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

Pesticide Usage in Ireland

Soft Fruit Crops

Survey Report 2023

Pesticide Usage in Ireland

SOFT FRUIT CROPS SURVEY

REPORT 2023

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Soft Fruit Crops Survey Report Summary

This is the third survey of pesticide[1] usage on soft fruit crops in Ireland carried out by the Department of Agriculture, Food and the Marine (DAFM), providing comparative datasets obtained from surveys previously completed in 2018 and 2014.

Information on all aspects of pesticide usage was collected from 21 holdings from across Ireland representing 86% of the total area of soft fruit crops grown.

Quantitative data have been adjusted to provide estimates of total pesticide usage.

In 2023, an estimated 275 hectares (ha) of soft fruit crops were grown which represents an overall 21% decrease compared to the total average estimated area for the years 2014 and 2018.

In 2023, an estimated 957 kgs of active substance was applied to soft fruit crops which represents a 49% decrease in overall weight of pesticides applied compared to the equivalent figure in 2018 and 11.5% decrease since 2014.

The total pesticide treated area of the crops surveyed has declined by 24% since 2018 and 52% since 2014.

A total of 44 active substances were recorded in use on soft fruit crops in the survey compared to 55 in 2018 and 41 in 2014.

Fungicides were applied to 67% of the pesticide treated area, accounting for 61% of the total weight of pesticides used.

Herbicides were applied to 2% of the pesticide treated area, representing 2% of the total weight of pesticides used.

Insecticides were applied to 20% of the pesticide treated area, representing 37% of the weight of pesticides applied.

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

Molluscicide treatments represented less than 1% of pesticide treated area representing less than 1% of the weight of pesticides applied.

Biological control usage accounted for 11% of the pesticide treated area.

Non-protected strawberries comprised 1% of the area of soft fruit crops in Ireland in 2023, accounting for 0.41% of the total pesticide treated area and 0.3% of the total weight of pesticides used on all soft fruit crops.

Protected strawberries comprised 39% of the area of soft fruit crops in Ireland in 2023, accounting for 74% of the total pesticide treated area and 56% of the total weight of pesticides used on all soft fruit crops.

Semi-protected strawberries comprised 21% of the area of soft fruit crops in Ireland in 2023, accounting for 6% of the total pesticide treated area and 4% of the total weight of pesticides used on all soft fruit crops.

Non-protected raspberries comprised 2% of the area of soft fruit crops in Ireland in 2023, accounting for 1% of the total pesticide treated area and 1% of the total weight of pesticides used on all soft fruit crops.

Protected raspberries comprised 3% of the area of soft fruit crops in Ireland in 2023, accounting for 2% of the total pesticide treated area and 1% of the total weight of pesticides used on all soft fruit crops.

Semi-protected raspberries comprised 6% of the area of soft fruit crops in Ireland in 2023, accounting for 1% of the total pesticide treated area and 0.3% of the total weight of pesticides used on all soft fruit crops.

Non-protected blackcurrants comprised 13% of the area of soft fruit crops in Ireland in 2023, accounting for 0.3% of the total pesticide treated area and 12% of the total weight of pesticides used on all soft fruit crops.

Other non-protected crops comprised 3% of the area of soft fruit crops in Ireland in 2023, accounting for 1% of the total pesticide treated area and 0.9% of the total weight of pesticides used on all soft fruit crops.

Other protected and semi-protected crops comprised 12% of the area of soft fruit crops in Ireland in 2023, accounting for 15% of the total pesticide treated area and 23% of the total weight of pesticides used on all soft fruit crops.

Background

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

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

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

1. Provision of reliable factual data to inform policy makers.

2. Provision of information for the on-going review process of existing PPPs by providing data regarding national and regional usage of PPPs and use patterns for particular crops.

3. Monitoring farm practices to highlight areas where PPP use might be reduced by supplementation with or replacement by alternative pest control strategies e.g. use of resistant varieties, cultivation practices etc.

4. Provision of data to assess likely operator exposure to PPPs and to predict environmental impact of PPP use.

5. Monitoring changes in patterns of PPP use over time in response to government policy or economic factors.

6. Provision of information for residue monitoring programs to assist with identifying particular areas of risk and to validate findings.

Methods

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

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

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

The purpose of the survey was explained to the occupiers of selected holdings in preliminary correspondence. A total of 21 holdings were contacted during the period March to May 2024 and data collected by phone and or physical interview for soft fruit

crops harvested in 2023. The data collected included; the area of crops grown, area treated, target pests, pesticide used, rates applied and number of treatments applied. Holdings selected in the original sample which were unable to provide data were replaced with ones from the same county and size group held on a reserve list. Due to the small number of soft fruit growers located in the North/West region and for confidentiality reasons, results are displayed on a national basis. The total number of farms sampled in each size group for soft fruit crops are shown in Table 2. The collected data were entered using Oracle, a relational database programme. Validated data were downloaded for analysis using SPSS software.

Table 2. The total number of farms sampled from each size group.

	Sizing group (Hectares)				
Region	***<1***	***1<3***	***3<10***	***10<14***	***Total***
Ireland	***3***	***4***	***10***	***4***	***21***

Definitions

- 'Basic area'; refers to the actual planted area of crop treated with a given pesticide.
- 'Biocides'; are defined as chemicals that are used to control and / or prevent various types of harmful or unwanted organisms, including disinfectants, preservatives, insect repellents, rodenticides and insecticides.
- 'Biological controls'; are defined as the use of biological organisms to control and / or prevent harmful insects, mites, weeds and plant diseases. Their usage is recorded by area treated (spha) only, as they are applied in units other than weight or volume (e.g. million/ha) and this does not translate readily into a conventional weight.
- 'Fungicides'; are defined as PPPs used to control and/or prevent harmful fungal disease.
- 'Growth regulators'; are defined as PPPs used to control/regulate the growth of the plant.
- 'Herbicides'; are defined as PPPs used to control and/ or prevent unwanted vegetation.
- 'Insecticides'; are defined as PPPs used to control and/or prevent harmful insects.
- 'Molluscicides'; are defined as PPPs used to control and/or prevent harmful slugs and snails.

- 'Non-protected crops'; refers to all crops grown outdoors in field conditions without any protection during their production cycle.
- 'Other crops'; collectively refers to blackberries, blueberries, gooseberries, loganberries, red currants and tayberries.
- 'PPP'; refers to plant protection product.
- 'Protected crops'; refers to all crops grown under permanent protection, i.e. glasshouse or polythene tunnel, for the entire duration of their production cycle.
- 'Rounding'; due to rounding of figures there may be slight differences in totals both within and between tables.
- 'Semi-protected crops'; refers to all crops grown outdoors which are covered at various times during production with Spanish tunnels.
- 'Spray applications'; refers to the number of treatments of any pesticide type to the treated areas.
- 'Treated area'; refers to the total area treated with a pesticide, which includes all repeated applications to the basic area. This is measured in 'spray hectares' (basic area x number of spray applications) = spray hectares (spha).

Crops

Information was collected for non-protected strawberries, semi-protected strawberries, protected strawberries, non-protected raspberries, semi-protected raspberries, protected raspberries, non-protected blackcurrants, semi-protected blackcurrants, non-protected other crops, semi-protected and protected other soft fruit crops. Other crops collectively refer to blackberries, blueberries, gooseberries, loganberries, red currants, and tayberries and are amalgamated due to small areas grown.

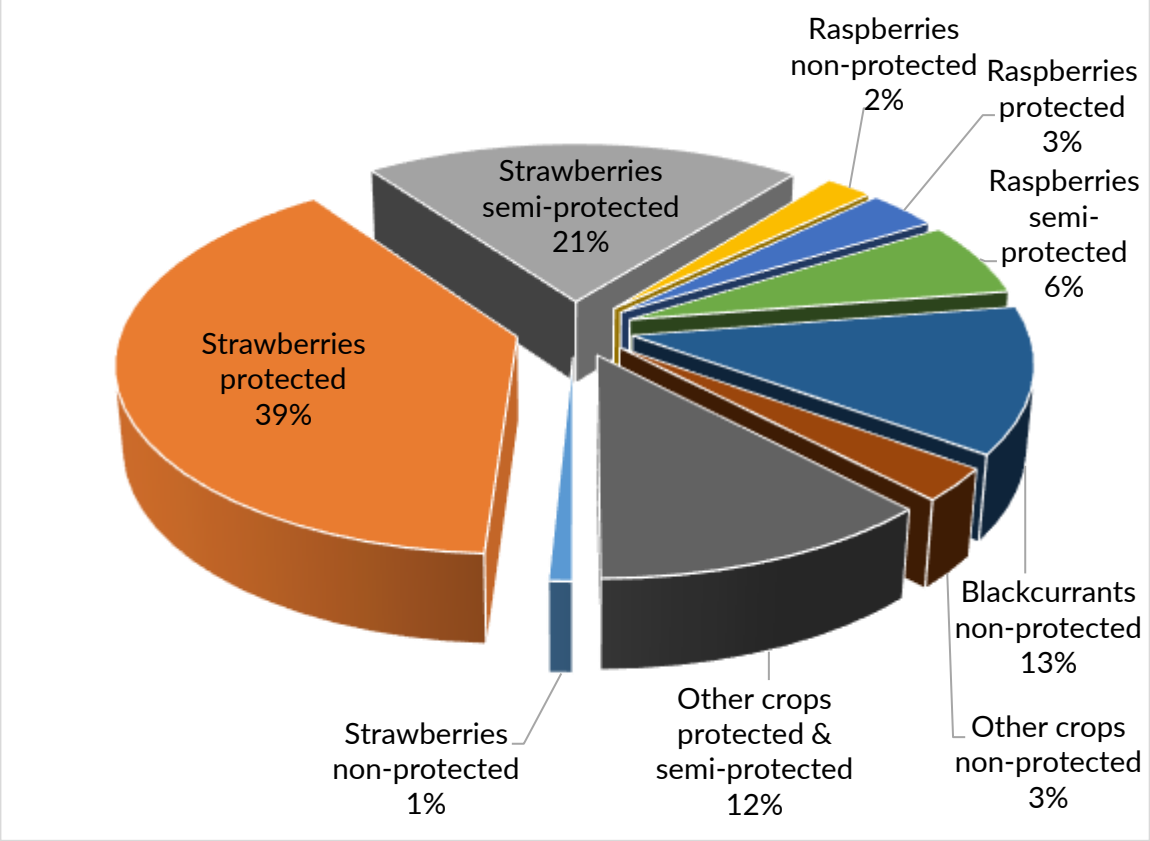
The number and areas of crops surveyed are shown in Table 3. Data from 21 farms provided information on 76 examples of 10 crop types. The total area of crops sampled in the survey (237 ha) was representative of the area of soft fruit crops grown in Ireland in 2023 (275 ha).

Table 3. The total number, area (hectares) of crops sampled and the proportion (%) of the total area of soft fruit crops surveyed in Ireland, 2023.

Crop	Number of crops surveyed	Survey area (ha)	Estimated area (ha)	Proportion of crops surveyed (%)
Strawberries				
Non-protected	3	1.89	2.29	83%
Protected	29	91.89	107.79	85%
Semi-protected	12	48.79	56.35	87%
Raspberries				
Non-protected	5	5.31	6.11	87%
Protected	7	7.87	9.17	86%
Semi-protected	1	15.04	17.31	87%
Blackcurrants				
Non-protected	3	29.97	34.25	88%
Other crops				
Non-protected	9	7.13	7.81	91%
Protected and semi-protected	7	29.05	33.44	87%
Total	***76***	***237***	***275***	***86%***

Protected and semi-protected strawberries covered an estimated 39% and 21% respectively of the total area of soft fruit crops in 2023 as per Figure 1 below. Non-protected blackcurrants accounted for 13% of the area of soft fruit crops in 2018. Raspberries (non-protected, protected and semi-protected collectively) accounted for 11% of the soft fruit crops in 2023. Other crops (non-protected, protected and semi-protected collectively) accounted for 15% of the total area of soft fruit crops in 2023.

Figure 1. Areas of individual soft fruit crops grown in Ireland (ha), 2023.



Pesticide usage

Fungicides were applied to 67% of the pesticide treated area, accounting for 61% of the total weight of pesticides used. Herbicides were applied to 2% of the pesticide treated area, representing 2% of the total weight of pesticides used. Insecticides were applied to 20% of the pesticide treated area, representing 37% of the weight of pesticides applied. Molluscicide treatments represented less than 1% of pesticide treated area, representing

less than 1% of the weight of pesticides applied. Biological control usage accounted for 11% of the pesticide treated area.

