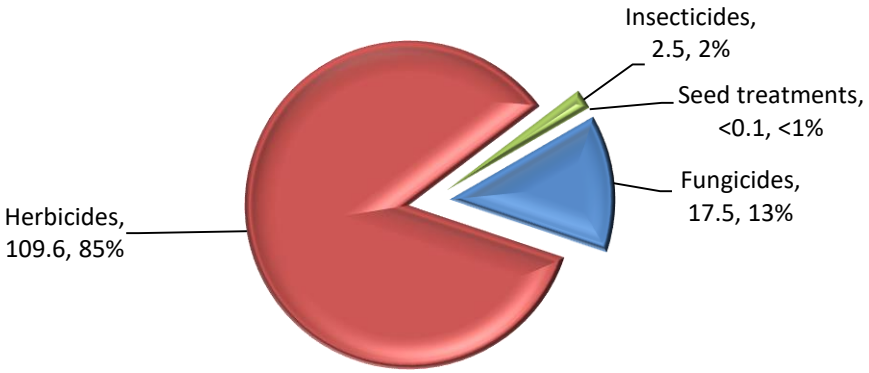


Figure 68: Weight of pesticides (kg) applied to celery and parsley crops in Northern Ireland, 2017.



Celery and parsley – Fungicides

- Basic treated area: 23 hectares
- Total treated area: 80 spray hectares
- Weight of active substances applied: 18 kg
- The only reason given for fungicide use was general fungal control
- The fungicide active substances applied were:

Active substance	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**	**% of the treated area**
Azoxystrobin	58	15	15	73
Difenoconazole	21	7	1	26
Dimethomorph/mancozeb	1	1	2	1

Figure 69: Fungicide active substance usage (spha) on celery and parsley crops in Northern Ireland, 2017.

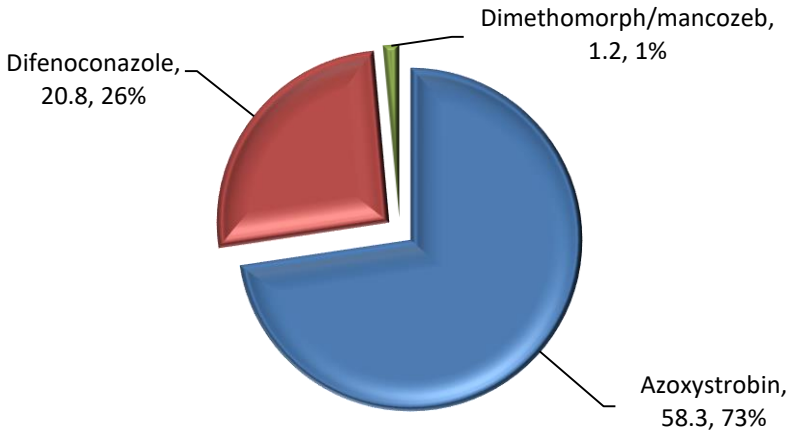
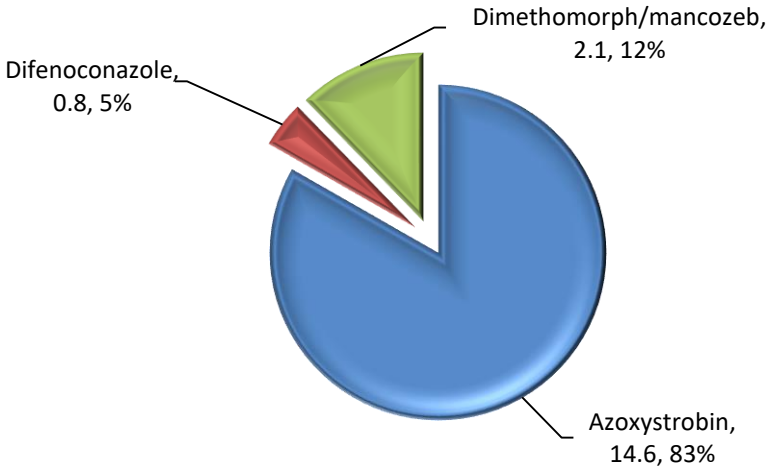


Figure 70: Weight of fungicide active substances (kg) applied to celery and parsley crops in Northern Ireland, 2017.



Celery and parsley – Herbicides

- Basic treated area: 38 hectares
- Total treated area: 92 spray hectares
- Weight of active substances applied: 110 kg
- The herbicide active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Linuron	35	35	13	38
Prosulfocarb	34	34	73	37
Pendimethalin	12	12	13	13
Glyphosate	10	10	10	11

Figure 71: Herbicide active substance usage (spha) on celery and parsley crops in Northern Ireland, 2017.

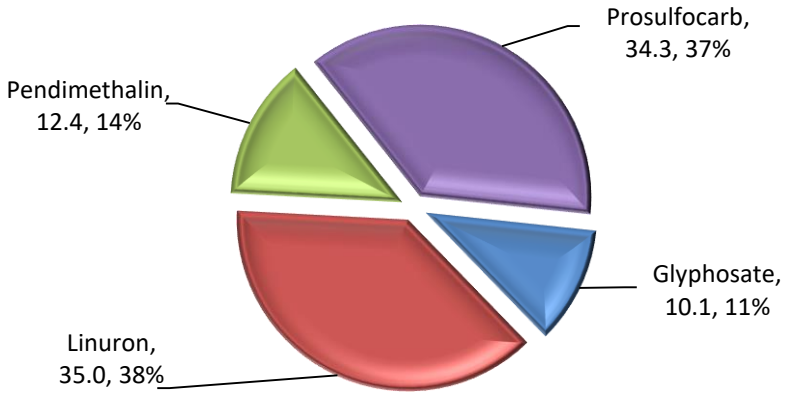


Figure 72: Weight of herbicide active substance usage (kg) on celery and parsley crops in Northern Ireland, 2017.

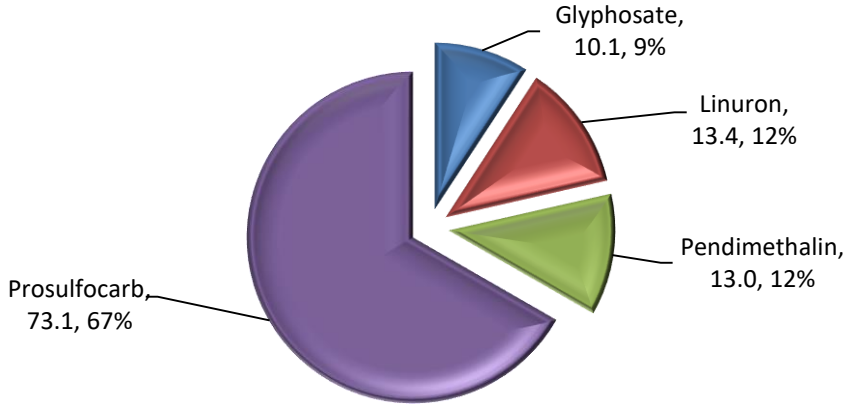
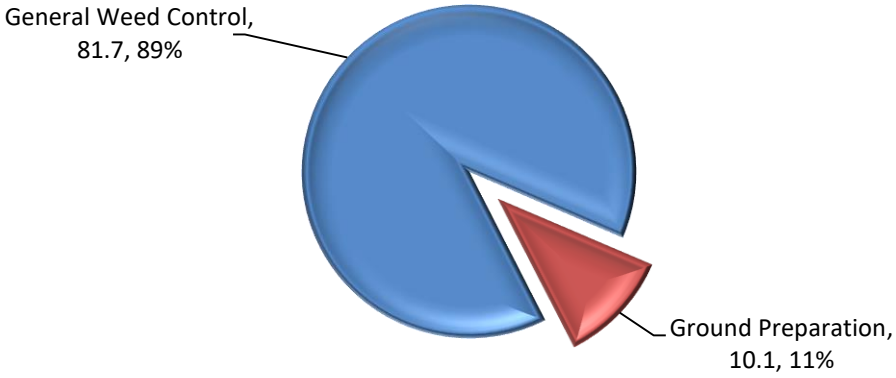


Figure 73: Celery and parsley: reasons for herbicide use (spha).



Celery and parsley – Insecticides

- Basic treated area: 23 hectares
- Total treated area: 53 spray hectares
- Weight of active substances applied: 3 kg
- The insecticide active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Lambda-cyhalothrin	38	23	<1	71
Pirimicarb	15	15	2	27
Chlorpyrifos	1	1	<1	2

Figure 74: Insecticide active substance usage (spha) on celery and parsley crops in Northern Ireland, 2017.

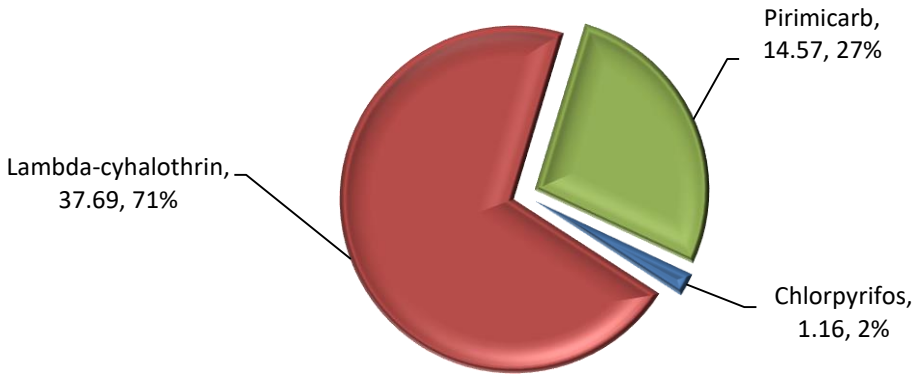


Figure 75: Weight of insecticide active substance usage (kg) on celery and parsley crops in Northern Ireland, 2017.

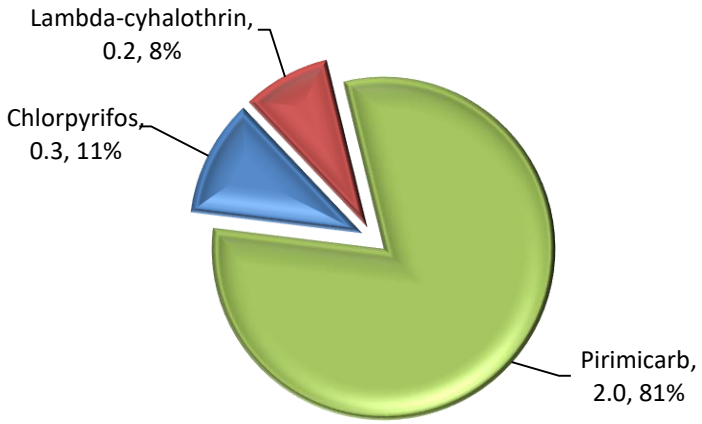
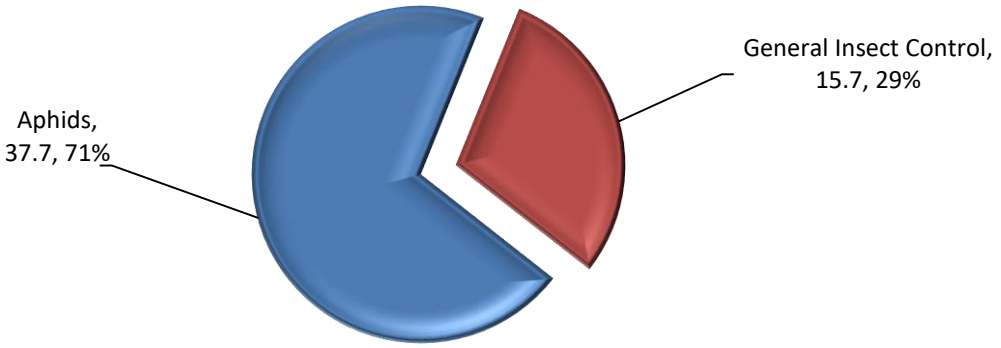


Figure 76: Celery and parsley: reasons for insecticide use (spha).



PESTICIDE USAGE ON LETTUCE

- 39 hectares of lettuce crops grown in Northern Ireland
- 39 basic treated area (ha)
- 317 total treated area (spha)
- 71 kg applied
- Refer to Table 7 for individual breakdown of proportional area treated and number of spray applications applied to lettuce crops.

Figure 77: Pesticide usage on lettuce crops in Northern Ireland, 2017.

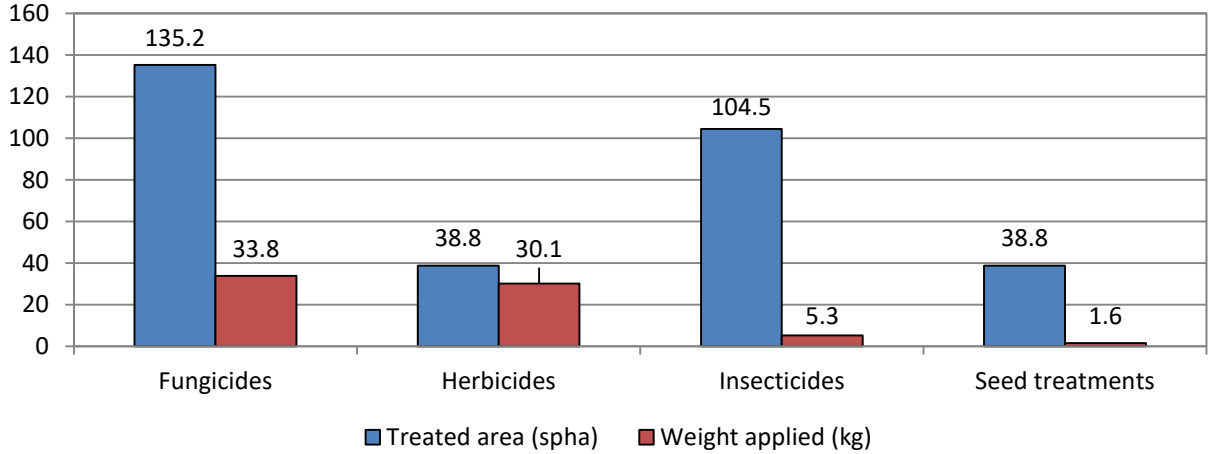


Figure 78: Regional distribution of lettuce crops grown (ha) in Northern Ireland, 2017.

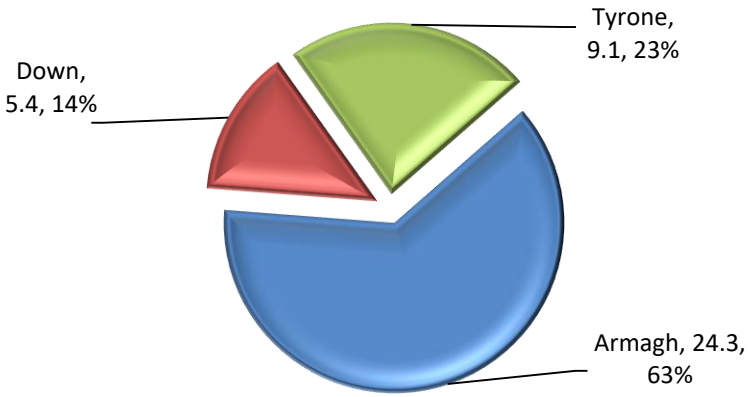


Figure 79: Pesticide usage (spha) on lettuce crops in Northern Ireland, 2017.

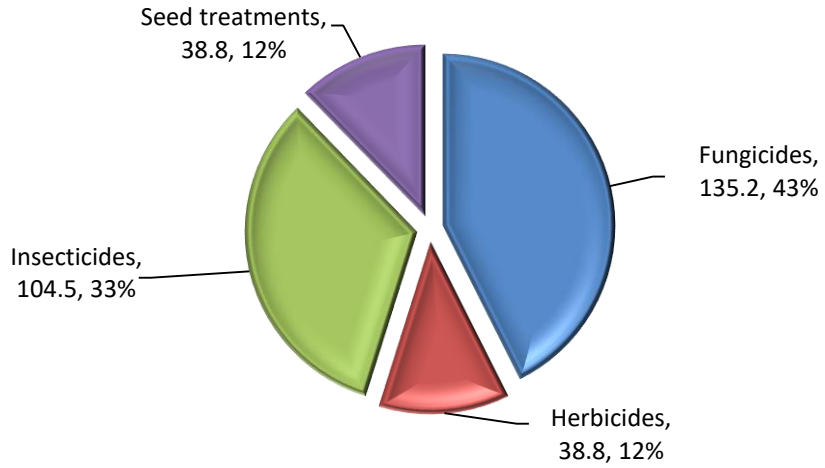
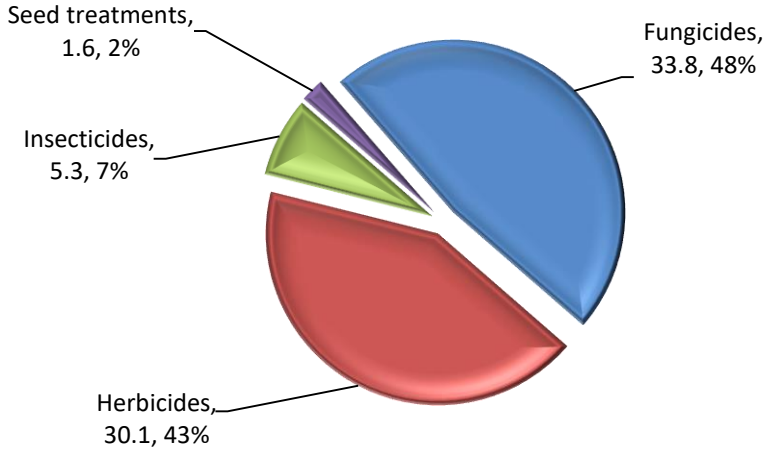


Figure 80: Weight of pesticides (kg) applied to lettuce crops in Northern Ireland, 2017.



Lettuce – Fungicides

- Basic treated area: 35 hectares
- Total treated area: 135 spray hectares
- Weight of active substances applied: 34 kg
- The only fungicide active substance applied was azoxystrobin
- The only reason given for fungicide use was general fungal control

Lettuce – Herbicides

- Basic treated area: 39 hectares
- Total treated area: 39 spray hectares
- Weight of active substances applied: 30 kg
- The only herbicide active substance applied was propyzamide
- The only reason given for herbicide use was general weed control

Lettuce – Insecticides

- Basic treated area: 38 hectares
- Total treated area: 104 spray hectares
- Weight of active substances applied: 5 kg
- The insecticide active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Lambda-cyhalothrin	67	33	1	64
Pirimicarb	33	33	5	32
Cypermethrin	4	4	<1	4

Figure 81: Insecticide active substance usage (spha) on lettuce crops in Northern Ireland, 2017.

