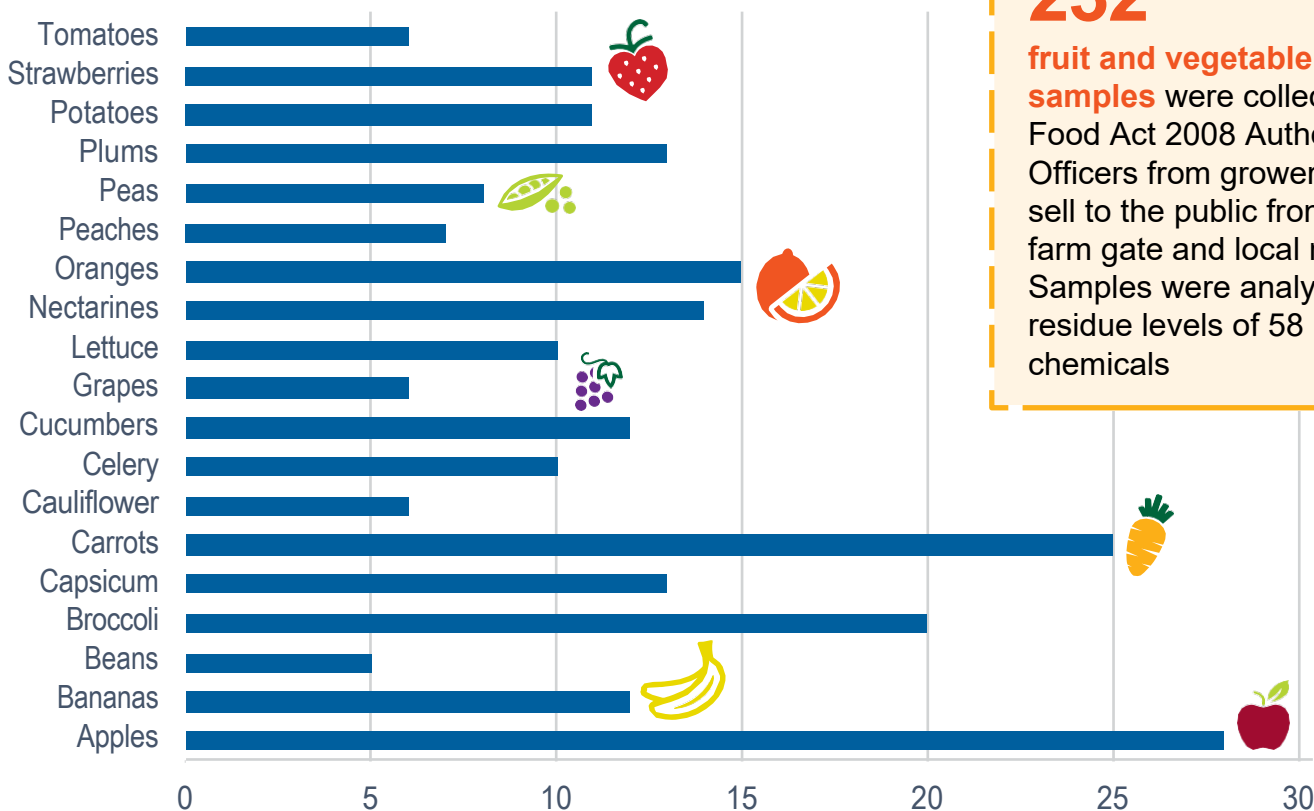




# 2020 Agricultural Chemical Residue Survey of Fresh Fruits and Vegetables

This survey monitored the level of agricultural chemical residues in whole, fresh fruit and vegetables available for sale, for compliance with prescribed Maximum Residue Limits (MRLs). The Department of Health partnered with sixteen local governments to collect samples for analysis, investigate non-compliances with the MRLs, identify food safety risks and determine appropriate corrective actions.

## Fruits and vegetables analysed



**232** fruit and vegetable samples were collected by Food Act 2008 Authorised Officers from growers who sell to the public from the farm gate and local markets. Samples were analysed for residue levels of 58 chemicals

### 3 samples exceeded MRLs

Summary of investigation findings:

- \* Possible cross contamination during sample collection or from residues on food contact surfaces and equipment.
- \* Insufficient batch information however it is possible the sample was collected during the withholding period.