Figure 2. Pesticide usage (spha) on soft fruit crops treated in Ireland, 2023.

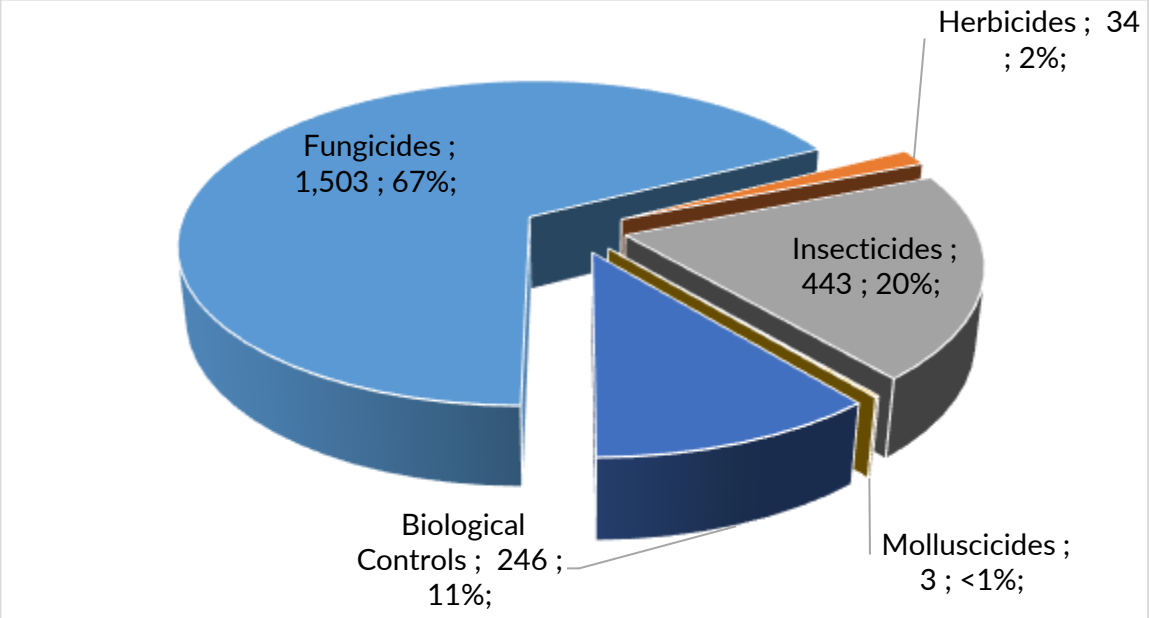
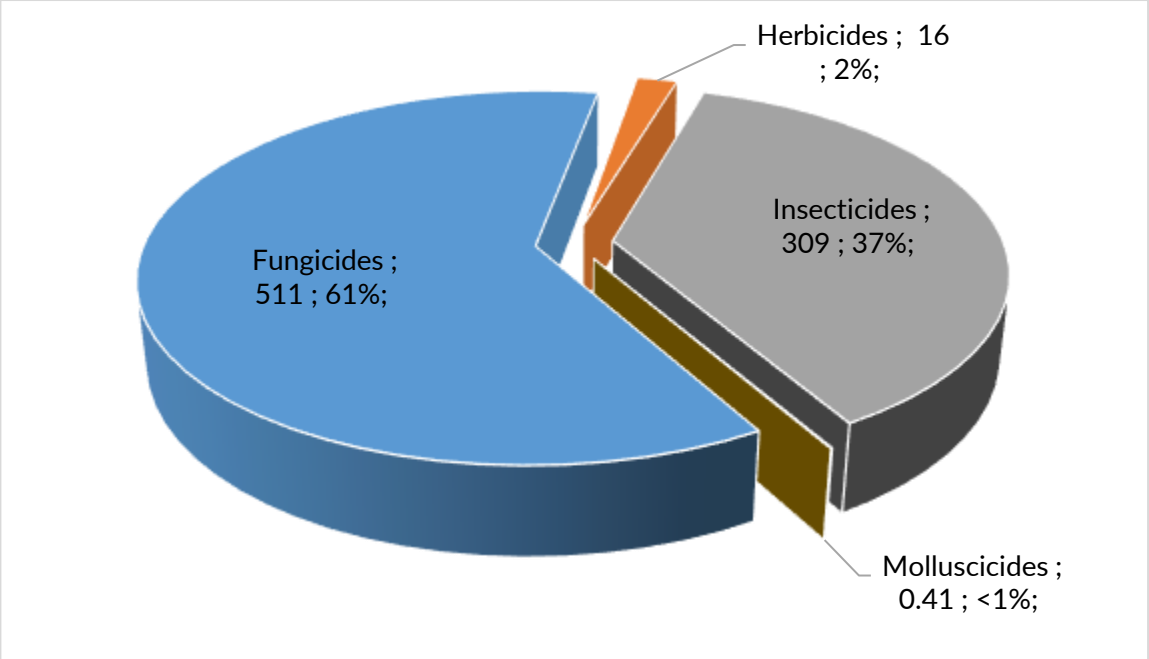


Figure 3. Weight (kgs) of pesticides applied to soft fruit crops treated in Ireland, 2023.



Pesticide Usage Survey Results 2023

Pesticide usage on non-protected strawberries

- 2.29 ha of non-protected strawberries in Ireland.
- 9.24 treated hectares (spha).
- 4.77 kilograms applied.

Figure 4. Pesticide usage (spha) on non-protected strawberries in Ireland, 2023.

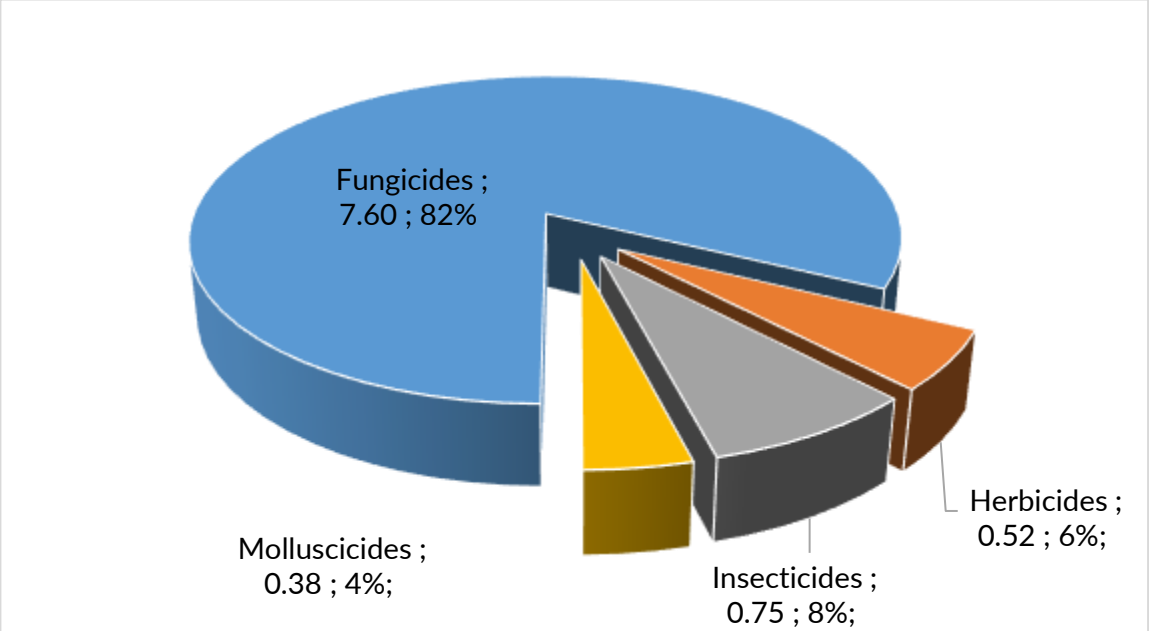


Figure 5. Weight of pesticides (kg) applied to non-protected strawberries in Ireland, 2023.

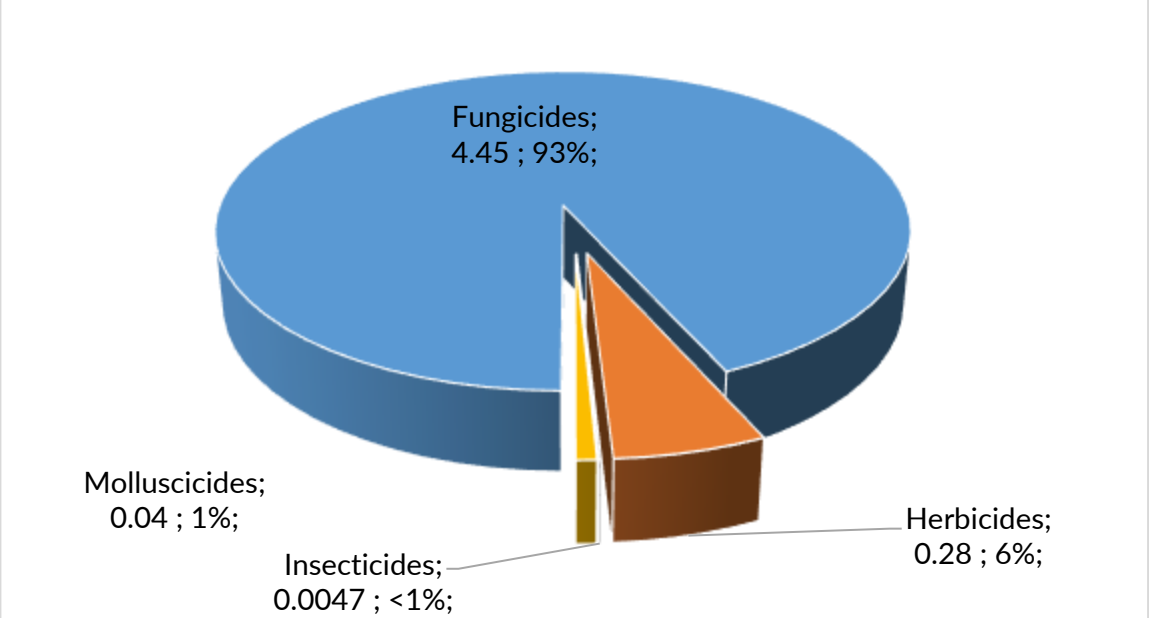


Table 4. The top eight active ingredients most extensively used on non-protected strawberries in Ireland in 2023, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Fenhexamid	2.46	3.47	0.89
Potassium bicarbonate	1.12	1.50	0.38
Dimethomorph	0.38	0.75	0.38
Pyrimethanil	0.30	0.75	0.38
Glyphosate	0.28	0.52	0.52
Bupirimate	0.19	1.13	0.38
Metaldehyde	0.04	0.38	0.38
Lambda-cyhalothrin	0.00	0.75	0.38

Table 5. The top eight active ingredients most extensively used on non-protected strawberries in Ireland in 2023, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Fenhexamid	0.89	2.46	3.47
Glyphosate	0.52	0.28	0.52
Potassium bicarbonate	0.38	1.12	1.50
Dimethomorph	0.38	0.38	0.75
Pyrimethanil	0.38	0.30	0.75
Bupirimate	0.38	0.19	1.13
Metaldehyde	0.38	0.04	0.38
Lambda-cyhalothrin	0.38	0.00	0.75

Pesticide usage on protected strawberries

- 107.79 ha of protected strawberries in Ireland.
- 1642.15 treated hectares (spha).
- 813.68 kilograms applied.

Figure 6. Pesticide usage (spha) on protected strawberries in Ireland, 2023.

