



Sweet Potato

Strategic Agrichemical Review Process
(SARP)

February 2023

Hort Innovation
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Purpose of the report:

This report was funded by Hort Innovation to investigate the pest problem, agrichemical usage and pest management alternatives for the sweet potato industry across Australia. The information in this report will assist the industry with its agrichemical selection and usage into the future.

Date of report:

February 2023

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Innovation**
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1. Summary

A Strategic Agrichemical Review Process (SARP), through the process of a desktop audit and industry liaison;

- (i) Assesses the importance of the diseases, insects and weeds (plant pests) that can affect a horticultural industry;
- (ii) Evaluates the availability and effectiveness of fungicides, insecticides and herbicides (pesticides) to control the plant pests;
- (iii) Determines any gaps in the pest control strategy and
- (iv) Identifies suitable new or alternatives pesticides to address the gaps.

Alternative pesticides should ideally be selected for benefits of:

- Integrated Pest Management (IPM) compatibility
- Improved scope for resistance management
- Sound biological profile
- Residue and trade acceptance domestically and for export

The results of this process will provide the sweet potato industry with sound pesticide usage for the future that the industry can pursue for registration with the manufacturer, or minor-use permits with the Australian Pesticide and Veterinary Medicines Authority (APVMA).

1.1 Diseases

There were no high priority diseases identified but the following are moderate priority:

Common Name	Scientific Name
Scurf	<i>Monilochaetes infuscans</i>
Bacterial Soft Rot	<i>Erwinia</i> spp.
Fusarium Root Rot	<i>Fusarium solani</i>

1.2 Insects and mites

The high priority insect and mite pests are:

Common Name	Scientific Name
Root Knot Nematode	<i>Meloidogyne</i> spp.
Silverleaf Whitefly	<i>Bemisia tabaci</i>
Wireworms – True & False Wireworms	Elateridae, Tenebrionidae

1.3 Weeds

The high priority weeds identified are:

Common name	Scientific name
Black Pigweed	<i>Trianthema portulacastrum</i>
Nut Grass	<i>Cyperus rotundus</i>

2. The Australian Sweet Potato Industry

The majority of sweet potatoes grown in Australia are produced in Queensland, with smaller volumes grown in Western Australia, northern New South Wales and the Northern Territory. Sweet potatoes can be produced all year round in the major production regions allowing for continual supply of the domestic market.

Total production for the year ending June 2021 was 104,206 tonnes¹. The value of production was \$91.5 m while the wholesale value of the supply was \$104.4 m. with \$81.9 m distributed into retail and \$22.5 m into food service.

There are three main sweet potato varieties grown in Australia for the fresh market. The dominant variety is the Gold Sweet Potato (Beauregard) which accounts for 90% of fresh production, with Red Sweet Potato (Northern Star) making up 7% and Purple Sweet Potato the remaining 3%.

Fresh Sweet Potato Seasonality by State

State	20/21 t	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
New South Wales	11,463												
Queensland	91,701												
Western Australia	1,042												
Availability legend			High		Medium		Low						None

Exports of Australian sweet potatoes are small, accounting for about 1 percent of total production. The largest export destination is the United Arab Emirates (40%), with smaller volumes going to Singapore, Malaysia, Qatar and Hong Kong.

¹ Hort Innovation (2021). Australian Horticulture Statistics Handbook 2020/21. [online] Available at: <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/grower-resources/ha18002-assets/australian-horticulture-statistics-handbook/>

3. Introduction

3.1 Background

Growers of some horticultural crops suffer from a lack of legal access to crop protection products (pesticides). The problem may be that whilst a relatively small crop area is valuable in an agricultural sense, it may not be of sufficient size for Agrichemical companies to justify the expense of registering a product use on that crop. Alternately, the disease, pest, or weed problem may be regional or spasmodic, making Agrichemical companies unwilling to bear the initial high cost of registering suitable pesticides.

Growers may face severe losses from diseases, pests and weeds due to a lack of registered or approved (via a permit) chemical control tools.

Environmental concerns, consumer demands, and public opinion are also significant influences in the marketplace related to pest management practices. Industry IPM practitioners must strive to implement best management practices and tools to incorporate a pest management regime where strategies work in harmony with each other to achieve the desired effects while posing the least risks.

In combination with cultural practices, pesticides are important tools in sweet potato production and respective IPM programs. They control the various diseases, insects and weeds that affect the crop and can cause severe economic loss in modern high intensity growing operations. Pesticides are utilised during establishment and development, and to maximise quality and customer appeal.

As a consequence of the issues facing the sweet potato industry regarding pesticide access, Hort Innovation undertook a review of the pesticide requirements via a Strategic Agrichemical Review Process (SARP) in 2013. The current project is to update the SARP with the latest information and progress.

The SARP process identifies diseases, insect pests and weeds of major concern to the sweet potato industry. Against these threats, available registered or permitted pesticides are evaluated for overall suitability in terms of IPM, resistance, efficacy, trade, human safety and environmental issues. Where tools are unavailable or unsuitable the process aims to identify potential future solutions. Potential new risks to the industry are also identified.

The results will provide the sweet potato industry with a clear outlook of gaps in existing pest control options. This report is not a comprehensive assessment of ALL pests and control methods used in sweet potato but attempts to prioritise the major problems.

Exotic plant pests, not present in Australia, are not addressed in this document.

3.2 Minor use permits and registration

From a pesticide access perspective, sweet potatoes fit within the APVMA crop group 016: Root and Tuber Vegetables, Subgroup 016B: Tuberous and Corm Vegetables. The APVMA classifies sweet potatoes as a minor crop. Therefore, access to minor use permits can be relatively straight forward as long as a reasonable justification is provided in accordance with the APVMA's minor use guidance².

Possible justification for future permit applications could be based on:

- New disease, insect or weed identified as a cropping issue
- No pesticide approved for the problem
- Insufficient options for resistance management
- Current pesticides ineffective due to resistance
- Trade risk - current pesticides unsuitable where crop commodities will be exported
- IPM, environment or OH&S issues
- Loss of pesticides due to removal from market or chemical review restrictions
- Opportunity to extrapolate a use pattern when a new, effective pesticide is registered in another crop
- Alternate pesticide has overseas registration or minor use permit
- Market failure – insufficient return on investment for registrant.

With each of these options, sound, scientific argument is required to justify any new permit applications. Another option for the chestnut industry is for manufacturers to register new pesticides uses in the crop.

² <https://apvma.gov.au/node/10931>

3.3 Methods

The current update of the Sweet Potato Strategic Agrichemical Review Process (SARP), which was last updated in 2014, was conducted by desktop audit using industry information gathered during 2021-2022. The process included gathering, collating and confirming information:

Process of Review	Activity
Industry survey	Preparation and circulation of online industry survey to update priority pests and identify priority control gaps. Survey released: 17 November 2021 Survey closed: 28 February 2022
SARP data updated via a desktop audit	Updated registrations and permits Updated MRL tables Updated available and potential pesticides against low, moderate and high priority pests, including an assessment of their suitability Included information on regulatory risks from MT20007
Captured industry input	Collated and analysed survey results Consolidated and incorporated industry needs and insights

3.4 Results and discussions

3.4.1 Detail

Results and discussions are presented in the body of this document.

3.4.2 Appendices

Refer to additional information in the appendices:

Appendix 1. Products available for disease control in sweet potato

Appendix 2. Products available for control of insects and mites in sweet potato

Appendix 3. Products available for weed control in sweet potato

Appendix 4. Current permits for use in sweet potato

Appendix 5. Sweet potato Maximum Residue Limits (MRLs)

Appendix 6. Sweet potato Agrichemical Regulatory Risk Assessment

4. Diseases, Pests and Weeds of Sweet Potato

Resistance management: To manage the risk of resistance development, integrated disease/pest/weed management (IDM/IPM/IWM) strategies should be adopted. The general principle is to integrate diverse chemical and non-chemical strategies; maximise efficacy; not rely on singular tools and rotate between different modes of action. It is always essential to follow all the label instructions. Specific resistance management strategies may apply. These can be found, along with other useful information, on the CropLife Australia website³.

In Chapter 4 information on regulatory risk derived from project MT20007 (Regulatory support and coordination) has been incorporated.

Some of the suggested options have no overseas MRLs (see Appendix 5).

While care has been taken to ensure the accuracy of the information provided in this document the APVMA registered label and where relevant the APVMA approved permit must always be followed.

³ <https://www.croplife.org.au/resources/programs/resistance-management/>

4.1 Diseases of sweet potato

4.1.1 Disease priorities

Common name	Scientific name
Moderate	
Scurf	<i>Monilochaetes infuscans</i>
Bacterial Soft Rot	<i>Erwinia</i> spp.
Fusarium Root Rot	<i>Fusarium solani</i>
Low	
Alternaria Leaf Spot	<i>Alternaria</i> spp.

There were no high priority diseases identified based on the feedback received, but Scurf, Bacterial Soft Rot and Fusarium Root Rot were nominated as moderate priority. Available and potential products for control of diseases are listed in Section 4.1.2.

Soil-borne diseases are the main issue faced by root vegetable growers. Outbreaks are favoured by warm, wet conditions particularly after rain events and in water-logged areas. Cultural controls are the most effective way to manage soil-borne disease in the longer term. These include crop rotation, cover cropping, general farm hygiene to destroy crop residues and remove weed hosts, and management of fields and irrigation practices to reduce waterlogging.

Resistance Management

Resistance by fungal pathogens to fungicides usually evolves following the intensive use of fungicides for disease control. In any fungal population there are likely to be individuals that have some degree of natural resistance, and which are less susceptible to fungicides, even before the chemicals are used. Resistance arises mainly through the incorrect use of fungicides, which selects for the resistant individuals. Continued use of a fungicide or fungicide chemical group can result in a significant build-up of resistant individuals in the fungal population – to the point where that particular product, or other products from the same chemical group, is no longer effective. In some cases, removal of the selection pressure can result in the fungal population regaining its sensitivity to the fungicide group, but this is not always the case. The risk of fungicide resistance developing varies between different chemical groups and different fungal pathogens, such that specific strategies are recommended for those situations considered to carry the highest risk. Croplife has resistance management strategies in place for various crops and diseases⁴.

⁴ www.croplife.org.au/resources/programs/resistance-management/

4.1.2 Available and potential products for priority diseases

TABLE KEY: Note that blank fields in the table indicate no information has been provided.

Availability		Regulatory risk (refer to Appendix 6)	
A	Available via either registration or permit approval	R1	Short-term: Critical concern over retaining access
P	Potential - a possible candidate to pursue for registration or permit	R2	Medium-term: Maintaining access of significant concern
P-A	Potential, already approved in the crop for another use	R3	Long-term: Potential issues associated with use - Monitoring required
Withholding Period (WHP) – Number of days from last treatment to harvest (H) or Grazing (G)			
Harvest	H	Not Required when used as directed	NR
Grazing	G	No Grazing Permitted	NG

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory Risk
Scurf (<i>Monilochaetes infuscans</i>)							
Priority: Moderate							
Rated as a moderate priority. Scurf is favoured in alkaline to neutral pH soils, causing discoloured dark brown to black areas to develop on storage roots. Internal tissues are not affected. The primary means of spread of the disease is on planting material. Scurf can be managed effectively through an integrated system of sanitation, crop rotation and fungicide treatment of seed roots.							
Thiabendazole (Tecto) PER12047	1	Protectant & Curative	NR	A	ALL (excl. VIC)	Permitted in sweet potato for control of Scurf and Fusarium Root Rot. Make one application only prior to planting of seed roots. Dip seed roots in the suspension for a duration of 1-2 minutes. Permitted in sweet potato for control of Scurf and Fusarium Root Rot. Make one application only prior to storing of seed roots. Apply the suspension as a fine mist over the sweet potatoes prior to storage.	-
<i>Bacillus amyloliquefaciens</i> Strain QST 713 (Serenade Prime Soil Ameliorant and Biofungicide) Bayer	BM 02	Biological	NR	P-A	ALL	Registered in vegetables for application to soil to improve bioavailability of soil resources to horticultural crops.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory Risk
Azoxystrobin	11	Protectant		P		Registered as an in-furrow spray at planting for control of soil-borne Scurf in potatoes.	-
Fludioxonil (Maxim Seed Treatment)	12	Protectant		P		Registered as a seed treatment for control of Scurf in potatoes.	R3
Imazalil (Magnate)	3	Protectant & Curative		P		Registered as a post-harvest treatment for Scurf in potatoes.	-
Pencycuron (Monceren)	20	Protectant		P		Registered as a seed treatment for control of Scurf in potatoes.	-
Bacterial Soft Rot (<i>Erwinia</i> spp.)							
Priority: Moderate							
Rated as a moderate priority. Bacterial Soft Rot causes infected plants to wilt, and can result in a wet, slimy rot in storage roots. Infection occurs through injuries as a result of pest damage or during harvest. Most commonly a post-harvest issue. Control measures include ensuring good soil drainage, control nematodes that can act as vectors, removing plant residues after harvest and crop rotation.							
Copper	M1	Protectant		P		Registered for control of Bacterial Leaf Spot in mangoes, stone fruit, beans, capsicum, brassicas, lettuce and tomatoes.	-
<i>Bacillus amyloliquefaciens</i> strain QST713 (Serenade Opti) Bayer	BM 02	Biological	NR	P		Registered for suppression of Bacterial Spot in fruiting vegetables.	-
<i>Bacillus amyloliquefaciens</i> strain MBI 600 (Serifel) BASF	BM 02	Biological	NR	P		Registered for control of Botrytis in grapevines and strawberries. US registration for control of <i>Erwinia</i> spp. in pome fruit and root & tuber vegetables.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory Risk
Fusarium Root Rot (<i>Fusarium solani</i>)							
Priority: Moderate							
Rated as a moderate priority. <i>Fusarium</i> causes lesions on the root surface and the underlying tissue becomes spongy and brown. Infection usually occurs through wounds, particularly during harvesting. The disease can be managed by an integrated approach using disease-free planting material, crop rotation, avoiding wounding during harvest, sanitation and proper curing after harvest.							
1,3-dichloropropene + Chloropicrin (Agrocelone)	8B	Soil Fumigant	NR	A	ALL	Registered in vegetables as a pre-plant soil fumigant for control of Plant Parasitic Nematodes, Symphylans, Wireworms, soil borne diseases (including <i>Fusarium</i> , <i>Verticillium</i> wilts, <i>Rhizoctonia</i> , & <i>Pythium</i>) and suppression of weeds. <i>For use by professional and registered fumigators only.</i>	-
Dazomet (Basamid)	8F	Soil Fumigant	NR	A	ALL	Registered in crops as a pre-plant soil fumigant for control of soil fungi including <i>Pythium</i> , <i>Phytophthora</i> , <i>Sclerotinia</i> , <i>Sclerotium</i> , <i>Rhizoctonia</i> , <i>Verticillium</i> , <i>Plasmodiophora</i> , <i>Armillaria</i> and <i>Fusarium</i> spp. , Nematodes, plus insects, weeds & soil fungi. <i>For use by professional and registered fumigators only.</i>	-
Metham Sodium	-	Soil Fumigant	NR	A	ALL	Registered in crops as a pre-plant soil fumigant for control of Fungal diseases including <i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> , <i>Phytophthora</i> , <i>Verticillium</i> , <i>Sclerotinia</i> and Club Root of crucifers & Nematodes. <i>For use by professional and registered fumigators only.</i>	-
<i>Streptomyces lydicus</i> WYEC108 (Actinovate) Novozymes Bioag	BM 02	Biological Seed Treatment	NR	A	ALL	Registered as a seed treatment in vegetables for control of <i>Fusarium</i> , <i>Rhizoctonia</i> and <i>Pythium</i> .	-
Thiabendazole (Tecto) PER12047	1	Protectant & Curative	NR	A	ALL (excl. VIC)	Permitted in sweet potato for control of Scurf and Fusarium Root Rot . Make one application only prior to planting of seed roots. Dip seed roots in the suspension for a duration of 1-2 minutes. Permitted in sweet potato for control of Scurf and Fusarium Root Rot . Make one application only prior to storing of seed roots. Apply the suspension as a fine mist over the sweet potatoes prior to storage.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory Risk
<i>Bacillus amyloliquefaciens</i> Strain QST 713 (Serenade Prime Soil Ameliorant and Biofungicide) Bayer	BM 02	Biological	NR	P-A	ALL	Registered in vegetables for application to soil to improve bioavailability of soil resources to horticultural crops.	-
<i>Bacillus amyloliquefaciens</i> strain MBI 600 (Serifel) BASF	BM 02	Biological	NR	P		Registered for control of Botrytis in grapevines and strawberries. US registration for control of Fusarium Wilt in root & tuber vegetables.	-
Alternaria Leaf Spot (<i>Alternaria</i> spp.)							
Priority: Low							
Rated as a low priority. Alternaria is favoured during periods of warm temperatures and alternating wet and dry conditions, or under overhead irrigation. Small brown spots develop on the leaves but the disease rarely causes production losses.							
Penthiopyrad (Fontelis) Corteva	7	Protectant	7 NG	A	ALL	Registered in sweet potato for control of Early Blight / Target Spot (<i>Alternaria</i> spp.) and Powdery Mildew (<i>Erysiphe</i> spp.) Maximum of 2 applications per crop, with a retreatment interval of 7-14 days.	-
Pydiflumetofen + Difenconazole (Miravis Duo) Syngenta	7+3	Protectant & Curative	1 NG	A	ALL	Registered in sweet potato for control of Early Blight / Target Spot (<i>Alternaria</i> spp.) , Powdery Mildew (<i>Erysiphe</i> spp.) and Cercospora Leaf Spot (<i>Cercospora</i> spp.) Maximum of 2 applications per crop, with a retreatment interval of 7-10 days.	R3
Florypicoxamid (Adavelt) Corteva	21	Protectant & Curative		P		Registered for control of Septoria in wheat. New active from Corteva with activity on Septoria, Powdery Mildew, Botrytis, Anthracnose, Alternaria , Scab, Monilinia, Rust and <i>Mycosphaerella</i> spp.	-
Fluopyram + Trifloxystrobin (Luna Sensation) Bayer	7+11	Protectant & Curative		P		Registered for suppression of Alternaria Leaf Blotch in apples and control of <i>Alternaria passiflorae</i> in passionfruit.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory Risk
Fluxapyroxad + Pyraclostrobin (Merivon) BASF	7+11	Protectant & Curative		P		Registered for control of Alternaria Leaf Spot in almonds.	-
Polyoxin D Zinc Salt (Intervene) Nufarm	19	Protectant		P		Registered for control of Grey Mould and Powdery Mildew in grapes and berries, and control of Powdery Mildew and Alternaria in Apples.	-
<i>Bacillus amyloliquefaciens</i> strain MBI 600 (Serifel) BASF	BM 02	Biological	NR	P		Registered for control of <i>Botrytis</i> in grapes and strawberries. US registration for control of Alternaria in artichoke, asparagus, berries, brassica leafy vegetables, bulb vegetables, citrus, cucurbits, pome fruit, stone fruit and tobacco.	-
Mefentrifluconazole (Belanty) BASF	3	Protectant & Curative		P		Registered for control of Black Spot in apples and Powdery Mildew in grapes. US registration for control of Alternaria , <i>Monilinia</i> , <i>Tranzschelia</i> and <i>Wilsonomyces</i> in stone fruit.	-

