Melon

Strategic Agrichemical Review Process (SARP)

September 2024

Hort Innovation
Project – MT23001

Hort Innovation Project Number:
MT23001 – Strategic Agrichemical Review Process (SARP) - Updates

SARP Service Provider:
AGK Services

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

Date of report:
September 2024

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1. Summary

The strategic levy investment project Strategic Agrichemical Review Process (SARP) - Updates (MT23001) is part of the Hort Innovation Melon Fund. A Strategic Agrichemical Review Process (SARP), through the process of a desktop audit and industry liaison; Assesses the importance of the diseases, insects and weeds (plant pests) that can affect a horticultural industry;

(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 Melon 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

The high priority diseases are:

Disease	Priority
Gummy Stem Blight (*Didymella bryoniae*)	H
Fusarium Wilt (*Fusarium oxysporum*)	H
Anthracnose (*Colletotrichum orbiculare*)	H

1.2 Insects and other pests

The high priority insects and other pests are:

Insects and Other Pests	Priority
Native Budworm (*Helicoverpa punctigera*)	H
Cotton Bollworm (*Helicoverpa armigera*)	H
Western Flower Thrips (*Frankliniella occidentalis*)	H
Melon Thrips (*Thrips palmi*)	H
Silverleaf Whitefly (*Bemisia tabaci*)	H

1.3 Weeds

The high priority weeds are:

Weeds	Priority
Pigweed (*Portulaca* spp.)	H
Blackberry Nightshade (*Solanum nigrum*)	H
Nutgrass (*Cyperus rotundus*)	H
Fat-Hen (*Chenopodium album*)	H
Feather Top Rhodes Grass (*Chloris virgata*)	H

2. The Australian Melon Industry

Melons are grown in most Australian states, with diverse growing regions allowing for year-round supply of the domestic market. Most production is consumed in the domestic market, with 93% going to fresh supply, 6% to fresh export and 1% into processing.

Production for the year ending June 2023 was 226,022 tonnes. The value of production was worth $248.2 million, with the wholesale value of fresh supply worth $263.2 million. Production and revenue are reasonably stable from year to year.

Muskmelons (rockmelon, honeydew) and Watermelons are the two major categories of melons grown. Muskmelons production for the year ending June 2023 was 60,299 tonnes. The value of production was $89.9 million and the wholesale value of the fresh supply was $85.9 million. Watermelon production for the year ending June 2023 was 165,723 tonnes. The value of production was $158.3 million and the wholesale value of fresh supply was $177.3 million.

Fresh Muskmelon Seasonality by State[1]

State	22/23 Tonnes	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Queensland	22,914												
New South Wales	12,296												
Western Australia	8,442												
Northern Territory	6,633												
South Australia	1,206												
Victoria	1,809												
Availability Legend			High			Medium			Low			None	

Fresh Watermelon Seasonality by State[1]

State	22/23 Tonnes	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Queensland	56,346												
New South Wales	53,031												
Western Australia	23,201												
Northern Territory	18,230												
Victoria	9,943												
South Australia	4,972												
Availability Legend			High			Medium			Low			None	

Australia is a net exporter of fresh muskmelons, typically between 10,500-15,000 tonnes per year. Major export destinations are Japan (40%), Singapore (35%), New Zealand (7%), UAE (6%) and Hong Kong (5%).

Australia is a net exporter of fresh watermelons, typically between 2,000-7,500 tonnes per year. Major export destinations are UAE (53%), New Zealand (27%), Qatar (11%), Japan (4%) and New Caledonia (2%).

[1] Hort Innovation (2024). Australian Horticulture Statistics Handbook 2022/23. [online] Available at: https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/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 melon 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 melon industry regarding pesticide access, Hort Innovation has undertaken the current project to update the Strategic Agrichemical Review Process (SARP) for melon.

The SARP process identifies diseases, insect pests and weeds of major concern to the melon 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 melon 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 melon but attempts to prioritise the major problems.

Exotic plant pests, not present in Australia, are not addressed in this document. Biosecurity plans have been developed for the Melon Industry in consultation with industry, government and scientists. The Biosecurity Plan outlines key threats to the industry, risk mitigation plans, identification and categorisation of exotic pests and contingency plans. High priority exotic pests have been assessed based on their potential to enter, establish, and spread in Australia (e.g. environmental factors, host range, vectors) and the cost to industry of control measures. More information is available at this link[2].

[2] https://www.planthealthaustralia.com.au/industries/

3.2 Minor use permits and registration

From a pesticide access perspective, the APVMA classifies melons as a major crop. They fit within the APVMA Crop Group 011: Fruiting vegetables, cucurbits and the subgroup 011B: Fruiting vegetables, cucurbits – melons, pumpkins and winter squashes. Access to minor use permits can be achieved as long as a reasonable justification is provided in accordance with the APVMA's minor use guidance[3]. 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 melon industry is for manufacturers to register new pesticides uses in the crop.

3.3 Methods

The current version of the Melon Strategic Agrichemical Review Process (SARP) is the first report for the industry and was conducted by desktop audit and included an online industry survey. The process included gathering, collating and confirming information. The steps in the process were:

Process of Review	Activity / Date
Industry survey	Preparation and circulation of online industry survey to update priority pests and identify priority control gaps. Survey released: 6 November 2023 Survey closed: 30 June 2024
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] https://apvma.gov.au/node/10931

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 melon
Appendix 2. Products available for control of insects and other pests in melon
Appendix 3. Products available for weed control in melon
Appendix 4. Current permits for use in melon
Appendix 5. Melon Maximum Residue Limits (MRLs)
Appendix 6. Melon regulatory risk assessment

4. Diseases, pests and weeds of Melon

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 website[4].