## Maximum residue levels were exceeded in



**99%** of samples analysed were compliant with MRLs permitted for that food

## Background

All foods sold in Australia must comply with the requirements of the [Australia New Zealand Food Standards Code](#) (the Code). The Code defines 'maximum residue limits' (MRLs) for agricultural chemicals permitted on specific foods and a large safety margin is included in the MRL. Additional information on MRLs and how they are set for foods is available on the Food Standards Australia New Zealand [website](#). Foods that comply with the MRL indicate they have been grown using good agricultural practice. A food cannot legally be sold if it contains an agricultural chemical residue where there is no defined MRL or where the level exceeds the MRL in the Code.

Agricultural chemicals are used in food production to control insect pests, fungal diseases and weeds. Whilst agricultural chemicals play an important role in food production by controlling pests and disease, they should also be safe for people and the environment. The Australian Pesticides and Veterinary Medicines Authority (APVMA) is the statutory authority responsible for the regulation of agricultural and veterinary chemicals up to the point of retail sale. The APVMA has responsibility for determining, through a detailed assessment process, that a chemical is safe to users, consumers, the environment and trade before it is registered for use within Australia. In WA, residue monitoring data is shared between the Department of Health (DoH), local government enforcement agencies and Department of Primary Industries and Regional Development (DPIRD).

The Western Australia Food Monitoring Program (WAFMP) conducts regular surveys to investigate agricultural chemical residue levels on fresh fruit and vegetables, the first of which was undertaken in 1988. The DoH currently shares the responsibility of administering the requirements of the Code with the 137 local governments in WA.

The 2020 survey forms part of routine surveillance and monitoring activities managed under the WAFMP by the DoH. Results of these surveys are not intended to be used as evidence to undertake enforcement action, but rather to inform food businesses and enforcement agencies where food safety measures or corrective actions are needed and to inform future monitoring programs.

## Survey Purpose

The survey undertaken in 2020 aimed to:

1. Monitor the level of agricultural chemical residues on fresh fruit and vegetables available for sale, for compliance with the MRLs prescribed under Standard 1.4.2 – Maximum Residue Limits of the Code.
2. Work with local government to investigate non-compliance with the MRLs, identify food safety risks and determine appropriate corrective actions.
3. Provide feedback to fruit and vegetable industries.
4. Share residue monitoring data with DPIRD and Pesticides Advisory Committee (PeAC) to coordinate pesticide legislation and policies and provide advice to the Australian Government, where necessary.
5. Inform future compliance programs.

## Survey scope

The scope of the 2020 survey included the following:

### Businesses

Individual fruit and vegetable growers in Western Australia who sell whole fresh fruits and vegetables direct to the public.

## Samples

Apples, bananas, beans, broccoli, capsicum, carrots, cauliflower, celery, cucumber, grapes, lettuce, nectarines, oranges, peaches, peas, plums, potatoes, strawberries and tomatoes.

## Chemicals

2,4-D, \*Acephate, alpha-Endosulfan, Azinphos methyl, \*Azoxystrobin, beta-Endosulfan, Bifenthrin, Captan, Carbaryl, Carbendazim, Chinomethionat (oxythioquinox), Chlorpyrifos, \*Cyhalothrin, Cypermethrin, Cyprodinil, Diazinon, Dichlorvos, Dicofol, Dimethoate, Diphenylamine, Endrin, Ethephon, Fenamiphos, Fenthion, Fipronil, \*Fluazifop-p-butyl, Flusilazole, Imazalil, \*Imidacloprid, \*Indoxacarb, Iprodione, Malathion, Metalaxyl, Methamidophos, Methidathion, Methiocarb, Methomyl, Mevinphos, Myclobutanil, Parathion Methyl, Pendimethalin, Permethrin, Phorate, \*Piperonyl Butoxide, \*Pirimicarb, Prochloraz, Propargite, Propiconazole, \*Prothiofos, \*Pyrimethanil, Spirotetramat, Fluvalinate, Tebuconazole, Tetradifon, \*Thiabendazole, Triadimefon, \*Triadimenol, Triforine.