4.2 Insect, mite and other pests of sweet potato

4.2.1 Insect, mite and other pest priorities

Common name	Scientific name
High	
Root Knot Nematode	<i>Meloidogyne</i> spp.
Silverleaf Whitefly	<i>Bemisia tabaci</i>
Wireworms – True & False Wireworms	Elateridae, Tenebrionidae
Moderate	
Cotton / Melon Aphid	<i>Aphis gossypii</i>
Green Peach Aphid	<i>Myzus persicae</i>
Two Spotted Mite	<i>Tetranychus urticae</i>
Cluster Caterpillar	<i>Spodoptera litura</i>
Fall Armyworm	<i>Spodoptera frugiperda</i>
Sweet Potato Weevil	<i>Cylas formicarius</i>
White Fringed Weevil	<i>Naupactus leucoloma</i>
Vegetable Weevil	<i>Listroderes difficilis</i>
Symphylids	<i>Scutigera immaculata</i>
Low	
Vegetable Leafhopper	<i>Austroasca viridigrisea</i>
Potato Moth	<i>Phthorimaea operculella</i>
Cotton Bollworm	<i>Helicoverpa armigera</i>
Native Budworm	<i>Helicoverpa punctigera</i>
Light Brown Apple Moth	<i>Epiphyas postvittana</i>
Soybean Looper	<i>Thysanoplusia orichalcea</i>
Webworm	<i>Herpetogramma</i> spp.
Cutworms	<i>Agrostis</i> spp.
Black Field Cricket	<i>Teleogryllus commodus</i>
Mole Cricket	Gryllotalpidae
Green Vegetable Bug	<i>Nezara viridula</i>
Rutherglen Bug	<i>Nysius vinitor</i>
Western Flower Thrips	<i>Frankliniella occidentalis</i>

Common name	Scientific name
Plague Thrips	<i>Thrips imaginis</i>
Tomato Thrips	<i>Frankliniella schultzei</i>
Onion Thrips	<i>Thrips tabaci</i>
Wingless Grasshopper	<i>Phaulacridium vittatum</i>
Tomato Potato Psyllid	<i>Bactericera cockerelli</i>
Leafminers	<i>Liriomyza</i> spp.

The high priority insect, mite and other pests identified were Root Knot Nematode, Silverleaf Whitefly and Wireworms (True & False Wireworms). Available and potential products for insect, mite and other pests are listed in Section 4.2.2.

The broad range of insect and mite pests in sweet potato increases the importance of adopting an Integrated Pest Management approach. Pest management strategies should aim to use multiple methods of control, including cultural, biological and chemical measures.

Resistance Management

Insecticide resistance is a risk to effective control for some insect groups, particularly if there is an over-reliance on a limited number of insecticides. Growers should adhere to the resistance management strategies outlined on the CropLife website⁵. Growers should not exceed the maximum number of applications permitted on the insecticide label.

⁵ www.croplife.org.au/resources/programs/resistance-management/

4.2.2 Available and potential products for priority insects and mites

TABLE KEY: Note that blank fields in the table indicate no information has been provided.

Availability		Regulatory risk (refer to Appendix 6)	
A	Available via either registration or permit approval	R1	Short-term: Critical concern over retaining access
P	Potential - a possible candidate to pursue for registration or permit	R2	Medium-term: Maintaining access of significant concern
P-A	Potential, already approved in the crop for another use	R3	Long-term: Potential issues associated with use - Monitoring required
Withholding Period (WHP) – Number of days from last treatment to harvest (H) or Grazing (G)			
Harvest	H	Not Required when used as directed	NR
Grazing	G	No Grazing Permitted	NG
IPM – indicative overall impact on beneficials (based on the Cotton Pest Management Guide 2022-23 and cotton use patterns)			
VL – Very low; L – Low; M – Moderate; H – High; VH – Very High; - not specified			

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Root Knot Nematode (<i>Meloidogyne</i> spp.)								
Priority: High								
Rated as a high priority. Nematodes are microscopic, wormlike soil pests that feed directly on sweet potato roots, particularly during early root development. They cause severe economic damage to sweet potato if not controlled. The use of nematicides can be supplemented with cultural controls, such as crop rotation, use of biofumigants, removing previous crop residues and maintaining weed-free fallows.								
1,3-dichloropropene + Chloropicrin (Agrocelone)	8B	Soil Fumigant	NR	A	ALL	Registered in vegetables as a pre-plant soil fumigant for control of Plant Parasitic Nematodes , Symphylans, Wireworms, soil borne diseases (including <i>Fusarium</i> , <i>Verticillium</i> wilts, <i>Rhizoctonia</i> , & <i>Pythium</i>) and suppression of weeds. <i>For use by professional and registered fumigators only.</i>	-	-
Abamectin (Tervigo) Syngenta	6	Contact	NR	A	ALL	Registered in sweet potato for control of Root Knot Nematode . Apply via trickle irrigation no later than 3 days after transplanting. Follow the initial transplant application with up to 4 applications via the trickle irrigation at 14 day intervals. Do not apply more than 5 applications per crop.	M Bee:H	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Dazomet (Basamid)	8F	Soil Fumigant	NR	A	ALL	Registered in crops as a pre-plant soil fumigant for control of soil fungi including <i>Pythium</i> , <i>Phytophthora</i> , <i>Sclerotinia</i> , <i>Sclerotium</i> , <i>Rhizoctonia</i> , <i>Verticillium</i> , <i>Plasmodiophora</i> , <i>Armillaria</i> and <i>Fusarium</i> spp., Nematodes , plus insects, weeds & soil fungi. <i>For use by professional and registered fumigators only.</i>	-	-
Fluazaindolizine (Salibro Reklemel) Corteva	N-UN	Contact	NR	A	ALL	Registered in sweet potato for control of Root Knot Nematode . Apply either at establishment through trickle irrigation (3 days before to 3 days after planting) or soil applied and incorporated up to 3 days before transplanting. Apply a maximum of 2 applications. A post-plant application can be used at 14-21 days after transplanting following an application at planting through trickle irrigation, or following a planting application of another nematicide.	-	-
Fluensulfone (Nimitz) Adama	-	Contact	NR	A	ALL	Registered in sweet potato for control of Root Knot Nematode . Apply at a minimum of 7 days prior to planting to the soil and incorporate to a depth of 15-20 cm as soon as possible. Do not use more than 1 application per crop.	-	-
Metham Sodium	-	Soil Fumigant	NR	A	ALL	Registered in crops as a pre-plant soil fumigant for control of Fungal diseases including <i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> , <i>Phytophthora</i> , <i>Verticillium</i> , <i>Sclerotinia</i> and Club Root of crucifers & Nematodes . <i>For use by professional and registered fumigators only.</i>	-	-
Oxamyl (Vydate) Corteva	1A	Contact	NR	A	ALL (excl. TAS)	Registered in sweet potato for control of Root Knot Nematode . Apply through trickle irrigation, with an initial application within 7 days of planting, followed by 4 further applications at 14 days intervals.	-	-
Cyclobutrifluram (Tymirium)	TBC			P		Nematicide in development from Syngenta.	-	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Fluopyram (Velum Prime) Bayer	7	Contact		P		Not registered in Australia but has US registration for control of Nematodes in brassica leafy vegetables, bulb vegetables, cucurbits, fruiting vegetables, hops, legume vegetables, pome fruit, potato, sweet potato, small berries, sorghum, stone fruit, strawberries and other low-growing berries, sunflower, tobacco and tree nuts.	-	-
Silverleaf Whitefly (<i>Bemisia tabaci</i>) Priority: High Rated as a high priority. Nymphs and adults are sap-sucking and cause leaf stippling and stunt growth of the plant. Natural enemies are effective at keeping whitefly populations in check. Avoiding the use of disruptive insecticides for control of other pests will assist in managing Silverleaf Whitefly.								
Afidopyropen (Versys) BASF	9D	Ingestion	7	A	ALL	Registered in sweet potato for control of Green Peach Aphid (<i>Myzus persicae</i>), Cabbage Aphid (<i>Brevicoryne brassicae</i>), Currant Lettuce Aphid (<i>Nasonovia ribis-nigr</i>), Cotton Aphid (<i>Aphis gossypii</i>) and suppression of Silverleaf Whitefly (<i>Bemisia tabaci</i>) . Maximum of 2 applications per crop, re-treatment interval not specified.	L Bee:L	-
Flupyradifurone (Sivanto Prime) Bayer	4D	Contact & Ingestion	7	A	ALL	Registered in sweet potato for control of Green Peach Aphid (<i>Myzus persicae</i>) and Silverleaf Whitefly (<i>Bemisia tabaci</i>) . Maximum of 2 applications per year, with a minimum retreatment interval of 7 days.	L Bee:L	-
Garlic + Chilli + Pyrethrins + Piperonyl Butoxide	3A	Contact	1	A	ALL	Registered in vegetables for control of Ants, Aphids, Caterpillars, Earwigs, Whitefly , Thrips and Leafhoppers. Suitable for organic growers. Apply as a cover spray and re-apply as necessary every 2-3 weeks.	VH Bee:H	-
Imidacloprid (Confidor)	4A	Contact & Ingestion	NR	A	ALL	Registered in sweet potato for control of Silverleaf Whitefly . Apply once only, either by sub-surface trickle irrigation at 5-7 days after planting (or 5-7 days from seed emergence if planted from seed), or as a furrow spray pre-plant, applying a narrow band spray centred under the plant row to open furrow not earlier than 5 days prior to planting.	M Bee:M	R2

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Potassium Salts of Fatty Acids (Natrasoap)	-	Contact	NR	A	ALL	Registered in vegetables for control of Aphids, Thrips, Mealybug, Two Spotted Mites, Spider Mite and Whitefly . Maximum number of applications not specified, re-treatment interval 5-7 days.	L Bee:L	-
Pyriproxyfen (Admiral) Sumitomo	7C	IGR / Ingestion	7	A	ALL	Registered in sweet potato for control of Silverleaf Whitefly . Maximum of 2 applications per season, with a minimum re-treatment interval of 14 days.	VL Bee:L	-
Spirotetramat (Movento) Bayer	23	Ingestion	7	A	ALL	Registered in sweet potato for control of Green Peach Aphid and Silverleaf Whitefly . Maximum of 3 applications per season, with a minimum re-treatment interval of 7 days.	M Bee:VL	-
Thiamethoxam + Chlorantraniliprole (Durivo) Syngenta PER87809	4A+28	Contact & Ingestion	35 NG	A	QLD	Permitted in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Corn Earworm, Native Budworm, Cabbage Centre Grub, Cabbage Cluster Caterpillar, Cluster Caterpillar, Soybean Looper, Cabbage Aphid, Green Peach Aphid, Silverleaf Whitefly , Greenhouse Whitefly, Green Vegetable Bug, Western Flower Thrips, Onion Thrips, Potato Moth / Leaf Miner, Tomato Thrips, Brown Sowthistle Aphid, Vegetable Leaf Hopper, Lucerne Leafroller, Leafhoppers /Jassids and Psyllids. Apply 1 application per crop by trickle irrigation at 7-14 days after transplant or emergence of the crop.	M Bee:VH	R2
<i>Beauveria bassiana</i> (Velifer) BASF	UN	Biological	NR	P		Registered for suppression of various pests including Western Flower Thrips, Onion Thrips, Greenhouse Whitefly, Silverleaf Whitefly , Sweet Potato Whitefly, Green Peach Aphid & Two-Spotted Spider Mites in protected vegetables and ornamentals.	L Bee:L	-
<i>Clitoria ternatea</i> Extract (Sero-X) Growth Agriculture	-	Biological		P		Registered in cotton for control of <i>Helicoverpa</i> spp., Green Mirids and Silverleaf Whitefly and in brassica leafy vegetables for control of Diamondback Moth. Label extension has been submitted seeking to add new uses for control of Silverleaf Whitefly and Thrips in brassicas and cucurbits.	L Bee:VL	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Dimpropyridaz (Efficon) BASF	UN			P		Registered for control of Silverleaf Whitefly in cucurbits, fruiting vegetables and cotton.	-	-
Fonicamid (Mainman) ISK	29	Ingestion		P		Registered for control of Aphids and Silverleaf Whitefly in cucurbits; Aphids in potatoes; Aphids and Mealybugs in apples and pears; and Aphids and Mirids in cotton. US registration for control of Aphids and Plant Bugs in legume vegetables.	M Bee:L	-
Wireworms – True & False Wireworms (Elateridae, Tenebrionidae)								
Priority: High								
Rated as a high priority. Wireworms are soil-dwelling pests, and the larvae cause direct feeding damage to sweet potato tubers. False Wireworm larvae cause deeper holes and are most abundant in late winter and spring. True Wireworm damage is characterised by shallow holes in the tubers, most commonly occurring in the winter.								
1,3-dichloropropene + Chloropicrin (Agrocelone)	8B	Soil Fumigant	NR	A	ALL	Registered in vegetables as a pre-plant soil fumigant for control of Plant Parasitic Nematodes, Symphylans, Wireworms , soil borne diseases (including <i>Fusarium</i> , <i>Verticillium</i> wilts, <i>Rhizoctonia</i> , & <i>Pythium</i>) and suppression of weeds. <i>For use by professional and registered fumigators only.</i>	-	-
Bifenthrin (Talstar)	3A	Contact	NR	A	QLD, NSW, SA, WA & NT	Registered in sweet potato for control of Wireworm (<i>Heteroderes</i> spp.) and Sweet Potato Weevil (<i>Cylas formicarius</i>). Apply as a soil surface spray in front of a rotary hoe working at a depth of 30cm at 1-5 days prior to planting.	VH Bee:H	R3
Chlorpyrifos PER14583	1B	Contact	14	A	ALL (excl. VIC)	Permitted in sweet potato for control of Sweet Potato Weevil and Wireworm . Apply pre-plant and incorporate immediately or apply post-plant immediately on observation of infestation. For pre-plant application, incorporate to a depth of 15 cm.	H Bee:H	R1
Fipronil (Regent)	2B	Contact	NR	A	ALL	Registered in sweet potato for control of Wireworm , Mole Cricket and White Fringed Weevil. Apply as a broadcast spray to the soil surface and incorporate to a depth of 15cm prior to planting.	M Bee:VH	R2