Information on regulatory risk derived from project MT20007 (Chapter 4) - Regulatory support and coordination (Appendix 6) has been incorporated. Some of the suggested options have no overseas MRLs (see Appendix 5). If treated fruit is to be exported nil residues at harvest would be needed for these options. 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.

[4] https://www.croplife.org.au/resources/programs/resistance-management/

4.1 Diseases of Melon

4.1.1 Disease priorities

Disease	Priority
Gummy Stem Blight (*Didymella bryoniae*)	H
Fusarium Wilt (*Fusarium oxysporum*)	H
Anthracnose (*Colletotrichum orbiculare*)	H
Powdery Mildew (*Golovinomyces cichoracearum*, *Podosphaera xanthiis*)	M
Downy Mildew (*Pseudoperonospora cubensis*)	M
Alternaria Leaf Disease (*Alternaria* spp.)	M
Charcoal Rot (*Macrophomina phaseolina*)	M
Cercospora Leaf Spot (*Cercospora citrullina*)	L

Gummy Stem Blight, Fusarium Wilt and Anthracnose were identified as high priority diseases of melons. Disease control is a major focus for melon crops. It is recommended that an Integrated Disease Management Strategy is implemented, including a range of cultural practices to support fungicides, and potentially reduce the reliance on fungicides for disease control.

Cultural controls include:

- Biosecurity measures to prevent importing infections from other farms.
- Promoting good drainage and avoid waterlogging through irrigation.
- Farm hygiene – remove dead plant material that could contain disease inoculum.
- Avoid crop stress through good nutrition and water management.

Regular use of protectant fungicides is usually required for control of foliar and fruit disease. In controlling fungal and bacterial diseases, the industry should be mindful of resistance management. In addition to cultural controls, it is important to include a range of fungicide groups in a foliar spray program, including the use of protectant fungicides. Fungicide programs should be planned at the start of the season to ensure that effective disease control is achieved in conjunction with appropriate product rotation.

CropLife Australia have a resistance management strategy specifically related to the control of Downy Mildew[5] and Powdery Mildew[6] in melons, and users must refer to this before using any product.

[5] https://www.croplife.org.au/resources/programs/resistance-management/cucurbits-downy-mildew-3/
[6] https://www.croplife.org.au/resources/programs/resistance-management/cucurbits-powdery-mildew-3/

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
Gummy Stem Blight (*Didymella bryoniae*) **Priority: High**							
Rated as a high priority in NSW & QLD, and as a moderate priority in WA. The fungus is seed-borne and can survive in soil, weeds and on crop residues. The fungal fruiting bodies contain large numbers of spores that spread in wind and splashing water. Warm, wet weather favours the disease. Crop rotation and destruction of crop residues are critical aspects of disease management. Fungicides should be used when conditions favour development of the disease.							
Azoxystrobin (Amistar)	11	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of Powdery Mildew (*Sphaerotheca fuliginea*), Downy Mildew (*Pseudoperonospora cubensis*) and **Gummy Stem Blight** (*Didymella bryoniae*). Apply as a foliar spray using a 7-14 day retreatment interval. Maximum of 2 applications per crop.	-
Azoxystrobin + Oxathiapiprolin (Orondis Flexi) Syngenta	11+49	Protectant & Curative	3 NG	A	ALL	Registered in cucurbits for control of Downy Mildew (*Pseudoperonospora cubensis*) and suppression of Powdery Mildew (*Sphaerotheca fuliginea*), **Gummy Stem Blight** (*Didymella bryoniae*) and *Sclerotinia* spp. Apply as a foliar spray before disease symptoms appear. Use a retreatment interval of 7-14 days. Maximum of 2 applications per crop.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Chlorothalonil (Bravo)	M5	Protectant	1	A	ALL	Registered in cucurbits for control of Downy Mildew (*Pseudoperonospora cubensis*), **Gummy Stem Blight** (*Didymella bryoniae*), Anthracnose (*Colletotrichum orbiculare*), Leaf Blight (*Alternaria cucumerina*), Target Leaf Spot (*Cercospora citrullina*) and suppression of Belly Rot (*Rhizoctonia solani*). Apply as a foliar spray using a 7-14 day retreatment interval. Maximum number of treatments per crop not specified.	R3
Dimethomorph (Acrobat)	40	Protectant	7	A	QLD & NT	Registered in cucurbits for control of Anthracnose (*Colletotrichum* spp.), **Gummy Stem Blight** (*Didymella bryoniae*) and Alternaria Leaf Spot (*Alternaria* spp.) Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	-
Fluopyram + Tebuconazole (Luna Experience) Bayer	7+3	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of Powdery Mildew (*Podosphaera xanthii*) and **Gummy Stem Blight** (*Didymella bryoniae*). Apply as a foliar spray prior to disease onset, using a retreatment interval of 7-14 days. Maximum of 3 applications per year.	R3
Mancozeb	M3	Protectant	7	A	ALL	Registered in cucurbits for control of Downy Mildew, Anthracnose, **Gummy Stem Blight** and Septoria Spot. Apply as a foliar spray at first signs of disease, using a 7-10 day retreatment interval. Maximum number of applications not specified.	R2
Mancozeb + Dimethomorph (Acrobat WDG)	M3+40	Protectant	7	A	QLD & NT	Registered in cucurbits for control of Anthracnose (*Colletotrichum* spp.), **Gummy Stem Blight** (*Didymella bryoniae*) and Alternaria Leaf Spot (*Alternaria* spp.) Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	R2
Mancozeb + Metalaxyl-M (Ridomil Gold MZ)	M3+4	Protectant	7	A	QLD & NT	Registered in cucurbits for control of Anthracnose, **Gummy Stem Blight** and Alternaria Leaf Spot. Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	R2

