

Food Residues Survey Programme Report

Results for 2024-2025 for plant-based foods

New Zealand Food Safety Technical Paper No: 2026/11

By New Zealand Food Safety

ISBN No: 978-1-997309-24-6 (online)

ISSN No: 2624-022X (online)

March 2026

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1 Summary

The New Zealand Food Safety Food Residues Survey Programme objective is to monitor agricultural chemical residues in plant-based foods grown (domestic) and imported, that are for sale in New Zealand. The programme targets those foods not covered by other New Zealand Food Safety monitoring programmes.

This report covers the sampling, testing, results, and actions undertaken in the 2024-2025 programme.

There were 300 samples tested for over 500 compounds and 151,524 test results reported. There were ten non-compliant test results from six samples reported above the maximum residue level (MRL). The ten non-compliant test results are less than 0.01% of total test results reported. New Zealand Food Safety assessed the non-compliant test results and found no food safety risks associated with the samples tested.

New Zealand Food Safety traced the non-compliant test results of domestic samples back to the respective growers and reviewed the food production systems and processes. Targeted visits of production sites occurred where previous non-compliant test results for the same grower had been found.

New Zealand Food Safety identified consistent findings from the tracebacks:

- some non-compliant test results were due to incorrect off-label use by growers; and
- some non-compliant test results were from growers not recognising and managing sources of residues.

The conformance rate for test results from the 2024-2025 programme is greater than 99.99% and this aligns with previous rates. The 2024-2025 programme supports the conclusion that domestic foods for sale in New Zealand are safe to eat and conform with good agricultural practices, and that imported foods meet the New Zealand requirements.

2 Regulatory framework

New Zealand Food Safety is a business unit of the Ministry for Primary Industries.

New Zealand Food Safety operates the Food Residues Survey Programme under the regulatory framework established by the Food Act 2014¹ and Food Regulations 2015².

Domestic foods sold in New Zealand must comply with the Food Notice: Maximum Residue Levels for Agricultural Compounds³ (MRL Notice) which sets the New Zealand regulatory levels for agricultural chemical residues. Agricultural compounds which are not prohibited and do not have a regulatory level in the MRL Notice have a default residue level of 0.1 mg/kg.

Imported foods (unless from Australia) sold in New Zealand must comply with New Zealand requirements:

- Codex Maximum Residue Limits for Pesticides⁴;
- the MRL Notice; or
- in specific situations a default residue level of 0.1 mg/kg.

Imported foods from Australia⁵ must comply with either New Zealand requirements or the Food Standards Australia New Zealand code (FSANZ).

The requirement for food imported into New Zealand to comply with Codex Maximum Residue Limits recognises that MRLs for the same authorised agricultural chemical use can vary between countries

¹ [Food Act 2014](#)

² [Food Regulations 2015](#)

³ [MRL Notice](#)

⁴ [Codex MRL for Pesticides](#)

⁵ [MRLs for food traded between New Zealand and Australia](#)

due to differences in climate, environment and pest pressure, as well as the range of agricultural chemicals each country authorises.

3 Programme design

New Zealand Food Safety uses the Codex Alimentarius classification of commodities⁶ as a basis for the types of foods to be sampled in the programme. Each year between five to seven of these commodity classes form the sampling plan. Codex Alimentarius recently updated the classifications for commodities of plant origin, publishing the revised classifications in 2025. The updated classifications will form the basis of future sampling plans.

Each annual sampling plan collects 300 samples and tests for agricultural chemical residues. Samples are collected under the direction of New Zealand Food Safety.

New Zealand Food Safety contracts a laboratory using ISO/IEC 17025 accredited test methods for agricultural chemicals. Each sample is tested for more than 500 compounds.

New Zealand Food Safety assesses all test results against the relevant MRL and performs a dietary exposure assessment on the non-compliant test results.

New Zealand Food Safety begins a traceback when a non-compliant test result is reported, requesting growers identify the cause of the non-compliant test result. This includes a review of spray diaries, application rates and timings, what agricultural chemicals were used, and how and when they were used.

New Zealand Food Safety's actions include providing education on the correct use of agricultural chemicals, such as explaining the requirements for off-label use. This may be escalated to include an on-site visit when there are repeated non-compliant test results from the same grower.

When non-compliant test results are reported in imported foods, New Zealand Food Safety provides educational letters to food importers about meeting MRL requirements when selling foods in the New Zealand market.

New Zealand Food Safety uses the information from the programme to review the regulatory controls on agricultural chemicals.

4 Sampling and testing

The 2024-2025 sampling plan is on the MPI website⁷. Foods were sampled from retail outlets and distributors such as packhouses and wholesalers.

A total of 251 domestic samples and 49 imported samples were collected. The Appendix sets out numbers of the foods sampled, along with the Codex Alimentarius classification category and source (domestic or imported).