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Phorate (Thimet)	1B	Contact	91 G:70	A	ALL	Registered in sweet potato for control of Aphids, Thrips, Jassids, Two-Spotted Mite and Wireworms . Distribute granules evenly in the furrow or band granules on each side of the row at planting time.	H Bee:H	R3
<p>Cotton / Melon Aphid (<i>Aphis gossypii</i>) Green Peach Aphid (<i>Myzus persicae</i>) Priority: Moderate</p> <p>Rated as a moderate priority. Aphids are sap-sucking pests that cause leaf distortion and stunting and will reduce overall plant vigour if present in large numbers. Aphids can also transmit Feathery Mottle Virus.</p>								
Afidopyropen (Versys) BASF	9D	Ingestion	7	A	ALL	Registered in sweet potato for control of Green Peach Aphid (<i>Myzus persicae</i>), Cabbage Aphid (<i>Brevicoryne brassicae</i>), Currant Lettuce Aphid (<i>Nasonovia ribis-nigri</i>), Cotton Aphid (<i>Aphis gossypii</i>) and suppression of Silverleaf Whitefly (<i>Bemisia tabaci</i>). Maximum of 4 applications per crop, with no more than 2 consecutive applications. Use a re-treatment interval of 14 days.	L Bee:L	-
Dimethoate	1B	Contact	14	A	ALL	Registered in sweet potato for control of Aphids , Jassids, Mites, Leaf Hoppers, Green Vegetable Bug, Thrips and Wingless Grasshopper. Apply when pests appear. Maximum number of applications and re-treatment intervals not specified.	H Bee:H	R1
Flupyradifurone (Sivanto Prime) Bayer	4D	Contact & Ingestion	7	A	ALL	Registered in sweet potato for control of Green Peach Aphid (<i>Myzus persicae</i>) and Silverleaf Whitefly (<i>Bemisia tabaci</i>). Maximum of 2 applications per year, with a minimum retreatment interval of 7 days.	L Bee:L	-
Garlic + Chilli + Pyrethrins + Piperonyl Butoxide	3A	Contact	1	A	ALL	Registered in vegetables for control of Ants, Aphids , Caterpillars, Earwigs, Whitefly, Thrips and Leafhoppers. Suitable for organic growers. Apply as a cover spray and re-apply as necessary every 2-3 weeks.	VH Bee:H	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Phorate (Thimet)	1B	Contact	91 G:70	A	ALL	Registered in sweet potato for control of Aphids , Thrips, Jassids, Two-Spotted Mite and Wireworms. Distribute granules evenly in the furrow or band granules on each side of the row at planting time.	H Bee:H	R3
Pirimicarb (Pirimor)	1A	Contact	2	A	ALL	Registered in sweet potato for control of Green Peach Aphid (<i>Myzus persicae</i>), Melon Aphid (<i>Aphis gossypii</i>) and Cabbage Aphid. Do not apply more than 2 applications per season. Do not apply consecutive applications. Re-treatment interval not specified.	VL Bee:VL	R3
Potassium Salts of Fatty Acids (Natrasoap)	-	Contact	NR	A	ALL	Registered in vegetables for control of Aphids , Thrips, Mealybug, Two Spotted Mites, Spider Mite and Whitefly. Maximum number of applications not specified, re-treatment interval 5-7 days.	L Bee:L	-
Spirotetramat (Movento) Bayer	23	Ingestion	7	A	ALL	Registered in sweet potato for control of Green Peach Aphid and Silverleaf Whitefly. Maximum of 3 applications per season, with a minimum re-treatment interval of 7 days.	M Bee:VL	-
Sulfoxaflor (Transform) Corteva	4C	Contact & Ingestion	7	A	ALL	Registered in root & tuber vegetables for control of Green Peach Aphid , and for suppression of Tomato Potato Psyllid and Rutherglen Bug. Maximum number of applications not specified. Minimum re-treatment interval 7 days.	M Bee:VH	-
Thiamethoxam + Chlorantraniliprole (Durivo) Syngenta PER87809	4A+28	Contact & Ingestion	35 NG	A	QLD	Permitted in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Corn Earworm, Native Budworm, Cabbage Centre Grub, Cabbage Cluster Caterpillar, Cluster Caterpillar, Soybean Looper, Cabbage Aphid, Green Peach Aphid , Silverleaf Whitefly, Greenhouse Whitefly, Green Vegetable Bug, Western Flower Thrips, Onion Thrips, Potato Moth / Leaf Miner, Tomato Thrips, Brown Sowthistle Aphid, Vegetable Leaf Hopper, Lucerne Leafroller, Leafhoppers /Jassids and Psyllids. Apply 1 application per crop by trickle irrigation at 7-14 days after transplant or emergence of the crop.	M Bee:VH	R2

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
<i>Beauveria bassiana</i> (Velifer) BASF	UNF	Biological	NR	P		Registered for suppression of Green Peach Aphid in protected vegetables and ornamentals.	L Bee:L	-
Dimpropridaz (Efficon) BASF	UN			P		Registered for control of Melon Aphid in cucurbits and cotton, and Green Peach Aphid in brassica vegetables and brassica leafy vegetables.	-	-
Fonicamid (Mainman) UPL	29	Ingestion		P		Registered for control of Aphids in potatoes, cotton and cucurbits.	M Bee:VL	-
Flupyradifurone (Sivanto Prime) Bayer	4D	Contact & Ingestion		P		Registered in macadamias for control of Fruit Spotting Bugs, Macadamia Lace Bug and suppression of Scirtothrips, control of Fruit Spotting Bugs and Planthoppers in avocados, mangoes and papaya, control of Whitefly, Green Peach Aphid and Cotton Aphid in cucurbits and fruiting vegetables, and control of Silverleaf Whitefly and Green Peach Aphid in green beans, potatoes and sweet potatoes.	L Bee:L	-
Two Spotted Mite (<i>Tetranychus urticae</i>)								
Priority: Moderate								
Rated as a moderate priority. Mites cause feeding damage to the leaves, reducing photosynthetic capacity and impacting on plant vigour. Outbreaks are favoured by hot, dry weather. Predatory mites provide effective natural control provided that they are not impacted by applications of disruptive chemistry.								
Dimethoate	1B	Contact	14	A	ALL	Registered in sweet potato for control of Aphids, Jassids, Mites , Leaf Hoppers, Green Vegetable Bug, Thrips and Wingless Grasshopper. Apply when pests appear. Maximum number of applications and re-treatment intervals not specified.	H Bee:H	R1
Phorate (Thimet)	1B	Contact	91 G:70	A	ALL	Registered in sweet potato for control of Aphids, Thrips, Jassids, Two-Spotted Mite and Wireworms. Distribute granules evenly in the furrow or band granules on each side of the row at planting time.	H Bee:H	R3

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Potassium Salts of Fatty Acids (Natrasoap)	-	Contact	NR	A	ALL	Registered in vegetables for control of Aphids, Thrips, Mealybug, Two Spotted Mites , Spider Mite and Whitefly. Maximum number of applications not specified, re-treatment interval 5-7 days.	L Bee:L	-
Propargite (Omite)	12C	Contact	7	A	ALL	Registered in vegetables for control of Spider Mite and Two-Spotted Mites . Maximum number of applications and re-treatment interval not specified.	M Bee:L	R3
Sulphur	UN	Contact	NR	A	ALL	Registered in vegetables for control of Mites . Maximum number of applications not specified. Re-treatment interval 14-21 days.	L Bee:L	-
Abamectin	6	Contact		P		Registered for control of Two Spotted Mite in apples, pears, cotton, hops, strawberries, ornamentals, soybeans, blackcurrants, blackberries & raspberries, cucurbits, spring onions, snow peas, sugar snap peas, sweet corn, fruiting vegetables, lettuce, papaya, custard apple, passionfruit and lychees.	M Bee:H	-
Acequinocyl (Kanemite)	20B	Contact & Ingestion		P		Registered for control of Two Spotted Mite in pome fruit and stone fruit.	L Bee:L	-
<i>Beauveria bassiana</i> (Velifer) BASF	UNF	Biological	NR	P		Registered for suppression of Two Spotted Mite in protected vegetables and ornamentals.	L Bee:L	-
Cyflumetofen (Danisaraba) BASF	25A	Contact		P		Registered for control of Two Spotted Mite in pome fruit, almond, citrus, grape, strawberries, fruiting vegetables and ornamentals.	L Bee:L	-
Isocycloseram (Simodis) Syngenta	30	Ingestion		P		First global application is proposed for 2023 for Thrips, Bugs, Mites and Caterpillars. Registration submitted May 2021 for Simodis to control Mites, Thrips and Helicoverpa in fruiting vegetables.	-	-
Spiromesifen (Oberon) Bayer	23	Ingestion		P		Registration pending for control of mites in various crops. US registration for control of Two Spotted Mite in corn, cotton, cucurbits, fruiting vegetables, tuberous & corm vegetables and low-growing berries.	M Bee:VL	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Cluster Caterpillar (<i>Spodoptera litura</i>)								
Priority: Moderate								
Rated as a moderate priority. Larvae are voracious leaf feeders and large populations can develop quickly and cause significant damage to crops.								
<i>Bacillus thuringiensis subsp. kurstaki</i> (DiPel)	11A	Biological	NR	A	ALL	Registered in vegetables for control of caterpillars, including Spodoptera spp. Apply a minimum of 2 applications. Re-treatment interval 3-5 days.	VL Bee:L	-
Emamectin (Proclaim Opti) Syngenta	6	Ingestion	3 NG	A	ALL	Registered in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Heliothis, Cluster Caterpillar and Loopers. Maximum of 4 applications per crop. Minimum re-treatment interval 7 days.	M Bee:H	-
Flubendiamide (Belt) Bayer	28	Ingestion	1	A	ALL	Registered in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Cluster Caterpillar , Potato Moth and <i>Helicoverpa</i> spp. Maximum of 3 applications per crop. Re-treatment interval of 7-14 days.	L-M Bee:L	-
Garlic + Chilli + Pyrethrins + Piperonyl Butoxide	3A	Contact	1	A	ALL	Registered in vegetables for control of Ants, Aphids, Caterpillars , Earwigs, Whitefly, Thrips and Leafhoppers. Suitable for organic growers. Apply as a cover spray and re-apply as necessary every 2-3 weeks.	VH Bee:H	-
Methomyl (Lannate) PER82428	1A	Contact	3	A	ALL	Permitted in sweet potato for control of <i>Helicoverpa</i> spp., Cucumber Moth, Cluster Caterpillar , Loopers, Webworm, Rutherglen Bug and Thrips (including Western Flower Thrips). Maximum of 3 applications per crop. Re-treatment interval 7 days.	H Bee:H	R2