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Mefentrifluconazole (Belanty) BASF	3	Protectant & Curative	NR NG	A	ALL	Registered in cucurbits for control of Powdery Mildew (*Podosphaera fuliginea*, *Podosphaera xanthii*) and **Gummy Stem Blight** (*Didymella bryoniae*, *Stagonosporopsis* sp.) Apply as a foliar spray prior to infection when conditions favour disease, using a retreatment interval of 7-10 days. Maximum of 3 applications per year, with no more than 2 consecutive applications.	-
Metiram (Polyram)	M3	Protectant	7	A	ALL	Registered in cucurbits for control of Downy Mildew (*Pseudoperonospora cubensis*) and **Gummy Stem Blight** (*Didymella bryoniae*). Apply as a foliar spray when disease first becomes apparent and reapply using a retreatment interval of 7 days. Maximum number of applications not specified.	R2
Penthiopyrad (Fontelis) Corteva	7	Protectant	1 NG	A	ALL	Registered in cucurbits for control of Grey Mould (*Botrytis cinerea*), Powdery Mildew (*Sphaerotheca fuliginea*, *Erysiphe cichoracearum*) and **Gummy Stem Blight** (*Didymella bryoniae*). Apply as a foliar spray, starting prior to disease development and continue using a retreatment interval of 7-10 days. Maximum of 3 applications per season, with no more than 2 consecutive applications.	-
Propineb + Oxadixyl (Rebound)	M3+4	Protectant	3	A	ALL	Registered in cucurbits for control of Downy Mildew, Anthracnose and **Gummy Stem Blight**. Apply as a foliar spray when conditions favour disease, and apply a sequence of 2 applications using a retreatment interval of 7-10 days. Maximum number of applications not specified.	R2
Pydiflumetofen + Difenoconazole (Miravis Duo) Syngenta	7+3	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of Powdery Mildew (*Sphaerotheca fuliginea*, *Erysiphe* spp., *Podosphora xanthii*), **Gummy Stem Blight** (*Stagonosporopsis cucurbitacearum* nee *Didymella bryoniae*), Alternaria Leaf Spot (*Alternaria spp.*) and Cercospora Leaf Spot (*Cercospora* spp.) Apply as a foliar spray when conditions favour disease and before onset of symptoms. Use a minimum retreatment interval of 7-10 days. Maximum of 2 applications per crop per year.	R3
Pyraclostrobin + Fluxapyroxad (Merivon) BASF	11+7	Protectant & Curative	NR	A	ALL	Registered in cucurbits (field only) for control of **Gummy Stem Blight** (*Didymella bryoniae*) and Powdery Mildew (*Podosphaera fuliginea*). Apply as a foliar spray in a preventative program, using a retreatment interval of 7-14 days. Maximum of 3 applications per year, with no more than 2 consecutive applications.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Bacillius amyloliquefaciens (Serifel) BASF	BM02	Biological	NR	P		Registered in grapes, strawberries and berries (including blackberries, blueberries and raspberries) for control of Grey Mould (*Botrytis cinerea*). US registration for control of **Gummy Stem Blight** in cucurbits.	-
Bacillus amyloliquefaciens strain QST 713 (Serenade Opti) Bayer	BM 02	Biological / Protectant	NR	P		Registered in grapevines and strawberries for control of Botrytis, in tomatoes, capsicums and chillies for suppression of Bacterial Spot and in avocado and other tropical fruits (excluding banana) for control of Anthracnose and suppression of Stem End Rot. US registration for control of **Gummy Stem Blight** in cucurbits (Serenade ASO label).	**-**
Cyprodinil + Fludioxinil (Switch)	9+12	Protectant		P		Registered for control of various fungal diseases in capsicum, cut flowers, grapes, leafy vegetables, lettuce, nursery stock, onions, pyrethrum and strawberries. US registration for control of **Gummy Stem Blight** in cucurbits.	R3
Polyoxin D Zinc Salt (Intervene) Nufarm	19	Protectant	NR	P		Registered for control of Grey Mould, Hull Rot and Powdery Mildew in almonds, apples, berries and grapes. US registration for control of **Gummy Stem Blight** in cucurbits.	**-**
Reynoutria sachalinensis extract (Regalia) Marrone Bio Innovations	P5	Biological	NR	P		Not currently registered in Australia but has US registration for control of **Gummy Stem Blight** in cucurbits.	**-**