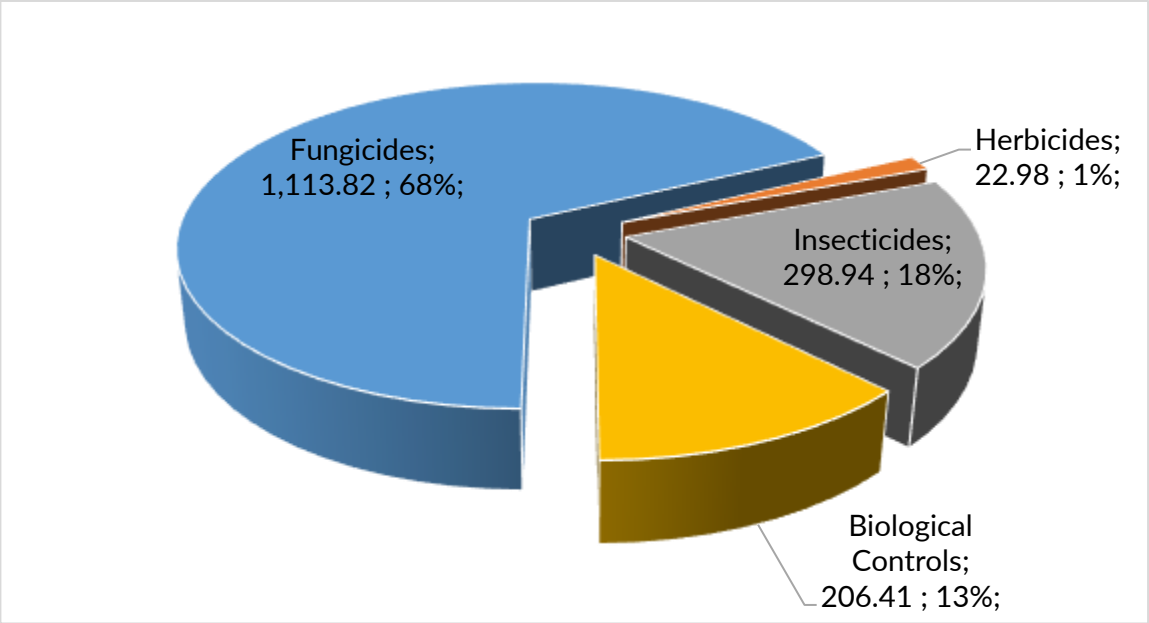


Figure 7. Weight of pesticides (kg) applied to protected strawberries in Ireland, 2023.

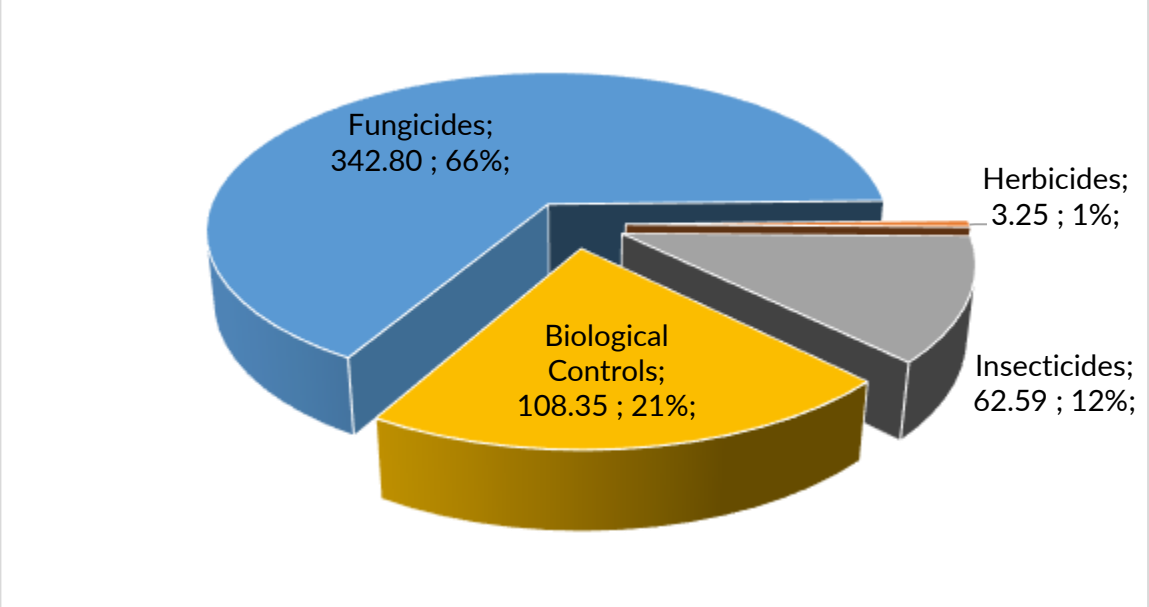


Table 6. The top ten active ingredients most extensively used on protected strawberries in 2023, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Neoseiulus cucumeris	85.92	20.72	10.36
Fatty acids	49.71	10.36	10.36
Fenhexamid	43.87	105.79	62.36
Cyprodinil	43.05	134.95	59.87
Boscalid	35.44	113.31	56.09
Fludioxonil	28.69	134.95	59.87
Pyrimethanil	24.97	35.85	25.37
Mepanipyrim	24.42	61.45	44.16
Dimethomorph	23.07	21.80	21.80
Bupirimate	21.81	95.61	54.85

Table 7. The top ten active ingredients most extensively used on protected strawberries in Ireland in 2023, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Fenhexamid	62.36	43.87	105.79
Cyprodinil	59.87	43.05	134.95
Fludioxonil	59.87	28.69	134.95
Boscalid	56.09	35.44	113.31
Bupirimate	54.85	21.81	95.61
Mepanipyrim	44.16	24.42	61.45
Pyrimethanil	25.37	24.97	35.85
Dimethomorph	21.80	23.07	21.80
Neoseiulus cucumeris	10.36	85.92	20.72
Fatty acids	10.36	49.71	10.36

Pesticide usage on semi-protected strawberries

- 56.35 ha of semi-protected strawberries in Ireland.
- 136.37 treated hectares (spha).
- 64.03 kilograms applied.

Figure 8. Pesticide usage (spha) on semi-protected strawberries in Ireland, 2023.

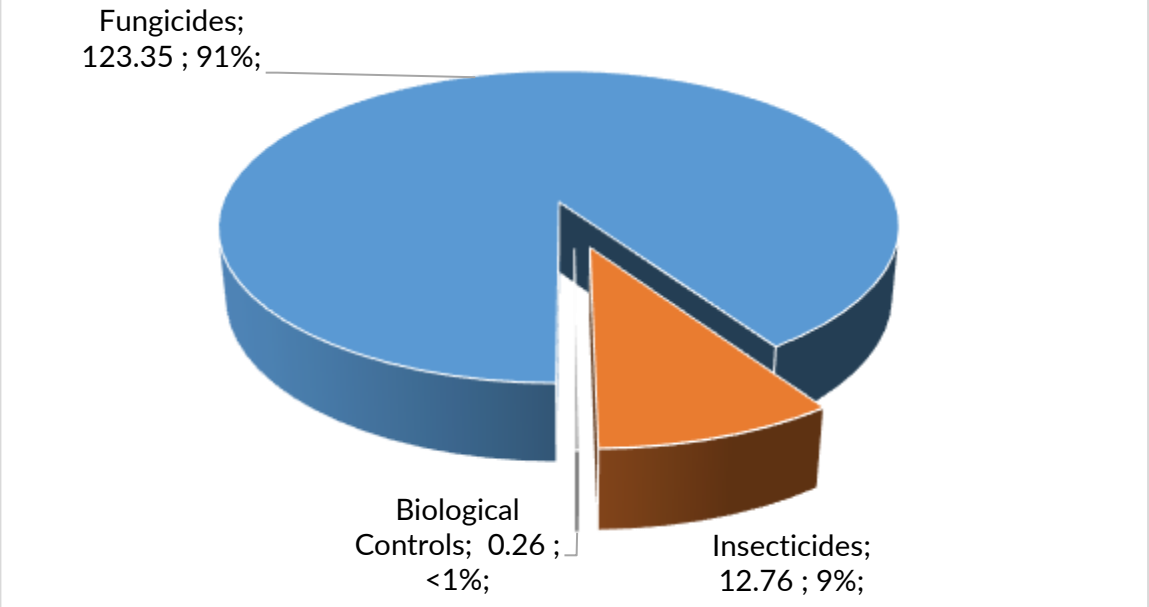


Figure 9. Weight of pesticides (kg) applied to semi-protected strawberries in Ireland, 2023.

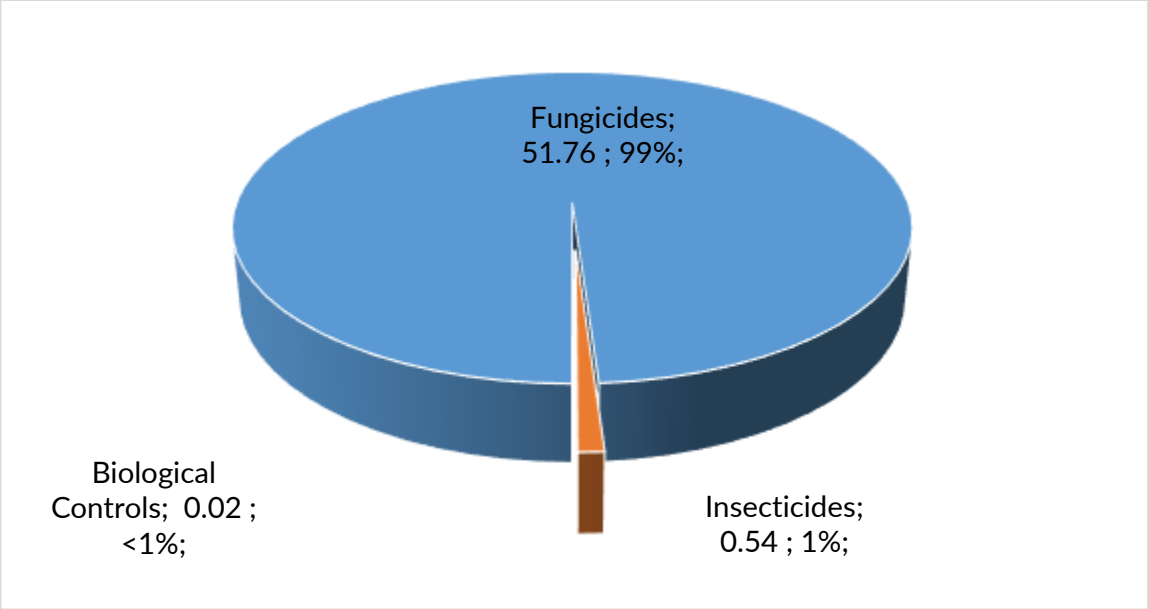


Table 8. The top ten active ingredients most extensively used on semi-protected strawberries in 2023, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Pyrimethanil	19.49	28.26	28.26
Cyprodinil	8.52	26.63	26.44
Fenhexamid	6.19	8.44	2.13
Azoxystrobin	5.73	26.85	26.53
Fludioxonil	5.68	26.63	26.44
Mepanipyrim	3.33	8.34	2.35
Bupirimate	1.00	3.99	2.00
Boscalid	0.97	2.65	2.52
Spinosad	0.45	6.13	2.14
Pyraclostrobin	0.25	2.65	2.52

Table 9. The top ten active ingredients most extensively used on semi-protected strawberries in Ireland in 2023, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Pyrimethanil	28.26	19.49	28.26
Azoxystrobin	26.53	5.73	26.85
Cyprodinil	26.44	8.52	26.63
Fludioxonil	26.44	5.68	26.63
Boscalid	2.52	0.97	2.65
Pyraclostrobin	2.52	0.25	2.65
Mepanipyrim	2.35	3.33	8.34
Spinosad	2.14	0.45	6.13
Fenhexamid	2.13	6.19	8.44
Bupirimate	2.00	1.00	3.99

Pesticide usage on non-protected raspberries

- 6.11 ha of non-protected raspberries in Ireland.
- 26.46 treated hectares (spha).
- 17.98 kilograms applied.

Figure 10. Pesticide usage (spha) on non-protected raspberries in Ireland, 2023.

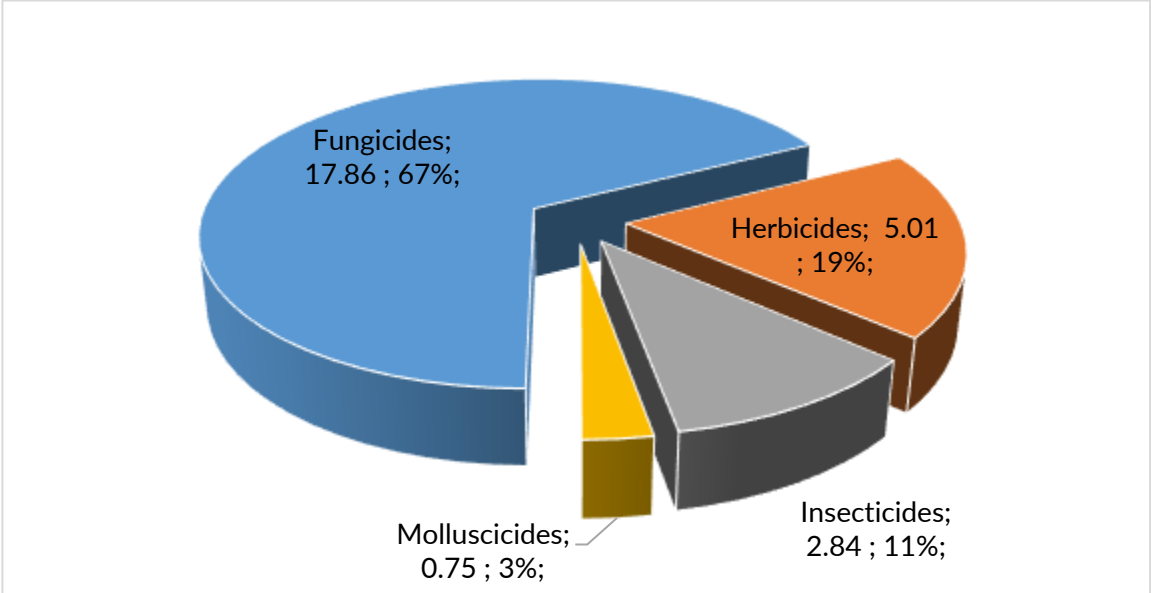


Figure 11. Weight of pesticides (kg) applied to non-protected raspberries in Ireland, 2023.