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Thiamethoxam + Chlorantraniliprole (Durivo) Syngenta PER87809	4A+28	Contact & Ingestion	35 NG	A	QLD	Permitted in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Corn Earworm, Native Budworm, Cabbage Centre Grub, Cabbage Cluster Caterpillar, Cluster Caterpillar , Soybean Looper, Cabbage Aphid, Green Peach Aphid, Silverleaf Whitefly, Greenhouse Whitefly, Green Vegetable Bug, Western Flower Thrips, Onion Thrips, Potato Moth / Leaf Miner, Tomato Thrips, Brown Sowthistle Aphid, Vegetable Leaf Hopper, Lucerne Leafroller, Leafhoppers /Jassids and Psyllids. Apply 1 application per crop by trickle irrigation at 7-14 days after transplant or emergence of the crop.	M Bee:VH	R2
Spinetoram (Success Neo) Corteva	5	Ingestion	3	P-A	ALL	Registered in sweet potato for control of Light Brown Apple Moth, Loopers, Helicoverpa, Potato Moth and Tomato Potato Psyllid.	M Bee:VH	-
Spinosad (Entrust Organic) Corteva	5	Ingestion	3 G:14	P-A	ALL	Registered in root & tuber vegetables for control of Light Brown Apple Moth, Loopers, Helicoverpa and Potato Moth.	L Bee:H	-
Isocycloseram (Simodis) Syngenta	30	Ingestion		P		First global application is proposed for 2023 for Thrips, Bugs, Mites and Caterpillars . Registration submitted May 2021 for Simodis to control Mites, Thrips and Helicoverpa in fruiting vegetables.	-	-
Fall Armyworm (<i>Spodoptera frugiperda</i>)								
Priority: Moderate								
Rated as a moderate priority. Fall Armyworm is an exotic pest that can reproduce prolifically, especially in warm weather. It is important to monitor crops for any incursions.								
Chlorantraniliprole (Coragen) FMC PER89353	28	Ingestion	3 NG	A	ALL (excl. VIC)	Permitted in root & tuber vegetables (except potatoes) for control of Fall Armyworm . Maximum of 3 applications per crop, with no more than 2 consecutive applications. Re-treatment interval 7-14 days.	L Bee:VL	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Emamectin (Proclaim Opti) Syngenta PER89263	6	Ingestion	3 NG	A	ALL (excl. VIC)	Permitted in root & tuber vegetables for control of Fall Armyworm . Maximum of 4 applications per crop. Minimum re-treatment interval 7 days.	M Bee:H	-
Emamectin (Clama 50SC) PER92220	6	Ingestion	3 NG	A	ALL (excl. VIC)	Permitted in root & tuber vegetables for control of Fall Armyworm . Maximum of 4 applications per crop. Minimum re-treatment interval 7 days.	M Bee:H	-
Methomyl (Lannate) PER89293	1A	Contact	3	A	ALL	Permitted in sweet potato for control of Fall Armyworm . Maximum of 6 applications per crop. Minimum re-treatment interval 3 days.	H Bee:H	R2
Spinosad (Entrust Organic) Corteva PER89870	5	Ingestion	3 G:14	A	ALL (excl. VIC)	Permitted in root & tuber vegetables for control of Fall Armyworm . Maximum of 4 applications per crop. Re-treatment interval not specified.	L Bee:H	-
<i>Spodoptera frugiperda</i> Multiple Nucleopolyhedrovirus (Fawligen) AgBiTech PER90820	31	Biological	NR	A	ALL	Permitted in root & tuber vegetables for control of Fall Armyworm . Maximum of 10 applications per crop. Minimum re-treatment interval 3 days.	VL Bee:VL	-
<i>Spodoptera frugiperda</i> Multiple Nucleopolyhedrovirus (Spodovir Plus) PER91477	31	Biological	NR	A	ALL	Permitted in root & tuber vegetables for control of Fall Armyworm . Maximum of 10 applications per crop. Minimum re-treatment interval 3 days.	VL Bee:VL	-
Spinetoram (Success Neo) Corteva	5	Ingestion	3	P-A	ALL	Registered in sweet potato for control of Light Brown Apple Moth, Loopers, Helicoverpa, Potato Moth and Tomato Potato Psyllid.	M Bee:VH	-
Isocycloseram (Simodis) Syngenta	30	Ingestion		P		First global application is proposed for 2023 for Thrips, Bugs, Mites and Caterpillars . Registration submitted May 2021 for Simodis to control Mites, Thrips and Helicoverpa in fruiting vegetables.	-	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Sweet Potato Weevil (<i>Cylas formicarius</i>) White Fringed Weevil (<i>Naupactus leucoloma</i>) Vegetable Weevil (<i>Listroderes difficilis</i>) Priority: Moderate								
Rated as a moderate priority. Sweet Potato Weevil larvae feed inside the storage roots, crown and in stems. Infested storage roots are riddled with spongy and discoloured cavities. Heavy infestation can cause vines to yellow and collapse. White Fringed Weevil larvae will also eat the storage roots, resulting in shallow, chewed holes.								
Bifenthrin (Talstar)	3A	Contact	NR	A	QLD, NSW, SA, WA & NT	Registered in sweet potato for control of Wireworm (<i>Heteroderes</i> spp.) and Sweet Potato Weevil (<i>Cylas formicarius</i>). Apply as a soil surface spray in front of a rotary hoe working at a depth of 30cm at 1-5 days prior to planting.	VH Bee:H	R3
Carbaryl (Bugmaster)	1A	Contact	3	A	ALL	Registered in sweet potato for control of Sweet Potato Weevil . Apply at first sign of pest activity and repeat as necessary. Maximum number of applications and re-treatment interval not specified.	H Bee:H	R2
Chlorpyrifos	1B	Contact	NR	A	NSW, WA & ACT	Registered in sweet potato for control of Vegetable Weevil . Apply immediately if infestation is observed. Apply as a band over young plants and adjacent soil along the row. One treatment should be sufficient if applied at the seedling stage or soon afterward.	H Bee:H	R1
Chlorpyrifos PER14583	1B	Contact	14	A	ALL (excl. VIC)	Permitted in sweet potato for control of Sweet Potato Weevil and Wireworm. Apply pre-plant and incorporate immediately or apply post-plant immediately on observation of infestation. For pre-plant application, incorporate to a depth of 15 cm.	H Bee:H	R1
Fipronil (Regent)	2B	Contact	NR	A	ALL	Registered in sweet potato for control of Wireworm, Mole Cricket and White Fringed Weevil . Apply as a broadcast spray to the soil surface and incorporate to a depth of 15cm prior to planting.	M Bee:VH	R2
Indoxacarb	22A	Ingestion		P		Registered for control of Vegetable Weevil in celery.	L Bee:H	R3

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Tetraniliprole (Vayego) Bayer	28	Ingestion		P	ALL	Registered for control of Apple Weevil and Garden Weevil in pome fruit and stone fruit.	L-M Bee:VH	-
Symphylids (<i>Scutigerella immaculata</i>)								
Priority: Moderate								
Rated as a moderate priority. Symphylids are a soil-dwelling pest that can cause occasional problems with crop establishment. Damage to young, developing roots is best managed by ensuring vigorous, healthy crops at establishment.								
1,3-dichloropropene + Chloropicrin (Agrocelone)	8B	Soil Fumigant	NR	A	ALL	Registered in vegetables as a pre-plant soil fumigant for control of Plant Parasitic Nematodes, Symphylans , Wireworms, soil borne diseases (including <i>Fusarium</i> , <i>Verticillium</i> wilts, <i>Rhizoctonia</i> , & <i>Pythium</i>) and suppression of weeds. <i>For use by professional and registered fumigators only.</i>	-	-
Fipronil (Regent)	2B	Contact	NR	P-A	ALL	Registered in sweet potato for control of Wireworm, Mole Cricket and White Fringed Weevil. Registered for control of Symphylids in ginger.	M Bee:VH	R2
Vegetable Leafhopper (<i>Austroasca viridigrisea</i>)								
Priority: Low								
Rated as a low priority. Sap-sucking pest that causes minor leaf speckling.								
Dimethoate	1B	Contact	14	A	ALL	Registered in sweet potato for control of Aphids, Jassids, Mites, Leaf Hoppers , Green Vegetable Bug, Thrips and Wingless Grasshopper. Apply when pests appear. Maximum number of applications and re-treatment intervals not specified.	H Bee:H	R1
Garlic + Chilli + Pyrethrins + Piperonyl Butoxide	3A	Contact	1	A	ALL	Registered in vegetables for control of Ants, Aphids, Caterpillars, Earwigs, Whitefly, Thrips and Leafhoppers . Suitable for organic growers. Apply as a cover spray and re-apply as necessary every 2-3 weeks.	VH Bee:H	-
Phorate (Thimet)	1B	Contact	91 G:70	A	ALL	Registered in sweet potato for control of Aphids, Thrips, Jassids , Two-Spotted Mite and Wireworms. Distribute granules evenly in the furrow or band granules on each side of the row at planting time.	H Bee:H	R3

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Thiamethoxam + Chlorantraniliprole (Durivo) Syngenta PER87809	4A+28	Contact & Ingestion	35 NG	A	QLD	Permitted in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Corn Earworm, Native Budworm, Cabbage Centre Grub, Cabbage Cluster Caterpillar, Cluster Caterpillar, Soybean Looper, Cabbage Aphid, Green Peach Aphid, Silverleaf Whitefly, Greenhouse Whitefly, Green Vegetable Bug, Western Flower Thrips, Onion Thrips, Potato Moth / Leaf Miner, Tomato Thrips, Brown Sowthistle Aphid, Vegetable Leaf Hopper , Lucerne Leafroller, Leafhoppers /Jassids and Psyllids. Apply 1 application per crop by trickle irrigation at 7-14 days after transplant or emergence of the crop.	M Bee:VH	R2
Sulfoxaflor (Transform) Corteva	4C	Contact & Ingestion	7	P-A	ALL	Registered in root and tuber vegetables for control of Green Peach Aphid, and suppression of Tomato Potato Psyllid and Rutherglen Bug. US registration for control of Leafhoppers in berries, pome fruit and root and tuber vegetables.	M Bee:VH	-
Flupyradifurone (Sivanto Prime) Bayer	4D	Contact & Ingestion		P		Registered in macadamia for control of Macadamia Lace Bug, Banana Spotting Bug, Fruit Spotting Bug and suppression of Scirtothrips. Pending label extension for control of Silverleaf Whitefly, Green Peach Aphid and Cotton Aphid in green beans, sweet potatoes and potatoes. US registration for control of Aphids, Leafhoppers and Whiteflies in sweet corn.	L Bee:VL	-
Isocycloseram (Simodis) Syngenta	30	Ingestion		P		First global application is proposed for 2023 for Thrips, Bugs, Mites and Caterpillars. Registration submitted May 2021 for Simodis to control Mites, Thrips and Helicoverpa in fruiting vegetables.	-	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
<p>Potato Moth (<i>Phthorimaea operculella</i>) Cotton Bollworm (<i>Helicoverpa armigera</i>) Native Budworm (<i>Helicoverpa punctigera</i>) Light Brown Apple Moth (<i>Epiphyas postvittana</i>) Soybean Looper (<i>Thysanoplusia orichalcea</i>) Webworm (<i>Herpetogramma</i> spp.) Priority: Low</p> <p>Rated as a low priority. These caterpillar pests can cause minor leaf feeding damage, but rarely warrant economic control in sweet potato.</p>								
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> (DiPel)	11A	Biological	NR	A	ALL	Registered in vegetables for control of caterpillars, including Helicoverpa spp. and Soybean Looper . Apply a minimum of 2 applications. Re-treatment interval 3-5 days.	VL Bee:L	-
Emamectin (Proclaim Opti) Syngenta	6	Ingestion	3 NG	A	ALL	Registered in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Heliothis , Cluster Caterpillar and Loopers . Maximum of 4 applications per crop. Minimum re-treatment interval 7 days.	M Bee:H	-
Flubendiamide (Belt) Bayer	28	Ingestion	1	A	ALL	Registered in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Cluster Caterpillar, Potato Moth and Helicoverpa spp. Maximum of 3 applications per crop. Re-treatment interval of 7-14 days.	L-M Bee:L	-
Garlic + Chilli + Pyrethrins + Piperonyl Butoxide	3A	Contact	1	A	ALL	Registered in vegetables for control of Ants, Aphids, Caterpillars , Earwigs, Whitefly, Thrips and Leafhoppers. Suitable for organic growers. Apply as a cover spray and re-apply as necessary every 2-3 weeks.	VH Bee:H	-
Methomyl (Lannate) PER82428	1A	Contact	3	A	ALL	Permitted in sweet potato for control of Helicoverpa spp. , Cucumber Moth, Cluster Caterpillar, Loopers , Webworm , Rutherglen Bug and Thrips (including Western Flower Thrips). Maximum of 3 applications per crop. Re-treatment interval 7 days.	H Bee:H	R2

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Spinetoram (Success Neo) Corteva	5	Ingestion	3	A	ALL	Registered in sweet potato for control of Light Brown Apple Moth, Loopers, Helicoverpa , Potato Moth and Tomato Potato Psyllid. Maximum of 4 applications per crop. Re-treatment interval not specified.	M Bee:VH	-
Spinosad (Entrust Organic) Corteva	5	Ingestion	3 G:14	A	ALL	Registered in root & tuber vegetables for control of Light Brown Apple Moth, Loopers, Helicoverpa and Potato Moth. Maximum of 4 applications per season. Re-treatment interval 7-14 days.	L Bee:H	-
Thiamethoxam + Chlorantraniliprole (Durivo) Syngenta PER87809	4A+28	Contact & Ingestion	35 NG	A	QLD	Permitted in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Corn Earworm, Native Budworm , Cabbage Centre Grub, Cabbage Cluster Caterpillar, Cluster Caterpillar, Soybean Looper , Cabbage Aphid, Green Peach Aphid, Silverleaf Whitefly, Greenhouse Whitefly, Green Vegetable Bug, Western Flower Thrips, Onion Thrips, Potato Moth / Leaf Miner , Tomato Thrips, Brown Sowthistle Aphid, Vegetable Leaf Hopper, Lucerne Leafroller, Leafhoppers /Jassids and Psyllids. Apply 1 application per crop by trickle irrigation at 7-14 days after transplant or emergence of the crop.	M Bee:VH	R2
Cutworms (<i>Agrostis</i> spp.)								
Priority: Low								
Rated as a low priority. Soil-dwelling pest that feeds on plant roots. Only a potential problem at establishment but rarely cause significant problems.								
Chlorpyrifos	1B	Contact	NR	A	ALL	Registered in sweet potato for control of Cutworm . Apply immediately infestation is observed. Spray should cover soil out to at least 20cm each side of the plant row.	H Bee:H	R1