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Fusarium Wilt (*Fusarium oxysporum*) **Priority: High**							
Rated as a high priority in NSW & QLD, and as a moderate priority in WA. Fusarium Wilt is a serious soil-borne disease that is generally spread via contaminated soil but can also be carried in infected plant material or on seeds. Disease management should focus on preventing introduction and spread of the pathogen into clean fields. It is difficult to eradicate Fusarium once it has established. There is some partial varietal resistance available but this can be ineffective in high disease pressure situations.							
Chloropicrin + 1,3-Dichloropropene	8B	Fumigant	NR	A	ALL	Registered in vegetables for control of plant parasitic Nematodes, Symphylans, Wireworms, soil borne diseases (including *Fusarium* and *Verticillium* wilts, *Rhizoctonia, Pythium*) and suppression of weeds. Restricted chemical. ***For use by professional and registered fumigators only.***	-
Streptomyces lydicus WYEC108 (Actinovate) Novozymes Bioag	BM 02	Biological	NR	A	ALL	Registered in vegetables for control of ***Fusarium***, *Rhizoctonia* and *Pythium*. Apply as a seed treatment.	-
Bacillus amyloliquefaciens Strain QST 713 (Serenade Prime Soil Ameliorant and Biofungicide) Bayer	BM02	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
Anthracnose (*Colletotrichum orbiculare*) **Priority: High**							
Rated as a high priority in NSW & QLD, and as a moderate priority in WA. Anthracnose is a serious disease of melons and should be managed using an integrated approach including cultural methods and fungicide applications. Cultural practices include minimising periods of leaf wetness, crop rotation and destruction of crop residues.							
Chlorothalonil (Bravo)	M5	Protectant	1	A	ALL	Registered in cucurbits for control of Downy Mildew (*Pseudoperonospora cubensis*), Gummy Stem Blight (*Didymella bryoniae*), **Anthracnose** (*Colletotrichum orbiculare*), Leaf Blight (*Alternaria cucumerina*), Target Leaf Spot (*Cercospora citrullina*) and suppression of Belly Rot (*Rhizoctonia solani*). Apply as a foliar spray using a 7-14 day retreatment interval. Maximum number of treatments per crop not specified.	R3
Dimethomorph (Acrobat)	40	Protectant	7	A	QLD & NT	Registered in cucurbits for control of **Anthracnose** (*Colletotrichum* spp.), Gummy Stem Blight (*Didymella bryoniae*) and Alternaria Leaf Spot (*Alternaria* spp.) Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	-
Mancozeb	M3	Protectant	7	A	ALL	Registered in cucurbits for control of Downy Mildew, **Anthracnose**, Gummy Stem Blight and Septoria Spot. Apply as a foliar spray at first signs of disease, using a 7-10 day retreatment interval. Maximum number of applications not specified.	R2
Mancozeb + Dimethomorph (Acrobat WDG)	M3+40	Protectant	7	A	QLD & NT	Registered in cucurbits for control of **Anthracnose** (*Colletotrichum* spp.), Gummy Stem Blight (*Didymella bryoniae*) and Alternaria Leaf Spot (*Alternaria* spp.) Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	R2

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Mancozeb + Metalaxyl-M (Ridomil Gold MZ)	M3+4	Protectant	7	A	QLD & NT	Registered in cucurbits for control of **Anthracnose**, Gummy Stem Blight and Alternaria Leaf Spot. Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	R2
Propineb + Oxadixyl (Rebound)	M3+4	Protectant	3	A	ALL	Registered in cucurbits for control of Downy Mildew, **Anthracnose** and Gummy Stem Blight. Apply as a foliar spray when conditions favour disease, and apply a sequence of 2 applications using a retreatment interval of 7-10 days. Maximum number of applications not specified.	R2
Zineb	M3	Protectant	7	A	ALL	Registered in cucurbits for control of Downy Mildew and **Anthracnose**. Apply as a foliar spray when weather favours disease, using a 7-10 day retreatment interval. Maximum number of applications not specified.	R2
Aureobasidium pullulans Strain DSM 14940 & DSM 14941 (Botector) Nufarm	-	Biological / Protectant	NR	P		Registered for control of Botrytis and other diseases in grapes, berries and fruiting vegetables, including the suppression of **Anthracnose Fruit Rot** in berries.	-
Bacillus amyloliquefaciens Strain QST 713 (Serenade Opti) Bayer	BM01	Biological	NR	P		Registered for control of **Anthracnose** (*Colletotrichum* spp.) in avocado and other tropical fruit crops (excluding banana).	-
Benzovindiflupyr + Propiconazole (Elatus) Syngenta	7+3	Protectant & Curative		P		Registered for control of various disease in wheat and barley. US registration for **Anthracnose** in sweet corn.	R3
BLAD (Problad Plus)	BM 01	Biological	NR	P		Registered in stone fruit for suppression of Brown Rot. US registration for control of **Anthracnose** in grapes and strawberries.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Fludioxonil + Azoxystrobin (Graduate A+) Syngenta	12+11	Protectant / Post-harvest treatment		P		Registered for post-harvest control of **Anthracnose** in avocado.	R3
Fluopyram + Tebuconazole (Luna Experience) Bayer	7+3	Protectant & Curative		P		Registered for control of various diseases in various fruit and vegetable crops, tree nuts and pyrethrum. Pending registration in Tropical & Subtropical Fruit (Inedible Peel). US registration for control of **Anthracnose** in almonds, cucurbits and tree nuts.	R3
Fluopyram + Trifloxystrobin (Luna Sensation) Bayer	7+11	Protectant & Curative		P		Registered for control of **Anthracnose** in avocados, mangoes and other tropical & sub-tropical fruits, inedible peel (excluding bananas, papaya, passionfruit, pineapples) and Japanese persimmons.	-
Fluxapyroxad + Pyraclostrobin (Merivon) BASF	7+11	Protectant & Curative		P		Registered in almonds, cherries and macadamia for control of various leaf diseases. Registered for control of **Anthracnose** in almonds. US registration for control of Leaf Spot, Powdery Mildew, **Anthracnose** and Grey Mould in strawberries. US registration for control of Grey Mould, Powdery Mildew and **Anthracnose** in strawberries.	-
Isofetamid (Kenja) ISK / AgNova	7	Protectant & Curative		P		Registered in strawberries for control of Botrytis Grey Mould. US registration for control of Grey Mould, Powdery Mildew and **Anthracnose** in low-growing berries.	-
Mefentrifluconazole (Belanty) BASF	3	Protectant & Curative		P		Registered for control of Powdery Mildew in grapes, control of Black Spot and Powdery Mildew and suppression of Alternaria in apples, control of Blossom Blight and suppression of Leaf Rust, Shot Hole and Hull Rot in almonds, control of Husk Spot in macadamias, control of Powdery Mildew and Gummy Stem Blight in cucurbits, and control of Powdery Mildew and Target Spot in fruiting vegetables. US registration for control of **Anthracnose** in fruiting vegetables and tree nuts.	-
Pydiflumetofen + Fludioxonil (Miravis Prime) Syngenta	7+12	Protectant / Curative		P		Registered for control of various diseases in grapes, berries, leafy vegetables, lettuce and potato. US registration for control of **Anthracnose** in grape and small fruit vine climbing (except fuzzy kiwifruit), lemon & lime, low-growing berries, specific tree nuts, almonds and bushberries.	R3