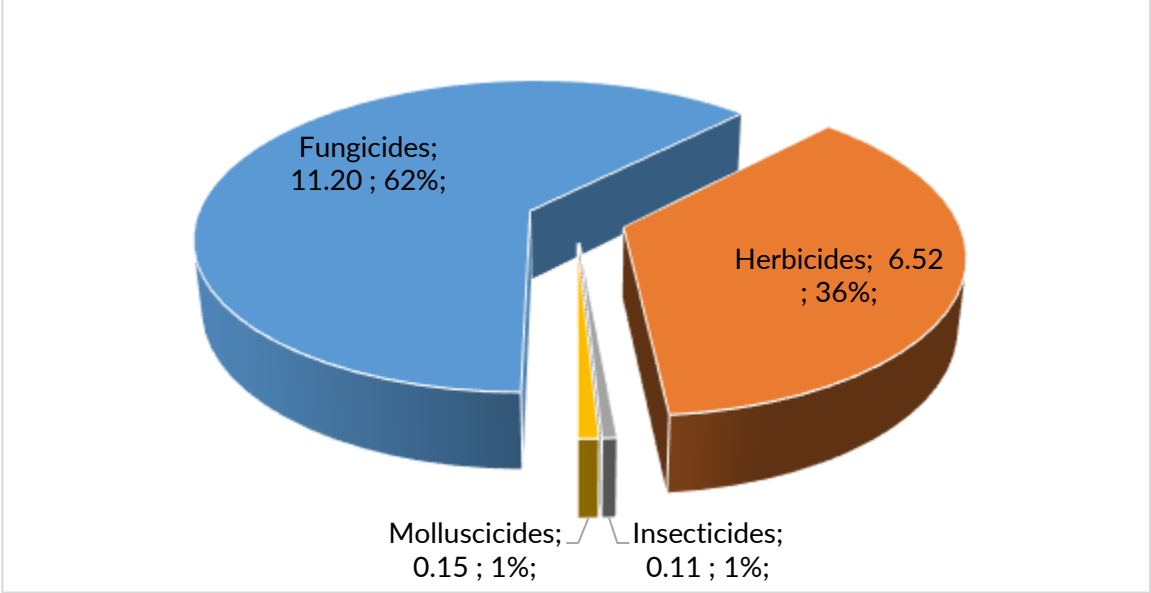


Table 10. The top ten active ingredients most extensively used on non-protected raspberries in 2023, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Fenhexamid	7.12	9.50	1.58
Glyphosate	5.68	4.26	2.92
Pyrimethanil	2.74	3.43	2.09
Bupirimate	0.90	3.59	2.09
Napropamide	0.84	0.75	0.75
Azoxystrobin	0.27	1.34	1.34
Difenoconazole	0.17	1.34	1.34
Metaldehyde	0.15	0.75	0.75
Spinosad	0.10	1.34	1.34
Deltamethrin	0.01	1.50	0.75

Table 11. The top ten active ingredients most extensively used on non-protected raspberries in Ireland in 2023, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Glyphosate	2.92	5.68	4.26
Pyrimethanil	2.09	2.74	3.43
Bupirimate	2.09	0.90	3.59
Fenhexamid	1.58	7.12	9.50
Azoxystrobin	1.34	0.27	1.34
Difenoconazole	1.34	0.17	1.34
Spinosad	1.34	0.10	1.34
Napropamide	0.75	0.84	0.75
Metaldehyde	0.75	0.15	0.75
Deltamethrin	0.75	0.01	1.50

Pesticide usage on protected raspberries

- 9.17 ha of protected raspberries in Ireland.
- 39.84 treated hectares (spha).
- 19.15 kilograms applied.

Figure 12. Pesticide usage (spha) on protected raspberries in Ireland, 2023.

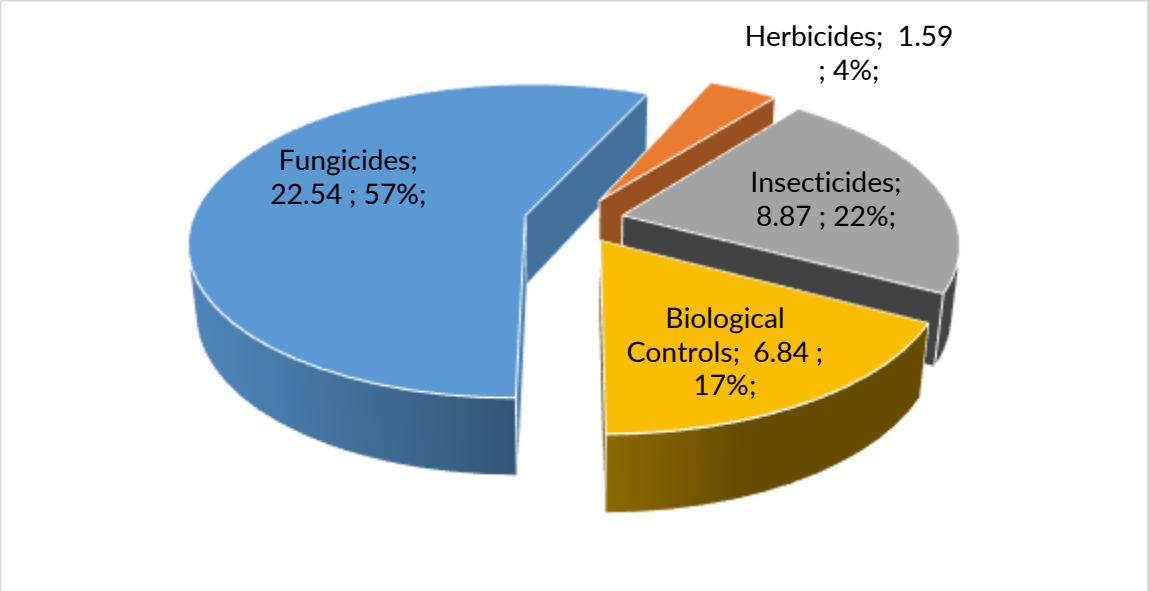


Figure 13. Weight of pesticides (kg) applied to protected raspberries in Ireland, 2023.

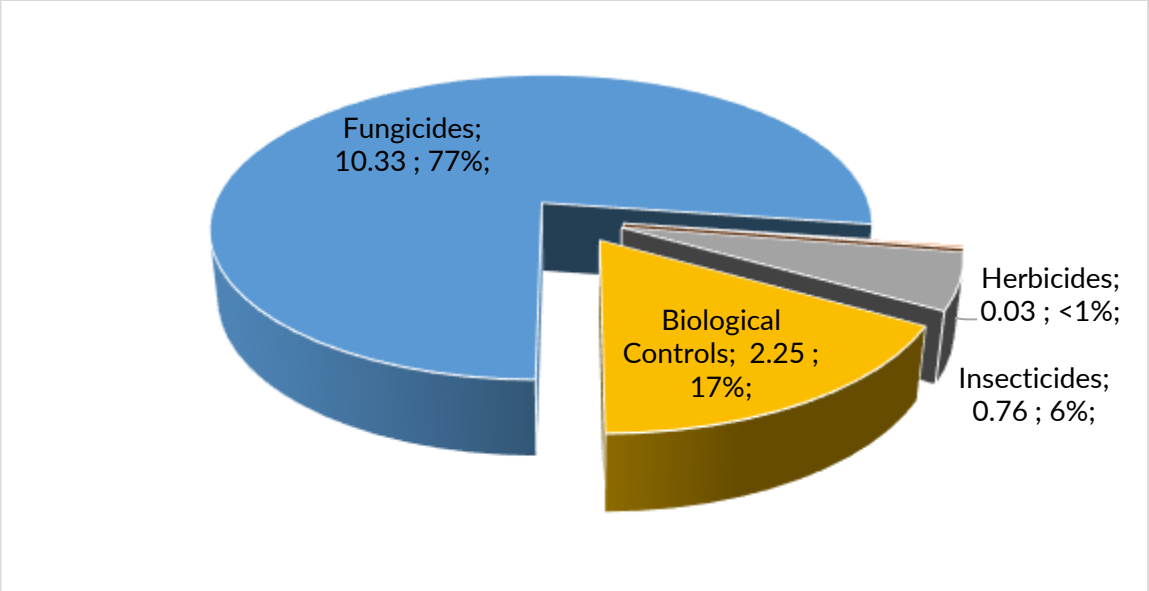


Table 12. The top ten active ingredients most extensively used on protected raspberries in 2023, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Cyprodinil	2.48	6.70	3.92
Fludioxonil	1.66	6.70	3.92
Dimethomorph	1.34	0.90	0.90
Neoseiulus cucumeris	1.12	0.27	0.27
Fenhexamid	1.12	2.33	2.33
Bacillus amyloliquefaciens subsp. plantarum s	1.12	1.79	0.90
Azoxystrobin	1.07	4.63	3.02
B. thuringiensis (BC)	0.85	2.46	1.57
Clofentezine	0.38	2.05	2.05
Mepanipyrim	0.37	0.91	0.91

Table 13. The top ten active ingredients most extensively used on protected raspberries in Ireland in 2023, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Cyprodinil	3.92	2.48	6.70
Fludioxonil	3.92	1.66	6.70
Azoxystrobin	3.02	1.07	4.63
Fenhexamid	2.33	1.12	2.33
Clofentezine	2.05	0.38	2.05
B. thuringiensis (BC)	1.57	0.85	2.46
Mepanipyrim	0.91	0.37	0.91
Dimethomorph	0.90	1.34	0.90
Bacillus amyloliquefaciens subsp. plantarum s	0.90	1.12	1.79
Neoseiulus cucumeris	0.27	1.12	0.27

Pesticide usage on semi-protected raspberries

- 17.31 ha of semi-protected raspberries in Ireland.
- 12.98 treated hectares (spha).
- 4.08 kilograms applied.

Figure 14. Pesticide usage (spha) on semi-protected raspberries in Ireland, 2023.

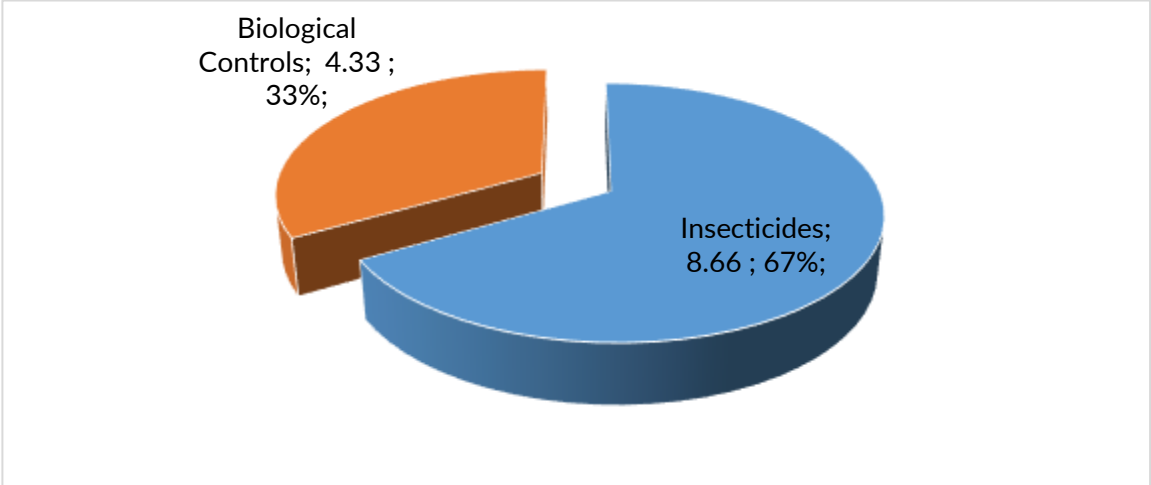


Figure 15. Weight of pesticides (kg) applied to semi-protected raspberries in Ireland, 2023.