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Black Field Cricket (<i>Teleogryllus commodus</i>) Mole Cricket (Gryllotalpidae) Priority: Low Rated as a low priority. Soil-dwelling pest that is not usually of significance. Will cause feeding damage to plant roots near the surface and can also damage irrigation by chewing on drop tape.								
Chlorpyrifos	1B	Contact	NR	A	QLD & WA	Registered in sweet potato for control of Field Crickets and Mole Crickets . Apply as a bran bait as populations indicate.	H Bee:H	R1
Fipronil (Regent)	2B	Contact	NR	A	ALL	Registered in sweet potato for control of Wireworm, Mole Cricket and White Fringed Weevil. Apply as a broadcast spray to the soil surface and incorporate to a depth of 15cm prior to planting.	M Bee:VH	R2
Green Vegetable Bug (<i>Nezara viridula</i>) Rutherglen Bug (<i>Nysius vinitor</i>) Priority: Low Rated as a low priority. Green Vegetable Bug will damage young shoots by sap sucking. Rutherglen Bug cause minor feeding damage to leaves. Both are usually minor pests.								
Dimethoate	1B	Contact	14	A	ALL	Registered in sweet potato for control of Aphids, Jassids, Mites, Leaf Hoppers, Green Vegetable Bug , Thrips and Wingless Grasshopper. Apply when pests appear. Maximum number of applications and re-treatment intervals not specified.	H Bee:H	R1
Methomyl (Lannate) PER82428	1A	Contact	3	A	ALL	Permitted in sweet potato for control of <i>Helicoverpa</i> spp., Cucumber Moth, Cluster Caterpillar, Loopers, Webworm, Rutherglen Bug and Thrips (including Western Flower Thrips). Maximum of 3 applications per crop. Re-treatment interval 7 days.	H Bee:H	R2
Sulfoxaflor (Transform) Corteva	4C	Contact & Ingestion	7	A	ALL	Registered in root & tuber vegetables for control of Green Peach Aphid, and for suppression of Tomato Potato Psyllid and Rutherglen Bug . Maximum number of applications not specified. Minimum re-treatment interval 7 days.	M Bee:VH	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Thiamethoxam + Chlorantraniliprole (Durivo) Syngenta PER87809	4A+28	Contact & Ingestion	35 NG	A	QLD	Permitted in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Corn Earworm, Native Budworm, Cabbage Centre Grub, Cabbage Cluster Caterpillar, Cluster Caterpillar, Soybean Looper, Cabbage Aphid, Green Peach Aphid, Silverleaf Whitefly, Greenhouse Whitefly, Green Vegetable Bug , Western Flower Thrips, Onion Thrips, Potato Moth / Leaf Miner, Tomato Thrips, Brown Sowthistle Aphid, Vegetable Leaf Hopper, Lucerne Leafroller, Leafhoppers /Jassids and Psyllids. Apply 1 application per crop by trickle irrigation at 7-14 days after transplant or emergence of the crop.	M Bee:VH	R2
Trichlorfon (Lepidex)	1B	Contact	2	A	ALL	Registered in vegetables for control of Cabbage White Butterfly, Cabbage Moth, Rutherglen Bug and Green Vegetable Bug . Maximum number of applications not specified. Re-treatment interval 7-10 days.	H Bee:H	R2
<p>Western Flower Thrips (<i>Frankliniella occidentalis</i>) Plague Thrips (<i>Thrips imaginis</i>) Tomato Thrips (<i>Frankliniella schultzei</i>) Onion Thrips (<i>Thrips tabaci</i>) Priority: Low Rated as a low priority. Can cause rasping damage to leaves through feeding action but are a minor pest of sweet potato.</p>								
Dimethoate	1B	Contact	14	A	ALL	Registered in sweet potato for control of Aphids, Jassids, Mites, Leaf Hoppers, Green Vegetable Bug, Thrips and Wingless Grasshopper. Apply when pests appear. Maximum number of applications and re-treatment intervals not specified.	H Bee:H	R1
Garlic + Chilli + Pyrethrins + Piperonyl Butoxide	3A	Contact	1	A	ALL	Registered in vegetables for control of Ants, Aphids, Caterpillars, Earwigs, Whitefly, Thrips and Leafhoppers. Suitable for organic growers. Apply as a cover spray and re-apply as necessary every 2-3 weeks.	VH Bee:H	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Methomyl (Lannate) PER82428	1A	Contact	3	A	ALL	Permitted in sweet potato for control of <i>Helicoverpa</i> spp., Cucumber Moth, Cluster Caterpillar, Loopers, Webworm, Rutherglen Bug and Thrips (including Western Flower Thrips). Maximum of 3 applications per crop. Re-treatment interval 7 days.	H Bee:H	R2
Phorate (Thimet)	1B	Contact	91 G:70	A	ALL	Registered in sweet potato for control of Aphids, Thrips , Jassids, Two-Spotted Mite and Wireworms. Distribute granules evenly in the furrow or band granules on each side of the row at planting time.	H Bee:H	R3
Potassium Salts of Fatty Acids (Natrasoap)	-	Contact	NR	A	ALL	Registered in vegetables for control of Aphids, Thrips , Mealybug, Two Spotted Mites, Spider Mite and Whitefly. Maximum number of applications not specified, re-treatment interval 5-7 days.	L Bee:L	-
Thiamethoxam + Chlorantraniliprole (Durivo) Syngenta PER87809	4A+28	Contact & Ingestion	35 NG	A	QLD	Permitted in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Corn Earworm, Native Budworm, Cabbage Centre Grub, Cabbage Cluster Caterpillar, Cluster Caterpillar, Soybean Looper, Cabbage Aphid, Green Peach Aphid, Silverleaf Whitefly, Greenhouse Whitefly, Green Vegetable Bug, Western Flower Thrips , Onion Thrips , Potato Moth / Leaf Miner, Tomato Thrips , Brown Sowthistle Aphid, Vegetable Leaf Hopper, Lucerne Leafroller, Leafhoppers /Jassids and Psyllids. Apply 1 application per crop by trickle irrigation at 7-14 days after transplant or emergence of the crop.	M Bee:VH	R2
Spinetoram (Success Neo) Corteva	5	Ingestion	3	P-A	ALL	Registered in sweet potato for control of Light Brown Apple Moth, Loopers, Helicoverpa, Potato Moth and Tomato Potato Psyllid. Registered for control of Western Flower Thrips and other thrips in radish, swede, turnips, bulb vegetables, cucurbits, fruiting vegetables, leafy vegetables, legume vegetables, ornamentals and berryfruit.	M Bee:VH	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Spinosad (Entrust Organic) Corteva	5	Ingestion	3 G:14	P-A	ALL	Registered in root & tuber vegetables for control of Light Brown Apple Moth, Loopers, Helicoverpa and Potato Moth. Registered for control of Western Flower Thrips in brassica vegetables, fruiting vegetables, leafy vegetables, legume vegetables, ornamentals, berryfruit and pome fruit.	L Bee:H	-
<i>Beauveria bassiana</i> (Velifer) BASF	UN	Biological	NR	P		Registered for suppression of various pests including Western Flower Thrips, Onion Thrips , Greenhouse Whitefly, Silverleaf Whitefly, Sweet Potato Whitefly, Green Peach Aphid & Two-Spotted Spider Mites in protected vegetables and ornamentals.	L Bee:L	-
Flupyradifurone (Sivanto Prime) Bayer	4D	Contact & Ingestion		P		Registered in macadamias for control of Fruit Spotting Bugs, Macadamia Lace Bug and suppression of Scirtothrips, control of Fruit Spotting Bugs and Planthoppers in avocados, mangoes and papaya, control of Whitefly, Green Peach Aphid and Cotton Aphid in cucurbits and fruiting vegetables, and control of Silverleaf Whitefly and Green Peach Aphid in green beans, potatoes and sweet potatoes.	L Bee:L	-
Isocycloseram (Simodis) Syngenta	30	Ingestion		P		First global application is proposed for 2023 for Thrips , Bugs, Mites and Caterpillars. Registration submitted May 2021 for Simodis to control Mites, Thrips and Helicoverpa in fruiting vegetables.	-	-
Wingless Grasshopper (<i>Phaulacridium vittatum</i>)								
Priority: Low								
Rated as a low priority. Large numbers can cause feeding damage to leaves. A minor pest.								
Chlorpyrifos	1B	Contact	NR	A	NSW, ACT, WA, VIC & TAS	Registered in sweet potato for control of Wingless Grasshopper . Spray areas of crop infested with grasshoppers. Also apply as a barrier across the line of advance, when grasshoppers are invading the crop. Maximum number of applications and retreatment interval not specified.	H Bee:H	R1

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Dimethoate	1B	Contact	14	A	ALL	Registered in sweet potato for control of Aphids, Jassids, Mites, Leaf Hoppers, Green Vegetable Bug, Thrips and Wingless Grasshopper . Apply when pests appear. Maximum number of applications and re-treatment intervals not specified.	H Bee:H	R1
Fipronil (Regent)	2B	Contact	NR	P-A	ALL	Registered in sweet potato for control of Wireworm, Mole Cricket and White Fringed Weevil.	M Bee:VH	R2
Indoxacarb	22A	Ingestion		P		Registered for control of Wingless Grasshopper in pome fruit, stone fruit and grapes.	L Bee:H	R3
Tomato Potato Psyllid (<i>Bactericera cockerelli</i>)								
Priority: Low								
Rated as a low priority. Tomato Potato Psyllid has been detected in WA but is not yet found in other states. It has the potential to be a significant pest of sweet potato if its distribution widens to major growing regions. It feeds mostly on leaves and stems, resulting in poor vigour and reduced yield.								
Abamectin PER84249	6	Contact	14	A	ALL (excl. VIC)	Permitted in sweet potato for control of Tomato Potato Psyllid . Maximum of 5 foliar applications, with a retreatment interval of 7-14 days.	M Bee:H	-
Bifenthrin (Talstar) PER84249	3A	Contact	NR	A	ALL (excl. VIC)	Permitted in sweet potato for control of Tomato Potato Psyllid . Apply as a foliar spray when pest first appears. Use a minimum retreatment interval of 14 days. Maximum number of applications not specified.	VH Bee:H	R3
Cyantraniliprole (Benevia) FMC PER84805	28	Ingestion	14 NG	A	ALL (excl. VIC)	Permitted in sweet potato for control of Tomato Potato Psyllid . Apply immediately upon discovery of the psyllid pest. Maximum of 2 applications per crop, with a retreatment interval of 7-10 days.	L-M Bee:VH	-
Spinetoram (Success Neo) Corteva	5	Ingestion	3	A	ALL	Registered in sweet potato for control of Light Brown Apple Moth, Loopers, Helicoverpa, Potato Moth and Tomato Potato Psyllid . Maximum of 4 applications per crop. Re-treatment interval not specified.	M Bee:VH	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Spinetoram (Success Neo) Corteva PER84757	5	Ingestion	3	A	ALL (excl. VIC)	Permitted in root & tuber vegetables for control of Tomato Potato Psyllid . Apply as a foliar spray immediately upon discovery of the pest. Maximum of 4 applications per crop, with a retreatment interval of 7-14 days.	M Bee:VH	-
Spirotetramat (Movento) Bayer PER84245	23	Ingestion	7	A	ALL	Permitted in sweet potato for control of Tomato Potato Psyllid . Maximum of 3 applications per season, and no more than 2 consecutive applications. Use a minimum re-treatment interval of 7 days.	M Bee:VL	-
Sulfoxaflor (Transform) Corteva	4C	Contact & Ingestion	7	A	ALL	Registered in root & tuber vegetables for control of Green Peach Aphid, and for suppression of Tomato Potato Psyllid and Rutherglen Bug. Maximum number of applications not specified. Minimum re-treatment interval 7 days.	M Bee:VH	-
Thiamethoxam + Chlorantraniliprole (Durivo) Syngenta PER87809	4A+28	Contact & Ingestion	35 NG	A	QLD	Permitted in root & tuber vegetables for control of Diamondback Moth, Cabbage White Butterfly, Corn Earworm, Native Budworm, Cabbage Centre Grub, Cabbage Cluster Caterpillar, Cluster Caterpillar, Soybean Looper, Cabbage Aphid, Green Peach Aphid, Silverleaf Whitefly, Greenhouse Whitefly, Green Vegetable Bug, Western Flower Thrips, Onion Thrips, Potato Moth / Leaf Miner, Tomato Thrips, Brown Sowthistle Aphid, Vegetable Leaf Hopper, Lucerne Leafroller, Leafhoppers /Jassids and Psyllids . Apply 1 application per crop by trickle irrigation at 7-14 days after transplant or emergence of the crop.	M Bee:VH	R2
Leafminers (<i>Liriomyza</i> spp.)								
Priority: Low								
Rated as a low priority. <i>Liriomyza</i> Leafminers feed on plant leaves in the larval stage. They are not a significant pest in sweet potato.								
Abamectin PER81876	6	Contact	14 NG	A	ALL	Permitted in root & tuber vegetables for suppression of Liriomyza Leafminers . Apply as a foliar spray when leafminers first appear. Maximum of 2 applications per crop, with a retreatment interval of 7-14 days.	M Bee:H	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory Risk
Cyromazine (Diptex 150WP) PER81867	17	Contact	7 NG	A	ALL	Permitted in root and tuber vegetables for control of Liriomyza Leafminers . Apply as a foliar spray when leafminers first appear. Maximum of 6 applications per crop, with a re-treatment interval of 7 days.	L Bee:L	-
Spinetoram (Success Neo) Corteva PER91155	5	Ingestion	3	A	ALL (excl. VIC)	Permitted in root and tuber vegetables for control of Liriomyza Leafminers . Apply as a foliar spray when leafminers first appear. Maximum of 4 applications per crop, with a re-treatment interval of 7-14 days.	M Bee:VH	-
Spinosad (Entrust Organic) Corteva PER90928	5	Ingestion	3 G:14	A	ALL (excl. VIC)	Permitted in root and tuber vegetables for control of Liriomyza Leafminers . Apply as a foliar spray when leafminers first appear. Maximum of 4 applications per crop, with a minimum re-treatment interval of 5 days.	L Bee:L	-

4.3 Weeds in sweet potato

4.3.1 Weed priorities

Common Name	Scientific Name
High	
Black Pigweed	<i>Trianthema portulacastrum</i>
Nut Grass	<i>Cyperus rotundus</i>
Moderate	
Blackberry Nightshade	<i>Solanum nigrum</i>
Volunteer Sweet Potato	<i>Ipomoea batatas</i>
Marshmallow	<i>Malva parviflora</i>
Low	
Flaxleaf Fleabane	<i>Conyza bonariensis</i>
Couch Grass	<i>Cynodon dactylon</i>
Fat Hen	<i>Chenopodium album</i>
Feather Top Rhodes Grass	<i>Chloris virgata</i>

Black Pigweed and Nut Grass were identified as the high priority weed in the feedback. An integrated weed management program should be used, incorporating pre-plant weed control and cultural measures such as farm hygiene and weed matting.

Resistance management

There are confirmed cases of resistance in Australia for Awnless Barnyard Grass (Group 9 at more than 200 sites), Feather Top Rhodes Grass (Group 9 at 4 sites) and Blackberry Nightshade (Group 22 at 2 sites).

Specific resistance management strategies for high resistance risk (1 and 2) and moderate resistance risk (0, 3, 4, 5, 9, 10, 12, 14, 15, 22, 27 and 34) herbicide modes of action are available on the CropLife Australia webpage⁶.

This report uses the new numerical herbicide mode of action classifications. Refer to the CropLife website⁷ to compare these to the previous alphabetical classifications.

⁶ <https://www.croplife.org.au/resources/programs/resistance-management/herbicide-resistance-management-strategies-2/>

⁷ https://www.croplife.org.au/wp-content/uploads/2021/07/A2-poster_03_FINAL.pdf

4.3.2 Available and potential products for weed control

TABLE KEY: Note that blank fields in the table indicate no information has been provided.

Availability			
A	Available via either registration or permit approval		
P	Potential – a possible candidate to pursue for registration or permit		
P-A	Potential, already approved in the crop for another use		
Resistance risk		Regulatory risk (refer to Appendix 6)	
		R1	Short-term: Critical concern over retaining access
**	Moderate resistance risk	R2	Medium-term: Maintaining access of significant concern
***	High resistance risk	R3	Long-term: Potential issues associated with use - Monitoring required
Withholding Period (WHP) – Number of days from last treatment to harvest (H) or Grazing (G)			
Harvest	H	Not Required when used as directed	NR
Grazing	G	No Grazing Permitted	NG

Active Ingredient (Trade Name)	Chemical Group	Crop / Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory Risk
Black Pigweed (<i>Trianthema portulacastrum</i>)							
Priority: High							
Rated as a high priority. Aggressive summer-growing weed with a sprawling habit. Black Pigweed is difficult to control with herbicides.							
Chlorthal Dimethyl (Dacthal)	3**	Sweet Potatoes / Pre-emergence weed control	Registered in sweet potato for control of grass and broadleaf weeds. Apply at transplanting. Lay-by application can be made up to 6 weeks after transplanting.	NR	A	ALL	-
Glyphosate (Roundup)	9**	General Pre-Plant Weed Control	Registered as a pre-plant application in sweet potato for control of grass and broadleaf weeds.	NR	A	ALL	R3
S-Metolachlor (Dual Gold)	15**	Sweet Potatoes / Pre-emergence weed control	Registered in sweet potatoes for control of grass and broadleaf weeds, including Black Pigweed . Apply immediately after transplanting before weeds have germinated. Apply irrigation to wet soil through the root zone within 24 hours of application.	161 G:161	A	QLD, NSW, VIC, SA & NT	-
Terbutylazine (Terbyne)	3**		Registered for control of Black Pigweed in sorghum.		P		-

Active Ingredient (Trade Name)	Chemical Group	Crop / Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory Risk
Nut Grass (<i>Cyperus rotundus</i>)							
Priority: High							
Rated as a high priority. Prefers damp, water-logged soils but can survive for years underground during dry times. Herbicide options are limited and unreliable. Improve soil drainage if possible.							
Glyphosate (Roundup)	9**	General Pre-Plant Weed Control	Registered as a pre-plant application in sweet potato for control of grass and broadleaf weeds.	NR	A	ALL	R3
Norflurazon (Zoliar) AgNova	12**		Registered for control of Nut Grass in asparagus.		P		-
Blackberry Nightshade (<i>Solanum nigrum</i>)							
Priority: Moderate							
Rated as a moderate priority. Prolific weed that is widely adapted and difficult to eradicate, mainly due to its long-term seed viability.							
Chlorthal Dimethyl (Dacthal)	3**	Sweet Potatoes / Pre-emergence weed control	Registered in sweet potato for control of grass and broadleaf weeds, including Blackberry Nightshade . Apply at transplanting. Lay-by application can be made up to 6 weeks after transplanting.	NR	A	ALL	-
Glyphosate (Roundup)	9**	General Pre-Plant Weed Control	Registered as a pre-plant application in sweet potato for control of grass and broadleaf weeds.	NR	A	ALL	R3
S-Metolachlor (Dual Gold)	15**	Sweet Potatoes / Pre-emergence weed control	Registered in sweet potatoes for control of grass and broadleaf weeds. Registered for control of Blackberry Nightshade in brassica vegetables, green beans, navy beans, maize, sweet corn, sorghum, sugar cane and tobacco.	161 G:161	P-A	QLD, NSW, VIC, SA & NT	-
Amitrole	34**		Registered for the control of grass and broadleaf weeds in orchards.		P		-
Dichlobenil (Casoran)	29**		Registered for residual weed control of annual grass and broadleaf weeds in orchards.		P		-