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Powdery Mildew (*Golovinomyces cichoracearum*, *Podosphaera xanthiis*) **Priority: Moderate**							
Rated as a high priority in QLD, and as a moderate priority in NSW & WA. Powdery Mildew is a serious disease of melons which can cause severe impacts on the foliage and fruit of mot controlled effectively. The disease is favoured by high humidity in conjunction with temperatures from 15-27^{o}C. Infections can be spread long distances by wind and a well-planned fungicide program is essential to manage this disease in melons.							
Azoxystrobin (Amistar)	11	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of **Powdery Mildew** (*Sphaerotheca fuliginea*), Downy Mildew (*Pseudoperonospora cubensis*) and Gummy Stem Blight (*Didymella bryoniae*). Apply as a foliar spray using a 7-14 day retreatment interval. Maximum of 2 applications per crop.	-
Azoxystrobin + Oxathiapiprolin (Orondis Flexi) Syngenta	11+49	Protectant & Curative	3 NG	A	ALL	Registered in cucurbits for control of Downy Mildew (*Pseudoperonospora cubensis*) and suppression of **Powdery Mildew** (*Sphaerotheca fuliginea*), Gummy Stem Blight (*Didymella bryoniae*) and *Sclerotinia* spp. Apply as a foliar spray before disease symptoms appear. Use a retreatment interval of 7-14 days. Maximum of 2 applications per crop.	-
BLAD (Problad)	BM01	Protectant	NR	A	ALL	Registered in fruiting vegetables, cucurbits for control of **Powdery Mildew** (*Podosphaera xanthii*, *Sphaerotheca fuliginea*). Apply as a foliar spray prior to the onset of disease when conditions favour disease from flowering up to fruit ripe. Use a retreatment interval of 7-14 days. Maximum of 5 applications per crop season, with no more than 2 consecutive applications.	-
Boscalid + Kresoxim-Methyl (Colliss) BASF	7+11	Protectant & Curative	7	A	ALL	Registered in cucurbits for control of **Powdery Mildew** (*Podosphaera xanthii*). Apply as a foliar spray prior to disease development. Apply 2 consecutive applications using a 7-10 day retreatment interval. Maximum of 2 applications per crop, and maximum of 4 applications per paddock per year.	-
Bupirimate (Nimrod)	8	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of **Powdery Mildew**. Apply as a foliar spray using a retreatment interval of 7 days. Maximum of 4 applications per crop.	-
Copper as Copper Octanoate	M1	Protectant	1	A	ALL	Registered in cucurbits for control of **Powdery Mildew** and Downy Mildew. Apply as a foliar spray at the first sign of disease. Use a retreatment interval of 7-10 days. Maximum number of applications not specified.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Cyflufenamid (Flute) AgNova	U6	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of **Powdery Mildew** (*Podosphaera xanthii*). Apply as a foliar spray before first sign of disease. Use a retreatment interval of 7-10 days. Do not apply consecutive applications. Maximum of 2 applications per crop.	-
Florylpicoxamid (Verpixo Adavelt) Corteva	21	Protectant	1	A	ALL	Registered in cucurbits for control of **Powdery Mildew** (*Podosphaera xanthii*). Apply as a foliar spray prior to disease infection or when conditions favour disease development. A second application can be made using a retreatment interval of 7-10 days. Maximum of 2 consecutive sprays, and maximum of 3 applications per crop.	-
Fluopyram + Tebuconazole (Luna Experience) Bayer	7+3	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of **Powdery Mildew** (*Podosphaera xanthii*) and Gummy Stem Blight (*Didymella bryoniae*). Apply as a foliar spray prior to disease onset, using a retreatment interval of 7-14 days. Maximum of 3 applications per year.	R3
Hydrogen Peroxide + Peroxyacetic Acid (Peratec Plus)	M	Protectant	1	A	ALL	Registered in cucurbits for control of **Powdery Mildew** (*Sphaerotheca* spp.) Apply as a foliar spray for 2 consecutive applications using a 5-7 day retreatment interval. Maximum of 4 applications per crop.	-
Mandestrobin (Intuity) Sumitomo	11	Protectant & Curative	7 G:7	A	ALL	Registered in cucurbits (field only) for control of **Powdery Mildew** (*Podosphaera xanthii*). Apply as a foliar spray prior to or at first sign of disease development. Do not apply consecutive sprays. Maximum of 2 applications per crop.	-
Mefentrifluconazole (Belanty) BASF	3	Protectant & Curative	NR NG	A	ALL	Registered in cucurbits for control of **Powdery Mildew** (*Podosphaera fuliginea*, *Podosphaera xanthii*) and Gummy Stem Blight (*Didymella bryoniae*, *Stagonosporopsis* sp.) Apply as a foliar spray prior to infection when conditions favour disease, using a retreatment interval of 7-10 days. Maximum of 3 applications per year, with no more than 2 consecutive applications.	-
Metrafenone (Vivando) BASF	50	Protectant	7	A	ALL	Registered in cucurbits for control of **Powdery Mildew** (*Podosphaera xanthii*). Apply as a foliar spray before disease becomes established. Apply 2 consecutive sprays using a 7-10 day retreatment interval. Maximum of 4 applications per crop.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Orange Oil (Prev-Am) Oro Agri	-	Protectant	NR	A	ALL	Registered in cucurbits for control of **Powdery Mildew** (*Podosphaera xanthii*). Apply as a foliar spray when conditions are favourable for disease development. Use a 7 day retreatment interval. Maximum number of applications not specified.	-
Penthiopyrad (Fontelis) Corteva	7	Protectant	1 NG	A	ALL	Registered in cucurbits for control of Grey Mould (*Botrytis cinerea*), **Powdery Mildew** (*Sphaerotheca fuliginea*, *Erysiphe cichoracearum*) and Gummy Stem Blight (*Didymella bryoniae*). Apply as a foliar spray, starting prior to disease development and continue using a retreatment interval of 7-10 days. Maximum of 3 applications per season, with no more than 2 consecutive applications.	-
Proquinazid (Talendo) Corteva	13	Protectant	1 NG	A	ALL	Registered in cucurbits (field grown only) for control of **Powdery Mildew**. Apply as a foliar spray at the first sign of disease, and repeat using a 10-14 day retreatment interval. Maximum of 3 applications per crop, and no more than 2 consecutive applications.	-
Pydiflumetofen + Difenoconazole (Miravis Duo) Syngenta	7+3	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of **Powdery Mildew** (*Sphaerotheca fuliginea*, *Erysiphe* spp., *Podosphora xanthii*), Gummy Stem Blight (*Stagonosporopsis cucurbitacearum* nee *Didymella bryoniae*), Alternaria Leaf Spot (*Alternaria spp.*) and Cercospora Leaf Spot (*Cercospora* spp.) Apply as a foliar spray when conditions favour disease and before onset of symptoms. Use a minimum retreatment interval of 7-10 days. Maximum of 2 applications per crop per year.	R3
Pyraclostrobin + Fluxapyroxad (Merivon) BASF	11+7	Protectant & Curative	NR	A	ALL	Registered in cucurbits (field only) for control of Gummy Stem Blight (*Didymella bryoniae*) and **Powdery Mildew** (*Podosphaera fuliginea*). Apply as a foliar spray in a preventative program, using a retreatment interval of 7-14 days. Maximum of 3 applications per year, with no more than 2 consecutive applications.	-
Pyriofenone (Kusabi) AgNova	50	Protectant	NR NG	A	ALL	Registered in cucurbits (field only) for control of **Powdery Mildew** (*Podosphora xanthii*). Apply as a foliar spray when conditions favour disease development, and repeat using a retreatment interval of 7-10 days. Maximum of 3 applications per crop.	-
Streptomyces lydicus WYEC108 (Actinovate) Novozymes Bioag	BM 02	Biological	NR	A	ALL	Registered in cucurbits for control of **Powdery Mildew**. Apply as a foliar spray prior to onset of disease. Retreatment interval and maximum number of applications not specified.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Sulfur	M2	Protectant	NR	A	QLD	Registered in vegetables (except rockmelons) for control of **Powdery Mildew** (*Sphaerotheca* spp.) and Rust (*Uromyces* spp.) Apply as a foliar spray when disease activity is observed, and repeat using a 14 day retreatment interval. Maximum number of applications not specified.	-
Triadimefon	3	Protectant & Curative	1	A	NSW & WA	Registered in cucurbits for control of **Powdery Mildew**. Apply as a foliar spray at first sign of disease, and repeat using a retreatment interval of 5-10 days. Maximum number of applications not specified.	R3
Triadimenol	3	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of **Powdery Mildew**. Apply as a foliar spray at first sign of disease, and repeat using a retreatment interval of 5-10 days. Maximum number of applications not specified.	R3
Acibenzolar-S-Methyl (Actigard Plant Activator) Syngenta	P01	Protectant		P		Registered in tomatoes for the suppression of Bacterial Speck, Bacterial Spot, Bacterial Canker and **Powdery Mildew**. US registration for control of **Powdery Mildew** in cucurbits.	-
Bacillius amyloliquefaciens (Serifel) BASF	BM02	Biological	NR	P		Registered in strawberries and berries (including blackberries, blueberries and raspberries) for control of Grey Mould (*Botrytis cinerea*). US registration for control of **Powdery Mildew** in artichoke, berries, brassica leafy vegetables, bulb vegetables, cucurbits, fruiting vegetables, grapes, hops, leafy vegetables, legume vegetables, pome fruit, stone fruit, sugar beet and tobacco.	-
Bacillus amyloliquefaciens Strain QST 713 (Serenade Opti) Bayer	BM02	Biological	NR	P		Registered in strawberries for control of Botrytis (*Botrytis cinerea*). Permitted for control of **Powdery Mildew** in eggplant. US registration for control of **Powdery Mildew** in cucurbits, grapes, pome fruit, stone fruit and strawberries.	-
Polyoxin D Zinc Salt (Intervene) Nufarm	19	Protectant	NR	P		Registered for control of Grey Mould, Hull Rot and **Powdery Mildew** in almonds, apples, berries and grapes.	**-**