5 Results

A total of 151,524 test results were reported.

There were ten non-compliant test results from six domestic samples. All test results from imported samples were compliant. The ten non-compliant test results are less than 0.01% of the total reported results. There were no food safety risks associated with the non-compliant test results.

New Zealand Food Safety identified consistent findings in the tracebacks:

⁶ [Classification of foods and animal feeds CXA 4-1989](#)

⁷ [Food Residues Survey Programme 2024/2025 sampling plan](#)

- Some were due to residue levels that exceeded the MRL when growers applied agricultural chemicals off-label (i.e., applying it differently from the approved label directions). Off-label use is allowed by authorisation conditions for most agricultural chemicals. However, growers must ensure that any residues resulting from off-label use do not exceed the MRL; and
- Some were due to growers not recognising and managing sources of residues.

5.1 NON-COMPLIANT TEST RESULTS IN DOMESTIC SAMPLES

New Zealand Food Safety's dietary exposure assessments confirmed no food safety risks associated with the non-compliant results (all from domestic samples).

In cases where incorrect agricultural chemical use had occurred, New Zealand Food Safety's actions included providing education on the correct use, and any requirements for off-label use.

In some cases, New Zealand Food Safety's actions were based on the outcome of an on-site investigation.

The following non-compliant residues were reported, and tracebacks were undertaken:

Acephate is an organophosphate insecticide. It is authorised in New Zealand for specified crops, with a registration condition on trade name products to prevent off-label use. Acephate (2.6 mg/kg) was reported in a sample of lettuce above the New Zealand MRL of 2.0 mg/kg (in force when the result was reported). This sample of lettuce also had one other non-compliant residue, metalaxyl.

Metalaxyl is a fungicide. It is authorised in New Zealand to control fungal diseases in a range of fruits, vegetables, and cereal grains. Metalaxyl (0.48 mg/kg) was reported in this sample of lettuce above the New Zealand MRL of 0.1 mg/kg.

New Zealand Food Safety worked with the grower and reviewed the spray diaries and relevant records. Through the process, the grower identified that acephate had been used on-label but could not identify the reason for the non-compliant result. The grower was also unable to identify the source of the metalaxyl residue. The grower had not managed the source of residues for either agricultural chemical.

Bifenthrin is an insecticide. It is authorised in New Zealand to control pests in a range of fruits and vegetables. Bifenthrin (0.22 mg/kg) was reported in a sample of spinach above the New Zealand MRL of 0.1 mg/kg. This sample of spinach also had one other non-compliant residue, fipronil.

Fipronil is an insecticide. It is authorised in New Zealand to control pests in a range of fruits and vegetables. Fipronil (0.18 mg/kg) was reported in this sample of spinach above the New Zealand MRL of 0.1 mg/kg.

New Zealand Food Safety worked with the packhouse and the grower and reviewed spray diaries and relevant records. Through the process, the grower was unable to identify the sources of the bifenthrin and fipronil residues. The grower had not managed the source of residues for either agricultural chemical.

Cyantraniliprole is an insecticide. It is authorised in New Zealand to control pests in a range of vegetables. Cyantraniliprole (0.2 mg/kg) was reported in a sample of watercress above the New Zealand MRL of 0.1 mg/kg.

New Zealand Food Safety worked with the grower and reviewed spray diaries and relevant records. Through the process, the grower identified that spray drift was the source of the residue. The grower had not managed the source of residues.

Imidacloprid is an insecticide. It is authorised in New Zealand to control insects in a range of fruits and vegetables. Imidacloprid (0.36 mg/kg) was reported in a sample of watercress above the New Zealand MRL of 0.1 mg/kg. This sample of watercress also had one other non-compliant residue, indoxacarb.

Indoxacarb is an insecticide. It is authorised in New Zealand to control insects in a range of fruits and vegetables. Indoxacarb (1.8 mg/kg) was reported in this sample of watercress above the New Zealand MRL of 0.1 mg/kg.

New Zealand Food Safety worked with the grower and reviewed spray diaries and relevant records. Through the process, the grower identified cross contamination of imidacloprid from a mixing tank. The grower also identified incorrect off-label use of indoxacarb. The grower had not managed the source of residues for either agricultural chemical.

Pyriproxyfen is an insect growth regulator. It is authorised in New Zealand to control white fly on indoor tomatoes and indoor cucumbers. Pyriproxyfen (0.28 mg/kg) was reported in a sample of beans above the New Zealand MRL of 0.1 mg/kg. This sample of beans also had one other non-compliant residue, sulfoxaflor.

Sulfoxaflor is an insecticide. It is authorised in New Zealand to control pests in a range of vegetables and cereal grains. Sulfoxaflor (1.3 mg/kg) was reported in this sample of beans above the New Zealand MRL of 0.1 mg/kg.