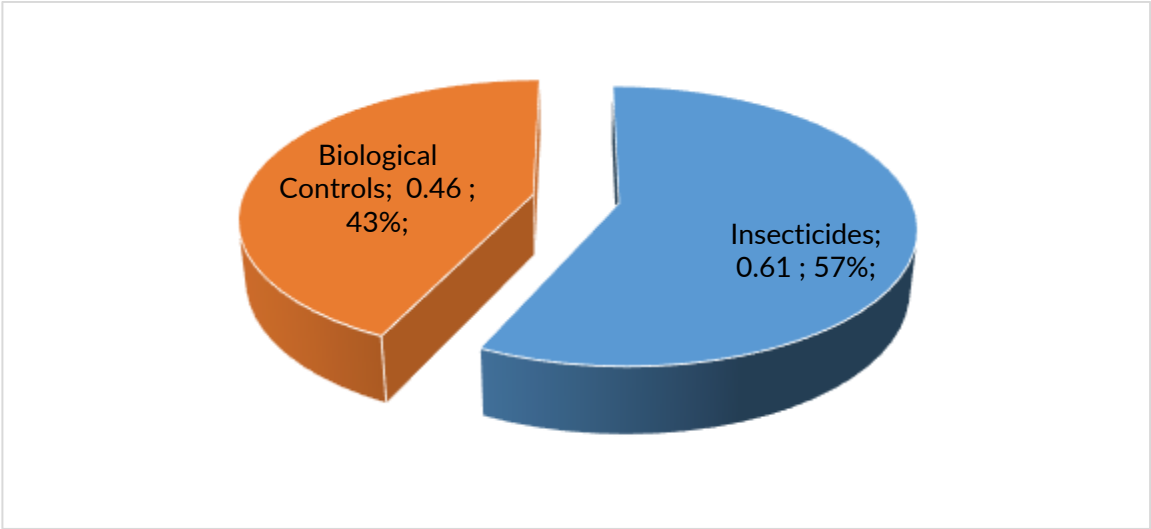


Table 14. The top three active ingredients most extensively used on semi-protected raspberries in 2023, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Bacillus subtilis	0.46	4.33	4.33
Spinosad	0.31	4.33	4.33
Flonicamid	0.30	4.33	4.33

Table 15. The top three active ingredients most extensively used on semi-protected raspberries in Ireland in 2023, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Bacillus subtilis	4.33	0.46	4.33
Spinosad	4.33	0.31	4.33
Flonicamid	4.33	0.30	4.33

Pesticide usage on non-protected blackcurrants

- 34.25 ha of non-protected blackcurrants in Ireland.
- 6.75 treated hectares (spha).
- 172.19 kilograms applied.

Figure 16. Pesticide usage (spha) on non-protected blackcurrants in Ireland, 2023.

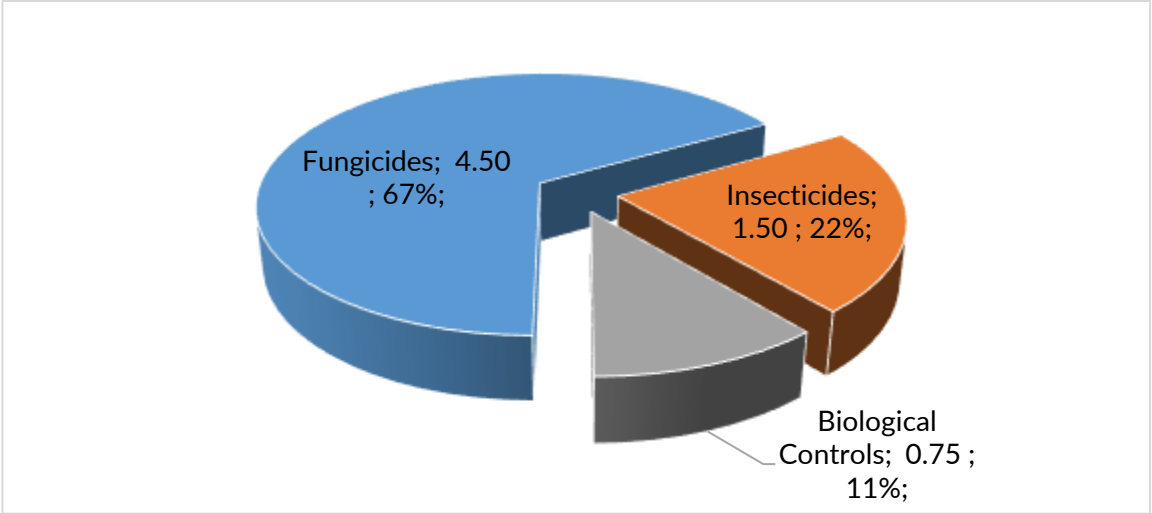


Figure 17. Weight of pesticides (kg) applied to non-protected blackcurrants in Ireland, 2023.

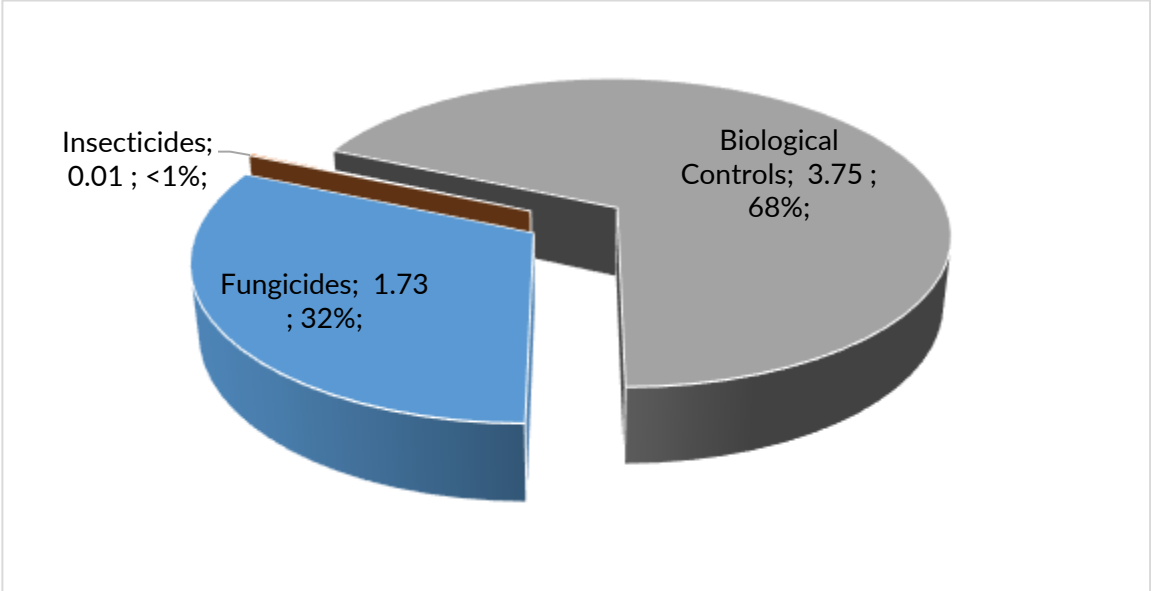


Figure 18. The top seven active ingredients most extensively used on non-protected blackcurrants in 2023, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Sulphur	142.02	21.85	21.85
Phasmarhabditis hermaphrodita	3.75	0.75	0.75
Bupirimate	0.75	3.00	0.75
Pyrimethanil	0.60	0.75	0.75
Boscalid	0.30	0.75	0.75
Pyraclostrobin	0.08	0.75	0.75
Lambda-cyhalothrin	0.01	1.50	0.75

Figure 19. The top seven active ingredients most extensively used on non-protected blackcurrants in Ireland in 2023, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Sulphur	21.85	142.02	21.85
Phasmarhabditis hermaphrodita	0.75	3.75	0.75
Bupirimate	0.75	0.75	3.00
Pyrimethanil	0.75	0.60	0.75
Boscalid	0.75	0.30	0.75
Pyraclostrobin	0.75	0.08	0.75
Lambda-cyhalothrin	0.75	0.01	1.50

Pesticide usage on other non-protected soft fruit crops

- 7.81 ha of other non-protected soft fruit crops in Ireland.
- 29.95 treated hectares (spha).
- 12.62 kilograms applied.

Figure 20. Pesticide usage (spha) on other non-protected soft fruit crops in Ireland, 2023.

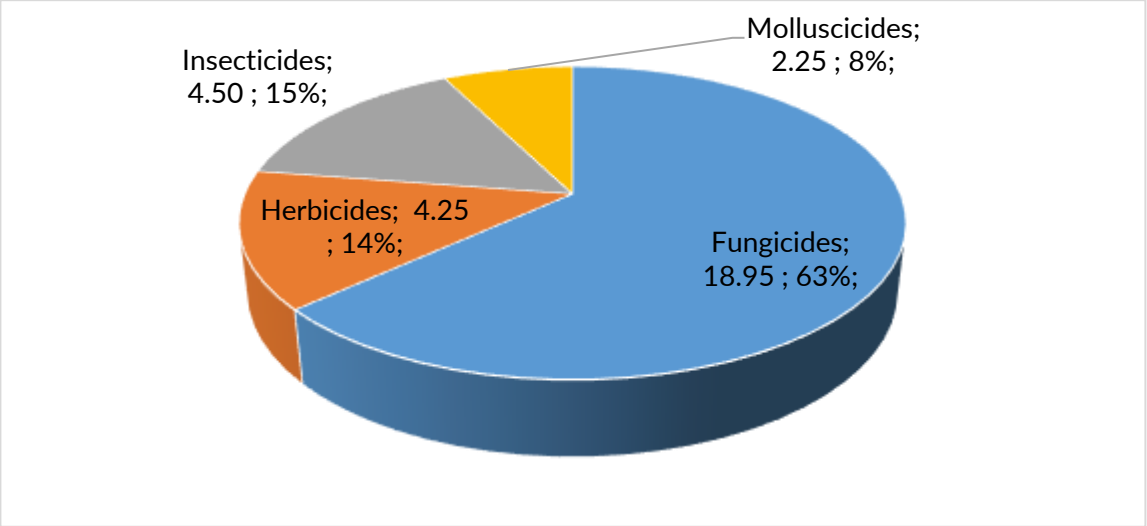


Figure 21. Weight of pesticides (kg) applied to other non-protected soft fruit crops in Ireland, 2023.

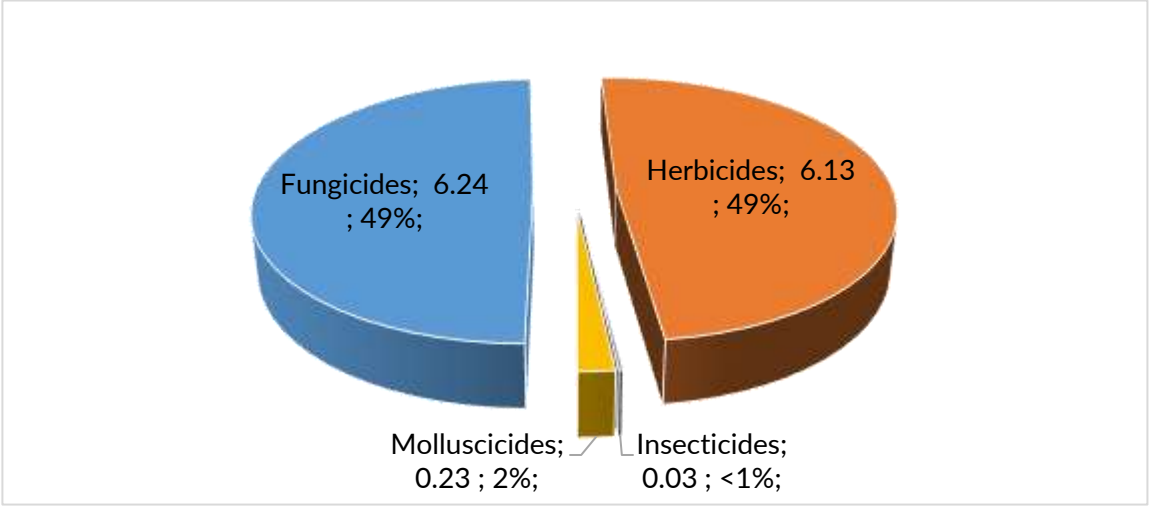


Table 16. The top eight active ingredients most extensively used on other non-protected soft fruit crops in 2023, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Glyphosate	3.60	2.00	1.00
Napropamide	2.53	2.25	2.25
Dimethomorph	2.25	4.50	2.25
Fenhexamid	1.74	3.45	2.45
Bupirimate	1.35	8.75	3.25
Pyrimethanil	0.90	2.25	2.25
Metaldehyde	0.23	2.25	2.25
Deltamethrin	0.03	4.50	2.25

Table 17. The top eight active ingredients most extensively used on non-protected other soft fruit crops in Ireland in 2023, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Bupirimate	3.25	1.35	8.75
Fenhexamid	2.45	1.74	3.45
Napropamide	2.25	2.53	2.25
Dimethomorph	2.25	2.25	4.50
Pyrimethanil	2.25	0.90	2.25
Metaldehyde	2.25	0.23	2.25
Deltamethrin	2.25	0.03	4.50
Glyphosate	1.00	3.60	2.00

Pesticide usage on other protected and semi-protected soft fruit crops

- 33.44 ha of other protected and semi-protected soft fruit crops in Ireland.
- 325.43 treated hectares (spha).
- 337.12 kilograms applied.