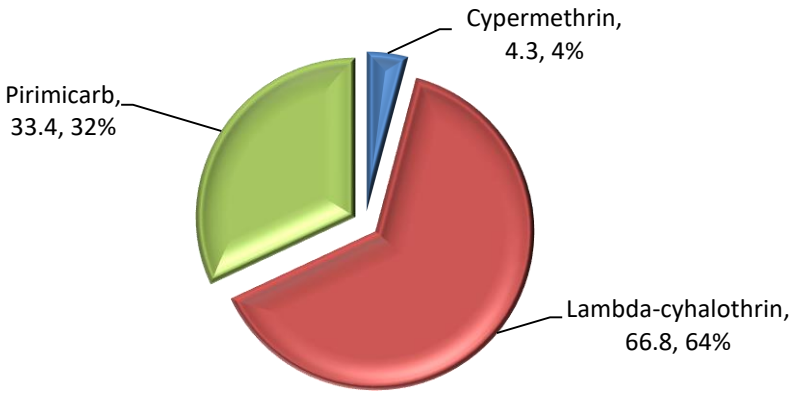


Figure 82: Weight of insecticide active substance usage (kg) on lettuce crops in Northern Ireland, 2017.

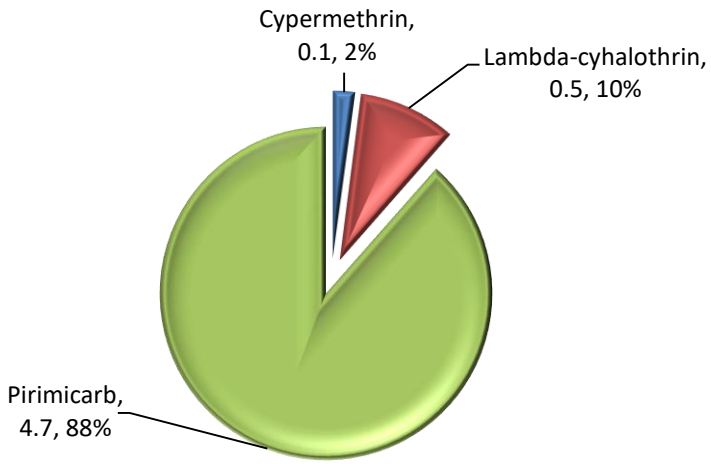
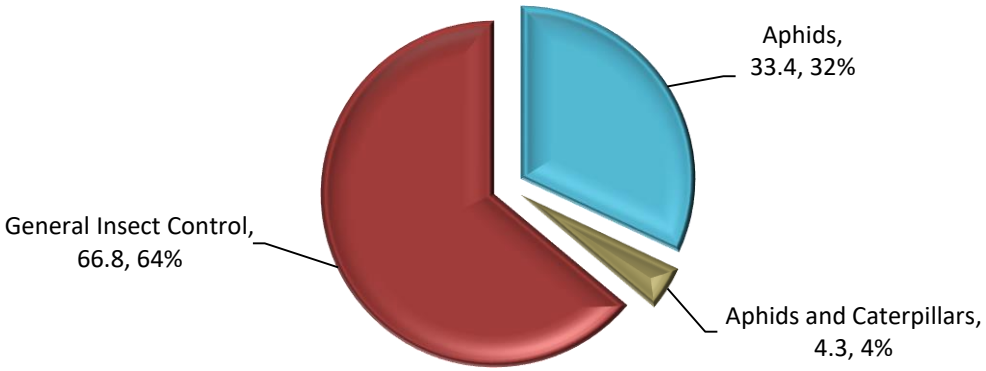


Figure 83: Lettuce: reasons for insecticide use (spha).



PESTICIDE USAGE ON PEAS AND BEANS

- 7 hectares of pea and bean crops grown in Northern Ireland
- 7 basic treated area (ha)
- 50 total treated area (spha)
- Weight of active substances applied: 23 kg
- Refer to Table 7 for individual breakdown of proportional area treated and number of spray applications applied to pea and bean crops.

Figure 84: Pesticide usage on pea and bean crops in Northern Ireland, 2017.

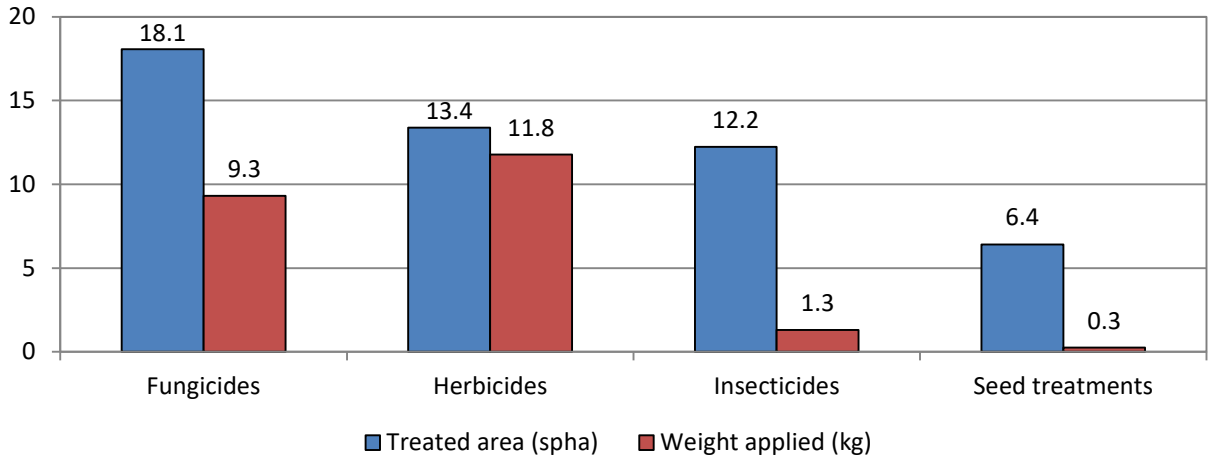


Figure 85: Pesticide usage (spha) on pea and bean crops in Northern Ireland, 2017.

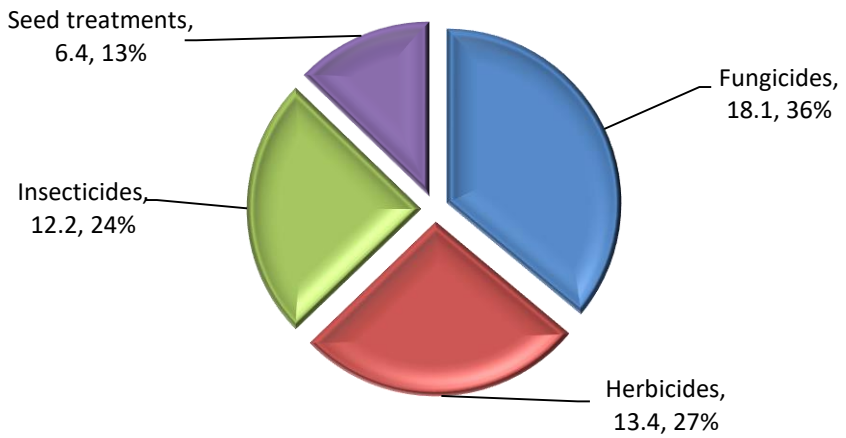
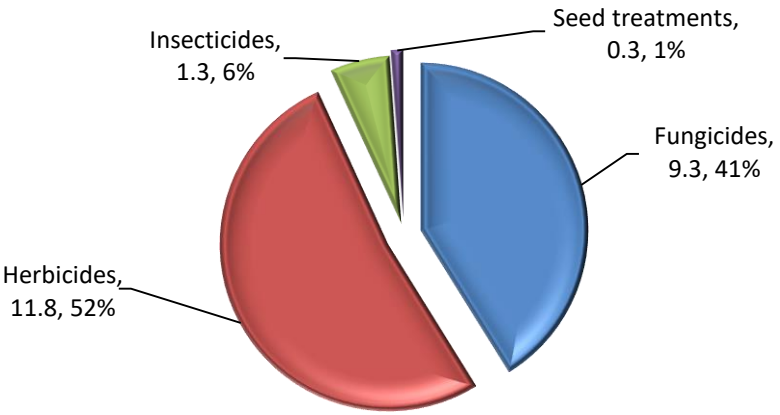


Figure 86: Weight of pesticides (kg) applied to pea and bean crops in Northern Ireland, 2017.



Peas and beans – Fungicides

- Basic treated area: 6 hectares
- Total treated area: 18 spray hectares
- Weight of active substances applied: 9 kg
- The only reason given for fungicide use was general fungal control
- The fungicide active substances applied were:

Active substance	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**	**% of the treated area**
Boscalid/pyraclostrobin	6	6	2	32
Chlorothalonil/cyproconazole	6	6	5	32
Azoxystrobin	3	3	1	16
Azoxystrobin/difenoconazole	3	3	1	16
Dimethomorph/mancozeb	1	1	1	3

Figure 87: Fungicide active substance usage (spha) on pea and bean crops in Northern Ireland, 2017.

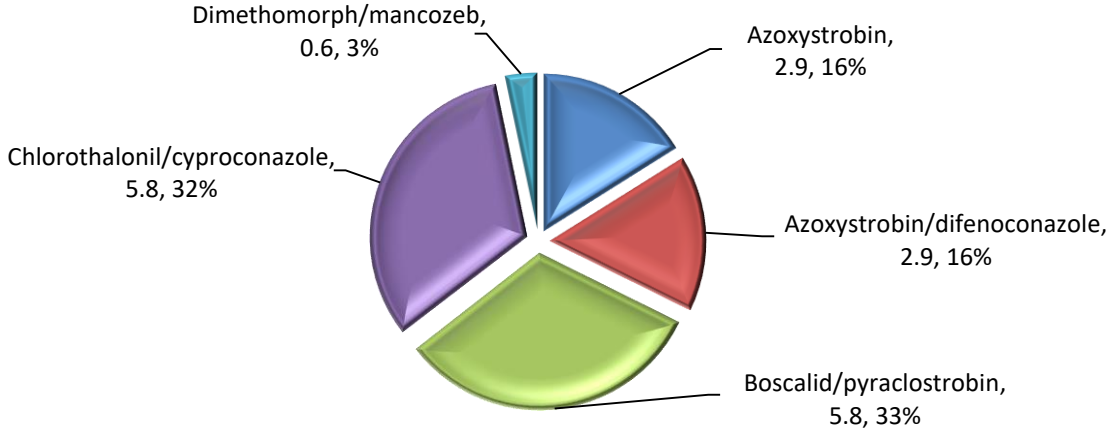
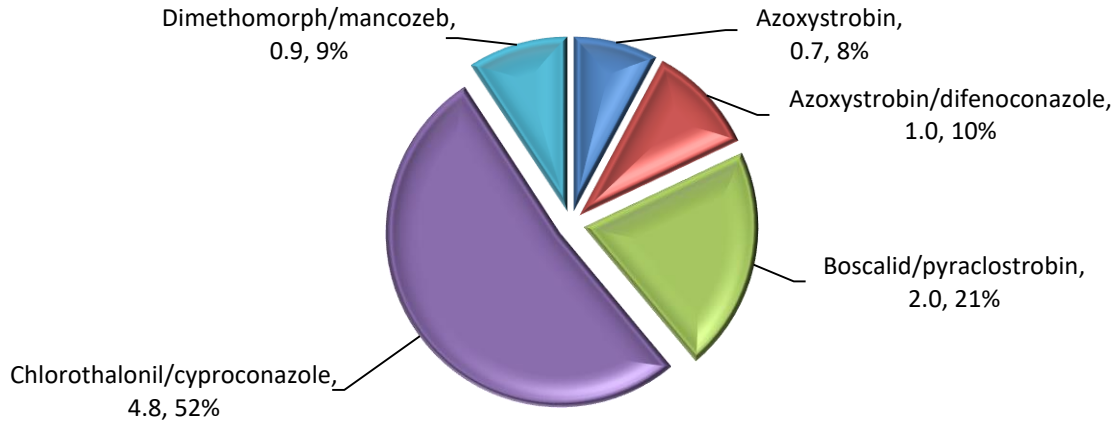


Figure 88: Weight of fungicide active substances (kg) applied to pea and bean crops in Northern Ireland, 2017.



Peas and beans – Herbicides

- Basic treated area: 13 hectares
- Total treated area: 6 spray hectares
- Weight of active substances applied: 12 kg
- The herbicide active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Glyphosate	6	6	4	48
Imazamox/pendimethalin	6	6	7	44
Linuron	1	1	<0.5	4
Pendimethalin	1	1	1	4

Figure 89: Herbicide active substance usage (spha) on pea and bean crops in Northern Ireland, 2017.

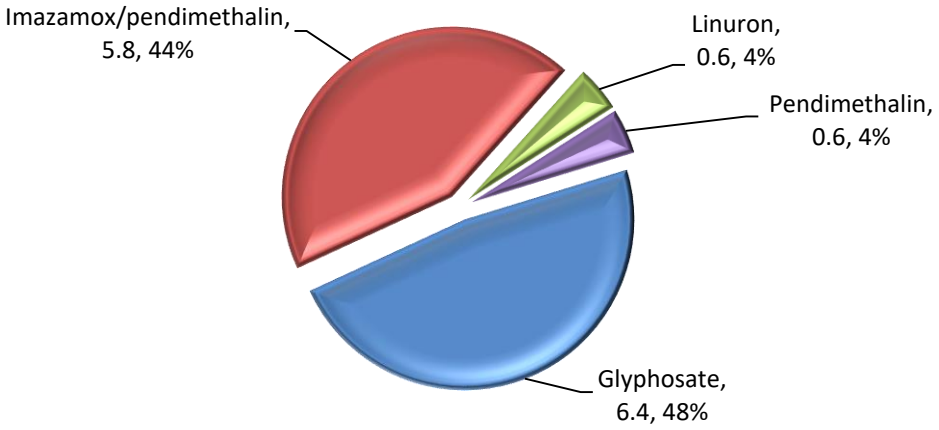


Figure 90: Weight of herbicide active substance usage (kg) on pea and bean crops in Northern Ireland, 2017.

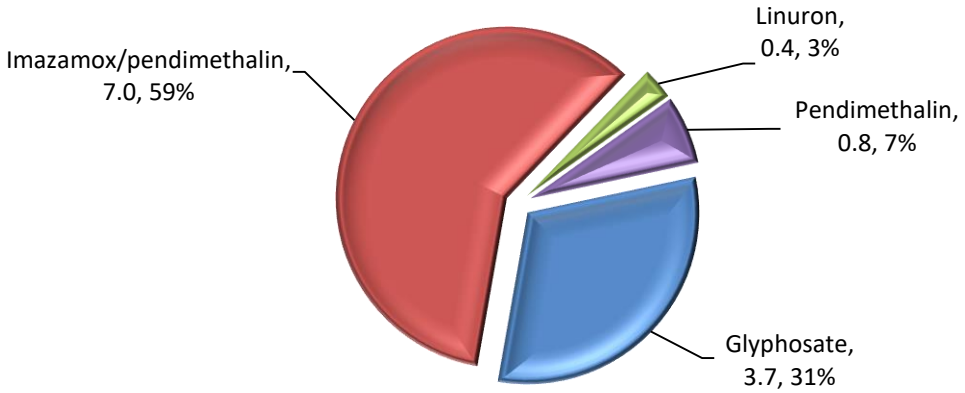
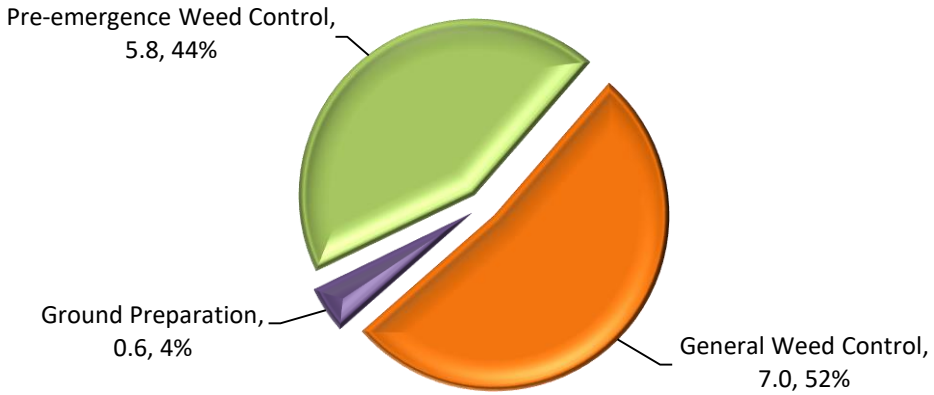


Figure 91: Peas and beans: reasons for herbicide use (spha).



Peas and beans – Insecticides

- Basic treated area: 6 hectares
- Total treated area: 12 spray hectares
- Weight of active substances applied: 1 kg
- The insecticide active substances applied were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Lambda-cyhalothrin	6	6	<0.05	48
Pirimicarb	6	6	1	48
Spirotetramat	1	1	<0.05	5

Figure 92: Insecticide active substance usage (spha) on pea and bean crops in Northern Ireland, 2017.

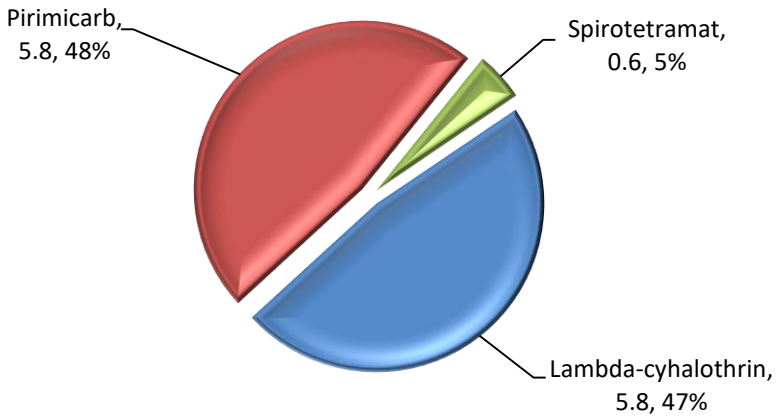


Figure 93: Weight of insecticide active substance usage (kg) on pea and bean crops in Northern Ireland, 2017.

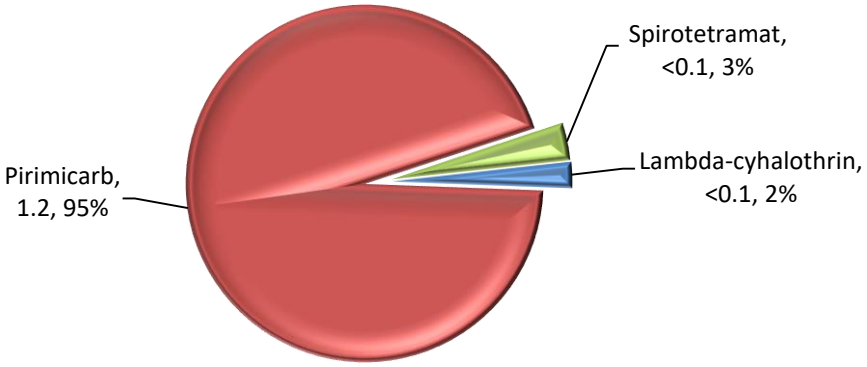
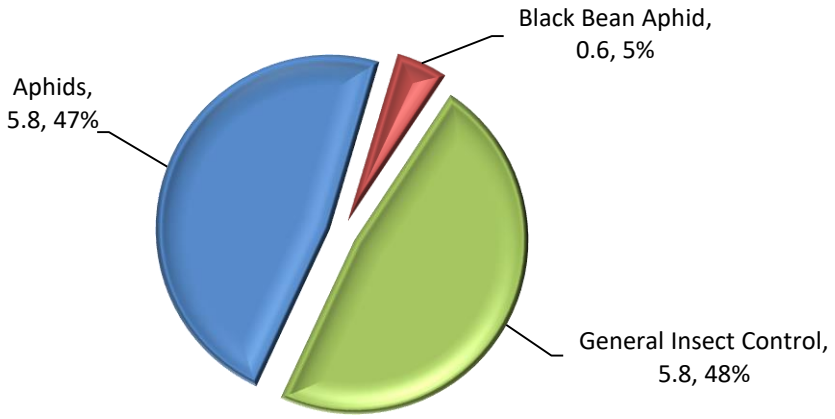


Figure 94: Peas and beans: reasons for insectcide use (spha).