New Zealand Food Safety worked with the grower and reviewed spray diaries and relevant records. Through the process, the grower identified incorrect off-label uses of pyriproxyfen and sulfoxaflor. The grower had not managed the source of residues for either agricultural chemical.

Sulfoxaflor (1.2 mg/kg) was reported in a sample of lettuce above the New Zealand MRL of 1.0 mg/kg.

New Zealand Food Safety worked with the grower and reviewed spray diaries and relevant records. Through the process, the grower identified that sulfoxaflor had been used on-label but could not identify the reason for the non-compliant result. The grower had not managed the source of residues.

6 Conclusion

The overall rate of conformance of greater than 99.99% for the 2024-2025 programme aligns with previous rates (refer Table 8). This supports the conclusion that domestic foods for sale in New Zealand are safe to eat and conform with good agricultural practices, and that imported foods meet the New Zealand requirements.

7 Results tables

Table 6. Summary of non-compliant residue results from incorrect off-label use

Residue detected	Codex classification – sample type tested	Test result (mg/kg)	NZ MRL (mg/kg)
Indoxacarb	Leafy vegetables – watercress ⁸	1.8	0.1
Pyriproxyfen	Legume vegetables - beans ⁹	0.28	0.1
Sulfoxaflor	Legume vegetables - beans ⁹	1.3	0.1

Table 7. Summary of non-compliant residue results from grower not managing the source of residues

Residue detected	Codex classification – sample type tested	Test result (mg/kg)	NZ MRL (mg/kg)
Acephate	Leafy vegetables – lettuce ¹⁰	2.6	2.0
Bifenthrin	Leafy vegetables - spinach ¹¹	0.22	0.1
Cyantraniliprole	Leafy vegetables – watercress	0.2	0.1
Fipronil	Leafy vegetables – spinach ¹¹	0.18	0.1
Imidacloprid	Leafy vegetables – watercress ⁸	0.36	0.1
Metalaxyl	Leafy vegetables, – lettuce ¹⁰	0.48	0.1
Sulfoxaflor	Leafy vegetables – lettuce	1.2	1.0

Table 8. Conformance rate

Sampling period	Number of samples	Number of results	Number of non-compliant test results	Conformance rate (%)
2022-2023	300	147,063	33	99.98
2023-2024	300	157,623	10	99.99
2024-2025	300	151,524	10	99.99

⁸ One sample of watercress with two non-compliant residues

⁹ One sample of beans with two non-compliant residues

¹⁰ One sample of lettuce with two non-compliant residues

¹¹ One sample of spinach with two non-compliant residues

8 Appendix: More information on FRSP samples

Table 1: Source of 'Assorted tropical and sub-tropical fruits' samples

Assorted tropical and sub-tropical fruits	New Zealand	Imported	Total
Avocados	10	nil	10
Bananas	nil	Ecuador (10), Mexico (1), The Philippines (1)	12
Feijoas	7	nil	7
Kiwifruit	12	nil	12
Mangoes	nil	Australia (3), Mexico (1) Peru (3)	7
Papaya	nil	The Philippines (2)	2
Passionfruit	2	nil	2
Pineapples	nil	Costa Rica (2), Ecuador (1), The Philippines (1)	4
Tamarillos	4	nil	4
Total	35	25	60

Table 2: Source of 'Citrus fruit' samples

Citrus fruit	New Zealand	Imported	Total
Grapefruit	1	nil	1
Lemons	14	United States (1)	15
Limes	3	nil	3
Mandarins	13	Australia (4), United States (2)	19
Oranges	14	United States (4)	18
Tangelos	2	Australia (1), United States (1)	4
Total	47	13	60

Table 3: Source of 'Leafy vegetables' samples

Leafy vegetables	New Zealand	Imported	Total
Baby leaves	2	nil	2
Chard	7	nil	7
Choisum	1	nil	1
Kale	2	nil	2
Lettuce	27	nil	27
Mustard greens	1	nil	1
Pak-choi	5	nil	5
Spinach	5	nil	3
Sprouts	6	nil	6
Watercress	2	nil	2
Witloof	1	nil	1
Total	59	0	59

Table 4: Source of 'Legume vegetables' samples

Legume vegetables	New Zealand	Imported	Total
Beans	16	Australia (4), China (2)	22
Peas	4	United States (1)	5
Succulent beans without pods	3	China (2), United Kingdom (1)	6
Succulent peas without pods	25	Republic of Türkiye (1)	26
Total	48	11	59

Table 5: Source of 'Stone fruits' samples

Stone fruits	New Zealand	Imported	Total
Apricots	8	nil	8
Cherries	11	nil	11
Nectarines	15	nil	15
Peaches	15	nil	15
Plums	13	nil	13
Total	62	0	62