Figure 22. Pesticide usage (spha) on other protected and semi-protected soft fruit crops in Ireland, 2023.

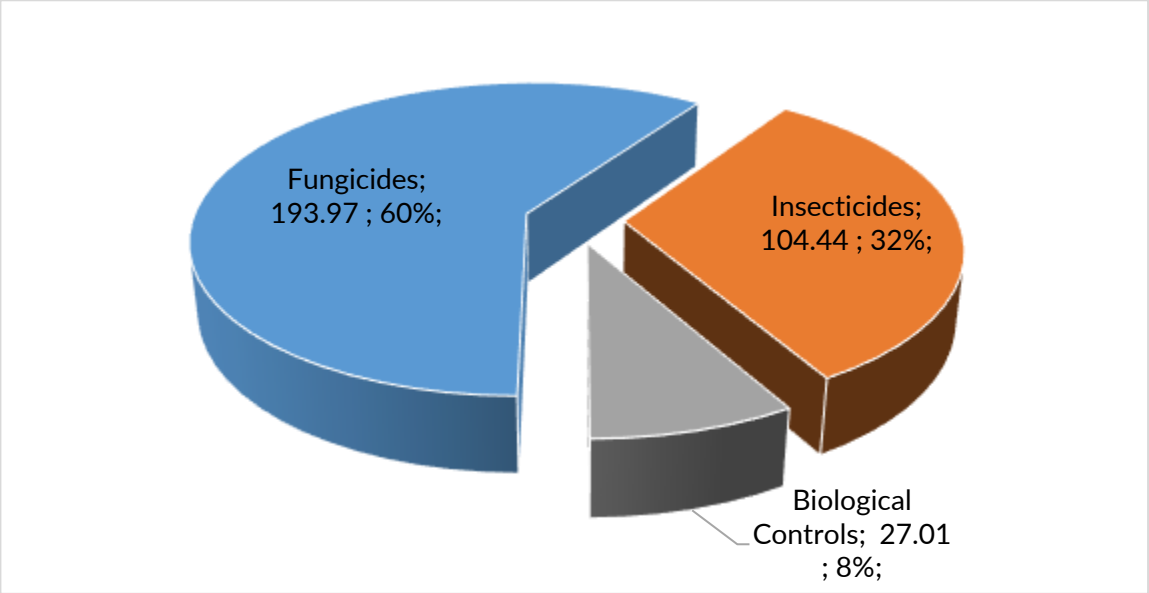


Figure 23. Weight of pesticides (kg) applied to other protected and semi-protected soft fruit crops in Ireland, 2023.

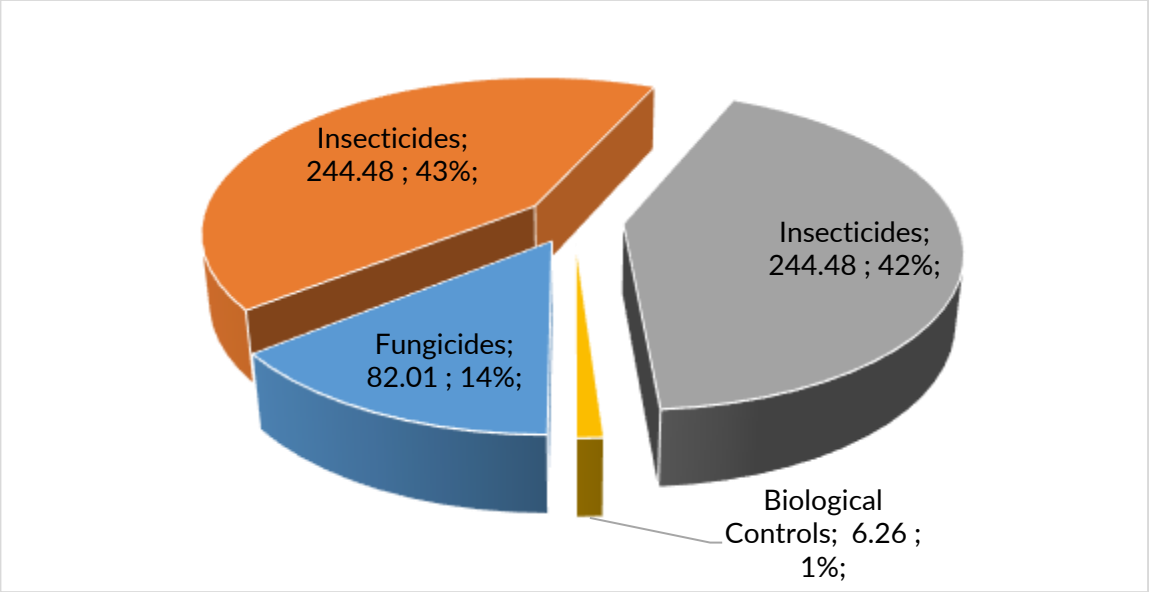


Table 18. The top 10 active ingredients most extensively used on other protected and semi-protected soft fruit crops in 2023, ranked by area treated (spray-hectares).

Active Substance	Treated area (spha)	Basic area treated (ha)	Quantity applied (kg)
Fatty acids	121.50	25.32	12.66
Bacillus amyloliquefaciens subsp. plantarum s	23.74	37.99	12.66
Pyrimethanil	11.11	13.89	13.89
Mepanipyrim	10.23	25.32	12.66
Cyprodinil	9.73	26.00	13.12
Bacillus pumilus QST 2810	7.24	50.65	12.66
Fludioxonil	6.48	26.00	13.12
Fenhexamid	6.33	12.66	12.66
B. thuringiensis (BC)	4.75	12.66	12.66
Bupirimate	3.17	12.66	12.66

Table 19. The top 10 active ingredients most extensively used on other protected and semi-protected soft fruit crops in Ireland in 2023, ranked by weight (kg).

Active Substance	Quantity applied (kg)	Treated area (spha)	Basic area treated (ha)
Pyrimethanil	13.89	11.11	13.89
Cyprodinil	13.12	9.73	26.00
Fludioxonil	13.12	6.48	26.00
Fatty acids	12.66	121.50	25.32
Bacillus amyloliquefaciens subsp. plantarum s	12.66	23.74	37.99
Mepanipyrim	12.66	10.23	25.32
Bacillus pumilus QST 2810	12.66	7.24	50.65
Fenhexamid	12.66	6.33	12.66
B. thuringiensis (BC)	12.66	4.75	12.66
Bupirimate	12.66	3.17	12.66

Table 20. Estimated area (hectares) of soft fruit crops grown in Ireland, 2023.

Crop	Ireland
Strawberries: non-protected	2.29
Strawberries: protected	107.79
Strawberries: semi-protected	56.35
Raspberries: non-protected	6.11
Raspberries: protected	9.17
Raspberries: semi-protected	17.31
Blackcurrants: non-protected	34.25
Other crops: non-protected	7.81
Other crops: protected and semi-protected	33.44
Total	***274.53***

Table 21. Estimated area (spray-hectares) of soft fruit crops treated regionally with each pesticide type in Ireland, 2023.

Crop	Ireland
Fungicides	1,502.59
Herbicides	34.35
Insecticides	443.25
Molluscicides	3.38
Biological controls	245.60
Total	***2,229.16***

Table 22. Estimated weight (kgs) of pesticides applied to soft fruit crops treated in Ireland, 2023.

Crop	Ireland
Fungicides	510.51
Herbicides	16.21
Insecticides	309.13
Molluscicides	0.41
Biological controls	121.10
Total	***957.37***

Table 23. The total area (spray hectares) and the basic area (hectares), of soft fruit crops in Ireland 2023 treated with each pesticide type.

Pesticide Type													
	Fungicides		Herbicides		Insecticides		Molluscicides		Biological controls		Total all pesticides		
Crop type	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha)	(sp ha)	(ha) treated	(ha) grown
Strawberries													
Non-protected	7.60	0.89	0.52	0.52	0.75	0.38	0.38	0.38	-	-	9.24	0.89	**2.29**
Protected	1,113.82	65.40	22.98	12.62	298.94	65.40	-	-	206.41	47.28	1,642.15	65.40	**107.79**
Semi-protected	123.35	28.55	-	-	12.76	2.52	-	-	0.26	0.13	136.37	28.55	**56.35**
Raspberries													
Non-protected	17.86	3.67	5.01	3.67	2.84	2.09	0.75	0.75	-	-	26.46	3.67	**6.11**
Protected	22.54	3.92	1.59	1.59	8.87	2.06	-	-	6.84	2.72	39.84	4.32	**9.17**
Semi-protected	-	-	-	-	8.66	4.33	-	-	4.33	4.33	12.98	4.33	**17.31**
Blackcurrant													
Non-protected	4.50	0.75	-	-	1.50	0.75	-	-	0.75	0.75	6.75	22.60	**34.25**
Other crops													
Non-protected	18.95	3.45	4.25	3.25	4.50	2.25	2.25	2.25	-	-	29.95	3.45	**7.81**
Protected & semi-protected	193.97	14.35	-	-	104.44	14.12	-	-	27.01	14.12	325.43	14.35	**33.44**
Total	***1,502.59***	***120.98***	***34.35***	***21.65***	***443.25***	***93.89***	***3.38***	***3.38***	***245.60***	***69.33***	***2,229.16***	***147.56***	***274.53***

Table 24. The total quantities (kilograms) of each pesticide type used on soft fruit crops in Ireland 2023.

	Pesticide Type					
Crop	**Fungicides**	**Herbicides**	**Insecticides**	**Molluscicides**	**Biological controls**	**Total**
Strawberries						
Non-protected	4.45	0.28	0.00	0.04		4.77
Protected	342.80	3.25	62.59		108.35	813.68
Semi-protected	51.76		0.54		0.02	64.03
Raspberries						
Non-protected	11.20	6.52	0.11	0.15		17.98
Protected	10.33	0.03	0.76		2.25	19.15
Semi-protected			0.61		0.46	4.08
Blackcurrant						
Non-protected	1.73		0.01		3.75	172.19
Other crops						
Non-protected	6.24	6.13	0.03	0.23		12.62
Protected & semi-protected	82.01		244.48		6.26	337.12
Total	***510.51***	***16.21***	***309.13***	***0.41***	***121.10***	***1,445.61***

Table 25. Estimated area (spray-hectares) of soft fruit crops treated with pesticide formulations in Ireland, 2023.

	Crops									
Pesticide type & formulation	**Non-protected strawberries**	**Protected strawberries**	**Semi-protected strawberries**	**Non-protected raspberries**	**Protected raspberries**	**Semi-protected raspberries**	**Non-protected blackcurrants**	**Other non-protected crops**	**Other protected & semi-protected crops**	**All crops**
Fungicides										
Azoxystrobin		61.39	26.85		3.48				0.68	92.39
Azoxystrobin/difenoconazole		34.90		1.34	1.15				0.23	37.62
Bacillus amyloliquefaciens subsp. plantarum strain D747		31.08			1.79				37.99	70.85
Bacillus pumilus QST 2808		20.72			1.79				50.65	73.16
Boscalid/pyraclostrobin		113.31	2.65				0.75			116.71
Bupirimate	1.13	95.61	3.99	3.59	1.16		3.00	8.75	12.66	129.89
Cyflufenamid		95.73	8.96							104.68
Cyprodinil/fludioxonil		134.95	26.63		6.70				26.00	194.28
Difenoconazole/fluxapyroxad		103.44	0.37		0.89					104.70
Dimethomorph	0.75	21.80			0.89			4.50	1.23	29.17
Fenhexamid	3.47	105.79	8.43	9.50	2.33			3.45	12.66	145.63
Kresoxim-methyl		44.10	0.29						12.66	57.05
Laminarin		20.72			0.89					21.61
Mepanipyrim		61.45	8.34		0.91				25.32	96.02
Myclobutanil			2.00							2.00
Potassium bicarbonate	1.50	26.45	0.13		0.27					28.35
Proquinazid		72.01	6.46							78.46
Pyrimethanil	0.75	35.85	28.26	3.43	0.27		0.75	2.25	13.89	85.46
Sulphur		34.53								34.53
All fungicides	***7.60***	***1,113.82***	***123.35***	***17.86***	***22.54***		***4.50***	***18.95***	***193.97***	***1,502.59***

Table 26 (cont.) Estimated area (spray-hectares) of soft fruit crops treated with pesticide formulations in Ireland, 2023.