PESTICIDE USAGE ON OTHER VEGETABLES

- 21 hectares of other vegetable crops grown in Northern Ireland
- 10 basic treated area (ha)
- 25 total treated area (spha)
- 19 kg applied
- Rhubarb and squash received no pesticide treatments
- There were no fungicides or insecticide applications to other vegetables
- Refer to Table 7 for individual breakdown of proportional area treated and number of spray applications applied to other vegetable crops.

Figure 95: Pesticide usage on other vegetable crops in Northern Ireland, 2017.

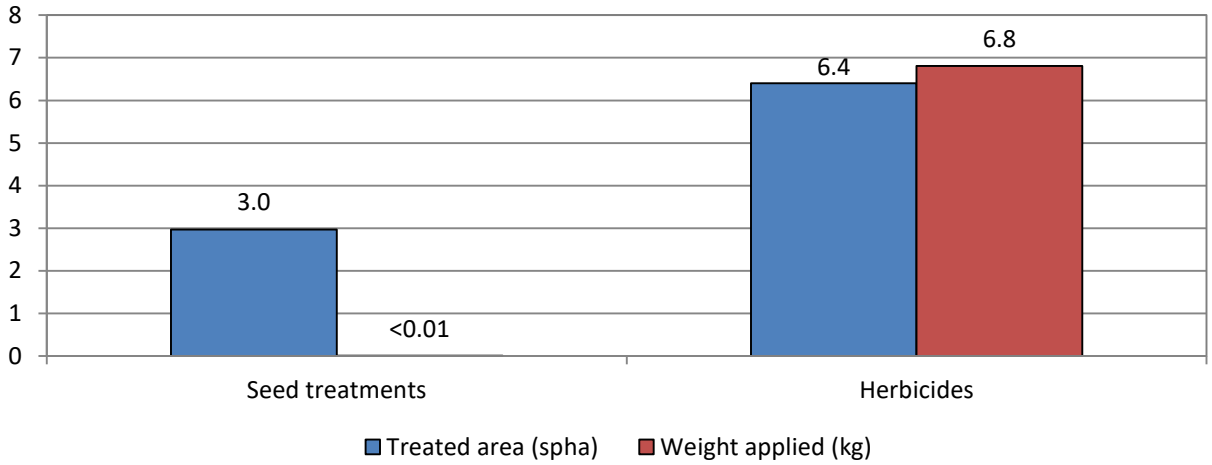


Figure 96: Regional distribution of other vegetable crops grown (ha) in Northern Ireland, 2017.

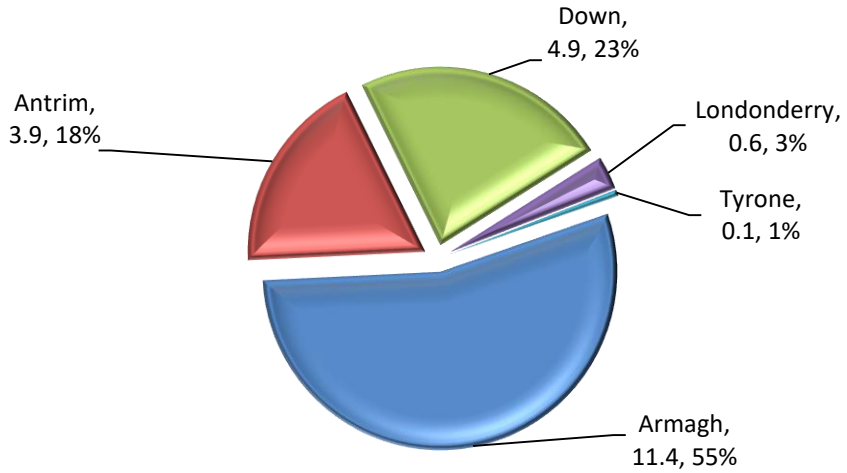


Figure 97: Pesticide usage (spha) on other vegetable crops in Northern Ireland, 2017.

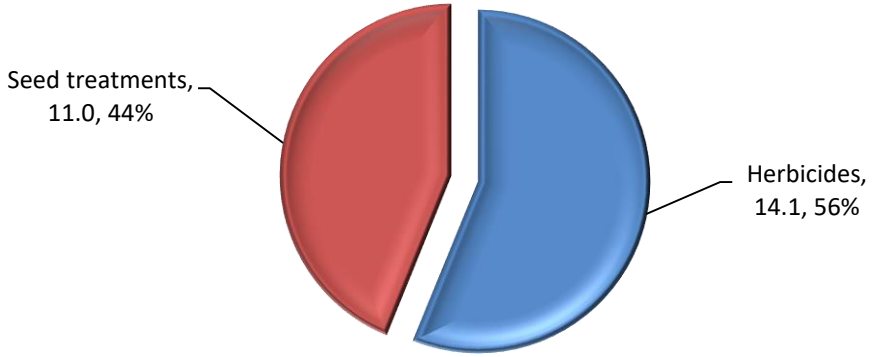
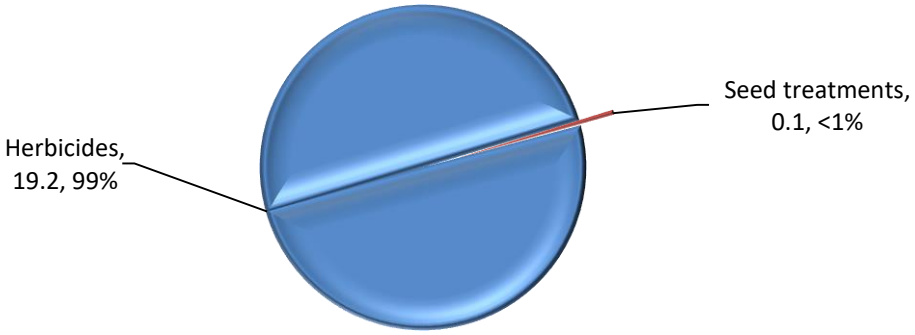


Figure 98: Weight of pesticides (kg) applied to other vegetable crops in Northern Ireland, 2017



Other vegetables – Herbicides

- Basic treated area: 9 hectares
- Total treated area: 14 spray hectares
- Weight of active substances applied: 19 kg
- The herbicide active substances applied were:

Active substance	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**	**% of the treated area**
Glyphosate	6	6	7	46
Metamitron	4	2	6	25
Lenacil	3	3	6	22
Phenmedipham	1	1	<0.5	4
Metazachlor	<0.5	<0.5	<0.5	3
Clomazone	<0.1	<0.1	<0.05	1

Figure 99: Herbicide active substance usage (spha) on other vegetable crops in Northern Ireland, 2017.

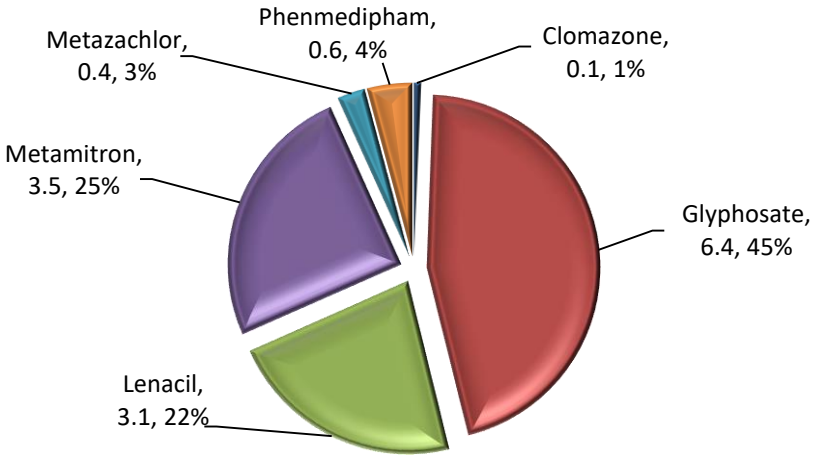


Figure 100: Weight of herbicide active substance usage (kg) on other vegetable crops in Northern Ireland, 2017.

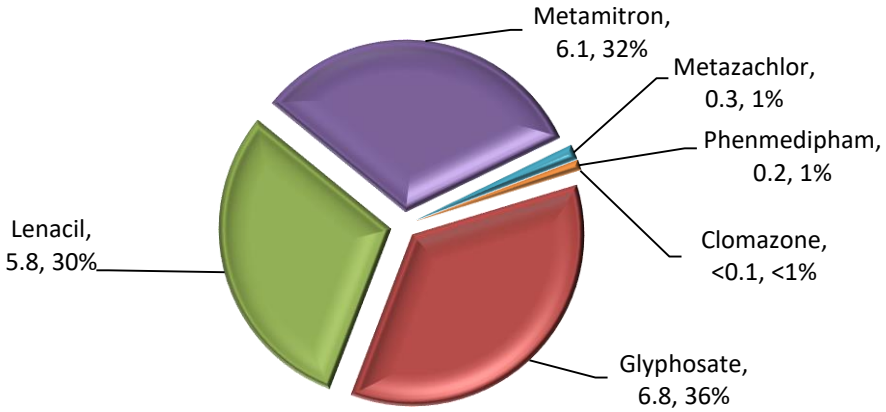
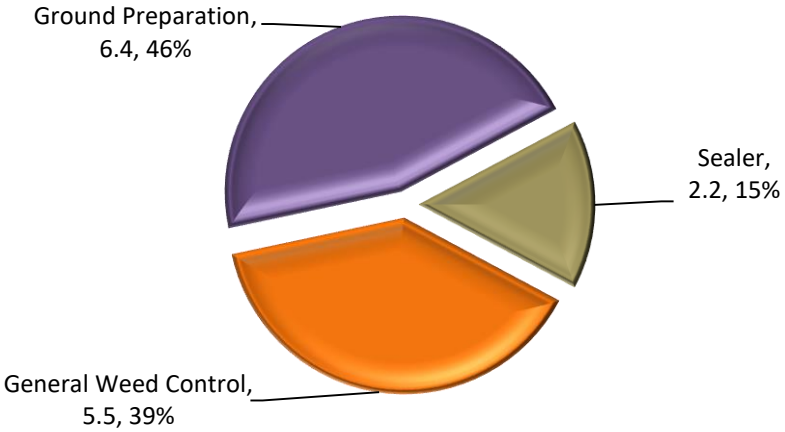


Figure 101: Other vegetables: reasons for herbicide use (spha).



MOLLUSCICIDE USE ON OUTDOOR VEGETABLE CROPS

- 163 basic treated area (ha)
- 167 total treated area (spha)
- 44 kg applied
- Refer to Table 7 for individual breakdown of proportional area treated and number of spray applications applied to other vegetable crops.
- The only molluscicide active substance applied was metaldehyde

Figure 102: Area of outdoor vegetable crops treated (spha) with molluscicides in Northern Ireland, 2017.

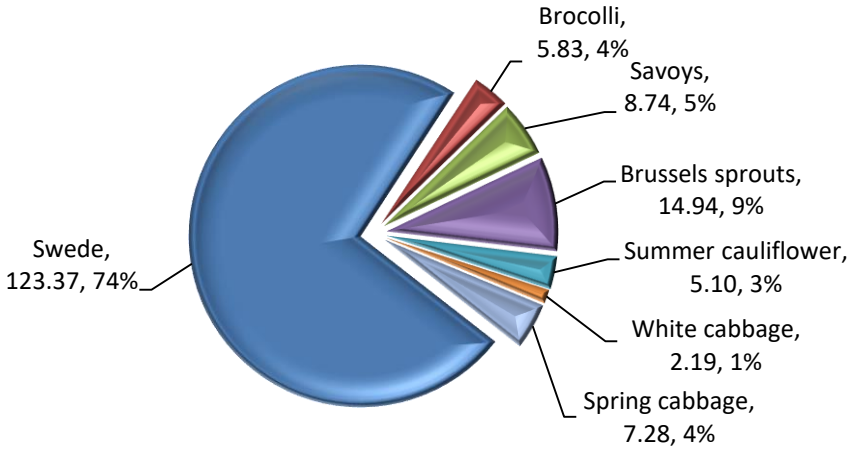
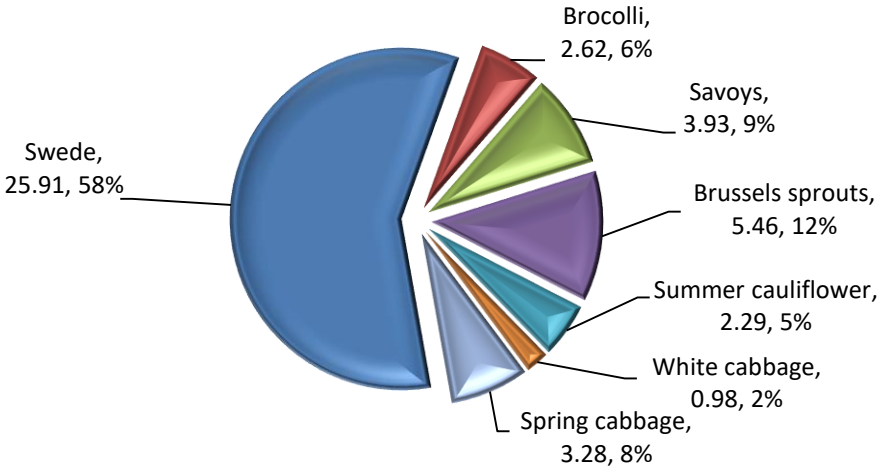


Figure 103: Weight of molluscicides applied (kg) to outdoor vegetable crops in Northern Ireland, 2017.



SEED TREATMENT USE ON OUTDOOR VEGETABLE CROPS

- 1,136 basic treated area (ha)
- 1,569 total treated area (spha)
- 38 kg applied
- Refer to Table 7 for individual breakdown of proportional area treated and number of spray applications applied to other vegetable crops.
- The five most commonly applied seed treatment active substances were:

Active substance	Total treated area (spha)	Basic treated area (ha)	Quantity applied (kg)	% of the treated area
Thiamethoxam	414	376	21	26
Cymoxanil/fludioxonil/metalaxyl-M	374	374	1	24
Tefluthrin	319	319	16	20
Thiram	244	237	1	16
Iprodione	111	74	<0.05	7

Figure 104: Area of outdoor vegetable crops (spha) with treated seed in Northern Ireland, 2017.

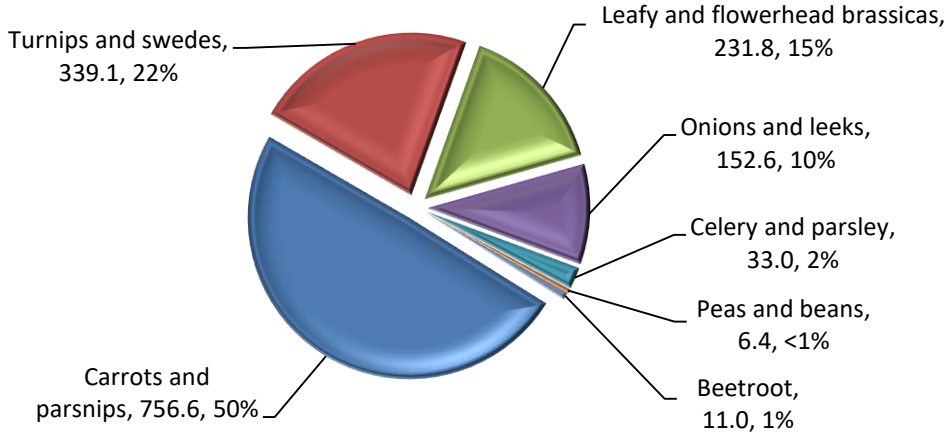


Figure 105: Weight of seed treatments applied (kg) to outdoor vegetable crops in Northern Ireland, 2017.

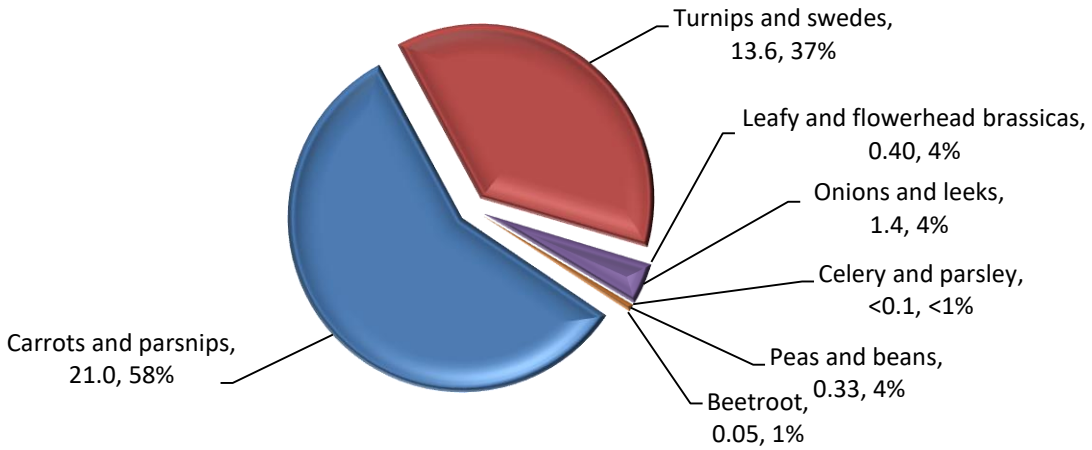


Figure 106: Type of seed treatment applied (spha) to outdoor vegetable crops in Northern Ireland, 2017.