\*New actives that have been included in the suite for the 2020 pesticide chemical survey.

## Survey findings

### ***Food safety risks associated with agricultural chemical residue levels on fresh fruits and vegetables are low and are managed appropriately by industry-based food safety schemes.***

Throughout 2020, a total of 232 fruit and vegetable samples were collected by Food Act Authorised Officers from growers within Western Australia who sell fresh produce directly to the public from the farm gate or at a local market. Samples were analysed for residue levels of 58 different active ingredients in agricultural chemicals. A total of 229 samples (99%) were found to be compliant with the MRLs permitted in those foods, demonstrating good agricultural practices are being followed by local growers.

### ***Follow-up investigation of non-compliant samples identified cross contamination as a potential cause of chemical residues exceeding the permitted levels in foods.***

Three samples (1%) analysed were found to exceed maximum residue limits (MRLs) prescribed for those foods under Standard 1.4.2 – Maximum Residue Limits of the Code. These included a broccoli, nectarine and peach sample. All three non-compliant samples had established MRL's listed for the commodities in which they were found, and all detected residues were below levels that could pose a health and safety risk to consumers.

Two of the three non-compliant samples had exceeded the MRL for “*All other foods except animal food commodities*” for that specific agricultural chemical active ingredient. The MRL for “*All other foods except animal food commodities*” was established to capture low level in detections from inadvertent exposure in foods. Inadvertent exposures may occur from spray drift or crop rotation<sup>1</sup>. Follow-up investigations identified possible cross contamination may have occurred during handling or when residues remain on food contact surfaces and equipment.

An investigation into the third non-compliant sample could not be completed due to insufficient information obtained during sample collection. It is possible that the sample was collected within the withholding period (the minimum time between the last use of the chemical and the harvesting of the crop).

The 2020 survey non-compliance rate (1%) was lower than the 2017-18 survey non-compliance rate (4%) and previous surveys (10% average non-compliance rate).<sup>2</sup>

## Outcomes

The DoH will continue to manage food safety risks associated with agricultural chemical residues used in horticulture by maintaining the following activities:

- Membership on the Food Regulation Standing Committee to consult on the national assessment of knowledge and evidence gaps related to horticultural food safety, including horticultural supply chains, quality assurance and traceability.
- Share residue monitoring data and provide feedback to industry.
- Work with local government enforcement agencies to investigate non-compliance with the MRLs prescribed in the Code to establish food safety risks and the appropriate corrective actions required.
- Work with DPIRD to engage with industry to assist in maintaining good agricultural practice and improve incident response capability.
- Share residue monitoring data with the PeAC to coordinate pesticide legislation and policies.

## Acknowledgements

City of Armadale, Shire of Augusta Margaret River, City of Busselton, City of Canning, Shire of Dumbleyung, Shire of Harvey, City of Joondalup, City of Kalamunda, City of Kwinana, Shire of Nannup, Shire of Serpentine-Jarrahdale, City of Stirling, City of Vincent, Shire of Wagin, City of Wanneroo and Shire of Williams.

## References

1. Food Standards Australia New Zealand Food (October 2016) *Approval report – Proposal P1027; Managing Low-level Ag & Vet Chemicals without MRLs*, accessed from <https://www.foodstandards.gov.au/code/proposals/Documents/P1027%20Low%20level%20Ag%20and%20Vet%20Chems%20AppR.pdf>
2. Department of Health Western Australia (2016) *Western Australian Food Monitoring Program: Monitoring Agricultural Chemical Residue Levels in Fresh Fruits and Vegetables*, available from <https://ww2.health.wa.gov.au/-/media/Files/Corporate/general-documents/food/PDF/Monitoring-agricultural-chemical-residue-levels-updated18Feb.pdf>

**This document can be made available in alternative formats on request for a person with disability.**

© Department of Health 2021

Copyright to this material is vested in the State of Western Australia unless otherwise indicated. Apart from any fair dealing for the purposes of private study, research, criticism or review, as permitted under the provisions of the *Copyright Act 1968*, no part may be reproduced or re-used for any purposes whatsoever without written permission of the State of Western Australia.