Active Ingredient (Trade Name)	Chemical Group	Crop / Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory Risk
Flumioxazin (Chateau)	14**		Registered for residual control of grass and broadleaf weeds, including Blackberry Nightshade , in grapevines, pome fruit, stone fruit, citrus, tree nuts, olives, avocados and blueberries.		P		-
Isoxaben (Gallery) Corteva	29**		Registered for control of broadleaf weeds, including Blackberry Nightshade , in fruit and nut trees.		P		-
Norflurazon (Zoliar) AgNova	12**		Registered for control of various grass and broadleaf weeds, including Blackberry Nightshade in citrus, grapes, almonds, pome fruit and stone fruit.		P		-
Oryzalin	3**		Registered for control of various grass and broadleaf weeds, including Blackberry Nightshade , in bananas, grapes, pome fruit, stone fruit, citrus, nuts, non-bearing berryfruit and nursery stock.		P		-
Oxyfluorfen (Goal)	14**		Registered for control of various grass and broadleaf weeds, including Blackberry Nightshade , in fruit and nut trees, vines, brassica vegetables, coffee, duboisia, pyrethrum, tobacco and tropical & subtropical fruit..		P		-
Volunteer Sweet Potato (<i>Ipomoea batatas</i>)							
Priority: Moderate							
Rated as a moderate priority. Volunteers cannot be controlled by herbicides in crop. Key strategies are to control volunteers in fallow and use of mechanical controls in-crop.							
Glyphosate (Roundup)	9**	General Pre-Plant Weed Control	Registered as a pre-plant application in sweet potato for control of grass and broadleaf weeds.	NR	A	ALL	R3
Marshmallow (<i>Malva parviflora</i>)							
Priority: Moderate							
Rated as a moderate priority. Adapted to a wide variety of environments and highly competitive weed. Control with knockdown herbicides can be unreliable.							
Glyphosate (Roundup)	9**	General Pre-Plant Weed Control	Registered as a pre-plant application in sweet potato for control of grass and broadleaf weeds.	NR	A	ALL	R3

Active Ingredient (Trade Name)	Chemical Group	Crop / Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory Risk
Flumioxazin (Chateau)	14**		Registered for residual control of grass and broadleaf weeds, including Marshmallow , in grapevines, pome fruit, stone fruit, citrus, tree nuts, olives, avocados and blueberries.		P		-
Isoxaben (Gallery) Corteva	29**		Registered for control of broadleaf weeds, including Small Flowered Mallow , in fruit and nut trees.		P		-
Oxyfluorfen (Goal)	14**		Registered for control of various grass and broadleaf weeds, including Marshmallow , in fruit and nut trees, vines, brassica vegetables, coffee, duboisia, pyrethrum, tobacco and tropical & subtropical fruit..		P		-
Flaxleaf Fleabane (<i>Conyza bonariensis</i>)							
Priority: Low							
Rated as a low priority in VIC and NSW. Flaxleaf Fleabane seeds prolifically and can germinate year-round. It is difficult to control with herbicides and a continuous program is required to manage it in cropping fields.							
Glyphosate (Roundup)	9**	General Pre-Plant Weed Control	Registered as a pre-plant application in sweet potato for control of grass and broadleaf weeds.	NR	A	ALL	R3
Amitrole	34**		Registered for the control of grass and broadleaf weeds in orchards.		P		-
Dichlobenil (Casoran)	29**		Registered for residual weed control of annual grass and broadleaf weeds in orchards.		P		-
Flumioxazin (Chateau)	14**		Registered for residual control of grass and broadleaf weeds, including Fleabane , in grapevines, pome fruit, stone fruit, citrus, tree nuts, olives, avocados and blueberries.		P		-

Active Ingredient (Trade Name)	Chemical Group	Crop / Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory Risk
Couch Grass (<i>Cynodon dactylon</i>)							
Priority: Low							
Rated as a low priority. Couch Grass is an aggressive and highly competitive perennial grass that grows year-round in most areas. Herbicide control is effectively provided it is targeted to young, actively growing weeds. Multiple applications are usually required.							
Fluazifop-P (Fusilade) PER82556	1***	Sweet Potato / In-Crop Knockdown	Permitted in sweet potato for control of grass weeds, including Couch Grass (seedlings). Maximum of 1 application per crop.	70	A	ALL (excl. VIC)	-
Glyphosate (Roundup)	9**	General Pre-Plant Weed Control	Registered as a pre-plant application in sweet potato for control of grass and broadleaf weeds.	NR	A	ALL	R3
Sethoxydim (Sertin)	1***	Sweet Potato / In-Crop Knockdown	Registered in sweet potato for control of grass weeds. Registered in ornamentals for control of Couch Grass .	NR	P-A	ALL (excl. VIC)	-
Amitrole	34**		Registered for the control of grass and broadleaf weeds in orchards.		P		-
Norflurazon (Zoliar) AgNova	12**		Registered for control of various grass and broadleaf weeds, including suppression of Couch Grass in citrus, grapes, almonds, pome fruit and stone fruit.		P		-
Fat Hen (<i>Chenopodium album</i>)							
Priority: Low							
Rated as a low priority. Fat Hen is a fast-growing woody annual weed, which can germinate throughout most of the year. Timely herbicide control is critical for managing this weed.							
Chlorthal Dimethyl (Dacthal)	3**	Sweet Potatoes / Pre-emergence weed control	Registered in sweet potato for control of grass and broadleaf weeds, including Fat Hen . Apply at transplanting. Lay-by application can be made up to 6 weeks after transplanting.	NR	A	ALL	-
Glyphosate (Roundup)	9**	General Pre-Plant Weed Control	Registered as a pre-plant application in sweet potato for control of grass and broadleaf weeds.	NR	A	ALL	R3
S-Metolachlor (Dual Gold)	15**	Sweet Potatoes / Pre-emergence weed control	Registered in sweet potatoes for control of grass and broadleaf weeds. Registered for control of Fat Hen in brassica vegetables, green beans and navy beans.	161 G:161	P-A	QLD, NSW, VIC, SA & NT	-

Active Ingredient (Trade Name)	Chemical Group	Crop / Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory Risk
Amitrole	34**		Registered for the control of grass and broadleaf weeds in orchards.		P		-
Dichlobenil (Casoran)	29**		Registered for residual weed control of annual grass and broadleaf weeds in orchards.		P		-
Flumioxazin (Chateau)	14**		Registered for residual control of grass and broadleaf weeds, including Fat Hen , in grapevines, pome fruit, stone fruit, citrus, tree nuts, olives, avocados and blueberries.		P		-
Isoxaben (Gallery) Corteva	29**		Registered for control of broadleaf weeds, including Fat Hen , in fruit and nut trees.		P		-
Norflurazon (Zoliar) AgNova	12**		Registered for control of various grass and broadleaf weeds, including Fat Hen in citrus, grapes, almonds, pome fruit and stone fruit.		P		-
Oryzalin	3**		Registered for control of various grass and broadleaf weeds, including Fat Hen , in bananas, grapes, pome fruit, stone fruit, citrus, nuts, non-bearing berryfruit and nursery stock.		P		-
Oxyfluorfen (Goal)	14**		Registered for control of various grass and broadleaf weeds, including Fat Hen , in fruit and nut trees, vines, brassica vegetables, coffee, duboisia, pyrethrum, tobacco and tropical & subtropical fruit..		P		-
Feather Top Rhodes Grass (<i>Chloris virgata</i>)							
Priority: Low							
Rated as a low priority. Feathertop Rhodes Grass is an aggressive grass weed that is difficult to control with herbicides. Multiple applications are required.							
Glyphosate (Roundup)	9**	General Pre-Plant Weed Control	Registered as a pre-plant application in sweet potato for control of grass and broadleaf weeds.	NR	A	ALL	R3
Dichlobenil (Casoran)	29**		Registered for residual weed control of annual grass and broadleaf weeds in orchards.		P		-

5. References

5.1 Information:

AgChem Access Priority Access Forum	https://www.agrifutures.com.au/national-rural-issues/agvet-chemicals/
Australian Pesticide and Veterinary Medicines Authority	www.apvma.gov.au
APVMA Chemical review	https://apvma.gov.au/chemicals-and-products/chemical-review/listing
APVMA MRLs	https://www.legislation.gov.au/Details/F2022C00400
APVMA Permit search	https://productsearch.apvma.gov.au/permits
APVMA Product search	https://productsearch.apvma.gov.au/products
Codex MRL database	http://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/en/
Cotton Pest Management Guide 2022-23	https://www.cottoninfo.com.au/publications/cotton-pest-management-guide
CropLife Australia (Resistance Management)	https://www.croplife.org.au/resources/programs/resistance-management/
Growcom – Infopest Database	www.infopest.com.au
Hort Innovation	www.horticulture.com.au

5.2 Abbreviations and Definitions:

APVMA	Australian Pesticides and Veterinary Medicines Authority
IPM	Integrated pest management
LOQ	Limit of quantification
MRL	Maximum residue limit (mg/kg or ppm)
Pesticides	Plant protection products (fungicide, insecticide, herbicide, nematicides, rodenticides, etc.).
Plant pests	Diseases, insects, nematodes, rodents, viruses, weeds, etc.
SARP	Strategic Agrichemical Review Process
TBC	To be confirmed
WHP	Withholding Period

5.3 Acknowledgements:

Thanks go to the many industry people who contributed information and collaborated on the review of this report.

6. Appendices:

Appendix 1. Products available for disease control in sweet potato

Appendix 2. Products available for control of insects and mites in sweet potato

Appendix 3. Products available for weed control in sweet potato

Appendix 4. Current permits for use in sweet potato

Appendix 5. Sweet potato Maximum Residue Limits (MRLs)

Appendix 6. Sweet potato Agrichemical Regulatory Risk Assessment

Appendix 1. Products available for disease control in sweet potato

Active Ingredient (Trade Name)	Chem. group	Situation	Diseases / Comments	States	WHP Days	Regulatory risk
1,3-dichloropropene + Chloropicrin (Agrocelone)	8B	Vegetables / Soil fumigant	Plant parasitic nematodes, symphylans, wireworms, soil borne diseases (including <i>Fusarium</i> , <i>Verticillium</i> wilts, <i>Rhizoctonia</i> , & <i>Pythium</i>) and suppression of weeds. <i>For use by professional and registered fumigators only.</i>	ALL	NR	-
Boscalid (Filan) BASF	7	Root & tuber vegetables	Sclerotinia Rot	ALL	7	-
Bromo Chloro Dimethyl Hydantoin (BCDMH)	-	Sanitiser / Post-Harvest Treatment	External Rot Causing Organisms	ALL	NR	-
Chlorine	-	Sanitiser / Post-Harvest Treatment	Bacteria & Fungi	ALL	NR	-
Dazomet (Basamid)	8F	General soil fumigant	Pre-plant fumigant in seed beds for control of soil fungi including <i>Pythium</i> , <i>Phytophthora</i> , <i>Sclerotinia</i> , <i>Sclerotium</i> , <i>Rhizoctonia</i> , <i>Verticillium</i> , <i>Plasmodiophora</i> , <i>Armillaria</i> and <i>Fusarium</i> spp. Nematodes, plus insects, weeds & soil fungi	ALL	NR	-
Iodine	-	Root crops	Post-Harvest Sanitiser – Bacteria and Fungi	ALL	NR	-
Metham Sodium	-	Food Crops / Pre-Plant Fumigant	Fungal diseases including <i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> , <i>Phytophthora</i> , <i>Verticillium</i> , <i>Sclerotinia</i> and Club Root of crucifers & Nematodes	ALL	NR	-
Penthiopyrad (Fontelis) Corteva	7	Sweet Potato	Early Blight / Target Spot (<i>Alternaria</i> spp.) Powdery Mildew (<i>Erysiphe</i> spp.)	ALL	7 NG	-

Active Ingredient (Trade Name)	Chem. group	Situation	Diseases / Comments	States	WHP Days	Regulatory risk
Peroxyacetic Acid	M	Sanitiser / Post-Harvest Treatment	Bacteria	ALL	NR	-
Pydiflumetofen + Difenoconazole (Miravis Duo) Syngenta	7+3	Sweet Potato	Early Blight / Target Spot (<i>Alternaria</i> spp.) Powdery Mildew (<i>Erysiphe</i> spp., <i>Oidium</i> spp.) Cercospora Leaf Spot (<i>Cercospora</i> spp.)	ALL	1 NG	R3
<i>Streptomyces lydicus</i> WYEC108 (Actinovate) Novozymes Bioag	BM 02	Vegetables	As a seed treatment for <i>Fusarium</i> , <i>Rhizoctonia</i> & <i>Pythium</i> Management	ALL	NR	-
Sulphur	M2	Vegetables	Powdery Mildew and Rust	ALL	NR	-
Thiabendazole (Tecto) PER12047	1	Sweet Potato	Scurf Fusarium Root Rot	ALL (excl. VIC)	NR	-

Appendix 2. Products available for control of insects and mites in sweet potato

Active Ingredient (Trade Name)	Chem. group	Situation	Pests / Comments	States	WHP Days	Regulatory risk
1,3-dichloropropene + Chloropicrin (Agrocelone)	8B	Vegetables / Soil fumigant	Plant parasitic nematodes, symphylans, wireworms, soil borne diseases and suppression of weeds. <i>For use by professional and registered fumigators only.</i>	ALL	NR	-
4-(P-Acetoxyphenyl)-2-Butanone + Malathion	1B	Fruit Fly Trap	Queensland Fruit Fly	ALL	NR	R3
4-(P-Acetoxyphenyl) -2-Butanone + Fipronil	2B	Fruit Fly Trap	Queensland Fruit Fly (<i>Bactrocera tryoni</i>) Lesser Queensland Fruit Fly (<i>Bactrocera neohumeralis</i>)	ALL	NR	R3
Abamectin (Tervigo) Syngenta	6	Sweet Potato	Root Knot Nematode	ALL	NR	-
Abamectin PER84249	6	Sweet Potato	Tomato Potato Psyllid	ALL (excl. VIC)	14	-
Abamectin PER81876	6	Root & Tuber vegetables	Suppression of Liriomyza Leafminers	ALL	14 NG	-
Afidopyropen (Versys) BASF	9D	Sweet Potato	Green Peach Aphid (<i>Myzus persicae</i>) Cabbage Aphid (<i>Brevicoryne brassicae</i>) Currant Lettuce Aphid (<i>Nasonovia ribis-nigri</i>) Cotton Aphid (<i>Aphis gossypii</i>) Suppression of Silverleaf Whitefly (<i>Bemisia tabaci</i>)	ALL	7	-
<i>Bacillus thuringiensis subsp. kurstaki</i> (DiPel)	11A	Vegetables	Lepidoptera	ALL	NR	-
Bifenthrin (Talstar)	3A	Sweet Potato	Wireworm (<i>Heteroderes</i> spp.) Sweet Potato Weevil (<i>Cylas formicarius</i>)	QLD, NSW, SA, WA & NT	NR	R3