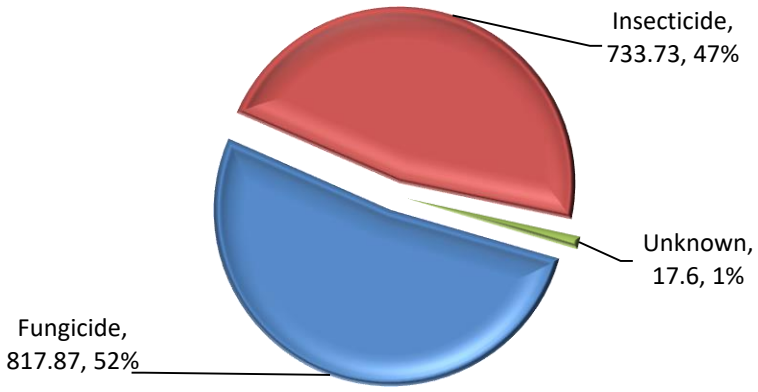


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Table 1: **The total number of farms in each size group with vegetable crops in the June 2017 census and number of samples from each size group.**

	Size group (hectares)											
	<2		2<5		5<15		15<40		40+		Total	
Region	A	B	A	B	A	B	A	B	A	B	A	B
Northern Ireland	27	10	20	7	18	10	15	10	6	5	86	42

Legend

A = Total number of holdings in strata

B = Number of holdings surveyed

Table 2: **Total number and area of crops surveyed (ha) in Northern Ireland, 2017.**

Crop type	Number of Crops Surveyed	Surveyed area (ha)
Carrots	24	335.30
Swede	8	177.77
Parsnips	16	121.43
Turnips	9	94.29
Broccoli	23	74.45
Savoy cabbage	21	72.50
Soup leeks	5	39.04
Lettuce	12	38.79
Table leeks	11	37.48
Summer cauliflower	12	27.39
Table celery	3	18.40
Brussels sprouts	10	17.21
Summer scallions	2	16.70
White cabbage	6	16.49
Parsley	7	12.67
Spring cabbage	2	12.14
Red cabbage	6	12.14
Rhubarb	2	10.82
Beetroot	9	9.46
Onions	1	9.11
Soup celery	4	7.72
Broad beans	3	3.32
Peas	2	3.20
Purple broccoli	1	3.04
Kale	4	2.59
Autumn cabbage	1	1.80
Autumn cauliflower	1	1.80
Winter cabbage	2	0.81
Pumpkin	2	0.30
Squash	1	0.27
All crops	**210**	**1178.43**

Table 3: **Estimated area (ha) of vegetable crops grown regionally in Northern Ireland, 2017.**

	County					
Crop type	**Antrim**	**Armagh**	**Down**	**Londonderry**	**Tyrone**	**Northern Ireland**
Carrots	.	132.66	184.68	6.92	11.05	335.30
Swede	.	25.92	151.73	.	0.12	177.77
Parsnips	4.92	0.05	115.61	0.73	0.12	121.43
Turnips	12.72	0.05	80.98	0.55	.	94.29
Broccoli	.	5.92	68.41	.	0.12	74.45
Savoy cabbage	.	5.18	67.33	.	.	72.50
Soup leeks	.	5.78	32.17	1.09	.	39.04
Lettuce	.	24.28	5.40	.	9.11	38.79
Table leeks	.	7.64	21.22	.	8.62	37.48
Summer cauliflower	.	2.27	25.12	.	.	27.39
Table celery	.	14.57	3.83	.	.	18.40
Brussels sprouts	.	2.24	11.94	1.82	1.21	17.21
Summer scallions	.	.	16.70	.	.	16.70
White cabbage	.	2.19	14.30	.	.	16.49
Parsley	.	0.58	11.55	0.55	.	12.67
Spring cabbage	.	7.28	4.86	.	.	12.14
Red cabbage	.	0.08	12.06	.	.	12.14
Rhubarb	8.09	2.73	0.00	.	.	10.82
Beetroot	3.28	0.55	4.88	0.64	0.12	9.46
Onions	.	.	.	.	9.11	9.11
Soup celery	.	0.58	7.14	.	.	7.72
Broad beans	.	.	3.20	.	0.12	3.32
Peas	.	.	3.20	.	.	3.20
Purple broccoli	.	.	3.04	.	.	3.04
Kale	.	0.55	1.92	.	0.12	2.59
Autumn cabbage	.	1.80	.	.	.	1.80
Autumn cauliflower	.	1.80	.	.	.	1.80
Winter cabbage	.	0.08	.	0.73	.	0.81
Pumpkin	.	0.30	.	.	.	0.30
Squash	.	0.27	.	.	.	0.27
All crops	**29.01**	**245.34**	**851.25**	**13.02**	**39.81**	**1,178.43**

Table 4a: **Estimated area (spha) of vegetable crops treated regionally in Northern Ireland, 2017 with each pesticide type.**

	County					
Pesticide type	**Antrim**	**Armagh**	**Down**	**Londonderry**	**Tyrone**	**Northern Ireland**
Fungicide	14.75	882.05	1,321.78	2.55	67.14	2,288.26
Growth regulator	.	.	1.92	.	.	1.92
Herbicide	50.02	908.46	3,770.13	35.33	37.64	4,801.57
Insecticide	16.39	1,255.08	2,012.21	1.09	60.09	3,344.87
Molluscicide	.	21.12	141.95	.	4.37	167.45
Seed treatment	20.91	407.38	1,070.59	20.67	49.65	1,569.20
All pesticides	**102.07**	**3,474.10**	**8,318.57**	**59.64**	**218.89**	**12,173.27**

Table 4b: **Estimated weight (kg) of pesticide applied regionally in Northern Ireland, 2017 with each pesticide type.**

	County					
Pesticide type	**Antrim**	**Armagh**	**Down**	**Londonderry**	**Tyrone**	**Northern Ireland**
Fungicide	2.39	236.92	447.76	0.19	15.88	703.14
Growth regulator	.	.	0.12	.	.	0.12
Herbicide	31.58	441.12	2,367.62	33.08	18.36	2,891.75
Insecticide	0.38	449.17	74.91	>0.1	6.00	530.47
Molluscicide	.	9.51	33.44	.	1.53	44.48
Seed treatment	0.09	10.79	25.11	0.30	1.73	38.03
All pesticides	**34.44**	**1,147.51**	**2,948.97**	**33.58**	**43.50**	**4,207.98**

Table 5: **The total area (spha) and the basic area (ha) of vegetable crops treated with each pesticide type in Northern Ireland, 2017.**

	Pesticide Type													
	Fungicides		Herbicides & desiccants		Insecticides		Growth regulators		Molluscicides		Seed treatments		All pesticides	
Crop type	(spha)	(ha)	(spha)	(ha)	(spha)	(ha)	(spha)	(ha)	(spha)	(ha)	(spha)	(ha)	(spha)	(ha)
Carrots	1,208.48	309.21	1,882.38	335.18	1,881.22	328.26	.		.	.	578.69	335.18	5,550.77	335.30
Parsnips	181.41	61.34	595.81	121.31	438.95	73.20	.		.	.	177.88	121.31	1,394.06	121.43
Turnips	.	.	735.53	91.51	54.63	18.21	.		.	.	135.57	94.29	925.73	94.29
Swede	.	.	379.79	177.65	24.28	24.28	.		123.37	123.37	203.57	177.65	731.01	177.77
Broccoli	157.51	53.73	215.12	74.33	189.26	70.13	.		5.83	5.83	83.55	70.44	651.28	74.45
Savoys	158.38	71.46	139.64	71.00	260.90	71.54	1.92	1.92	8.74	8.74	67.65	67.65	637.23	72.50
Lettuce	135.16	35.01	38.79	38.79	104.48	37.71	.		.	.	38.79	38.79	317.21	38.79
Table leeks	79.83	31.91	134.28	36.91	12.14	6.07	.		.	.	66.17	37.81	292.42	37.48
Soup leeks	7.52	3.76	240.32	39.04	.	.	.		.	.	43.89	39.04	291.73	39.04
Brussels sprouts	54.51	17.04	47.37	16.00	63.72	14.18	.		14.94	10.50	17.09	17.09	197.63	17.21
Summer cauliflower	55.79	19.73	44.95	21.60	60.34	26.37	.		5.10	5.10	27.39	27.39	193.57	27.39
White cabbage	53.48	14.67	42.47	16.49	64.93	16.49	.		2.19	2.19	10.66	10.66	173.72	16.49
Table celery	68.68	18.04	40.27	18.40	39.54	18.04	.	.	.	.	18.40	18.40	166.89	18.40
Spring cabbage	43.71	12.14	26.71	12.14	58.27	12.14	.		7.28	7.28	7.28	7.28	143.26	12.14
Summer scallions	2.31	1.16	95.55	16.70	.	.	.		.	.	33.39	16.70	131.25	16.70
Red cabbage	26.08	11.10	25.00	8.66	52.64	11.18	.		.	.	8.25	8.25	111.98	12.14
Parsley	10.98	4.05	31.66	12.13	12.14	4.05	.		.	.	12.67	12.67	67.45	12.67
Purple broccoli	12.14	3.04	15.18	3.04	9.11	3.04	.		.	.	3.04	3.04	39.46	3.04
Onions	9.11	9.11	9.11	9.11	.	.	.		.	.	9.11	9.11	27.32	9.11
Broad beans	9.03	3.20	6.69	3.20	6.12	3.20	.		.	.	3.20	3.20	25.04	3.32
Peas	9.03	3.20	6.69	3.20	6.12	3.20	.		.	.	3.20	3.20	25.04	3.20
Beetroot	.	.	13.98	8.52	.	.	.		.	.	10.98	8.79	24.96	9.46
Soup celery	0.58	0.58	19.95	7.72	1.73	0.58	.		.	.	1.89	1.89	24.15	7.72
Kale	3.84	1.92	1.92	0.96	3.84	1.92	.		.	.	2.47	2.47	12.07	2.59
Autumn cabbage	.	.	5.40	1.80	.	.	.		.	.	1.80	1.80	7.20	1.80
Autumn cauliflower	.	.	5.40	1.80	.	.	.		.	.	1.80	1.80	7.20	1.80
Winter cabbage	0.73	0.73	1.54	0.81	0.49	0.08	.		.	.	0.81	0.81	3.56	0.81
Pumpkin	.	.	0.08	0.08	.	.	.		.	.	.	.	0.08	0.30
All crops	**2,288.26**	**686.10**	**4,801.57**	**1,147.62**	**3,344.87**	**743.86**	**1.92**	**1.92**	**167.45**	**163.01**	**1,569.20**	**1,136.27**	**12,173.27**	**1,167.33**

Table 6: **The total quantities (kg) of each pesticide type used on vegetable crops in Northern Ireland 2017.**

	Pesticide Type						
Crop type	**Fungicides**	**Herbicides**	**Insecticides**	**Growth regulators**	**Molluscicides**	**Seed treatments**	**Total quantity (kg)**
Carrots	368.62	1,051.79	474.12	.	.	19.91	1,914.43
Parsnips	61.14	485.39	6.25	.	.	1.11	553.88
Turnips	.	276.45	0.41	.	.	5.91	282.77
Soup Leeks	1.44	228.70	.	.	.	0.08	230.22
Broccoli	59.50	149.92	9.00	.	2.62	0.01	221.06
Swede	.	125.85	0.12	.	25.91	7.72	159.60
Table leeks	33.89	108.71	0.22	.	.	0.17	142.98
Savoys	39.88	78.75	15.38	0.12	3.93	0.02	138.08
Summer scallions	2.58	72.31	.	.	.	1.15	76.04
Table celery	15.35	57.25	2.20	.	.	.	74.38
Lettuce	33.79	30.09	5.28	.	.	1.58	70.73
Brussels sprouts	15.88	40.34	4.06	.	5.46	.	65.74
Summer cauliflower	20.99	30.65	3.26	.	2.29	.	57.20
White cabbage	17.28	25.19	3.39	.	0.98	.	46.85
Parsley	1.46	27.38	0.20	.	.	.	29.04
Spring cabbage	9.32	13.45	2.40	.	3.28	.	28.45
Soup celery	1.07	24.97	0.16	.	.	.	26.20
Purple broccoli	5.22	14.90	0.26	.	.	.	20.38
Beetroot	.	19.16	.	.	.	0.09	19.25
Red cabbage	6.46	10.22	2.13	.	.	.	18.81
Peas	4.77	5.88	0.65	.	.	0.05	11.35
Broad beans	4.55	5.88	0.65	.	.	0.20	11.28
Autumn cauliflower	.	2.89	.	.	.	.	2.89
Autumn cabbage	.	2.89	.	.	.	.	2.89
Kale	0.29	1.44	0.37	.	.	.	2.10
Winter cabbage	0.05	1.30	.	.	.	.	1.36
Pumpkin	.	0.01	.	.	.	.	0.01
Onions	*	*	.	.	.	*	*
All Crops	**703.14**	**2,891.75**	**530.47**	**0.12**	**44.48**	**38.03**	**4,207.98**

* Product rates unknown

Table 7: **The proportional area (%) of each crop treated with pesticides and the number of spray applications (in parentheses) in Northern Ireland, 2017.**

	Pesticide type													
	Fungicides		Herbicides		Insecticides		Growth regulators		Molluscicides		Seed treatments		All pesticides	
Crop type	%	sp apps	%	sp apps	%	sp apps	%	sp apps	%	sp apps	%	sp apps	%	sp apps
Autumn Cabbage	.	.	100%	3.00	.	.	.	.	.	.	100%	1.00	100%	2.00
Autumn Cauliflower	.	.	100%	3.00	.	.	.	.	.	.	100%	1.00	100%	2.00
Beetroot	.	.	90%	1.86	.	.	.	.	.	.	93%	1.12	93%	1.46
Broad Beans	96%	1.77	96%	2.61	96%	1.39	.	.	.	.	96%	1.00	96%	1.69
Broccoli	72%	2.06	100%	2.21	94%	2.79	.	.	8%	1.00	95%	1.21	100%	2.03
Brussels Sprouts	99%	2.57	93%	2.24	82%	4.18	.	.	61%	2.24	99%	1.00	99%	2.37
Cabbage (Spring)	100%	3.60	100%	2.20	100%	4.80	.	.	60%	1.00	60%	1.00	100%	2.81
Cabbage (Winter)	90%	1.00	100%	1.40	10%	6.00	.	.	.	.	100%	1.00	100%	2.13
Carrots	92%	3.19	100%	4.19	98%	4.73	.	.	.	.	100%	1.62	100%	3.42
Kale	74%	2.00	37%	2.00	74%	2.00	.	.	.	.	95%	1.00	95%	1.57
Lettuce	90%	2.07	100%	1.00	97%	1.34	.	.	.	.	100%	1.00	100%	1.22
Onions	100%	1.00	100%	1.00	.	.	.	.	.	.	100%	1.00	100%	1.00
Parsley	32%	2.00	96%	1.89	32%	3.00	.	.	.	.	100%	1.00	100%	1.70
Parsnips	51%	2.33	100%	3.68	60%	4.21	.	.	.	.	100%	1.17	100%	2.70
Peas	100%	1.77	100%	2.61	100%	1.39	.	.	.	.	100%	1.00	100%	1.69
Pumpkin	.	.	27%	1.00	.	.	.	.	.	.	.	.	27%	1.00
Purple Broccoli	100%	4.00	100%	5.00	100%	3.00	.	.	.	.	100%	1.00	100%	3.25
Red Cabbage	91%	2.33	71%	1.95	92%	5.24	.	.	.	.	68%	1.00	100%	2.58
Savoys	99%	2.27	98%	2.07	99%	3.48	3%	1.00	12%	1.00	93%	1.00	100%	2.14
Scallions (Summer)	7%	2.00	100%	3.18	.	.	.	.	.	.	100%	2.00	100%	2.44
Soup Celery	7%	1.00	100%	1.55	7%	3.00	.	.	.	.	24%	1.00	100%	1.46
Soup Leeks	10%	2.00	100%	2.24	.	.	.	.	.	.	100%	1.41	100%	1.84
Summer Cauliflower	72%	2.63	79%	2.00	96%	2.86	.	.	19%	1.00	100%	1.00	100%	1.97
Swede	.	.	100%	2.29	14%	1.00	.	.	69%	1.00	100%	1.13	100%	1.52
Table celery	98%	3.34	100%	2.46	98%	2.66	.	.	.	.	100%	1.00	100%	2.26
Table Leeks	85%	2.74	97%	3.16	16%	2.00	.	.	.	.	100%	1.79	100%	2.51
Turnips	.	.	97%	7.89	19%	3.00	.	.	.	.	100%	1.06	100%	3.52
White Cabbage	89%	3.67	100%	2.15	100%	3.15	.	.	13%	1.00	65%	1.00	100%	2.41
Total	**58%**	**2.48**	**97%**	**2.70**	**63%**	**3.35**	**<1%**	**1.00**	**14%**	**1.38**	**96%**	**1.87**	**98.9%**	**2.28**

Table 8: **Estimated area (spha) of outdoor vegetable crops treated with pesticide formulations in Northern Ireland, 2017.**

	Crop type												
Pesticide group & active substance	**Leafy brassicas**	**Carrot**	**Celery**	**Leek**	**Lettuce**	**Onions & spring onions**	**Other vegetables**	**Parsley**	**Parsnip**	**Peas & beans**	**Turnip & swede**	**All curcurbit**	**Total Area (spha)**
Fungicides													
Azoxystrobin	30.59	70.30	58.27	.	135.16	.	.	.	.	2.91	.	.	297.25
Azoxystrobin/difenoconazole	139.23	27.19	.	10.96	.	.	.	.	62.22	2.91	.	.	242.51
Boscalid/pyraclostrobin	46.62	286.07	.	.	.	.	.	.	4.92	5.83	.	.	343.43
Chlorothalonil	12.12		.	.	.	.	.	.	.	.	.	.	12.12
Chlorothalonil/cyproconazole	.	.	.	.	.	.	.	.	.	5.83	.	.	5.83
Chlorothalonil/metalaxyl-M	52.57		.	8.26	.	.	.	.	.	.	.	.	60.82
Cyprodinil/fludioxonil	.	60.70	.	.	.	.	.	.	.	.	.	.	60.70
Cyprodinil/isopyrazam	1.92	.	.	.	.	.	.	.	.	.	.	.	1.92
Difenoconazole	174.33	.	10.41	.	.	.	.	10.41	.	.	.	.	195.14
Dimethomorph/mancozeb	.	1.16	0.58	2.31	.	1.16	.	0.58	.	0.58	.	.	6.36
Epoxiconazole/metconazole	32.17	.	.	6.07	.	.	.	.	.	.	.	.	38.24
Fenpropimorph	.	1.16	.	2.31	.	1.16	.	.	0.58	.	.	.	5.20
Isopyrazam	.	159.83	.	.	.	.	.	.	54.39	.	.	.	214.21
Mancozeb/metalaxyl-M	.	.	.	6.07	.	.	.	.	.	.	.	.	6.07
Metalaxyl-M	.	228.29	.	.	.	.	.	.	54.39	.	.	.	282.68
Prothioconazole	62.40	292.83	.	34.48	.	.	.	.	.	.	.	.	389.72
Tebuconazole	.	24.28	.	8.38	.	.	.	.	4.92	.	.	.	37.58
Tebuconazole/trifloxystrobin	14.20	56.67	.	.	.	.	.	.	.	.	.	.	70.87
Unknown fungicide	.	.	.	8.50	.	9.11	.	.	.	.	.	.	17.60
All fungicides	**566.15**	**1,208.48**	**69.26**	**87.34**	**135.16**	**11.42**	**.**	**10.98**	**181.41**	**18.06**	**.**	**.**	**2,288.26**

Table 8 (cont): **Estimated area (spha) of outdoor vegetable crops treated with pesticide formulations in Northern Ireland, 2017.**