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Downy Mildew (*Pseudoperonospora cubensis*) **Priority: Moderate**							
Rated as a high priority in QLD, and as a moderate priority in NSW & WA. Downy Mildew is favoured by moist conditions, such as rain, fog and heavy dews. The spores are readily spread by wind and disease management involves the use of fungicides when conditions favour infection. Farm hygiene plays an important role in reducing infection sources but will not prevent the need for fungicides if favourable conditions occur.							
Azoxystrobin (Amistar)	11	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of Powdery Mildew (*Sphaerotheca fuliginea*), **Downy Mildew** (*Pseudoperonospora cubensis*) and Gummy Stem Blight (*Didymella bryoniae*). Apply as a foliar spray using a 7-14 day retreatment interval. Maximum of 2 applications per crop.	-
Azoxystrobin + Oxathiapiprolin (Orondis Flexi) Syngenta	11+49	Protectant & Curative	3 NG	A	ALL	Registered in cucurbits for control of **Downy Mildew** (*Pseudoperonospora cubensis*) and suppression of Powdery Mildew (*Sphaerotheca fuliginea*), Gummy Stem Blight (*Didymella bryoniae*) and *Sclerotinia* spp. Apply as a foliar spray before disease symptoms appear. Use a retreatment interval of 7-14 days. Maximum of 2 applications per crop.	-
Chlorothalonil (Bravo)	M5	Protectant	1	A	ALL	Registered in cucurbits for control of **Downy Mildew** (*Pseudoperonospora cubensis*), Gummy Stem Blight (*Didymella bryoniae*), Anthracnose (*Colletotrichum orbiculare*), Leaf Blight (*Alternaria cucumerina*), Target Leaf Spot (*Cercospora citrullina*) and suppression of Belly Rot (*Rhizoctonia solani*). Apply as a foliar spray using a 7-14 day retreatment interval. Maximum number of treatments per crop not specified.	R3
Copper as Copper Octanoate	M1	Protectant	1	A	ALL	Registered in cucurbits for control of Powdery Mildew and **Downy Mildew**. Apply as a foliar spray at the first sign of disease. Use a retreatment interval of 7-10 days. Maximum number of applications not specified.	-
Copper as Copper Ammonium Acetate Complex						Registered in cucurbits for control of **Downy Mildew** (*Pseudoperonospora cubensis*), Angular Leaf Spot (*Pseudomonas syringae pv. lachrymans*) and Bacterial Leaf Spot (*Xanthomonas campestris pv. cucurbitae*). Apply as a foliar spray at the first sign of disease. Use a retreatment interval of 7-10 days. Maximum number of applications not specified.	