	Crops									
Pesticide type & formulation	**Non-protected strawberries**	**Protected strawberries**	**Semi-protected strawberries**	**Non-protected raspberries**	**Protected raspberries**	**Semi-protected raspberries**	**Non-protected blackcurrants**	**Other non-protected crops**	**Other protected & semi-protected crops**	**All crops**
Herbicides										
Carfentrazone-ethyl		10.36			1.59					11.95
Flazasulfuron		10.36								10.36
Glyphosate	0.52	2.26		4.26				2.00		9.04
Napropamide				0.75				2.25		3.00
All herbicides	***0.52***	***22.98***		***5.01***	***1.59***			***4.25***		***34.35***

Table 27 (cont.) Estimated area (spray-hectares) of soft fruit crops treated with pesticide formulations in Ireland, 2023.

	Crops									
Pesticide type & formulation	**Non-protected strawberries**	**Protected strawberries**	**Semi-protected strawberries**	**Non-protected raspberries**	**Protected raspberries**	**Semi-protected raspberries**	**Non-protected blackcurrants**	**Other non-protected crops**	**Other protected & semi-protected crops**	**All crops**
Insecticides										
Abamectin		43.35	5.99							49.34
Azadirachtin					1.79					1.79
Bifenazate		12.52			0.89					13.42
Clofentezine		17.39	0.17		2.05					19.61
Deltamethrin		17.27		1.50				4.50	12.66	35.93
Fatty acid-C7-C18-potassium salt									25.32	25.32
Fatty acids		10.36							25.32	35.68
Flonicamid					2.30	4.33			1.92	8.55
Lambda-cyhalothrin	0.75	18.98					1.50		12.66	33.89
Spinosad		65.48	6.13	1.34	0.02	4.33			13.89	91.19
Spirotetramat		70.74	0.47		1.82				12.66	85.69
Sulfoxaflor		42.85								42.85
All insecticides	***0.75***	***298.94***	***12.76***	***2.84***	***8.87***	***8.66***	***1.50***	***4.50***	***104.44***	***443.25***

Table 28 (cont.) Estimated area (spray-hectares) of soft fruit crops treated with pesticide formulations in Ireland, 2023.

	Crops									
Pesticide type & formulation	**Non-protected strawberries**	**Protected strawberries**	**Semi-protected strawberries**	**Non-protected raspberries**	**Protected raspberries**	**Semi-protected raspberries**	**Non-protected blackcurrants**	**Other non-protected crops**	**Other protected & semi-protected crops**	**All crops**
Molluscicides										
Metaldehyde	0.38			0.75				2.25		3.38
All molluscicides	***0.38***			***0.75***				***2.25***		***3.38***

Table 29 (cont.) Estimated area (spray-hectares) of soft fruit crops treated with pesticide formulations in Ireland, 2023.

Crops										
Pesticide type & formulation	**Non-protected strawberries**	**Protected strawberries**	**Semi-protected strawberries**	**Non-protected raspberries**	**Protected raspberries**	**Semi-protected raspberries**	**Non-protected blackcurrants**	**Other non-protected crops**	**Other protected & semi-protected crops**	**All crops**
Biological controls										
B. thuringiensis (BC)		43.35			2.46				12.66	58.47
Bacillus amyloliquefaciens strain FZB24		50.63			0.89					51.52
Bacillus subtilis		82.90	0.26		3.21	4.33			14.35	105.05
Beauveria basiana GHA / ATCC 74040		5.58								5.58
Encarsia formosa		3.24								3.24
Neoseiulus cucumeris		20.72			0.27					20.99
Phasmarhabditis hermaphrodita							0.75			0.75
All biological controls		***206.41***	***0.26***		***6.84***	***4.33***	***0.75***		***27.01***	***245.60***

Table 30 (cont.) Estimated area (spray-hectares) of soft fruit crops treated with pesticide formulations in Ireland, 2023.

Crops										
Pesticide type & formulation	**Non-protected strawberries**	**Protected strawberries**	**Semi-protected strawberries**	**Non-protected raspberries**	**Protected raspberries**	**Semi-protected raspberries**	**Non-protected blackcurrants**	**Other non-protected crops**	**Other protected & semi-protected crops**	**All crops**
Total all pesticides	***9.24***	***1,642.15***	***136.37***	***26.46***	***39.84***	***12.98***	***6.75***	***29.95***	***325.43***	***2,229.16***

Table 31. Estimated quantities (kilograms) of pesticide formulations used on soft fruit crops in Ireland, 2023.

	Crops									
Pesticide type & formulation	**Non-protected strawberries**	**Protected strawberries**	**Semi-protected strawberries**	**Non-protected raspberries**	**Protected raspberries**	**Semi-protected raspberries**	**Non-protected blackcurrants**	**Other non-protected crops**	**Other protected & semi-protected crops**	**All crops**
Fungicides										
Azoxystrobin		14.68	5.74		0.87				0.17	21.46
Azoxystrobin/difenoconazole		11.29		0.44	0.32				0.05	12.10
Bacillus amyloliquefaciens subsp. plantarum strain D747		19.42			1.12				23.74	44.28
Bacillus pumilus QST 2808		2.96			0.26				7.24	10.46
Boscalid/pyraclostrobin		44.33	1.22				0.38			45.93
Bupirimate	0.19	21.81	1.00	0.90	0.29		0.75	1.34	3.17	29.45
Cyflufenamid		1.44	0.13							1.57
Cyprodinil/fludioxonil		71.73	14.20		4.13				16.21	106.28
Difenoconazole/fluxapyroxad		6.38	0.03		0.07					6.47
Dimethomorph	0.38	23.07			1.34			2.25	1.84	28.88
Fenhexamid	2.46	43.87	6.19	7.12	1.12			1.74	6.33	68.84
Kresoxim-methyl		6.47	0.04						1.90	8.42
Laminarin		0.70			0.03					0.73
Mepanipyrim		24.42	3.33		0.37				10.23	38.34
Myclobutanil			0.13							0.13
Potassium bicarbonate	1.13	9.09	0.03		0.20					10.45
Proquinazid		3.19	0.23							3.42
Pyrimethanil	0.30	24.97	19.49	2.74	0.22		0.60	0.90	11.11	60.33
Sulphur		12.98								12.98
All fungicides	***4.45***	***342.80***	***51.76***	***11.20***	***10.33***		***1.73***	***6.24***	***82.01***	***510.51***

Table 32. (cont.) Estimated quantities (kilograms) of pesticide formulations used on soft fruit crops in Ireland, 2023.

Crops										
Pesticide type & formulation	**Non-protected strawberries**	**Protected strawberries**	**Semi-protected strawberries**	**Non-protected raspberries**	**Protected raspberries**	**Semi-protected raspberries**	**Non-protected blackcurrants**	**Other non-protected crops**	**Other protected & semi-protected crops**	**All crops**
Herbicides										
Carfentrazone-ethyl		0.50			0.03					0.53
Flazasulfuron		0.31								0.31
Glyphosate	0.28	2.44		5.68				3.60		12.00
Napropamide				0.84				2.53		3.38
All herbicides	***0.28***	***3.25***		***6.52***	***0.03***			***6.13***		***16.21***

Table 33. (cont.) Estimated quantities (kilograms) of pesticide formulations used on soft fruit crops in Ireland, 2023.

Crops										
Pesticide type & formulation	**Non-protected strawberries**	**Protected strawberries**	**Semi-protected strawberries**	**Non-protected raspberries**	**Protected raspberries**	**Semi-protected raspberries**	**Non-protected blackcurrants**	**Other non-protected crops**	**Other protected & semi-protected crops**	**All crops**
Insecticides										
Abamectin		0.30	0.04							0.34
Azadirachtin					0.07					0.07
Bifenazate		1.20			0.09					1.29
Clofentezine		3.48	0.03		0.38					3.89
Deltamethrin		0.13		0.01				0.03	0.08	0.24
Fatty acid-C7-C18-potassium salt									121.15	121.15
Fatty acids		49.71							121.50	171.21
Flonicamid					0.15	0.30			0.12	0.57
Lambda-cyhalothrin	0.005	0.14					0.01		0.09	0.25
Spinosad		4.21	0.44	0.10	0.00	0.31			1.03	6.10
Spirotetramat		2.83	0.02		0.07				0.51	3.43
Sulfoxaflor		0.59								0.59
All insecticides	***0.005***	***62.59***	***0.54***	***0.11***	***0.76***	***0.61***	***0.01***	***0.03***	***244.48***	***309.13***

Table 34. (cont.) Estimated quantities (kilograms) of pesticide formulations used on soft fruit crops in Ireland, 2023.

	Crops									
Pesticide type & formulation	**Non-protected strawberries**	**Protected strawberries**	**Semi-protected strawberries**	**Non-protected raspberries**	**Protected raspberries**	**Semi-protected raspberries**	**Non-protected blackcurrants**	**Other non-protected crops**	**Other protected & semi-protected crops**	**All crops**
Molluscicides										
Metaldehyde	0.04			0.15				0.23		0.41
All molluscicides	***0.04***			***0.15***				***0.23***		***0.41***

Table 35. (cont.) Estimated quantities (kilograms) of pesticide formulations used on soft fruit crops in Ireland, 2023.

	Crops									
Pesticide type & formulation	**Non-protected strawberries**	**Protected strawberries**	**Semi-protected strawberries**	**Non-protected raspberries**	**Protected raspberries**	**Semi-protected raspberries**	**Non-protected blackcurrants**	**Other non-protected crops**	**Other protected & semi-protected crops**	**All crops**
Biological controls										
B. thuringiensis (BC)		9.28			0.85				4.75	14.88
Bacillus amyloliquefaciens strain FZB24		2.27			0.04					2.32
Bacillus subtilis		6.44	0.02		0.24	0.46			1.51	8.67
Beauveria basiana GHA / ATCC 74040		1.20								1.20
Encarsia formosa		3.24								3.24
Neoseiulus cucumeris		85.92			1.12					87.04
Phasmarhabditis hermaphrodita							3.75			3.75
All biological controls		***108.35***	***0.02***		***2.25***	***0.46***	***3.75***		***6.26***	***121.10***

Table 36. (cont.) Estimated quantities (kilograms) of pesticide formulations used on soft fruit crops in Ireland, 2023.

Crops										
Pesticide type & formulation	Non-protected strawberries	Protected strawberries	Semi-protected strawberries	Non-protected raspberries	Protected raspberries	Semi-protected raspberries	Non-protected blackcurrants	Other non-protected crops	Other protected & semi-protected crops	All crops
Total all pesticides	***4.77***	***517.00***	***52.32***	***17.98***	***13.38***	***1.08***	***5.49***	***12.62***	***332.74***	***957.37***

Table 37. The active ingredients most extensively used on soft fruit crops in Ireland in 2023 ranked by area treated (spray-hectares).

No.	*Active Ingredient*	Treated area (sp ha)
1	*Cyprodinil*	194.28
2	*Fludioxonil*	194.28
3	*Fenhexamid*	145.64
4	*Difenoconazole*	142.32
5	*Azoxystrobin*	130.02
6	*Bupirimate*	129.90
7	*Boscalid*	116.71
8	*Pyraclostrobin*	116.71
9	*Bacillus subtilis*	105.05
10	*Fluxapyroxad*	104.70
11	*Cyflufenamid*	104.69
12	*Mepanipyrim*	96.02
13	*Spinosad*	91.19
14	*Spirotetramat*	85.69
15	*Pyrimethanil*	85.46
16	*Proquinazid*	78.47
17	*Bacillus pumilus QST 2808*	73.16
18	*Bacillus amyloliquefaciens subsp. plantarum s*	70.86
19	*B. thuringiensis (BC)*	58.47
20	*Kresoxim-methyl*	57.05
21	*Sulphur*	56.38
22	*Bacillus amyloliquefaciens strain FZB24*	51.52
23	*Abamectin*	49.34
24	*Sulfoxaflor*	42.85
25	*Deltamethrin*	35.93
26	*Fatty acids*	35.68
27	*Lambda-cyhalothrin*	33.89
28	*Dimethomorph*	29.18
29	*Potassium bicarbonate*	28.35
39	*Fatty acid-C7-C18-potassium salt*	25.32
30	*Laminarin*	21.62
31	*Neoseiulus cucumeris*	20.99
32	*Clofentezine*	19.61
33	*Bifenazate*	13.42
34	*Carfentrazone-ethyl*	11.95
35	*Flazasulfuron*	10.36
36	*Glyphosate*	9.04
37	*Flonicamid*	8.55
38	*Beauveria basiana GHA / ATCC 74040*	5.58

Table 38. The active ingredients most extensively used on soft fruit crops in Ireland in 2023 ranked by weight (kilograms).