Pesticide group & active substance	Leafy brassicas	Carrot	Celery	Leek	Lettuce	Onions & spring onions	Other vegetables	Parsley	Parsnip	Peas & beans	Turnip & swede	All curcurbit	Total Area (spha)
Herbicides													
Bentazone	.	.	.	33.75	.	.	.	.	.	.	.	.	33.75
Bromoxynil	.	.	.	38.48	.	15.54	.	.	.	.	.	.	54.02
Chlorpropham	.	.	.	27.68	.	15.54	.	.	.	.	.	.	43.22
Clethodim	.	59.44	.	.	.	.	.	.	.	.	.	.	59.44
Clomazone	166.57	281.87	.	.	.	.	.	.	0.73	.	413.75	0.08	863.00
Clopyralid	.	.	.	.	.	.	.	.	.	.	36.42	.	36.42
Dimethenamid-P/metazachlor	.	.	.	27.68	.	.	.	.	.	.	24.28	.	51.96
Dimethenamid-P/pendimethalin	32.17	.	.	41.84	.	16.70	.	.	.	.	.	.	90.71
Diquat	.	59.30	.	.	.	.	.	.	38.74	.	236.72	.	334.76
Ethametsulfuron-methyl	.	.	.	.	.	.	.	.	.	.	72.84	.	72.84
Fluroxypyr	.	.	.	33.75	.	15.54	.	.	.	.	.	.	49.29
Fluroxypyr/halauxifen-methyl	1.92	.	.	.	.	.	.	.	.	.	.	.	1.92
Glyphosate	68.29	20.09	4.78	9.11	.	1.16	6.41	5.36	68.62	6.41	44.80	.	235.02
Imazamox/pendimethalin	.	.	.	.	.	.	.	.	.	5.83	.	.	5.83
Lenacil	.	.	.	.	.	.	3.13	.	.	.	.	.	3.13
Linuron	.	523.61	24.81	18.21	.	.	.	10.24	225.38	0.58	.	.	802.82
Metamitron	.	.	.	.	.	.	3.50	.	71.69	.	.	.	75.19
Metazachlor	260.45	.	.	22.24	.	.	0.36	.	.	.	260.58	.	543.64
Metribuzin	.	263.35	.	.	.	.	.	.	.	.	.	.	263.35
Metsulfuron-methyl/tribenuron-methyl	1.92	.	.	.	.	.	.	.	.	.	.	.	1.92
Pendimethalin	32.17	368.85	6.19	37.86	.	15.54	.	6.19	86.90	0.58	.	.	554.28
Phenmedipham	.	.	.	.	.	.	0.58	.	.	.	.	.	0.58
Propaquizafop	.	15.00	.	.	.	.	.	.	.	.	.	.	15.00
Propyzamide	.	.	.	.	38.79	.	.	.	.	.	.	.	38.79
Prosulfocarb	.	234.20	24.44	75.49	.	15.54	.	9.87	103.75	.	.	.	463.30
Pyridate	7.20	.	.	.	.	.	.	.	.	.	.	.	7.20
S-metolachlor	.	.	.	.	.	.	.	.	.	.	25.92	.	25.92
Tepraloxydim	.	56.67	.	.	.	.	.	.	.	.	.	.	56.67
Unknown herbicide	.	.	.	8.50	.	9.11	.	.	.	.	.	.	17.60
All herbicides	**570.69**	**1,882.38**	**60.22**	**374.60**	**38.79**	**104.66**	**13.98**	**31.66**	**595.81**	**13.39**	**1,115.31**	**0.08**	**4,801.57**

Table 8 (cont): **Estimated area (spha) of outdoor vegetable crops treated with pesticide formulations in Northern Ireland, 2017.**

Pesticide group & active substance	Leafy brassicas	Carrot	Celery	Leek	Lettuce	Onions & spring onions	Other vegetables	Parsley	Parsnip	Peas & beans	Turnip & swede	All curcurbit	Total Area (spha)
Insecticides													
Acetamiprid	21.25	.	.	.	.	.	.	.	.	.	.	.	21.25
Chlorantraniliprole	.	122.73	.	.	.	.	.	.	.	.	.	.	122.73
Chlorpyrifos	.	.	0.58	.	.	.	.	0.58	.	.	.	.	1.16
Cyantraniliprole	13.11	.	.	.	.	.	.	.	.	.	.	.	13.11
Cypermethrin	7.20	.	.	.	4.32	.	.	.	.	.	.	.	11.52
Deltamethrin	23.31	208.31	.	.	.	.	.	.	175.55	.	.	.	407.17
Garlic Extract	.	75.72	.	.	.	.	.	.	.	.	.	.	75.72
Indoxacarb	78.79	.	.	6.07	.	.	.	.	.	.	.	.	84.86
Lambda-cyhalothrin	288.30	853.71	26.13	6.07	66.77	.	.	11.56	207.38	5.83	78.91	.	1,544.66
Pirimicarb	22.22	32.78	14.57	.	33.39	.	.	.	.	5.83	.	.	108.78
Pymetrozine	26.05	.	.	.	.	.	.	.	.	.	.	.	26.05
Spinosad	14.57	.	.	.	.	.	.	.	.	.	.	.	14.57
Spirotetramat	113.09	238.45	.	.	.	.	.	.	54.39	0.58	.	.	406.51
Thiacloprid	155.62	349.52	.	.	.	.	.	.	1.64	.	.	.	506.79
All insecticides	**763.51**	**1,881.22**	**41.28**	**12.14**	**104.48**	**.**	**.**	**12.14**	**438.95**	**12.23**	**78.91**	**.**	**3,344.87**
Molluscicides													
Metaldehyde	44.07	.	.	.	.	.	.	.	.	.	123.37	.	167.45
All molluscicides	**44.07**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**123.37**	**.**	**167.45**
Growth Regulators													
Trinexapac-ethyl	1.92	.	.	.	.	.	.	.	.	.	.	.	1.92
All growth regulators	**1.92**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**1.92**
Seed Treatments													
Cymoxanil/fludioxonil/metalaxyl-M	.	246.03	.	.	.	.	2.97	.	121.31	3.20	.	.	373.51
Iprodione	109.24	.	.	.	.	.	2.19	.	.	.	.	.	111.43
Metalaxyl-M	76.87	.	.	.	.	.	5.83	6.30	.	.	.	.	89.00
Tefluthrin	.	212.39	.	33.66	.	16.70	.	.	56.57	.	.	.	319.32
Thiamethoxam	.	120.27	.	.	38.79	.	.	.	.	.	255.35	.	414.41
Thiram	45.68	.	20.29	67.91	.	16.70	.	6.37	.	3.20	83.79	.	243.94
Unknown seed (trt)	.	.	.	8.50	.	9.11	.	.	.	.	.	.	17.60
All seed treatments	**231.79**	**578.69**	**20.29**	**110.06**	**38.79**	**42.50**	**10.98**	**12.67**	**177.88**	**6.41**	**339.14**	**.**	**1,569.20**

Table 9: Estimated quantities (kg) of pesticide formulations used on outdoor vegetable crops in Northern Ireland, 2017.

	Crop type												
Pesticide group & active substance	**Leafy brassicas**	**Carrot**	**Celery**	**Leek**	**Lettuce**	**Onions & spring onions**	**Other vegetables**	**Parsley**	**Parsnip**	**Peas & beans**	**Turnip & swede**	**All curcurbit**	**Total Quantity (kg)**
Fungicides													
Azoxystrobin	7.65	9.99	14.57	.	33.79	.	.	.	.	0.73	.	.	66.72
Azoxystrobin/difenoconazole	43.73	8.84	.	3.56	.	.	.	.	19.20	0.95	.	.	76.28
Boscalid/pyraclostrobin	15.57	99.60	.	.	.	.	.	.	1.46	1.95	.	.	118.58
Chlorothalonil	11.16	.	.	.	.	.	.	.	.	.	.	.	11.16
Chlorothalonil/cyproconazole	.	.	.	.	.	.	.	.	.	4.84	.	.	4.84
Chlorothalonil/metalaxyl-M	56.51	.	.	8.87	.	.	.	.	.	.	.	.	65.38
Cyprodinil/fludioxonil	.	30.35	.	.	.	.	.	.	.	.	.	.	30.35
Cyprodinil/isopyrazam	0.77	.	.	.	.	.	.	.	.	.	.	.	0.77
Difenoconazole	17.25	.	0.39	.	.	.	.	0.39	.	.	.	.	18.03
Dimethomorph/mancozeb	.	1.72	1.07	3.43	.	1.72	.	1.07	.	0.86	.	.	9.86
Epoxiconazole/metconazole	6.27	.	.	1.18	.	.	.	.	.	.	.	.	7.46
Fenpropimorph	.	0.87	.	1.73	.	0.87	.	.	0.43	.	.	.	3.90
Isopyrazam	.	19.98	.	.	.	.	.	.	6.80	.	.	.	26.78
Mancozeb/metalaxyl-M	.	.	.	7.83	.	.	.	.	.	.	.	.	7.83
Metalaxyl-M	.	124.11	.	.	.	.	.	.	32.89	.	.	.	157.00
Prothioconazole	12.12	57.39	.	6.62	.	.	.	.	.	.	.	.	76.13
Tebuconazole	.	3.04	.	2.10	.	.	.	.	0.35	.	.	.	5.48
Tebuconazole/trifloxystrobin	3.84	12.75	.	.	.	.	.	.	.	.	.	.	16.59
All fungicides	**174.87**	**368.62**	**16.03**	**35.33**	**33.79**	**2.58**	**.**	**1.46**	**61.14**	**9.32**	**.**	**.**	**703.14**

Table 9 (cont): **Estimated quantities (kg) of outdoor vegetable crops treated with pesticide formulations in Northern Ireland, 2017.**

Pesticide group & active substance	Leafy brassicas	Carrot	Celery	Leek	Lettuce	Onions & spring onions	Other vegetables	Parsley	Parsnip	Peas & beans	Turnip & swede	All curcurbit	Total Quantity (kg)
Herbicides													
Bentazone	.	.	.	48.60	.	.	.	.	.	.	.	.	48.60
Bromoxynil	.	.	.	11.77	.	3.50	.	.	.	.	.	.	15.27
Chlorpropham	.	.	.	11.07	.	6.22	.	.	.	.	.	.	17.29
Clethodim	.	7.13	.	.	.	.	.	.	.	.	.	.	7.13
Clomazone	12.22	19.21	.	.	.	.	.	.	0.04	.	24.29	0.01	55.76
Clopyralid	.	.	.	.	.	.	.	.	.	.	3.64	.	3.64
Dimethenamid-P/metazachlor	.	.	.	22.14	.	.	.	.	.	.	14.57	.	36.71
Dimethenamid-P/pendimethalin	59.52	.	.	50.59	.	19.30	.	.	.	.	.	.	129.41
Diquat	.	23.72	.	.	.	.	.	.	15.50	.	94.69	.	133.90
Ethametsulfuron-methyl	.	.	.	.	.	.	.	.	.	.	1.53	.	1.53
Fluroxypyr	.	.	.	1.68	.	0.93	.	.	.	.	.	.	2.61
Fluroxypyr/halauxifen-methyl	0.21	.	.	.	.	.	.	.	.	.	.	.	0.21
Glyphosate	56.73	20.46	4.79	8.05	.	1.03	6.81	5.30	73.81	3.66	49.30	.	229.93
Imazamox/pendimethalin	.	.	.	.	.	.	.	.		6.99	.	.	6.99
Lenacil	.	.	.	.	.	.	5.76	.			.	.	5.76
Linuron	.	115.25	8.35	11.06	.	.	.	5.07	57.59	0.35	.	.	197.68
Metamitron	.	.	.		.	.	6.13	.	94.31	.	.	.	100.44
Metazachlor	195.02	.	.	16.10	.	.	0.27	.	.	.	181.94	.	393.33
Metribuzin	.	40.93	.		.	.	.	.	.	.	.	.	40.93
Metsulfuron-methyl/tribenuron-methyl	0.02		.		.	.	.	.	.	.	.	.	0.02
Pendimethalin	42.45	411.16	6.88	48.81	.	10.25	.	6.08	110.48	0.76	.	.	636.88
Phenmedipham	.	.	.	.	.	.	0.18	.	.	.	.	.	0.18
Propaquizafop	.	2.25	.	.	.	.	.	.	.	.	.	.	2.25
Propyzamide	.	.	.	.	30.09	.	.	.	.	.	.	.	30.09
Prosulfocarb	.	407.43	62.20	107.53		31.08	.	10.92	133.67	.	.	.	752.83
Pyridate	5.76	.	.	.	.	.	.	.	.	.	.	.	5.76
S-metolachlor	.	.	.	.	.	.	.	.	.	.	32.35	.	32.35
Tepraloxydim	.	4.25	.	.	.	.	.	.	.	.	.	.	4.25
All herbicides	**371.94**	**1,051.79**	**82.22**	**337.40**	**30.09**	**72.31**	**19.16**	**27.38**	**485.39**	**11.77**	**402.30**	**0.01**	**2,891.75**

Table 9 (cont): **Estimated quantities (kg) of outdoor vegetable crops treated with pesticide formulations in Northern Ireland, 2017.**

Pesticide group & active substance	Leafy brassicas	Carrot	Celery	Leek	Lettuce	Onions & spring onions	Other vegetables	Parsley	Parsnip	Peas & beans	Turnip & swede	All curcurbit	Total Quantity (kg)
Insecticides													
Acetamiprid	1.06	.	.	.	.	.	.	.	.	.	.	.	1.06
Chlorantraniliprole	.	4.30	.	.	.	.	.	.	.	.	.	.	4.30
Chlorpyrifos	.	.	0.14	.	.	.	.	0.14	.	.	.	.	0.28
Cyantraniliprole	0.93	.	.	.	.	.	.	.	.	.	.	.	0.93
Cypermethrin	0.18	.	.	.	0.11	.	.	.	.	.	.	.	0.29
Deltamethrin	0.17	1.56	.	.	.	.	.	.	1.30	.	.	.	3.04
Garlic Extract	.	408.89	.	.	.	.	.	.	.	.	.	.	408.89
Indoxacarb	2.01	.	.	0.15	.	.	.	.	.	.	.	.	2.16
Lambda-cyhalothrin	2.48	9.73	0.15	0.06	0.50	.	.	0.06	2.34	0.03	0.53	.	15.88
Pirimicarb	4.51	4.59	2.04	.	4.67	.	.	.	.	1.22	.	.	17.04
Pymetrozine	5.21	.	.	.	.	.	.	.	.	.	.	.	5.21
Spinosad	1.40	.	.	.	.	.	.	.	.	.	.	.	1.40
Spirotetramat	8.45	11.49	.	.	.	.	.	.	2.45	0.04	.	.	22.43
Thiacloprid	13.85	33.55	.	.	.	.	.	.	0.16	.	.	.	47.56
All insecticides	**40.25**	**474.12**	**2.33**	**0.22**	**5.28**	**.**	**.**	**0.20**	**6.25**	**1.30**	**0.53**	**.**	**530.47**
Molluscicides													
Metaldehyde	18.57	.	.	.	.	.	.	.	.	.	25.91	.	44.48
All molluscicides	**18.57**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**25.91**	**.**	**44.48**
Growth Regulators													
Trinexapac-ethyl	0.12	.	.	.	.	.	.	.	.	.	.	.	0.12
All growth regulators	**0.12**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**0.12**
Seed Treatments													
Cymoxanil/fludioxonil/metalaxyl-M	.	0.50	.	.	.	.	<0.01	.	0.08	0.05	.	.	0.64
Iprodione	0.03	.	.	.	.	.	0.02	.	.	.	.	.	0.05
Metalaxyl-M	<0.01	.	.	.	.	.	0.07	<0.01	.	.	.	.	0.08
Tefluthrin	.	13.69	.	0.18	.	0.77	.	.	1.03	.	.	.	15.68
Thiamethoxam	.	5.71	.	.	1.58	.	.	.	.	.	13.57	.	20.86
Thiram	0.02	.	<0.01	0.07	.	0.38	.	<0.01	.	0.20	0.07	.	0.73
All seed treatments	**0.05**	**19.91**	**<0.01**	**0.25**	**1.58**	**1.15**	**0.09**	**<0.01**	**1.11**	**0.25**	**13.63**	**.**	**38.03**

Table 10 **The fifty active ingredients most extensively used on vegetable crops in Northern Ireland, 2017 ranked by treated area (spha).**

No.	Active substance	Treated area (spha)
1	Lambda-cyhalothrin	1,545
2	Clomazone	863
3	Linuron	803
4	Pendimethalin	651
5	Metazachlor	596
6	Azoxystrobin	540
7	Thiacloprid	507
8	Prosulfocarb	463
9	Difenoconazole	438
10	Deltamethrin	407
11	Spirotetramat	407
12	Prothioconazole	390
13	Metalaxyl-M	350
14	Pyraclostrobin	343
15	Boscalid	343
16	Diquat	335
17	Metribuzin	263
18	Glyphosate	235
19	Isopyrazam	216
20	Metaldehyde	167
21	Dimethenamid-P	143
22	Chlorantraniliprole	123
23	Pirimicarb	109
24	Tebuconazole	108
25	Indoxacarb	85
26	Chlorothalonil	79
27	Garlic Extract	76
28	Metamitron	75
29	Ethametsulfuron-methyl	73
30	Trifloxystrobin	71
31	Cyprodinil	63
32	Fludioxonil	61
33	Clethodim	59
34	Tepraloxydim	57
35	Bromoxynil	54
36	Fluroxypyr	51
37	Chlorpropham	43
38	Propyzamide	39
39	Metconazole	38
40	Epoxiconazole	38
41	Clopyralid	36
42	Bentazone	34
43	Pymetrozine	26
44	S-metolachlor	26
45	Acetamiprid	21
46	Unknown fungicide	18
47	Unknown herbicide	18
48	Propaquizafop	15
49	Spinosad	15
50	Cyantraniliprole	13

Table 11 **The fifty active ingredients most extensively used on vegetable crops in Northern Ireland, 2017 ranked by weight (kg).**

No.	Active substance	Quantity applied (kg)
1	Prosulfocarb	753
2	Pendimethalin	713
3	Metazachlor	412
4	Garlic Extract	409
5	Glyphosate	230
6	Linuron	198
7	Metalaxyl-M	162
8	Diquat	134
9	Azoxystrobin	114
10	Metamitron	100
11	Boscalid	95
12	Dimethenamid-P	78
13	Chlorothalonil	76
14	Prothioconazole	76
15	Clomazone	56
16	Bentazone	49
17	Thiacloprid	48
18	Difenoconazole	47
19	Metaldehyde	44
20	Metribuzin	41
21	S-metolachlor	32
22	Propyzamide	30
23	Isopyrazam	27
24	Pyraclostrobin	24
25	Spirotetramat	22
26	Cyprodinil	19
27	Chlorpropham	17
28	Pirimicarb	17
29	Tebuconazole	17
30	Mancozeb	16
31	Lambda-cyhalothrin	16
32	Tefluthrin	16
33	Bromoxynil	15
34	Thiamethoxam	14
35	Fludioxonil	12
36	Thiamethoxam	7
37	Clethodim	7
38	Lenacil	6
39	Pyridate	6
40	Trifloxystrobin	6
41	Pymetrozine	5
42	Epoxiconazole	4
43	Chlorantraniliprole	4
44	Tepraloxydim	4
45	Fenpropimorph	4
46	Clopyralid	4
47	Metconazole	3
48	Deltamethrin	3
49	Fluroxypyr	3
50	Propaquizafop	2

Table 12: **Autumn cabbage pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment					
Pesticide group and active substance	**General Weed Control**	**Sealer**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides						
Clomazone	.	1.80	.	1.80	1.80	0.10
Metazachlor	.	1.80	.	1.80	1.80	1.35
Pyridate	1.80	.	.	1.80	1.80	1.44
All herbicides	**1.80**	**3.60**	**.**	**5.40**	**.**	**2.89**
Seed treatments						
Metalaxyl-M	.	.	1.80	1.80	1.80	<0.05
All seed treatments	**.**	**.**	**1.80**	**1.80**	**.**	**<0.05**