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Dimethomorph (Acrobat)	40	Protectant	7	A	ALL	Registered in cucurbits for control of **Downy Mildew** (*Pseudoperonospora cubensis*). Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	-
Dimethomorph + Ametoctradin (Zampro) BASF	40+45	Protectant	1	A	ALL	Registered in cucurbits for control of **Downy Mildew** (*Pseudoperonospora cubensis*). Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive sprays using a retreatment interval of 7-10 days. Maximum of 2 applications per crop.	-
Mancozeb	M3	Protectant	7	A	ALL	Registered in cucurbits for control of **Downy Mildew**, Anthracnose, Gummy Stem Blight and Septoria Spot. Apply as a foliar spray at first signs of disease, using a 7-10 day retreatment interval. Maximum number of applications not specified.	R2
Mancozeb + Dimethomorph (Acrobat WDG)	M3+40	Protectant	7	A	ALL	Registered in cucurbits for control of **Downy Mildew** (*Pseudoperonospora cubensis*). Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	R2
Mancozeb + Metalaxyl-M (Ridomil Gold MZ)	M3+4	Protectant	7	A	ALL	Registered in cucurbits for control of **Downy Mildew**. Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	R2
Metiram (Polyram)	M3	Protectant	7	A	ALL	Registered in cucurbits for control of **Downy Mildew** (*Pseudoperonospora cubensis*) and Gummy Stem Blight (*Didymella bryoniae*). Apply as a foliar spray when disease first becomes apparent and reapply using a retreatment interval of 7 days. Maximum number of applications not specified.	R2
Oxathiapiprolin (Zorvec Enicade) Corteva	49	Protectant	1 NG	A	ALL	Registered in cucurbits for control of **Downy Mildew** (*Pseudoperonospora cubensis*). Apply as a foliar spray when conditions favour the disease but before the disease is evident, and repeat using a retreatment interval of 7-10 days. Maximum of 3 applications per crop and maximum of 6 applications per year, with no more than 2 consecutive applications.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Phosphorous Acid	33	Protectant & Curative	NR	A	ALL	Registered in cucurbits for control of **Downy Mildew** (*Pseudoperonospora cubensis*). Apply as a foliar spray when conditions favour disease development, using a retreatment interval of 7 days. Maximum number of applications not specified.	-
Propamocarb Hydrochloride + Fluopicolide (Infinito) Bayer	28+43	Protectant	3	A	ALL	Registered in cucurbits for control of **Downy Mildew** (*Pseudoperonospora cubensis*). Apply as a foliar spray when conditions favour disease development, using a retreatment interval of 7-10 days. Maximum of 2 applications per crop.	-
Propineb (Antracol)	M3	Protectant	3	A	ALL	Registered in cucurbits for control of **Downy Mildew**. Apply as a foliar spray when conditions favour disease using a retreatment interval of 7 days. Maximum number of applications not specified.	R2
Propineb + Oxadixyl (Rebound)	M3+4	Protectant	3	A	ALL	Registered in cucurbits for control of **Downy Mildew**, Anthracnose and Gummy Stem Blight. Apply as a foliar spray when conditions favour disease and apply a sequence of 2 applications using a retreatment interval of 7-10 days. Maximum number of applications not specified.	R2
Zineb	M3	Protectant	7	A	ALL	Registered in cucurbits for control of **Downy Mildew** and Anthracnose. Apply as a foliar spray when weather favours disease, using a 7-10 day retreatment interval. Maximum number of applications not specified.	R2
Hydrogen Peroxide + Peroxyacetic Acid (Peratec Plus)	M	Protectant	1	P-A	ALL	Registered in cucurbits for control of Powdery Mildew (*Sphaerotheca* spp.) Registered for control of **Downy Mildew** in grapes, brassica vegetables and allium vegetables.	-
Acibenzolar-S-Methyl (Actigard Plant Activator) Syngenta	P01	Protectant		P		Registered in tomatoes for the suppression of Bacterial Speck, Bacterial Spot, Bacterial Canker and Powdery Mildew. US registration for control of **Downy Mildew** in brassica leafy vegetables and leafy vegetables, and suppression of **Downy Mildew** in cucurbits and bulb onions.	-
Cyazofamid (Ranman) ISK/UPL	21	Curative / Protectant		P		Registered for control of **Downy Mildew** in brassica vegetables, brassica leafy vegetables, poppies, nursery stock and basil.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Fluoxapiprolin (Xivana Prime 20SC) Bayer	49	Protectant & Curative		P		Registered for control of **Downy Mildew** in grapevines.	-
Fluxapyroxad + Pyraclostrobin (Merivon) BASF	7+11	Protectant & Curative		P		Registered in almonds, cherries and macadamia for control of various leaf diseases. US registration for suppression of **Downy Mildew** in bulb vegetables, cucurbits and leafy vegetables.	**-**
Mandipropamid (Revus) Syngenta	40	Curative / Protectant		P		Registered for control of **Downy Mildew** in grapes, lettuce, leafy vegetables and oilseed poppies.	-
Oxathiapiprolin + Mancozeb (Zorvec Enibel) Corteva	49+M3	Protectant		P		Registered for control of **Downy Mildew** in bulb vegetables.	R2
Polyoxin D Zinc Salt (Intervene) Nufarm	19	Protectant	NR	P		Registered for control of Grey Mould, Hull Rot and Powdery Mildew in almonds, apples, berries and grapes. US registration for control of **Downy Mildew** in ornamentals.	**-**
Alternaria Leaf Disease (*Alternaria* spp.) **Priority: Moderate**							
Rated as a moderate priority in NSW, QLD & WA. Alternaria infection is favoured by warm, moist conditions and results in development of lesions on the leaves which can cause death of the foliage in severe cases. Use of disease-free seed and destruction of crop residues should be used, as well as maintaining a healthy crop through balanced nutrition program. Fungicides should be used in conjunction with good cultural practices to achieve effective disease management.							
Chlorothalonil (Bravo)	M5	Protectant	1	A	ALL	Registered in cucurbits for control of Downy Mildew (*Pseudoperonospora cubensis*), Gummy Stem Blight (*Didymella bryoniae*), Anthracnose (*Colletotrichum orbiculare*), **Leaf Blight** (*Alternaria cucumerina*), Target Leaf Spot (*Cercospora citrullina*) and suppression of Belly Rot (*Rhizoctonia solani*). Apply as a foliar spray using a 7-14 day retreatment interval. Maximum number of treatments per crop not specified.	R3