Active Ingredient (Trade Name)	Chem. group	Situation	Pests / Comments	States	WHP Days	Regulatory risk
Bifenthrin (Talstar) PER84249	3A	Sweet Potato	Tomato Potato Psyllid	ALL (excl. VIC)	NR	R3
Carbaryl (Bugmaster)	1A	Sweet Potato	Sweet Potato Weevil	ALL	3	R2
Chlorantraniliprole (Coragen) FMC PER89353	28	Root and Tuber Vegetables (except potato)	Fall Armyworm (<i>Spodoptera frugiperda</i>)	ALL (excl. VIC)	3 NG	-
Chlorpyrifos	1B	Sweet Potato	Wingless Grasshopper	NSW, ACT, WA, VIC & TAS	NR	R1
			Cutworm	ALL		
			Field Crickets Mole Crickets	QLD & WA		
			Vegetable Weevil	NSW, WA & ACT		
Chlorpyrifos PER14583	1B	Sweet Potato	Sweet Potato Weevil Wireworm	ALL (excl. VIC)	14	R1
Cyantraniliprole (Benevia) FMC PER84805	28	Sweet Potato	Tomato Potato Psyllid (<i>Bactericera cockerelli</i>)	ALL (excl. VIC)	14 NG	-
Cyromazine (Diptex 150WP) PER81867	17	Root and Tuber vegetables	Lyriomyza Leafminers	ALL	7 NG	-
Dimethoate	1B	Sweet Potato	Aphids, Jassids, Mites, Leaf Hoppers, Green Vegetable Bug, Thrips, Wingless Grasshopper	ALL	14	R1
Dimethoate PER13859	1B	Fruit Fly Host Crops / Non-Bearing Only	Fruit Fly	ALL	NR	R1

Active Ingredient (Trade Name)	Chem. group	Situation	Pests / Comments	States	WHP Days	Regulatory risk
Emamectin (Proclaim Opti) Syngenta	6	Root and Tuber Vegetables	Diamondback Moth, Cabbage White Butterfly, Heliothis, Cluster Caterpillar, Loopers	ALL	3 NG	-
Emamectin (Proclaim Opti) Syngenta PER89263	6	Root and Tuber Vegetables	Fall Armyworm (<i>Spodoptera frugiperda</i>)	ALL (excl. VIC)	3 NG	-
Emamectin (Clama 50SC) PER92220	6	Root and Tuber Vegetables	Fall Armyworm (<i>Spodoptera frugiperda</i>)	ALL (excl. VIC)	3 NG	-
Ethyl Formate	-	Kumera / Post-Harvest Fumigant	Detritus Moth (<i>Opogona omoscopa</i>)	ALL	NR	-
Fipronil (Regent)	2B	Sweet Potato	Wireworm Mole Cricket White Fringed Weevil (<i>Naupactus leucoloma</i>)	ALL	NR	R2
Fluazaindolizine (Salibro ReKlemel) Corteva	N-UN	Sweet Potato	Root Knot Nematode (<i>Meloidogyne</i> spp.)	ALL	NR	-
Flubendiamide (Belt) Bayer	28	Root & Tuber Vegetables	Diamondback Moth, Cabbage White Butterfly, Cluster Caterpillar, Potato Moth, <i>Helicoverpa</i> spp.	ALL	1	-
Fluensulfone (Nimitz) Adama	-	Sweet Potato	Root Knot Nematode (<i>Meloidogyne</i> spp.)	ALL	NR	-
Flupyradifurone (Sivanto Prime) Bayer	4D	Sweet Potato	Green Peach Aphid (<i>Myzus persicae</i>) Silverleaf Whitefly (<i>Bemisia tabaci</i>)	ALL	7	-
Garlic + Chilli + Pyrethrins + Piperonyl Butoxide	3A	Vegetables	Ants, Aphids, Caterpillars, Earwigs, Whitefly, Thrips and Leafhoppers. Suitable for organic growers.	ALL	1	-
Imidacloprid (Confidor)	4A	Sweet Potato / Soil & Foliar Application	Silverleaf Whitefly	ALL	NR	R2

Active Ingredient (Trade Name)	Chem. group	Situation	Pests / Comments	States	WHP Days	Regulatory risk
Iron EDTA Complex	-	All plants	Snails & Slugs	ALL	NR	-
Maldison PER13642	1B	Tree Nuts	Australian Plague Locust (<i>Chortoicetes terminifera</i>)	ALL (excl. VIC)	NR G:2	R3
Metaldehyde	-	Vegetables	Snails & Slugs	ALL	7	-
Metham Sodium	-	Soil Fumigant	Nematodes, weed seeds, and various fungal diseases	ALL	NR	-
Methiocarb (Mesuro)	1A	Vegetables	Snails & Slugs	ALL	NR	R2
Methomyl (Lannate) PER82428	1A	Sweet Potato	<i>Helicoverpa</i> spp., Cucumber Moth, Cluster Caterpillar, Loopers, Webworm, Rutherglen Bug, Thrips (including Western Flower Thrips)	ALL	3	R2
Methomyl (Lannate) PER89293	1A	Sweet Potato	Fall Armyworm (<i>Spodoptera frugiperda</i>)	ALL	3	R2
Oxamyl (Vydate) Corteva	1A	Sweet Potato	Root Knot Nematode (<i>Meloidogyne</i> spp.)	ALL (excl. TAS)	NR	-
Phorate (Thimet)	1B	Sweet Potato	Aphids, Thrips, Jassids, Two-Spotted Mite, Wireworms	ALL	91 G:70	R3
Pirimicarb (Pirimor)	1A	Sweet Potato	Green Peach Aphid (<i>Myzus persicae</i>) Melon Aphid (<i>Aphis gossypii</i>) Cabbage Aphid	ALL	2	R3
Potassium Salts of Fatty Acids (Natrasoap)	-	Vegetables	Aphids, Thrips, Mealybug, Two Spotted Mites, Spider Mite and Whitefly	ALL	NR	-
Propargite (Omite)	12C	Vegetables	Two-Spotted Mites & Spider Mites.	ALL	7	R3
Pyriproxyfen (Admiral) Sumitomo	7C	Sweet Potato	Silverleaf Whitefly (<i>Bemisia tabaci</i>)	ALL	7	-

Active Ingredient (Trade Name)	Chem. group	Situation	Pests / Comments	States	WHP Days	Regulatory risk
Pyriproxyfen (Distance Ant Bait) Sumitomo	7C	Cropping Areas	Invasive & Nuisance Ants	ALL	NR	-
Spinetoram (Success Neo) Corteva	5	Sweet Potato	Light Brown Apple Moth Loopers Helicoverpa Potato Moth Tomato Potato Psyllid	ALL	3	-
Spinetoram (Success Neo) Corteva PER84757	5	Root & Tuber Vegetables	Tomato Potato Psyllid	ALL (excl. VIC)	3	-
Spinetoram (Success Neo) Corteva PER91155	5	Root & Tuber Vegetables	Liriomyza Leafminers	ALL (excl. VIC)	3	-
Spinosad (Entrust Organic) Corteva	5	Root & Tuber Vegetables	Light Brown Apple Moth, Loopers, Helicoverpa, Potato Moth	ALL	3 G:14	-
Spinosad (Entrust Organic) Corteva PER89870	5	Root & Tuber Vegetables	Fall Armyworm (<i>Spodoptera frugiperda</i>)	ALL (excl. VIC)	3 G:14	-
Spinosad (Entrust Organic) Corteva PER90928	5	Root & Tuber Vegetables	Liriomyza Leafminers	ALL (excl. VIC)	3 G:14	-
Spinosad (Naturalure) Corteva	5	Tree, Fruit, Nut, Vine & Vegetable Crops / Fruit Fly Bait	Queensland Fruit Fly (<i>Bactrocera tryoni</i>) Mediterranean Fruit Fly (<i>Ceratitis capitata</i>)	ALL	NR	-
Spirotetramat (Movento) Bayer	23	Sweet Potato	Green Peach Aphid (<i>Myzus persicae</i>) Silverleaf Whitefly (<i>Bemisia tabaci</i>)	ALL	7	-

Active Ingredient (Trade Name)	Chem. group	Situation	Pests / Comments	States	WHP Days	Regulatory risk
Spirotetramat (Movento) Bayer PER84245	23	Sweet Potato	Tomato Potato Psyllid	ALL	7	-
<i>Spodoptera frugiperda</i> Multiple Nucleopolyhedrovirus (Fawligen) AgBiTech PER90820	31	Root & Tuber Vegetables	Fall Armyworm	ALL	NR	-
<i>Spodoptera frugiperda</i> Multiple Nucleopolyhedrovirus (Spodovir Plus) AgBiTech PER91477	31	Root & Tuber Vegetables	Fall Armyworm	ALL	NR	-
Sulfoxaflor (Transform) Corteva	4C	Root & Tuber Vegetables	Green Peach Aphid Suppression of Tomato Potato Psyllid and Rutherglen Bug	ALL	7	-
Sulphur	UN	Vegetables	Mites	ALL	NR	-

Active Ingredient (Trade Name)	Chem. group	Situation	Pests / Comments	States	WHP Days	Regulatory risk
Thiamethoxam + Chlorantraniliprole (Durivo) Syngenta PER87809	4A+28	Root & Tuber Vegetables	Diamondback Moth (<i>Plutella xylostella</i>), Cabbage White Butterfly (<i>Pieris rapae</i>), Corn Earworm (<i>Helicoverpa armigera</i>), Native Budworm (<i>Helicoverpa punctigera</i>), Cabbage Centre Grub (<i>Hellula hydralis</i>), Cabbage Cluster Caterpillar (<i>Crocidolomia pavonana</i>), Cluster Caterpillar (<i>Spodoptera litura</i>), Soybean Looper (<i>Thysanoplusia orichalcea</i>), Cabbage Aphid (<i>Brevicoryne brassicae</i>), Green Peach Aphid (<i>Myzus persicae</i>), Silverleaf Whitefly (<i>Bemisia tabaci</i>), Greenhouse Whitefly (<i>Trialeurodes vaporariorum</i>), Green Vegetable Bug (<i>Nezara viridula</i>), Western Flower Thrips (<i>Frankliniella occidentalis</i>), Onion Thrips (<i>Thrips tabaci</i>), Potato Moth / Leaf Miner (<i>Phthorimaea operculella</i>), Tomato Thrips (<i>Frankliniella schultzei</i>), Brown Sowthistle Aphid (<i>Uroleucon sonchi</i>), Vegetable Leaf Hopper (<i>Austroasca viridigrisea</i>), Lucerne Leafroller (<i>Merophyas divulsana</i>), Leafhoppers /Jassids (Cicadellidae), Psyllids (Psyllidae)	QLD	35 NG	R2
Trichlorfon (Lepidex)	1B	Vegetables	Cabbage White Butterfly, Cabbage Moth, Green Vegetable Bug and Rutherglen Bug	ALL	2	R2

Appendix 3. Products available for weed control in sweet potato

Active ingredient (Trade Name)	Chem. Group	Situation	Comment / Use / Weed	WHP (days)	States	Regulatory risk
1,3-dichloropropene + Chloropicrin (Telone C-35)	8B	Vegetables / Soil fumigant	plant parasitic nematodes, symphylans, wireworms, soil borne diseases and suppression of weeds. <i>For use by professional and registered fumigators only.</i>	NR	ALL	-
Chlorthal Dimethyl (Dacthal)	3**	Sweet Potato	Grass and Broadleaf Weeds	NR	ALL	-
Diquat (Reglone)	22**	Sweet Potato	Pre-harvest crop dessication	14	ALL	R3
Fluazifop-P (Fusilade) PER82556	1***	Sweet Potato	Grass Weeds	70	ALL (excl. VIC)	-
Glyphosate (Roundup)	9**	General Pre-Crop Spray	Grass and Broadleaf Weeds	NR	ALL	R3
S-Metolachlor (Dual Gold)	15**	Sweet Potato	Annual Grass and Broadleaf Weeds	161 G:161	QLD, NSW, VIC, SA & NT	-
Sethoxydim (Sertin)	1***	Sweet Potato	Grass Weeds	NR	ALL (excl. VIC)	-

Chemical Group Resistance Risk: ** Moderate, *** High

Appendix 4. Current permits for use in sweet potato

Permit No.	Description	Issued Date	Expiry Date	Permit Holder
PER84249 Version 3	Abamectin, Bifenthrin / Sweet Potato / Tomato Potato Psyllid	16-Jun-17	30-Sep-26	NSW DPI
PER81876 Version 4	Abamectin / Root & Tuber Vegetables / Suppression of Liriomyza Leafminers	24-Jun-16	30-Apr-24	Hort Innovation
PER14583 Version 5	Chlorpyrifos / Sweet Potato / Sweet Potato Weevil, Wireworm	01-Apr-14	31-Oct-24	Hort Innovation
PER84805 Version 2	Cyantraniliprole (Benevia) / Sweet Potato / Tomato Potato Psyllid	06-Dec-17	31-Dec-27	Hort Innovation
PER13859 Version 2	Dimethoate / Fruit Fly Host Crops / Fruit Fly	09-Feb-15	31-Jul-24	Hort Innovation
PER89263 Version 2	Emamectin (Proclaim Opti) / Root & Tuber Vegetables / Fall Armyworm	10-Mar-20	31-Jan-28	Hort Innovation
PER92220	Emamectin (Clama 50SC) / Root & Tuber Vegetables / Fall Armyworm	08-Apr-22	31-Mar-23	Grochem Australia
PER82556 Version 2	Fluazifop-P (Fusilade) / Sweet Potato / Grass Weeds	16-Apr-14	30-Nov-27	Hort Innovation
PER89293	Methomyl (Lannate) / Sweet Potato / Fall Armyworm	10-Apr-20	30-Apr-23	Hort Innovation
PER82428 Version 4	Methomyl (Lannate) / Sweet Potato / Fall Armyworm / Various Insect Pests	22-Apr-16	31-Mar-24	Hort Innovation
PER91155	Spinetoram (Success Neo) / Sweet Potato / Liriomyza Leafminer	09-Jun-21	30-Jun-24	Hort Innovation
PER90928	Spinosad (Entrust Organic) / Sweet Potato / Liriomyza Leafminer	23-Apr-21	30-Apr-24	Hort Innovation
PER84245 Version 2	Spirotetramat (Movento) / Sweet Potato / Tomato Potato Psyllid	07-Apr-17	30-Apr-25	NSW DPI
PER90820 Version 3	Spodoptera frugiperda NPV (Fawligen) / Root & Tuber Vegetables / Fall Armyworm	30-Mar-21	31-Mar-24	AgBiTech
PER91477 Version 2	Spodoptera frugiperda NPV (Spodovir Plus) / Root & Tuber Vegetables / Fall Armyworm	03-Nov-21	31-Mar-24	Andermatt Group Ag
PER12047 Version 4	Thiabendazole (Tecto) / Sweet Potato / Scurf, Fusarium Root Rot	29-Jun-11	30-Sep-26	Hort Innovation
PER87809	Thiamethoxam + Chlorantraniliprole (Durivo) / Root & Tuber Vegetables / Various Insect Pests	06-Apr-21	30-Apr-24	Northern Agriservices

Appendix 5. Sweet Potato Maximum Residue Limits (MRLs)

CODEX commodity groupings of root and tuber vegetables:

VR 0075	Root and Tuber Vegetables
VR 2071	Tuberous and Corm Vegetables
VR 0508	Sweet Potato Vegetables

Note: Export volumes of Australian sweet potato are small, accounting for approximately one percent of total production. The largest export destination is the United Arab Emirates (40%), with smaller volumes going to Singapore, Malaysia, Qatar and Hong Kong. Available information indicates that in the absence specific limits in legislation that most countries defer to Codex, followed by EU MRL standards or apply a 0.01 ppm default value. Food exported to New Zealand from Australia may be legally sold if it complies with Australian requirements. MRLs and legislation are subject to change; the values presented should not be relied on.