Table 13: **Autumn caulifower pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment					
Pesticide group and active substance	**General Weed Control**	**Sealer**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides						
Clomazone	.	1.80	.	1.80	1.80	0.10
Metazachlor	.	1.80	.	1.80	1.80	1.35
Pyridate	1.80	.	.	1.80	1.80	1.44
All herbicides	**1.80**	**3.60**	**.**	**5.40**	**.**	**2.89**
Seed treatments						
Iprodione	.	.	1.80	1.80	1.80	<0.05
All seed treatments	**.**	**.**	**1.80**	**1.80**	**.**	**<0.05**

Table 14: **Beetroot pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment						
Pesticide group and active substance	**General Weed Control**	**Ground Preparation**	**Sealer**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides							
Glyphosate	.	6.41	.	.	6.41	6.41	6.81
Lenacil	0.94	.	2.19	.	3.13	3.13	5.76
Metamitron	3.50	.	.	.	3.50	1.75	6.13
Metazachlor	0.36	.	.	.	0.36	0.36	0.27
Phenmedipham	0.58	.	.	.	0.58	0.58	0.18
All herbicides	**5.39**	**6.41**	**2.19**	**.**	**13.98**	**.**	**19.16**
Seed treatments							
Cymoxanil/fludioxonil/metalaxyl-M	.	.	.	2.97	2.97	2.97	<0.05
Iprodione	.	.	.	2.19	2.19	2.19	<0.05
Metalaxyl-M	.	.	.	5.83	5.83	5.83	0.07
All seed treatments	**.**	**.**	**.**	**10.98**	**10.98**	**.**	**0.09**

Table 15: **Broad beans pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment											
Pesticide group and active substance	**General Fungal Control**	**General Weed Control**	**Ground Preparation**	**Pre-emergence Weed Control**	**Aphids**	**Black Bean Aphid**	**General Insect Control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides											
Azoxystrobin	2.91	.	.	.	.	.	.	.	2.91	2.91	0.73
Boscalid/pyraclostrobin	2.91	.	.	.	.	.	.	.	2.91	2.91	0.97
Chlorothalonil/cyproconazole	2.91	.	.	.	.	.	.	.	2.91	2.91	2.42
Dimethomorph/mancozeb	0.29	.	.	.	.	.	.	.	0.29	0.29	0.43
All fungicides	**9.03**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**9.03**	**.**	**4.55**
Herbicides											
Glyphosate	.	.	0.29	2.91	.	.	.	.	3.20	3.20	1.83
Imazamox/pendimethalin	.	2.91	.	.	.	.	.	.	2.91	2.91	3.50
Linuron	.	0.29	.	.	.	.	.	.	0.29	0.29	0.18
Pendimethalin	.	0.29	.	.	.	.	.	.	0.29	0.29	0.38
All herbicides	**.**	**3.49**	**0.29**	**2.91**	**.**	**.**	**.**	**.**	**6.69**	**.**	**5.88**
Insecticides											
Lambda-cyhalothrin	.	.	.	.	.	.	2.91	.	2.91	2.91	<0.05
Pirimicarb	.	.	.	.	2.91	.	.	.	2.91	2.91	0.61
Spirotetramat	.	.	.	.	.	0.29	.	.	0.29	0.29	<0.05
All insecticides	**.**	**.**	**.**	**.**	**2.91**	**0.29**	**2.91**	**.**	**6.12**	**.**	**0.65**
Seed treatments											
Thiram	.	.	.	.	.	.	.	3.20	3.20	3.20	0.20
All seed treatments	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**3.20**	**3.20**	**.**	**0.20**

Table 16: **Broccoli pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment										
Pesticide group and active substance	**General Fungal Control**	**Leaf spot**	**Mildew**	**Ringspot**	**General Weed Control**	**Ground Preparation**	**Pre-emergence Weed Control**	**Sealer**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides											
Azoxystrobin	10.93	.	.	.	.	.	.	.	10.93	10.93	2.73
Azoxystrobin/difenoconazole	28.17	.	.	.	.	.	.	.	28.17	24.28	8.90
Boscalid/pyraclostrobin	11.17	.	.	.	.	.	.	.	11.17	11.17	3.73
Chlorothalonil	3.64	.	.	.	.	.	.	.	3.64	3.64	3.64
Chlorothalonil/metalaxyl-M	25.49	.	.	.	.	.	.	.	25.49	25.49	27.41
Difenoconazole	27.68	7.65	.	0.90	.	.	.	.	36.23	36.23	3.89
Epoxiconazole/metconazole	18.21	.	.	.	.	.	.	.	18.21	18.21	3.55
Prothioconazole	9.47	.	.	.	.	.	.	.	9.47	9.47	1.82
Tebuconazole/trifloxystrobin	.	9.49	4.71	.	.	.	.	.	14.20	12.45	3.84
All fungicides	**134.76**	**17.14**	**4.71**	**0.90**	**.**	**.**	**.**	**.**	**157.51**	**.**	**59.50**
Herbicides											
Clomazone	.	.	.	.	56.57	2.19	.	7.24	65.99	60.35	5.09
Dimethenamid-P/pendimethalin	.	.	.	.	18.21	.	.	.	18.21	18.21	33.69
Glyphosate	.	.	.	.	.	21.85	7.28	.	29.14	29.14	24.26
Metazachlor	.	.	.	.	72.73	.	.	7.24	79.97	74.33	59.98
Pendimethalin	.	.	.	.	18.21	.	.	.	18.21	18.21	24.03
Pyridate	.	.	.	.	3.60	.	.	.	3.60	3.60	2.88
All herbicides	**.**	**.**	**.**	**.**	**169.31**	**24.04**	**7.28**	**14.48**	**215.12**	**.**	**149.92**

Table 16 contd: **Broccoli pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment									
Pesticide group and active substance	**Aphids**	**Aphids and Caterpillars**	**Caterpillars**	**General Insect Control**	**Root Fly**	**Slugs**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Insecticides										
Acetamiprid	.	.	.	18.21	.	.	.	18.21	18.21	0.91
Cyantraniliprole	.	.	.	6.56	.	.	.	6.56	6.56	0.47
Deltamethrin	.	3.88	.	.	.	.	.	3.88	3.88	<0.05
Indoxacarb	.	.	7.77	18.21	.	.	.	25.98	22.10	0.66
Lambda-cyhalothrin	.	7.53	34.18	32.95	0.81	.	.	75.46	70.13	0.75
Pirimicarb	7.28	.	.	.	.	.	.	7.28	7.28	1.53
Spirotetramat	8.26	.	.	7.28	.	.	.	15.54	13.35	1.17
Thiacloprid	32.46	3.88	.	.	.	.	.	36.34	32.11	3.49
All insecticides	**48.00**	**11.65**	**41.95**	**83.21**	**0.81**	**.**	**.**	**189.26**	**.**	**9.00**
Molluscicides										
Metaldehyde	.	.	.	.	.	5.83	.	5.83	5.83	2.62
All molluscicides	**.**	**.**	**.**	**.**	**.**	**5.83**	**.**	**5.83**	**.**	**2.62**
Seed Treatments										
Iprodione	.	.	.	.	.	.	37.71	37.71	37.71	<0.05
Metalaxyl-M	.	.	.	.	.	.	39.29	39.29	39.29	<0.05
Thiram	.	.	.	.	.	.	6.56	6.56	6.56	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**.**	**83.55**	**83.55**	**.**	**<0.05**

Table 17: **Brussels sprouts pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment								
Pesticide group and active substance	**Blackspot**	**Foliar Disease**	**General Fungal Control**	**General Weed Control**	**Ground Preparation**	**Sealer**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides									
Azoxystrobin/difenoconazole	.	2.70	8.26	.	.	.	10.96	10.06	3.56
Boscalid/pyraclostrobin	.	.	2.91	.	.	.	2.91	2.91	0.97
Chlorothalonil/metalaxyl-M	.	.	6.07	.	.	.	6.07	6.07	6.53
Difenoconazole	2.18	.	18.52	.	.	.	20.70	15.24	2.00
Epoxiconazole/metconazole	.	.	6.07	.	.	.	6.07	6.07	1.18
Prothioconazole	.	2.70	5.10	.	.	.	7.80	6.90	1.64
All fungicides	**2.18**	**5.40**	**46.92**	**.**	**.**	**.**	**54.51**	**.**	**15.88**
Herbicides									
Clomazone	.	.	.	10.18	.	.	10.18	9.03	0.87
Dimethenamid-P/pendimethalin	.	.	.	6.07	.	.	6.07	6.07	11.23
Glyphosate	.	.	.	.	9.05	.	9.05	9.05	8.46
Metazachlor	.	.	.	11.93	.	4.07	16.00	16.00	11.77
Pendimethalin	.	.	.	6.07	.	.	6.07	6.07	8.01
All herbicides	**.**	**.**	**.**	**34.25**	**9.05**	**4.07**	**47.37**	**.**	**40.34**

Table 17 (contd): **Brussels sprouts pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment								
Pesticide group and active substance	**Aphids**	**Caterpillars**	**General Insect Control**	**Root Fly**	**Slugs**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Insecticides									
Cypermethrin	.	1.80	.	.	.	.	1.80	1.80	<0.05
Indoxacarb	.	.	6.07	.	.	.	6.07	6.07	0.15
Lambda-cyhalothrin	8.74	4.37	6.07	0.32	.	.	19.51	11.22	0.15
Pymetrozine	.	.	5.83	.	.	.	5.83	2.91	1.17
Spinosad	.	2.91	.	.	.	.	2.91	2.91	0.28
Spirotetramat	7.28	.	9.54	.	.	.	16.82	12.33	1.23
Thiacloprid	1.80	.	8.98	.	.	.	10.78	10.78	1.04
All insecticides	**17.83**	**9.08**	**36.49**	**0.32**	**.**	**.**	**63.72**	**.**	**4.06**
Molluscicides									
Metaldehyde	.	.	.	.	14.94	.	14.94	10.50	5.46
All molluscicides	**.**	**.**	**.**	**.**	**14.94**	**.**	**14.94**	**.**	**5.46**
Seed Treatments									
Iprodione	.	.	.	.	.	1.82	1.82	1.82	<0.05
Metalaxyl-M	.	.	.	.	.	15.27	15.27	15.27	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**17.09**	**17.09**	**.**	**<0.05**

Table 18: **Spring cabbage pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment									
Pesticide group and active substance	**General Fungal Control**	**General Weed Control**	**Aphids**	**Aphids and Caterpillars**	**Caterpillars**	**Slugs**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides										
Azoxystrobin/difenoconazole	17.00	.	.	.	.	.	.	17.00	12.14	5.21
Boscalid/pyraclostrobin	4.86	.	.	.	.	.	.	4.86	4.86	1.62
Difenoconazole	14.57	.	.	.	.	.	.	14.57	7.28	1.09
Prothioconazole	7.28	.	.	.	.	.	.	7.28	7.28	1.40
All fungicides	**43.71**	**.**	**.**	**.**	**.**	**.**	**.**	**43.71**	**.**	**9.32**
Herbicides										
Clomazone	.	9.71	.	.	.	.	.	9.71	4.86	0.70
Metazachlor	.	17.00	.	.	.	.	.	17.00	12.14	12.75
All herbicides	**.**	**26.71**	**.**	**.**	**.**	**.**	**.**	**26.71**	**.**	**13.45**
Insecticides										
Deltamethrin	.	.	.	4.86	.	.	.	4.86	4.86	<0.05
Indoxacarb	.	.	.	.	9.71	.	.	9.71	4.86	0.25
Lambda-cyhalothrin	.	.	.	4.86	14.57	.	.	19.42	12.14	0.19
Spirotetramat	.	.	19.42	.	.	.	.	19.42	12.14	1.46
Thiacloprid	.	.	.	4.86	.	.	.	4.86	4.86	0.47
All insecticides	**.**	**.**	**19.42**	**14.57**	**24.28**	**.**	**.**	**58.27**	**.**	**2.40**
Molluscicides										
Iprodione	.	.	.	.	.	7.28	.	7.28	7.28	3.28
All molluscicides	**.**	**.**	**.**	**.**	**.**	**7.28**	**.**	**7.28**	**.**	**3.28**
Seed treatments										
Iprodione	.	.	.	.	.	.	7.28	7.28	7.28	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**.**	**7.28**	**7.28**	**.**	**<0.05**

Table 19: **Winter cabbage pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment							
Pesticide group and active substance	**General Fungal Control**	**General Weed Control**	**Ground Preparation**	**Root Fly**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides								
Difenoconazole	0.73	.	.	.	.	0.73	0.73	0.05
All fungicides	**0.73**	**.**	**.**	**.**	**.**	**0.73**	**.**	**0.05**
Herbicides								
Glyphosate	.	.	0.73	.	.	0.73	0.73	0.79
Metazachlor	.	0.81	.	.	.	0.81	0.81	0.52
All herbicides	**.**	**0.81**	**0.73**	**.**	**.**	**1.54**	**.**	**1.30**
Insecticides								
Lambda-cyhalothrin	.	.	.	0.49	.	0.49	0.08	<0.05
All insecticides	**.**	**.**	**.**	**0.49**	**.**	**0.49**	**.**	**<0.05**
Seed treatments								
Metalaxyl-M	.	.	.	.	0.73	0.73	0.73	<0.05
Thiram	.	.	.	.	0.08	0.08	0.08	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**0.81**	**0.81**	**.**	**<0.05**

Table 20: **Carrots pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment												
Pesticide group and active substance	**Cavity Spot**	**Downy Mildew**	**Foliar Disease**	**General Disease Control**	**General Fungal Control**	**Cleavers**	**General Weed Control**	**Ground Preparation**	**Pre-emergence weed control**	**Sealer**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides													
Azoxystrobin	.	.	.	.	70.30	.	.	.	.	.	70.30	70.30	9.99
Azoxystrobin/difenoconazole	.	.	24.28	2.91	.	.	.	.	.	.	27.19	25.74	8.84
Boscalid/pyraclostrobin	.	59.30	24.28	.	202.49	.	.	.	.	.	286.07	286.07	99.60
Cyprodinil/fludioxonil	.	.	.	.	60.70	.	.	.	.	.	60.70	60.70	30.35
Dimethomorph/mancozeb	.	.	.	.	1.16	.	.	.	.	.	1.16	1.16	1.72
Fenpropimorph	.	.	.	.	1.16	.	.	.	.	.	1.16	1.16	0.87
Isopyrazam	.	.	24.28	.	135.55	.	.	.	.	.	159.83	139.67	19.98
Metalaxyl-M	60.70	.	.	.	167.59	.	.	.	.	.	228.29	228.29	124.11
Prothioconazole	.	.	24.28	.	268.55	.	.	.	.	.	292.83	226.77	57.39
Tebuconazole	.	.	.	.	24.28	.	.	.	.	.	24.28	24.28	3.04
Tebuconazole/trifloxystrobin	.	.	.	.	56.67	.	.	.	.	.	56.67	56.67	12.75
All fungicides	**60.70**	**59.30**	**97.12**	**2.91**	**988.44**	**.**	**.**	**.**	**.**	**.**	**1,208.48**	**.**	**368.62**
Herbicides													
Clethodim	.	.	.	.	.	.	59.44	.	.	.	59.44	59.44	7.13
Clomazone	.	.	.	.	.	.	180.10	.	101.77	.	281.87	281.87	19.21
Diquat	.	.	.	.	.	.	59.30	.	.	.	59.30	59.30	23.72
Glyphosate	.	.	.	.	.	.	.	20.09	.	.	20.09	20.09	20.46
Linuron	.	.	.	.	.	.	478.34	.	44.12	1.16	523.61	290.93	115.25
Metribuzin	.	.	.	.	.	.	263.35	.	.	.	263.35	206.69	40.93
Pendimethalin	.	.	.	.	.	.	264.47	.	103.22	1.16	368.85	307.88	411.16
Propaquizafop	.	.	.	.	.	.	15.00	.	.	.	15.00	15.00	2.25
Prosulfocarb	.	.	.	.	.	9.40	224.80	.	.	.	234.20	202.42	407.43
Tepraloxydim	.	.	.	.	.	.	56.67	.	.	.	56.67	56.67	4.25
All herbicides	**.**	**.**	**.**	**.**	**.**	**9.40**	**1,601.47**	**20.09**	**249.11**	**2.31**	**1,882.38**	**.**	**1,051.79**

Table 20 (contd): **Carrots pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment								
Pesticide group and active substance	**Aphids**	**Carrot Fly**	**Carrot fly & willow aphids**	**General Insect Control**	**Nematodes**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Insecticides									
Chlorantraniliprole	.	9.40	.	113.33	.	.	122.73	66.07	4.30
Deltamethrin	.	178.07	.	30.24	.	.	208.31	147.61	1.56
Garlic Extract	.	.	.	.	75.72	.	75.72	75.72	408.89
Lambda-cyhalothrin	182.11	33.73	24.28	613.60	.	.	853.71	312.54	9.73
Pirimicarb	32.78	.	.	.	.	.	32.78	10.93	4.59
Spirotetramat	.	1.16	43.08	194.21	.	.	238.45	159.48	11.49
Thiacloprid	68.88	60.70	33.68	186.27	.	.	349.52	294.28	33.55
All insecticides	**283.76**	**283.05**	**101.04**	**1,137.65**	**75.72**	**.**	**1,881.22**	**.**	**474.12**
Seed treatments									
Cymoxanil/fludioxonil/metalaxyl-M	.	.	.	.	.	246.03	246.03	246.03	0.50
Tefluthrin	.	.	.	.	.	212.39	212.39	212.39	13.69
Thiamethoxam	.	.	.	.	.	120.27	120.27	120.27	5.71
All seed treatments	**.**	**.**	**.**	**.**	**.**	**578.69**	**578.69**	**.**	**19.91**

Table 21: **Kale pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment						
Pesticide group and active substance	**Leaf spot**	**General Weed Control**	**Aphids**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides							
Difenoconazole	3.84	.	.	.	3.84	1.92	0.29
All herbicides	**3.84**	**.**	**.**	**.**	**3.84**	**.**	**0.29**
Herbicides							
Metazachlor	.	1.92	.	.	1.92	0.96	1.44
All herbicides	**.**	**1.92**	**.**	**.**	**1.92**	**.**	**1.44**
Insecticides							
Thiacloprid	.	.	3.84	.	3.84	1.92	0.37
All insecticides	**.**	**.**	**3.84**	**.**	**3.84**	**.**	**0.37**
Seed Treatments							
Thiram	.	.	.	2.47	2.47	2.47	<0.05
All seed treatments	**.**	**.**	**.**	**2.47**	**2.47**	**.**	**<0.05**

Table 22 : **Lettuce pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment								
Pesticide group and active substance	**General Fungal Control**	**General Weed Control**	**Aphids**	**Aphids and Caterpillars**	**General Insect Control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides									
Azoxystrobin	135.16	.	.	.	.	.	135.16	35.01	33.79
All fungicides	**135.16**	**.**	**.**	**.**	**.**	**.**	**135.16**	**.**	**33.79**
Herbicides									
Propyzamide	.	38.79	.	.	.	.	38.79	38.79	30.09
All herbicides	**.**	**38.79**	**.**	**.**	**.**	**.**	**38.79**	**.**	**30.09**
Insecticides									
Cypermethrin	.	.	.	4.32	.	.	4.32	4.32	0.11
Lambda-cyhalothrin	.	.	.	.	66.77	.	66.77	33.39	0.50
Pirimicarb	.	.	33.39	.	.	.	33.39	33.39	4.67
All insecticides	**.**	**.**	**33.39**	**4.32**	**66.77**	**.**	**104.48**	**.**	**5.28**
Seed treatments									
Propyzamide	.	.	.	.	.	38.79	38.79	38.79	1.58
All seed treatments	**.**	**.**	**.**	**.**	**.**	**38.79**	**38.79**	**.**	**1.58**