No.	*Active Ingredient*	Quantity (kgs)
1	*Fatty acids*	171.21
2	*Sulphur*	155.00
3	*Fatty acid-C7-C18-potassium salt*	121.15
4	*Neoseiulus cucumeris*	87.04
5	*Fenhexamid*	68.84
6	*Cyprodinil*	63.78
7	*Pyrimethanil*	60.33
8	*Bacillus amyloliquefaciens subsp. plantarum s*	44.29
9	*Fludioxonil*	42.51
10	*Mepanipyrim*	38.34
11	*Boscalid*	36.71
12	*Bupirimate*	29.45
13	*Azoxystrobin*	28.90
14	*Dimethomorph*	28.88
15	*B. thuringiensis (BC)*	14.88
16	*Glyphosate*	12.00
17	*Bacillus pumilus QST 2808*	10.46
18	*Potassium bicarbonate*	10.45
19	*Pyraclostrobin*	9.21
20	*Bacillus subtilis*	8.67
21	*Kresoxim-methyl*	8.42
22	*Difenoconazole*	7.24
23	*Spinosad*	6.09
24	*Clofentezine*	3.89
25	*Fluxapyroxad*	3.88
26	*Phasmarhabditis hermaphrodita*	3.75
27	*Proquinazid*	3.43
28	*Spirotetramat*	3.42
29	*Napropamide*	3.38
30	*Encarsia formosa*	3.24
31	*Bacillus amyloliquefaciens strain FZB24*	2.32
32	*Cyflufenamid*	1.57
33	*Bifenazate*	1.29
34	*Beauveria basiana GHA / ATCC 74040*	1.20
35	*Laminarin*	0.73
36	*Sulfoxaflor*	0.59
37	*Flonicamid*	0.58
38	*Carfentrazone-ethyl*	0.53
39	*Metaldehyde*	0.41
40	*Abamectin*	0.35

Table 39. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for non-protected strawberries, 2023.

Crop	*Active Ingredient*	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Non-protected strawberries	***Fungicides***			
	Bupirimate	0.19	1.13	0.38
	Dimethomorph	0.38	0.75	0.38
	Fenhexamid	2.46	3.47	0.89
	Potassium bicarbonate	1.12	1.50	0.38
	Pyrimethanil	0.30	0.75	0.38
	Herbicides			
	Glyphosate	0.28	0.52	0.52
	Insecticides			
	Lambda-cyhalothrin	0.00	0.75	0.38
	Molluscicides			
	Metaldehyde	0.04	0.38	0.38

Table 40. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for protected strawberries, 2023.

Crop	*Active Ingredient*	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Protected strawberries	***Fungicides***			
	Azoxystrobin	21.63	96.29	49.32
	Bacillus amyloliquefaciens subsp. plantarum s	19.43	31.08	10.36
	Bacillus pumilus QST 2808	2.96	20.72	10.36
	Boscalid	35.44	113.31	56.09
	Bupirimate	21.81	95.61	54.85
	Cyflufenamid	1.44	95.73	50.87
	Cyprodinil	43.05	134.95	59.87
	Difenoconazole	6.89	138.34	59.82
	Dimethomorph	23.07	21.80	21.80
	Fenhexamid	43.87	105.79	62.36
	Fludioxonil	28.69	134.95	59.87
	Fluxapyroxad	3.83	103.44	59.74
	Kresoxim-methyl	6.47	44.10	22.76
	Laminarin	0.70	20.72	10.36
	Mepanipyrim	24.42	61.45	44.16
	Potassium bicarbonate	9.09	26.45	26.45
	Proquinazid	3.19	72.01	47.65
	Pyraclostrobin	8.89	113.31	56.09
	Pyrimethanil	24.97	35.85	25.37
	Sulphur	12.98	34.53	17.27
	Herbicides			
	Carfentrazone-ethyl	0.50	10.36	10.36
	Flazasulfuron	0.31	10.36	10.36
	Glyphosate	2.44	2.26	2.26
	Insecticides			
	Abamectin	0.31	43.35	26.09
	Bifenazate	1.20	12.52	12.51
	Clofentezine	3.48	17.39	17.39
	Deltamethrin	0.13	17.27	17.27
	Fatty acids	49.71	10.36	10.36
	Lambda-cyhalothrin	0.14	18.98	1.73
	Spinosad	4.21	65.48	26.93
	Spirotetramat	2.83	70.74	49.08
	Sulfoxaflor	0.59	42.85	21.47
	Biological Controls			
	B. thuringiensis (BC)	9.28	43.35	26.09
	Bacillus amyloliquefaciens strain FZB24	2.27	50.63	33.32
	Bacillus subtilis	6.44	82.90	35.22
	Beauveria basiana GHA / ATCC 74040	1.20	5.58	5.58
	Encarsia formosa	3.24	3.24	3.24
	Neoseiulus cucumeris	85.924	20.72	10.36

Table 41. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for semi-protected strawberries, 2023.

Crop	*Active Ingredient*	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Semi-protected strawberries	***Fungicides***			
	Azoxystrobin	5.73	26.85	26.53
	Boscalid	0.97	2.65	2.52
	Bupirimate	1.00	3.99	2.00
	Cyflufenamid	0.13	8.96	2.52
	Cyprodinil	8.52	26.63	26.44
	Difenoconazole	0.01	0.37	0.13
	Fenhexamid	6.19	8.44	2.13
	Fludioxonil	5.68	26.63	26.44
	Fluxapyroxad	0.01	0.37	0.13
	Kresoxim-methyl	0.04	0.29	0.16
	Mepanipyrim	3.33	8.34	2.35
	Myclobutanil	0.13	2.00	2.00
	Potassium bicarbonate	0.03	0.13	0.13
	Proquinazid	0.24	6.46	2.46
	Pyraclostrobin	0.25	2.65	2.52
	Pyrimethanil	19.49	28.26	28.26
	Insecticides			
	Abamectin	0.04	5.99	2.00
	Clofentezine	0.04	0.17	0.17
	Spinosad	0.45	6.13	2.14
	Spirotetramat	0.02	0.47	0.41
	Biological controls			
	Bacillus subtilis	0.02	0.26	0.13

Table 42. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for non-protected raspberries, 2023.

Crop	*Active Ingredient*	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Non-protected raspberries	***Fungicides***			
	Azoxystrobin	0.27	1.34	1.34
	Bupirimate	0.90	3.59	2.09
	Difenoconazole	0.17	1.34	1.34
	Fenhexamid	7.12	9.50	1.58
	Pyrimethanil	2.74	3.43	2.09
	Herbicides			
	Glyphosate	5.68	4.26	2.92
	Napropamide	0.84	0.75	0.75
	Insecticides			
	Deltamethrin	0.01	1.50	0.75
	Spinosad	0.10	1.34	1.34
	Molluscicides			
	Metaldehyde	0.15	0.75	0.75

Table 43. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for protected raspberries, 2023.

Crop	*Active Ingredient*	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Protected raspberries	***Fungicides***			
	Azoxystrobin	1.07	4.63	3.02
	Bacillus amyloliquefaciens subsp. plantarum s	1.12	1.79	0.90
	Bacillus pumilus QST 2808	0.26	1.79	0.90
	Bupirimate	0.29	1.17	1.17
	Cyprodinil	2.48	6.70	3.92
	Difenoconazole	0.15	2.05	2.05
	Dimethomorph	1.34	0.90	0.90
	Fenhexamid	1.12	2.33	2.33
	Fludioxonil	1.66	6.70	3.92
	Fluxapyroxad	0.04	0.90	0.90
	Laminarin	0.03	0.90	0.90
	Mepanipyrim	0.37	0.91	0.91
	Potassium bicarbonate	0.20	0.27	0.27
	Pyrimethanil	0.22	0.27	0.27
	Herbicides			
	Carfentrazone-ethyl	0.03	1.59	1.59
	Insecticides			
	Bifenazate	0.09	0.90	0.90
	Clofentezine	0.38	2.05	2.05
	Flonicamid	0.16	2.30	1.15
	Spinosad	0.00	0.02	0.02
	Spirotetramat	0.07	1.82	0.91
	Biological controls			
	Azadirachtin	0.07	1.79	0.90
	B. thuringiensis (BC)	0.85	2.46	1.57
	Bacillus amyloliquefaciens strain FZB24	0.04	0.90	0.90
	Bacillus subtilis	0.24	3.21	2.32
	Neoseiulus cucumeris	1.12	0.27	0.27

Table 44. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for semi-protected raspberries, 2023.

Crop	*Active Ingredient*	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Semi-protected raspberries	***Insecticides***			
	Flonicamid	0.30	4.33	4.33
	Spinosad	0.31	4.33	4.33
	Biological controls			
	Bacillus subtilis	0.46	4.33	4.33

Table 45. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for non-protected blackcurrants, 2023.

Crop	*Active Ingredient*	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Non-protected blackcurrants	***Fungicides***			
	Boscalid	0.30	0.75	0.75
	Bupirimate	0.75	3.00	0.75
	Pyraclostrobin	0.08	0.75	0.75
	Pyrimethanil	0.60	0.75	0.75
	Sulphur	142.02	21.85	21.85
	Insecticides			
	Lambda-cyhalothrin	0.01	1.50	0.75
	Biological controls			
	Phasmarhabditis hermaphrodita	3.75	0.75	0.75

Table 46. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for other non-protected soft fruit crops, 2023.

Crop	*Active Ingredient*	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Other non-protected crops	***Fungicides***			
	Bupirimate	1.35	8.75	3.25
	Dimethomorph	2.25	4.50	2.25
	Fenhexamid	1.74	3.45	2.45
	Pyrimethanil	0.90	2.25	2.25
	Herbicides			
	Glyphosate	3.60	2.00	1.00
	Napropamide	2.53	2.25	2.25
	Insecticides			
	Deltamethrin	0.03	4.50	2.25
	Molluscicides			
	Metaldehyde	0.23	2.25	2.25

Table 47. Estimated quantity (kg), spray area (spha) and basic area (ha) of active substance for other protected and semi-protected soft fruit crops, 2023.

Crop	*Active Ingredient*	Quantity (kg) applied	Treated area (sp ha)	Basic area (ha) treated
Other protected and semi-protected crops	***Fungicides***			
	Azoxystrobin	0.20	0.91	0.46
	Bacillus amyloliquefaciens subsp. plantarum s	23.74	37.99	12.66
	Bacillus pumilus QST 2808	7.24	50.65	12.66
	Bupirimate	3.17	12.66	12.66
	Cyprodinil	9.73	26.00	13.12
	Difenoconazole	0.02	0.23	0.23
	Dimethomorph	1.84	1.23	1.23
	Fenhexamid	6.33	12.66	12.66
	Fludioxonil	6.48	26.00	13.12
	Kresoxim-methyl	1.90	12.66	12.66
	Mepanipyrim	10.23	25.32	12.66
	Pyrimethanil	11.11	13.89	13.89
	Herbicides			
	Deltamethrin	0.08	12.66	12.66
	Fatty acids	121.50	25.32	12.66
	Flonicamid	0.12	1.92	1.46
	Lambda-cyhalothrin	0.10	12.66	12.66
	Spinosad	1.03	13.89	13.89
	Spirotetramat	0.51	12.66	12.66
	Biological controls			
	B. thuringiensis (BC)	4.75	12.66	12.66
	Bacillus subtilis	1.51	14.35	14.12

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References

Pesticide Control Service, Department of Agriculture and Food Laboratories (2015), *Pesticide Usage Survey*, *Report Number 1*, *Soft Fruit Crops*, *(2014).*

Pesticide Control Service, Department of Agriculture and Food Laboratories (2019), *Pesticide Usage Survey*, *Report Number 2*, *Soft Fruit Crops*, *(2018).*