Chemical	Codex	Description	APVMA MRL mg/kg	Codex MRL mg/kg
2,2-DPA		Vegetables	*0.1	-
Abamectin	VR 0075	Root & Tuber Vegetables	*0.01	-
	VR 0508	Sweet Potato	-	*0.005
Afidopyropen	VR 0508	Sweet Potato	*0.01	-
	VR 2071	Tuberous & Corm Vegetables	-	*0.01
Aldicarb	VR 0508	Sweet Potato	-	0.1
Aldrin & Dieldrin	VR 0075	Root & Tuber Vegetables	E0.1	E0.1
Azoxystrobin	VR 0075	Root & Tuber Vegetables {except potato}	-	1
Bifenthrin	VR 0508	Sweet Potato	*0.05	-
	VR 0075	Root & Tuber Vegetables	-	0.05
Boscalid	VR 0075	Root & Tuber Vegetables	1	2
Carbaryl	VR 0508	Sweet Potato	0.1	*0.02
Chlorantraniliprole	VR 0075	Root & Tuber Vegetables {except potato}	T0.5	-
	VR 0075	Root & Tuber Vegetables {except carrot & radish}	-	0.02
Chlorothalonil		Vegetables	T7	-
	VR 0075	Root & Tuber Vegetables {except horseradish}	-	0.3
Chlorpyrifos	VR 0508	Sweet Potato	T0.05	-
		Vegetables	T*0.01	-
Chlorthal-Dimethyl		Vegetables	5	-
Clothianidin	VR 0075	Root & Tuber Vegetables	-	0.2
Cyantraniliprole	VR 0508	Sweet Potato	T0.05	-
	VR 0075	Root & Tuber Vegetables {except potato}	-	0.05
Cyclaniliprole	VR 2071	Tuberous & Corm Vegetables	-	*0.01
Cyhalothrin	VR 0075	Root & Tuber Vegetables	-	*0.01
Cypermethrins	VR 0075	Root & Tuber Vegetables {except sugar beet}	-	*0.01
Cyromazine	VR 0075	Root & Tuber Vegetables	T1	-
Diazinon		Vegetables	0.7	-
Dicofol		Vegetables	5	-

Chemical	Codex	Description	APVMA MRL mg/kg	Codex MRL mg/kg
Difenoconazole	VR 0075	Root & Tuber Vegetables {except celeriac}	0.5	-
Dimethenamid-P	VR 0508	Sweet Potato	-	*0.01
Dimethoate	VR 0508	Sweet Potato	0.1	-
Diquat		Vegetables	*0.05	-
Emamectin	VR 0075	Root & Tuber Vegetables {except potato}	*0.01	-
Endosulfan	VR 0508	Sweet Potato	-	*0.05
EPTC		Vegetables	*0.04	-
Ethoprophos	VR 0508	Sweet Potato	-	0.05
Fipronil	VR 0508	Sweet Potato	*0.01	-
Fluazaindolizine	VR 0075	Root & Tuber Vegetables	0.3	-
Fluazifop-P-butyl	VR 0508	Sweet Potato	T0.3	-
Flubendiamide	VR 0075	Root & Tuber Vegetables {except potato}	0.2	-
Fludioxonil	VR 0508	Sweet Potato	-	Po10
Fluensulfone	VR 0075	Root & Tuber Vegetables	2	-
	VR 0075	Root & Tuber Vegetables {not specified elsewhere}	-	3
	VR 0508	Sweet Potato	-	0.8
Flumioxazin	VR 0508	Sweet Potato	-	*0.02
Flupyradifurone	VR 0508	Sweet Potato	0.07	0.05
	VR 0075	Root & Tuber Vegetables {except potato}	-	0.7
Fluxapyroxad	VR 2071	Tuberous & Corm Vegetables {except potato}	-	0.03
Glyphosate	VR 0075	Root & Tuber Vegetables	*0.1	-
Heptachlor		Vegetables	E0.05	-
Imidacloprid	VR 0508	Sweet Potato	0.3	-
	VR 0075	Root & Tuber Vegetables	-	0.5
Inorganic Bromide		Vegetables	20	-
Lindane		Vegetables	E2	-
Linuron		Vegetables	*0.05	-
Metalaxyl		Vegetables	T0.1	-
Metaldehyde		Vegetables	1	-
Metconazole	VR 2071	Tuberous & Corm Vegetables	-	*0.04
Methiocarb		Vegetables	0.1	-
Methomyl	VR 0075	Root & Tuber Vegetables	1	-
Methoxyfenozide	VR 0508	Sweet Potato	-	0.02
Methyl Bromide		Vegetables	T*0.05	-
Metolachlor	VR 0508	Sweet Potato	*0.2	-
Metrafenone		Vegetables	*0.05	-
Myclobutanil	VR 0075	Root & Tuber Vegetables	-	0.06
Omethoate	VR 0508	Sweet Potato	0.05	-
Oxamyl	VR 0508	Sweet Potato	0.2	-
Oxathiapiprolin	VR 2071	Tuberous & Corm Vegetables	-	0.04
Paraquat		Vegetables {except Potato, Pulses}	*0.05	0.05
Pendimethalin	VR 0075	Root & Tuber Vegetables {except carrot}	*0.05	-
Penthiopyrad	VR 0075	Root & Tuber Vegetables {except potato}	0.2	-
Phorate	VR 0508	Sweet Potato	0.5	-
Phosphine	VR 0075	Root & Tuber Vegetables	T*0.01	-
Phosphorous Acid	VR 0075	Root & Tuber Vegetables {except potato}	T100	-

Chemical	Codex	Description	APVMA MRL mg/kg	Codex MRL mg/kg
Piperonyl Butoxide		Vegetables	8	-
	VR 0075	Root & Tuber Vegetables {except carrot}	-	0.5
Pirimicarb		Vegetables	1	-
	VR 0075	Root & Tuber Vegetables	-	0.05
Prometryn		Vegetables	*0.1	-
Propargite		Vegetables	3	-
Pydiflumetofen	VR 0075	Root & Tuber Vegetables {except potato}	0.3	-
	VR 2071	Tuberous & Corm Vegetables	-	0.1
Pyraclostrobin	VR 2071	Tuberous & Corm Vegetables	-	*0.02
Pyrethrins		Vegetables	1	-
	VR 0075	Root & Tuber Vegetables	-	*0.05
Pyriproxyfen	VR 0508	Sweet Potato	*0.05	-
Sethoxydim	VR 0075	Root & Tuber Vegetables	1	-
Spinetoram	VR 0075	Root & Tuber Vegetables	0.02	-
Spinosad	VR 0075	Root & Tuber Vegetables	0.02	-
Spiromesifen	VR 0508	Sweet Potato	-	*0.02
Spirotetramat	VR 0508	Sweet Potato	5	-
Sulfoxaflor	VR 0075	Root & Tuber Vegetables {except potato}	0.05	-
	VR 0075	Root & Tuber Vegetables {except carrot}	-	0.03
Thiabendazole	VR 0508	Sweet Potato	0.05	Po9
Thiamethoxam	VR 0075	Root & Tuber Vegetables	T0.7	0.3
Trichlorfon		Vegetables	0.1	-
Trifluralin		Vegetables	0.05	-

NOTE: MRLs are constantly under review and subject to change. Check for current MRLs and do not rely on the values stated above.

* Indicates that an MRL is at the Limit of Quantitation (LOQ)

T =Temporary MRL

E = The MRL is based on extraneous residues

Sources: APVMA MRLs: Agricultural and Veterinary Chemicals Code (MRL Standard) Instrument 2019. Compilation 29. Prepared 11 November 2022. CODEX MRLs: CODEX Alimentarius International Food Standards database (January 2023), <http://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/en/>

Appendix 6. Sweet Potato Agrichemical Regulatory Risk Assessment

Sweet Potato Agrichemical Regulatory Risk Assessment

September 2022

Regulatory pressures on agrichemicals are increasing globally, with many being either restricted or withdrawn from use. For older agrichemicals these pressures are often the result of reconsiderations involving new or refined risk assessment methodologies that requiring the generation of new data. A consequence of which can be that many of these agrichemicals are not meeting contemporary risk assessment standards as the necessary data is unavailable, or where data is available, the risk posed is considered unacceptable.

The use of agrichemicals can also be impacted through differences in standards between trading partners. The lack of an appropriate pesticide maximum residue limit (MRL) in an importing country can, for practical purposes, effectively prohibit use in the exporting country so as to ensure compliance, as a MRL breach would adversely affect market access.

The effects of the above are greater regulatory pressure placed on the use of individual agrichemicals or chemical groups. As a consequence it is possible that the number of approved agrichemical options could be adversely impacted.

To assist strategic planning, with respect to future pest management options, the following tables have been developed to highlight the regulatory threats to agrichemicals currently approved for the management of the pests and diseases in sweet potatoes as well as current initiatives aimed at addressing identified pest management deficiencies.

Sweet Potato Agrichemical Regulatory Risk Assessment

R1	Short-term: Critical concern over retaining access
R2	Medium-term: Maintaining access of significant concern
R3	Long-term: Potential issues associated with use: Monitoring required

Active Constituents	Chemical Group	Problem	Comments
INSECT AND OTHER PESTS			
1,3-dichloropropene +chloropicrin	8B	Nematodes	EU: Pending
		Symphylids	
Abamectin	6	Leafminer/vegetable leafminer(PER81876)	EU: Use restricted to permanent greenhouses
		Tomato/ potato psyllid(PER84249)	
Afidopyropen	9D	Cabbage aphid	EU: Not authorised
		Cotton aphid	
		Currant lettuce aphid	
		Green peach aphid	
Bifenthrin	3A	Sweet potato weevil	Canada: Not authorised
		Wireworms	EU: Not authorised
		Tomato/ potato psyllid (PER84249)	
Carbaryl	1A	Sweet potato weevil	Canada: Reviewed, large number of uses deleted Codex: Review scheduled, support uncertain EU: Authorisation not renewed USA: Under review

Active Constituents	Chemical Group	Problem	Comments
Chlorantraniliprole +thiamethoxam	28 + 4A	Brown sowthistle aphid	<p><u>Thiamethoxam</u> APVMA: Under review Canada: Some field uses cancelled or amended EU: Not authorised USA: Re-registration with new risk mitigation measures</p>
		Cabbage aphid	
		Cabbage white butterfly	
		Cabbage-centre grub	
		Cluster caterpillar	
		Diamondback (Cabbage) moth	
		Green peach aphid	
		Green vegetable bug	
		Greenhouse whitefly	
		Helicoverpa	
		Leafhoppers	
		Lucerne leafroller	
		Onion (Cotton seedling) thrips	
		Potato moth	
		Psyllids (Lerps)	
		Silverleaf (Poinsettia) whitefly	
Soybean looper			
Tomato thrips			
Vegetable leafhopper			
Western flower thrips			
Chlorpyrifos	1B	Black field cricket	<p>APVMA: Under review Codex: Scheduled for review by JMPR Canada: Cancellation of all uses. EU: No authorisation in place USA: EPA decision to cancel use on food crops</p>
		Cutworms	
		Field crickets	
		Mole crickets	
		Spotted vegetable weevil	
		Vegetable weevil	
		Wingless grasshopper	
		Sweet potato weevil (PER14583)	
		Wireworms (PER14583)	

Active Constituents	Chemical Group	Problem	Comments
Cyantraniliprole	28	Tomato/ potato psyllid(PER84805)	
Cyromazine	17	Leafminers (PER81867)	EU: No authorisation
Dazomet		Nematodes	
Dimethoate	1B	Aphids Bugs Green vegetable bug Jassids Leafhoppers Mites Redlegged earth mite Thrips Wingless grasshopper	Codex: MRL deletion recommended. EU: Not authorised
Emamectin benzoate	6	Cabbage white butterfly Cluster caterpillar Diamondback (Cabbage) moth Helicoverpa Looper caterpillars Fall army worm (PER89263)	EU: Candidate for substitution
Ethyl formate	8A	Sugarcane bud (Detritus) moth	EU: No authorisation
Fipronil	2B	Mole crickets Whitefringed weevil Wireworms	APVMA: Under review Codex: Re-evaluation underway EU: No authorisation in place USA: Under review
Fluazaindolizine	N-UN	Root-knot nematodes	EU: Pending
Flubendiamide	28	Cabbage white butterfly Cluster caterpillar Diamondback (Cabbage) moth Helicoverpa Potato moth	

Active Constituents	Chemical Group	Problem	Comments
Fluensulfone		Root-knot nematodes	EU: No authorisation
Flupyradifurone	4D	Green peach aphid	EU: Under review
		Silverleaf (Poinsettia) whitefly	
Imidacloprid	4A	Silverleaf (Poinsettia) whitefly	APVMA: Under review Canada: Field uses cancelled or amended EU: No authorisation in place expiry of the grace periods (June 2022), USA: Re-registration with new risk mitigation measures
Methomyl	1A	Helicoverpa	APVMA: nominated for review Canada: Re-evaluation completed. Majority of uses removed EU: No authorisations in place USA: Under review
		Cluster caterpillar(PER82428)	
		Cucumber moth(PER82428)	
		Loopers(PER82428)	
		Rutherglen bug(PER82428)	
		Thrips(PER82428)	
		Webworms(PER82428)	
		Western flower thrips PER82428)	
Fall army worm(PER89293)			
Oxamyl	1A	Root-knot nematodes	EU: Candidate for substitution
Phorate	1B	Aphids	APVMA: nominated for review Canada: Under review EU: No authorisation in place
		Jassids	
		Thrips	
		Two-spotted (Red spider) mite	
		Wireworms	
Pirimicarb	1A	Cotton aphid	Codex: JMPR re-evaluation scheduled EU: Candidate for substitution
		Aphids(PER86443)	
		Green peach aphid(PER86443)	
		Melon aphid(PER86443)	

Active Constituents	Chemical Group	Problem	Comments
Pyriproxyfen	7C	Silverleaf (Poinsettia) whitefly	
Spinetoram	5	Caterpillars	
		Helicoverpa	
		Lightbrown apple moth	
		Loopers	
		Potato moth	
		Tomato/ potato psyllid (PER84757)	
		Fall army worm (PER89241)	
		Leafminers (PER91155)	
Spinosad	5	Helicoverpa	
		Lightbrown apple moth	
		Loopers	
		Potato moth	
		Leafminers (PER90928)	
Spirotetramat	23	Silverleaf (Poinsettia) whitefly	
		Tomato/ potato psyllid(PER84245)	
Spodoptera NPV	31	Fall army worm(PER90820)	
Spodoptera MNPV	31	Fall army worm(PER91477)	
Sulfoxaflor	4C	Green peach aphid	USA: Pollinator concerns EU: Restricted to permanent glasshouses only
		Tomato/ potato psyllid(PER84743)	

Active Constituents	Chemical Group	Problem	Comments
DISEASES			
1,3-dichloropropene +chloropicrin	8B	Fusarium wilt	EU: Pending
		Pythium root rot	
		Rhizoctonia	
Boscalid	7	Sclerotinia rot	Canada: Under review
Calcium hypochlorite	-	Bacterial soft rot	
Dazomet	-	Damping off	
		Rhizoctonia	
Iodine	M	Bactericide	
Penthiopyrad	7	Alternaria leaf spots	
		Powdery mildew	
Phosphorous acid	33	Phytophthora root rot (PER84708)	
		Pythium root rot (PER84708)	
Thiabendazole	1	Root rot (PER12047)	
		Scurf (PER12047)	

Active Constituents	Chemical Group	Comments
WEEDS		
Chlorthal-dimethyl	3	EU: No authorisation in place
Diquat	22	APVMA: Currently under review EU: No authorisation in place
Glyphosate	9	Ongoing issues internationally EU: Under review
Fluazifop-P (PER82556)	1	
Metolachlor /S-metolachlor	15	
Sethoxydim	1	EU: No authorisation in place

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