Table 23: **Parsley pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment								
Pesticide group and active substance	**General Fungal Control**	**General Weed Control**	**Ground Preparation**	**Aphids**	**General Insect Control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides									
Difenoconazole	10.41	.	.	.	.	.	10.41	3.47	0.39
Dimethomorph/mancozeb	0.58	.	.	.	.	.	0.58	0.58	1.07
All fungicides	**10.98**	**.**	**.**	**.**	**.**	**.**	**10.98**	**.**	**1.46**
Herbicides									
Glyphosate	.	.	5.36	.	.	.	5.36	5.36	5.30
Linuron	.	10.24	.	.	.	.	10.24	10.24	5.07
Pendimethalin	.	6.19	.	.	.	.	6.19	6.19	6.08
Prosulfocarb	.	9.87	.	.	.	.	9.87	9.87	10.92
All herbicides	**.**	**26.30**	**5.36**	**.**	**.**	**.**	**31.66**	**.**	**27.38**
Insecticides									
Chlorpyrifos	.	.	.	.	0.58	.	0.58	0.58	0.14
Lambda-cyhalothrin	.	.	.	11.56	.	.	11.56	4.05	0.06
All insecticides	**.**	**.**	**.**	**11.56**	**0.58**	**.**	**12.14**	**.**	**0.20**
Seed treatments									
Metalaxyl-M	.	.	.	.	.	6.30	6.30	6.30	<0.05
Thiram	.	.	.	.	.	6.37	6.37	6.37	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**12.67**	**12.67**	**.**	**<0.05**

Table 24: **Parsnips pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment									
Pesticide group and active substance	**Cavity Spot**	**General Disease Control**	**General Fungal Control**	**General Weed Control**	**Ground Preparation**	**Pre-emergence weed control**	**Sealer**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides										
Azoxystrobin/difenoconazole	.	2.91	59.31	.	.	.	.	62.22	60.76	19.20
Boscalid/pyraclostrobin	.	.	4.92	.	.	.	.	4.92	4.92	1.46
Fenpropimorph	.	.	0.58	.	.	.	.	0.58	0.58	0.43
Isopyrazam	.	.	54.39	.	.	.	.	54.39	54.39	6.80
Metalaxyl-M	54.39	.	.	.	.	.	.	54.39	54.39	32.89
Tebuconazole	.	.	4.92	.	.	.	.	4.92	4.92	0.35
All fungicides	**54.39**	**2.91**	**124.11**	**.**	**.**	**.**	**.**	**181.41**	**.**	**61.14**
Herbicides										
Clomazone	.	.	.	.	.	0.73	.	0.73	0.73	<0.05
Diquat	.	.	.	38.74	.	.	.	38.74	38.74	15.50
Glyphosate	.	.	.	.	68.62	.	.	68.62	68.62	73.81
Linuron	.	.	.	223.34	.	1.46	0.58	225.38	120.03	57.59
Metamitron	.	.	.	71.69	.	.	.	71.69	71.69	94.31
Pendimethalin	.	.	.	79.22	.	2.19	5.49	86.90	86.84	110.48
Prosulfocarb	.	.	.	103.75	.	.	.	103.75	101.35	133.67
All herbicides	**.**	**.**	**.**	**516.74**	**68.62**	**4.37**	**6.07**	**595.81**	**.**	**485.39**

Table 24 (contd): **Parsnips pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment							
Pesticide group and active substance	**Aphids**	**Carrot Fly**	**Carrot fly & willow aphids**	**General Insect Control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Insecticides								
Deltamethrin	54.39	108.78	.	12.38	.	175.55	66.77	1.30
Lambda-cyhalothrin	163.17	19.12	.	25.09	.	207.38	73.20	2.34
Spirotetramat	.	54.39	.	.	.	54.39	54.39	2.45
Thiacloprid	.	.	1.64	.	.	1.64	1.64	0.16
All insecticides	**217.56**	**182.29**	**1.64**	**37.47**	**.**	**438.95**	**.**	**6.25**
Seed treatments								
Cymoxanil/fludioxonil/metalaxyl-M	.	.	.	.	121.31	121.31	121.31	0.08
Tefluthrin	.	.	.	.	56.57	56.57	56.57	1.03
All seed treatments	**.**	**.**	**.**	**.**	**177.88**	**177.88**	**.**	**1.11**

Table 25: **Peas pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment										
Pesticide group and active substance	**General Fungal Control**	**General Weed Control**	**Ground Preparation**	**Pre-emergence weed control**	**Aphids**	**Black Bean Aphid**	**General Insect Control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides											
Azoxystrobin/difenoconazole	2.91	.	.	.	.	.	.	.	2.91	2.91	0.95
Boscalid/pyraclostrobin	2.91	.	.	.	.	.	.	.	2.91	2.91	0.97
Chlorothalonil/cyproconazole	2.91	.	.	.	.	.	.	.	2.91	2.91	2.42
Dimethomorph/mancozeb	0.29	.	.	.	.	.	.	.	0.29	0.29	0.43
All fungicides	**9.03**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**9.03**	**.**	**4.77**
Herbicides											
Glyphosate	.	.	0.29	2.91	.	.	.	.	3.20	3.20	1.83
Imazamox/pendimethalin	.	2.91	.	.	.	.	.	.	2.91	2.91	3.50
Linuron	.	0.29	.	.	.	.	.	.	0.29	0.29	0.18
Pendimethalin	.	0.29	.	.	.	.	.	.	0.29	0.29	0.38
All herbicides	**.**	**3.49**	**0.29**	**2.91**	**.**	**.**	**.**	**.**	**6.69**	**.**	**5.88**
Insecticides											
Lambda-cyhalothrin	.	.	.	.	.	.	2.91	.	2.91	2.91	<0.05
Pirimicarb	.	.	.	.	2.91	.	.	.	2.91	2.91	0.61
Spirotetramat	.	.	.	.	.	0.29	.	.	0.29	0.29	<0.05
All insecticides	**.**	**.**	**.**	**.**	**2.91**	**0.29**	**2.91**	**.**	**6.12**	**.**	**0.65**
Seed treatments											
Cymoxanil/fludioxonil/metalaxyl-M	.	.	.	.	.	.	.	3.20	3.20	3.20	0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**3.20**	**3.20**	**.**	**0.05**

Table 26: **Red Cabbage pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment											
Pesticide group and active substance	**General Fungal Control**	**Ringspot**	**General Weed Control**	**Aphids**	**Aphids and Caterpillars**	**Caterpillars**	**General Insect Control**	**Root Fly**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides												
Azoxystrobin/difenoconazole	7.77	7.21	.	.	.	.	.	.	.	14.98	11.10	4.62
Chlorothalonil/metalaxyl-M	3.88	.	.	.	.	.	.	.	.	3.88	3.88	1.30
Difenoconazole	.	7.21	.	.	.	.	.	.	.	7.21	7.21	0.54
All fungicides	**11.65**	**14.42**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**26.08**	**.**	**6.46**
Herbicides												
Clomazone	.	.	12.46	.	.	.	.	.	.	12.46	8.58	0.81
Metazachlor	.	.	12.54	.	.	.	.	.	.	12.54	8.66	9.41
All herbicides	**.**	**.**	**25.00**	**.**	**.**	**.**	**.**	**.**	**.**	**25.00**	**.**	**10.22**
Insecticides												
Deltamethrin	.	.	.	.	3.88	.	.	.	.	3.88	3.88	<0.05
Indoxacarb	.	.	.	.	.	7.77	.	.	.	7.77	3.88	0.20
Lambda-cyhalothrin	.	.	.	.	3.88	.	14.42	0.49	.	18.79	11.18	0.12
Spirotetramat	.	.	.	3.88	.	.	.	.	.	3.88	3.88	0.29
Thiacloprid	.	.	.	14.42	3.88	.	.	.	.	18.31	11.10	1.50
All insecticides	**.**	**.**	**.**	**18.31**	**11.65**	**7.77**	**14.42**	**0.49**	**.**	**52.64**	**.**	**2.13**
Seed treatments												
Thiram	.	.	.	.	.	.	.	.	8.25	8.25	8.25	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**8.25**	**8.25**	**.**	**<0.05**

Table 27: **Purple Broccoli pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment							
Pesticide group and active substance	**General Fungal Control**	**General Weed Control**	**Ground Preparation**	**General Insect Control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides								
Azoxystrobin/difenoconazole	3.04	.	.	.	.	3.04	3.04	0.99
Chlorothalonil/metalaxyl-M	3.04	.	.	.	.	3.04	3.04	3.26
Difenoconazole	3.04	.	.	.	.	3.04	3.04	0.38
Epoxiconazole/metconazole	3.04	.	.	.	.	3.04	3.04	0.59
All fungicides	**12.14**	**.**	**.**	**.**	**.**	**12.14**	**.**	**5.22**
Herbicides								
Clomazone	.	3.04	.	.	.	3.04	3.04	0.27
Dimethenamid-P/pendimethalin	.	3.04	.	.	.	3.04	3.04	5.61
Glyphosate	.	.	3.04	.	.	3.04	3.04	2.73
Metazachlor	.	3.04	.	.	.	3.04	3.04	2.28
Pendimethalin	.	3.04	.	.	.	3.04	3.04	4.00
All herbicides	**.**	**12.14**	**3.04**	**.**	**.**	**15.18**	**.**	**14.90**
Insecticides								
Acetamiprid	.	.	.	3.04	.	3.04	3.04	0.15
Indoxacarb	.	.	.	3.04	.	3.04	3.04	0.08
Lambda-cyhalothrin	.	.	.	3.04	.	3.04	3.04	<0.05
All insecticides	**.**	**.**	**.**	**9.11**	**.**	**9.11**	**.**	**0.26**
Seed treatments								
Metalaxyl-M	.	.	.	.	3.04	3.04	3.04	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**3.04**	**3.04**	**.**	**<0.05**

Table 28: **Savoy cabbage pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment												
Pesticide group and active substance	**General Disease Control**	**General Fungal Control**	**Leaf Disease**	**Leaf spot**	**Ringspot**	**Growth Regulation**	**General Weed Control**	**Ground Preparation**	**Pre-emergence weed control**	**Sealer**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides													
Azoxystrobin	.	7.28	.	.	.	.	.	.	.	.	7.28	7.28	1.82
Azoxystrobin/difenoconazole	.	16.63	2.70	.	18.40	.	.	.	.	.	37.73	31.97	11.95
Boscalid/pyraclostrobin	.	8.50	.	.	.	.	.	.	.	.	8.50	8.50	2.84
Chlorothalonil	1.92	3.64	.	.	.	.	.	.	.	.	5.56	5.56	4.60
Chlorothalonil/metalaxyl-M	.	5.46	.	.	.	.	.	.	.	.	5.46	5.46	5.87
Cyprodinil/isopyrazam	1.92	.	.	.	.	.	.	.	.	.	1.92	1.92	0.77
Difenoconazole	.	37.15	.	23.01	7.73	.	.	.	.	.	67.89	39.63	7.41
Epoxiconazole/metconazole	.	1.82	.	.	.	.	.	.	.	.	1.82	1.82	0.36
Prothioconazole	.	8.74	.	13.47	.	.	.	.	.	.	22.21	22.21	4.26
All fungicides	**3.84**	**89.23**	**2.70**	**36.48**	**26.12**	**.**	**.**	**.**	**.**	**.**	**158.38**	**.**	**39.88**
Growth regulators													
Trinexapac-ethyl	.	.	.	.	.	1.92	.	.	.	.	1.92	1.92	0.12
All growth regulators	**.**	**.**	**.**	**.**	**.**	**1.92**	**.**	**.**	**.**	**.**	**1.92**	**.**	**0.12**
Herbicides													
Clomazone	.	.	.	.	.	.	35.93	.	.	3.64	39.57	34.72	2.59
Dimethenamid-P/pendimethalin	.	.	.	.	.	.	1.82	.	.	.	1.82	1.82	3.37
Fluroxypyr/halauxifen-methyl	.	.	.	.	.	.	1.92	.	.	.	1.92	1.92	0.21
Glyphosate	.	.	.	.	.	.	.	5.46	3.64	.	9.11	9.11	7.54
Metazachlor	.	.	.	.	.	.	68.18	.	.	15.30	83.48	71.00	62.61
Metsulfuron-methyl/tribenuron-methyl	.	.	.	.	.	.	1.92	.	.	.	1.92	1.92	<0.05
Pendimethalin	.	.	.	.	.	.	1.82	.	.	.	1.82	1.82	2.40
All herbicides	**.**	**.**	**.**	**.**	**.**	**.**	**111.60**	**5.46**	**3.64**	**18.94**	**139.64**	**.**	**78.75**

Table 28 (contd): **Savoy cabbage pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment									
Pesticide group and active substance	**Aphids**	**Aphids and Caterpillars**	**Caterpillars**	**General Insect Control**	**Root Fly**	**Slugs**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Insecticides										
Cypermethrin	.	1.80	1.80	.	.	.	.	3.60	1.80	0.09
Deltamethrin	.	4.86	.	.	.	.	.	4.86	4.86	<0.05
Indoxacarb	.	.	9.71	1.82	.	.	.	11.53	6.68	0.29
Lambda-cyhalothrin	26.79	8.50	39.96	30.03	0.49	.	.	105.76	63.02	0.80
Pirimicarb	3.64	.	.	.	.	.	.	3.64	3.64	0.76
Pymetrozine	20.22	.	.	.	.	.	.	20.22	13.47	4.04
Spinosad	.	.	11.65	.	.	.	.	11.65	11.65	1.12
Spirotetramat	26.71	.	.	5.46	.	.	.	32.17	27.07	2.41
Thiacloprid	49.13	4.86	.	13.48	.	.	.	67.47	50.56	5.81
All insecticides	**126.49**	**20.01**	**63.12**	**50.79**	**0.49**	**.**	**.**	**260.90**	**.**	**15.38**
Molluscicides										
Metaldehyde	.	.	.	.	.	8.74	.	8.74	8.74	3.93
All molluscicides	**.**	**.**	**.**	**.**	**.**	**8.74**	**.**	**8.74**	**.**	**3.93**
Seed treatments										
Iprodione	.	.	.	.	.	.	45.88	45.88	45.88	<0.05
Thiram	.	.	.	.	.	.	21.77	21.77	21.77	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**.**	**67.65**	**67.65**	**.**	**<0.05**

Table 29: **Summer scallions pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment						
Pesticide group and active substance	**Mildew**	**General Weed Control**	**Ground Preparation**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides							
Dimethomorph/mancozeb	1.16	.	.	.	1.16	1.16	1.72
Fenpropimorph	1.16	.	.	.	1.16	1.16	0.87
All fungicides	**2.31**	**.**	**.**	**.**	**2.31**	**.**	**2.58**
Herbicides							
Bromoxynil	.	15.54	.	.	15.54	15.54	3.50
Chlorpropham	.	15.54	.	.	15.54	15.54	6.22
Dimethenamid-P/pendimethalin	.	16.70	.	.	16.70	16.70	19.30
Fluroxypyr	.	15.54	.	.	15.54	15.54	0.93
Glyphosate	.	.	1.16	.	1.16	1.16	1.03
Pendimethalin	.	15.54	.	.	15.54	15.54	10.25
Prosulfocarb	.	15.54	.	.	15.54	15.54	31.08
All herbicides	**.**	**94.39**	**1.16**	**.**	**95.55**	**.**	**72.31**
Seed treatments							
Tefluthrin	.	.	.	16.70	16.70	16.70	0.77
Thiram	.	.	.	16.70	16.70	16.70	0.38
All seed treatments	**.**	**.**	**.**	**33.39**	**33.39**	**.**	**1.15**

Table 30: **Soup celery pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment								
Pesticide group and active substance	**General Fungal Control**	**General Weed Control**	**Ground Preparation**	**Aphids**	**General Insect Control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides									
Dimethomorph/mancozeb	0.58	.	.	.	.	.	0.58	0.58	1.07
All fungicides	**0.58**	**.**	**.**	**.**	**.**	**.**	**0.58**	**.**	**1.07**
Herbicides									
Glyphosate	.	.	1.31	.	.	.	1.31	1.31	1.04
Linuron	.	6.41	.	.	.	.	6.41	6.41	3.80
Pendimethalin	.	5.83	.	.	.	.	5.83	5.83	6.63
Prosulfocarb	.	6.41	.	.	.	.	6.41	6.41	13.50
All herbicides	**.**	**18.64**	**1.31**	**.**	**.**	**.**	**19.95**	**.**	**24.97**
Insecticides									
Chlorpyrifos	.	.	.	.	0.58	.	0.58	0.58	0.14
Lambda-cyhalothrin	.	.	.	1.16	.	.	1.16	0.58	<0.05
All insecticides	**.**	**.**	**.**	**1.16**	**0.58**	**.**	**1.73**	**.**	**0.16**
Seed treatments									
Thiram	.	.	.	.	.	1.89	1.89	1.89	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**1.89**	**1.89**	**.**	**<0.05**

Table 31: **Soup leeks pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment							
Pesticide group and active substance	**General Fungal Control**	**General Weed Control**	**Ground Preparation**	**Pre-emergence weed control**	**Rust**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides								
Prothioconazole	7.52	.	.	.	.	7.52	3.76	1.44
All fungicides	**7.52**	**.**	**.**	**.**	**.**	**7.52**	**.**	**1.44**
Herbicides								
Bentazone	.	27.68	.	.	.	27.68	27.68	39.86
Bromoxynil	.	27.68	.	.	.	27.68	27.68	9.34
Chlorpropham	.	27.68	.	.	.	27.68	27.68	11.07
Dimethenamid-P/metazachlor	.	27.68	.	.	.	27.68	27.68	22.14
Dimethenamid-P/pendimethalin	.	27.68	.	5.78	.	33.46	33.46	36.68
Fluroxypyr	.	27.68	.	.	.	27.68	27.68	1.66
Glyphosate	.	.	0.73	.	.	0.73	0.73	0.53
Metazachlor	.	3.76	1.09	.	.	4.85	4.85	3.50
Pendimethalin	.	27.68	.	.	.	27.68	27.68	36.52
Prosulfocarb	.	35.20	.	.	.	35.20	31.44	67.38
All herbicides	**.**	**232.71**	**1.82**	**5.78**	**.**	**240.32**	**.**	**228.70**
Seed treatments								
Tefluthrin	.	.	.	.	4.85	4.85	4.85	<0.05
Thiram	.	.	.	.	39.04	39.04	39.04	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**43.89**	**43.89**	**.**	**0.08**

Table 32: **Summer cauliflower pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment								
Pesticide group and active substance	**General Fungal Control**	**Ringspot**	**General Weed Control**	**Ground Preparation**	**Pre-emergence weed control**	**Sealer**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides									
Azoxystrobin	8.74	.	.	.	.	.	8.74	8.74	2.19
Azoxystrobin/difenoconazole	4.01	4.70	.	.	.	.	8.71	8.71	2.83
Boscalid/pyraclostrobin	5.83	.	.	.	.	.	5.83	5.83	1.95
Chlorothalonil	2.91	.	.	.	.	.	2.91	2.91	2.91
Chlorothalonil/metalaxyl-M	7.65	.	.	.	.	.	7.65	7.65	8.22
Difenoconazole	9.83	2.28	.	.	.	.	12.11	12.11	1.00
Epoxiconazole/metconazole	1.82	.	.	.	.	.	1.82	1.82	0.36
Prothioconazole	8.01	.	.	.	.	.	8.01	8.01	1.54
All fungicides	**48.80**	**6.98**	**.**	**.**	**.**	**.**	**55.79**	**.**	**20.99**
Herbicides									
Clomazone	.	.	4.04	2.19	.	2.91	9.14	9.14	0.74
Dimethenamid-P/pendimethalin	.	.	1.82	.	.	.	1.82	1.82	3.37
Glyphosate	.	.	.	4.73	5.83	.	10.56	10.56	7.93
Metazachlor	.	.	18.69	.	.	2.91	21.60	21.60	16.20
Pendimethalin	.	.	1.82	.	.	.	1.82	1.82	2.40
All herbicides	**.**	**.**	**26.37**	**6.92**	**5.83**	**5.83**	**44.95**	**.**	**30.65**

Table 32 contd: **Summer cauliflower pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment									
Pesticide group and active substance	**Aphids**	**Caterpillars**	**Caterpillars and Aphids**	**General Insect Control**	**Root Fly**	**Slugs**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Insecticides										
Cyantraniliprole	.	.	.	6.56	.	.	.	6.56	6.56	0.47
Indoxacarb	.	.	.	1.82	.	.	.	1.82	1.82	<0.05
Lambda-cyhalothrin	.	4.37	2.91	21.19	0.49	.	.	28.96	26.37	0.25
Pirimicarb	5.83	.	.	.	.	.	.	5.83	5.83	1.22
Spirotetramat	4.37	.	.	5.83	.	.	.	10.20	8.01	0.76
Thiacloprid	6.98	.	.	.	.	.	.	6.98	6.98	0.50
All insecticides	**17.18**	**4.37**	**2.91**	**35.39**	**0.49**	**.**	**.**	**60.34**	**.**	**3.26**
Molluscicides										
Metaldehyde	.	.	.	.	.	5.10	.	5.10	5.10	2.29
All molluscicides	**.**	**.**	**.**	**.**	**.**	**5.10**	**.**	**5.10**	**.**	**2.29**
Seed treatments										
Iprodione	.	.	.	.	.	.	7.73	7.73	7.73	<0.05
Metalaxyl-M	.	.	.	.	.	.	16.74	16.74	16.74	<0.05
Thiram	.	.	.	.	.	.	2.91	2.91	2.91	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**.**	**27.39**	**27.39**	**.**	**<0.05**

Table 33: **Swede pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment							
Pesticide group and active substance	**General Weed Control**	**Pre-emergence weed control**	**General Insect Control**	**Slugs**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides								
Clomazone	127.45	50.20	.	.	.	177.65	177.65	9.59
Dimethenamid-P/metazachlor	.	24.28	.	.	.	24.28	24.28	14.57
Diquat	127.45	.	.	.	.	127.45	127.45	50.98
Metazachlor	24.48	.	.	.	.	24.48	24.48	18.36
S-metolachlor	.	25.92	.	.	.	25.92	25.92	32.35
All herbicides	**279.38**	**100.40**	**.**	**.**	**.**	**379.79**	**.**	**125.85**
Insecticides								
Lambda-cyhalothrin	.	.	24.28	.	.	24.28	24.28	0.12
All insecticides	**.**	**.**	**24.28**	**.**	**.**	**24.28**	**.**	**0.12**
Molluscicides								
Metaldehyde	.	.	.	123.37	.	123.37	123.37	25.91
All molluscucudes	**.**	**.**	**.**	**123.37**	**.**	**123.37**	**.**	**25.91**
Seed treatments								
Thiamethoxam	.	.	.	.	177.65	177.65	177.65	7.67
Thiram	.	.	.	.	25.92	25.92	25.92	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**203.57**	**203.57**	**.**	**7.72**

Table 34: **Table celery pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment								
Pesticide group and active substance	**General Fungal Control**	**General Weed Control**	**Ground Preparation**	**Aphids**	**General Insect Control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides									
Azoxystrobin	58.27	.	.	.	.	.	58.27	14.57	14.57
Difenoconazole	10.41	.	.	.	.	.	10.41	3.47	0.39
All fungicides	**68.68**	**.**	**.**	**.**	**.**	**.**	**68.68**	**.**	**14.96**
Herbicides									
Glyphosate	.	.	3.47	.	.	.	3.47	3.47	3.75
Linuron	.	18.40	.	.	.	.	18.40	18.40	4.55
Pendimethalin	.	0.36	.	.	.	.	0.36	0.36	0.25
Prosulfocarb	.	18.04	.	.	.	.	18.04	18.04	48.70
All herbicides	**.**	**36.80**	**3.47**	**.**	**.**	**.**	**40.27**	**.**	**57.25**
Insecticides									
Lambda-cyhalothrin	.	.	.	10.41	14.57	.	24.97	18.04	0.14
Pirimicarb	.	.	.	14.57	.	.	14.57	14.57	2.04
All insecticides	**.**	**.**	**.**	**24.97**	**14.57**	**.**	**39.54**	**.**	**2.17**
Seed treatments									
Thiram	.	.	.	.	.	18.40	18.40	18.40	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**18.40**	**18.40**	**.**	**<0.05**

Table 35: Table leeks pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.

	Reasons for treatment													
Pesticide group and active substance	**General Fungal Control**	**Leaf blotch**	**Mildew**	**Rust**	**Unknown**	**White Tip**	**General Weed Control**	**Ground Preparation**	**Sealer**	**General Insect Control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides														
Azoxystrobin/difenoconazole	10.96	.	.	.	.	.	.	.	.	.	.	10.96	10.06	3.56
Chlorothalonil/metalaxyl-M	6.07	.	.	.	.	2.19	.	.	.	.	.	8.26	8.26	8.87
Dimethomorph/mancozeb	.	2.31	.	.	.	.	.	.	.	.	.	2.31	2.31	3.43
Epoxiconazole/metconazole	6.07	.	.	.	.	.	.	.	.	.	.	6.07	6.07	1.18
Fenpropimorph	.	.	2.31	.	.	.	.	.	.	.	.	2.31	2.31	1.73
Mancozeb/metalaxyl-M	6.07	.	.	.	.	.	.	.	.	.	.	6.07	6.07	7.83
Prothioconazole	2.19	.	.	24.78	.	.	.	.	.	.	.	26.97	15.03	5.18
Tebuconazole	6.07	.	.	2.31	.	.	.	.	.	.	.	8.38	8.38	2.10
Unknown fungicide	.	.	.	.	8.50	.	.	.	.	.	.	8.50	8.50	.
All fungicides	**37.42**	**2.31**	**2.31**	**27.10**	**8.50**	**2.19**	**.**	**.**	**.**	**.**	**.**	**79.83**	**.**	**33.89**
Herbicides														
Bentazone	.	.	.	.	.	.	6.07	.	.	.	.	6.07	6.07	8.74
Bromoxynil	.	.	.	.	.	.	10.80	.	.	.	.	10.80	5.40	2.43
Dimethenamid-P/pendimethalin	.	.	.	.	.	.	8.38	.	.	.	.	8.38	8.38	13.90
Fluroxypyr	.	.	.	.	.	.	6.07	.	.	.	.	6.07	6.07	<0.05
Glyphosate	.	.	.	.	.	.	.	8.38	.	.	.	8.38	8.38	7.52
Linuron	.	.	.	.	.	.	18.21	.	.	.	.	18.21	6.07	11.06
Metazachlor	.	.	.	.	.	.	15.21	.	2.19	.	.	17.39	16.49	12.60
Pendimethalin	.	.	.	.	.	.	10.18	.	.	.	.	10.18	9.28	12.29
Prosulfocarb	.	.	.	.	.	.	40.29	.	.	.	.	40.29	17.11	40.14
Unknown herbicide	.	.	.	.	8.50	.	.	.	.	.	.	8.50	8.50	.
All herbicides	**.**	**.**	**.**	**.**	**8.50**	**.**	**115.22**	**8.38**	**2.19**	**.**	**.**	**134.28**	**.**	**108.71**
Insecticides														
Indoxacarb	.	.	.	.	.	.	.	.	.	6.07	.	6.07	6.07	0.15
Lambda-cyhalothrin	.	.	.	.	.	.	.	.	.	6.07	.	6.07	6.07	0.06
All insecticides	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**12.14**	**.**	**12.14**	**.**	**0.22**
Seed treatments														
Tefluthrin	.	.	.	.	.	.	.	.	.	.	28.81	28.81	28.81	0.15
Thiram	.	.	.	.	.	.	.	.	.	.	28.86	28.86	28.86	<0.05
Unknown seed (trt)	.	.	.	.	.	.	.	.	.	.	8.50	8.50	8.50	.
All seed treatments	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**.**	**66.17**	**66.17**	**.**	**0.17**

Table 36: **Turnips pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment								
Pesticide group and active substance	**General Weed Control**	**Ground Preparation**	**Redshank**	**Sealer**	**General Insect Control**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Herbicides									
Clomazone	199.68	.	.	36.42	.	.	236.10	90.42	14.69
Clopyralid	36.42	.	.	.	.	.	36.42	36.42	3.64
Diquat	109.26	.	.	.	.	.	109.26	36.42	43.71
Ethametsulfuron-methyl	.	.	72.84	.	.	.	72.84	36.42	1.53
Glyphosate	7.28	37.51	.	.	.	.	44.80	37.51	49.30
Metazachlor	199.68	.	.	36.42	.	.	236.10	90.42	163.58
All herbicides	**552.33**	**37.51**	**72.84**	**72.84**	**.**	**.**	**735.53**	**.**	**276.45**
Insecticides									
Lambda-cyhalothrin	.	.	.	.	54.63	.	54.63	18.21	0.41
All insecticides	**.**	**.**	**.**	**.**	**54.63**	**.**	**54.63**	**.**	**0.41**
Seed treatments									
Thiamethoxam	.	.	.	.	.	77.70	77.70	77.70	5.89
Thiram	.	.	.	.	.	57.87	57.87	57.87	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**135.57**	**135.57**	**.**	**5.91**

Table 37: **White cabbage pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment							
Pesticide group and active substance	**General Fungal Control**	**Leaf Disease**	**General Weed Control**	**Ground Preparation**	**Pre-emergence weed control**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Fungicides								
Azoxystrobin	3.64	.	.	.	.	3.64	3.64	0.91
Azoxystrobin/difenoconazole	15.05	3.60	.	.	.	18.65	11.03	5.68
Boscalid/pyraclostrobin	9.47	.	.	.	.	9.47	9.47	3.16
Chlorothalonil/metalaxyl-M	4.86	.	.	.	.	4.86	4.86	5.22
Difenoconazole	8.01	.	.	.	.	8.01	5.83	0.60
Epoxiconazole/metconazole	1.21	.	.	.	.	1.21	1.21	0.24
Prothioconazole	5.83	1.80	.	.	.	7.63	7.63	1.46
All fungicides	**48.08**	**5.40**	**.**	**.**	**.**	**53.48**	**.**	**17.28**
Herbicides								
Clomazone	.	.	12.87	.	.	12.87	7.04	0.95
Dimethenamid-P/pendimethalin	.	.	1.21	.	.	1.21	1.21	2.25
Glyphosate	.	.	.	3.04	3.64	6.68	6.68	5.03
Metazachlor	.	.	20.50	.	.	20.50	14.67	15.37
Pendimethalin	.	.	1.21	.	.	1.21	1.21	1.60
All herbicides	**.**	**.**	**35.79**	**3.04**	**3.64**	**42.47**	**.**	**25.19**

Table 37 (contd): **White cabbage pesticide-treated area (spha), basic treated area (ha), quantity applied (kg) and reasons for use.**

	Reasons for treatment								
Pesticide group and active substance	**Aphids**	**Aphids and Caterpillars**	**Caterpillars**	**General Insect Control**	**Slugs**	**Seed Treatment**	**Total treated area (spha)**	**Basic treated area (ha)**	**Quantity applied (kg)**
Insecticides									
Cypermethrin	.	.	1.80	.	.	.	1.80	1.80	<0.05
Deltamethrin	.	5.83	.	.	.	.	5.83	5.83	<0.05
Indoxacarb	.	.	11.65	1.21	.	.	12.87	7.04	0.33
Lambda-cyhalothrin	.	5.83	4.37	6.68	.	.	16.87	14.69	0.18
Pirimicarb	5.46	.	.	.	.	.	5.46	5.46	0.99
Spirotetramat	10.20	.	.	4.86	.	.	15.05	12.87	1.13
Thiacloprid	.	5.83	.	1.21	.	.	7.04	7.04	0.68
All insecticides	**15.66**	**17.48**	**17.83**	**13.96**	**.**	**.**	**64.93**	**.**	**3.39**
Molluscicides									
Metaldehyde	.	.	.	.	2.19	.	2.19	2.19	0.98
All molluscicides	**.**	**.**	**.**	**.**	**2.19**	**.**	**2.19**	**.**	**0.98**
Seed treatments									
Iprodione	.	.	.	.	.	7.02	7.02	7.02	<0.05
Thiram	.	.	.	.	.	3.64	3.64	3.64	<0.05
All seed treatments	**.**	**.**	**.**	**.**	**.**	**10.66**	**10.66**	**.**	**<0.05**

Table 38: **Comparison of the area of vegetable crops grown (hectares) in Northern Ireland and the proportional differences (%) between 1991-2017.**

	Survey year									
Crop type	**1991 (ha)**	**1995 (ha)**	**1999 (ha)**	**2004 (ha)**	**2007 (ha)**	**2011 (ha)**	**2013 (ha)**	**2015 (ha)**	**2017 (ha)**	**% change in area 2015 / 2017**
Brassicas										
Brussels sprouts	121.60	85.68	114.50	29.77	43.60	54.87	29.47	23.08	17.21	-25%
Cabbage (summer/autumn)	118.60	61.01	120.70	76.63	110.81	69.47	18.49	7.42	1.80	-76%
Cabbage (other)*	168.60	202.79	175.30	156.03	241.77	173.01	158.95	126.31	114.08	-10%
Calabrese/broccoli	50.60	55.78	60.60	147.54	159.50	96.32	55.43	37.58	77.48	106%
Cauliflower	166.80	228.80	181.40	171.36	188.10	86.17	50.80	24.86	29.19	17%
All leafy brassicas	**626.20**	**634.06**	**652.50**	**581.33**	**743.80**	**479.84**	**313.14**	**219.25**	**239.76**	**9%**
Turnip and swede										
Turnip and swede	127.60	121.87	121.50	280.76	223.50	253.35	248.46	248.86	272.06	9%
All turnip and swede	**127.60**	**121.87**	**121.50**	**280.76**	**223.50**	**253.35**	**248.46**	**248.86**	**272.06**	**9%**
Peas and beans										
Beans	11.80	11.71	9.40	6.60	5.00	2.02	26.23	2.43	3.22	33%
Peas	13.20	6.91	5.50	2.43	2.70	15.75	5.01	2.43	3.20	32%
All peas and beans	**25.00**	**18.62**	**14.90**	**9.03**	**7.70**	**17.78**	**31.24**	**4.86**	**6.43**	**32%**
Leeks and onions										
Leeks	39.30	63.48	68.10	89.85	109.30	104.19	109.94	91.09	76.53	-16%
Onions	6.40	.	14.50	13.28	10.70	17.39	7.84	7.30	9.11	25%
Spring onions	51.90	42.03	58.90	61.75	39.40	28.82	11.79	16.40	16.70	2%
All leeks and onions	**97.60**	**105.51**	**141.50**	**164.88**	**159.40**	**150.41**	**129.57**	**114.79**	**102.33**	**-11%**

* Cabbage (other) includes: savoy cabbage, spring cabbage, winter cabbage, white cabbage, red cabbage

Table 38 (contd): **Comparison of the area of vegetable crops grown (hectares) in Northern Ireland and the proportional differences (%) between 1991-2017.**

	Survey year									
Crop type	1991 (ha)	1995 (ha)	1999 (ha)	2004 (ha)	2007 (ha)	2011 (ha)	2013 (ha)	2015 (ha)	2017 (ha)	% change in area 2013 / 2015
Carrots and parsnips										
Carrots	269.90	261.04	360.80	347.78	436.30	353.13	335.39	312.88	335.30	7%
Parsnips	80.90	73.84	109.80	99.61	185.90	166.41	184.10	164.07	121.43	-26%
All carrots and parsnips	**350.80**	**334.88**	**470.60**	**447.39**	**622.20**	**519.53**	**519.49**	**476.95**	**456.72**	**-4%**
Celery, lettuce and parsley										
Celery	24.50	27.14	45.50	32.23	57.80	44.09	57.57	43.92	26.12	-41%
Lettuce	26.60	38.42	27.00	42.84	24.30	59.35	54.71	39.46	38.79	-2%
Parsley	20.10	31.37	40.00	41.85	47.80	33.35	23.78	29.57	12.67	-57%
All celery, lettuce and parsely	**71.20**	**96.93**	**112.50**	**116.92**	**129.90**	**136.80**	**136.06**	**112.95**	**77.57**	**-31%**
Other vegetables										
Cucurbits*	0.14	1.46	1.80	.	1.80	.	.	4.00	0.57	-86%
Beetroot	3.59	3.13	6.90	3.80	6.70	8.16	12.93	12.28	9.46	-23%
Rhubarb	13.73	6.75	6.10	10.78	4.90	.	5.48	4.05	10.82	167%
Kale	.	.	.	.	.	0.87	.	4.73	2.59	-45%
Celeriac	.	.	.	.	.	0.01	0.08	0.53	.	.
All other vegetables	**17.46**	**11.34**	**14.80**	**14.58**	**13.40**	**9.05**	**18.48**	**25.59**	**23.44**	**-8%**
Total vegetable crops	**1,315.86**	**1,323.21**	**1,528.30**	**1,614.89**	**1,899.90**	**1,566.75**	**1,396.45**	**1,203.25**	**1,178.43**	**-2%**

*Curcurbit vegetables include squash and pumpkin

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Report No.	Report title	ISBN
99	Grassland & Fodder Crops 1989	1-855 27 079 X
105	Arable Crops 1990	1-855 27 130 3
106	Soft Fruit Crops 1990	1-855 27 149 4
109	Vegetable Crops 1991	1-855 27 137 0
110	Protected Crops 1991 (edible & ornamental)	1-855 27 283 0
111	Mushroom Crops 1991	1-855 27 150 8
117	Arable Crops 1992	1-855 27 193 1
118	Top Fruit Crops 1992	1-855 27 194 X
124	Grassland & Fodder crops 1993	1-855 27 221 0
131	Forestry 1993	1-855 27 282 2
132	Arable Crops 1994	1-855 27 314 4
139	Vegetable Crops 1995	1-855 27 346 2
140	Mushroom Crops 1995	1-855 27 347 0
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147	Top fruit 1996	1-855 27 470 1
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