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Dimethomorph (Acrobat)	40	Protectant	7	A	QLD & NT	Registered in cucurbits for control of Anthracnose (*Colletotrichum* spp.), Gummy Stem Blight (*Didymella bryoniae*) and **Alternaria Leaf Spot** (*Alternaria* spp.) Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	-
Mancozeb + Dimethomorph (Acrobat WDG)	M3+40	Protectant	7	A	QLD & NT	Registered in cucurbits for control of Anthracnose (*Colletotrichum* spp.), Gummy Stem Blight (*Didymella bryoniae*) and **Alternaria Leaf Spot** (*Alternaria* spp.) Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	R2
Mancozeb + Metalaxyl-M (Ridomil Gold MZ)	M3+4	Protectant	7	A	QLD & NT	Registered in cucurbits for control of Anthracnose, Gummy Stem Blight and **Alternaria Leaf Spot**. Apply as a foliar spray when conditions favour disease development but before disease is evident. Apply 2 consecutive applications using a 7-10 day retreatment interval, then change to a fungicide from a different chemical group. Maximum of 4 applications per crop.	R2
Pydiflumetofen + Difenoconazole (Miravis Duo) Syngenta	7+3	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of Powdery Mildew (*Sphaerotheca fuliginea*, *Erysiphe* spp., *Podosphora xanthii*), Gummy Stem Blight (*Stagonosporopsis cucurbitacearum* nee *Didymella bryoniae*), **Alternaria Leaf Spot** (*Alternaria spp.*) and Cercospora Leaf Spot (*Cercospora* spp.) Apply as a foliar spray when conditions favour disease and before onset of symptoms. Use a minimum retreatment interval of 7-10 days. Maximum of 2 applications per crop per year.	R3
Florylpicoxamid (Verpixo Adavelt) Corteva	21	Protectant	1	P-A	ALL	Registered in cucurbits for control of Powdery Mildew (*Podosphaera xanthii*). Canadian registration for control of **Alternaria** in canola.	-
Bacillus amyloliquefaciens (Serenade Opti) Bayer	BM 02	Biological	NR	P		Registered for suppression of Bacterial Spot in capsicum, chilli and tomato, Anthracnose and Stem End Rot in avocado and mango, and Botrytis in grapevines and strawberries. US registration for control of ***Alternaria*** in berries, brassica vegetables, citrus, bulb vegetables, herbs/spices, root/tuber and corm vegetables, stone fruit and tree nuts.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Bacillus amyloliquefaciens strain MBI 600 (Serifel) BASF	BM 02	Biological	NR	P		Registered for control of Botrytis in grapevines 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.	-
Charcoal Rot (*Macrophomina phaseolina*) **Priority: Moderate**							
Rated as a moderate priority in NSW, QLD & WA. Charcoal Rot is a common soil-borne pathogen which causes bleaching of stems and leaf death near the crown of the plant. It is favoured by warm to hot conditions and is spread by infected trash and soil. Good farm hygiene should be used to manage the disease. Note that symptoms may be confused with Gummy Stem Blight.							
Chloropicrin + 1,3-Dichloropropene	8B	Fumigant	NR	A	ALL	Registered in vegetables for control of plant parasitic Nematodes, Symphylans, Wireworms, soil borne diseases (including *Fusarium* and *Verticillium* wilts, *Rhizoctonia, Pythium*) and suppression of weeds. Restricted chemical. ***For use by professional and registered fumigators only.***	-
Bacillus amyloliquefaciens Strain QST 713 (Serenade Prime Soil Ameliorant and Biofungicide) Bayer	BM 02	Biological Soil Ameliorant	NR	P-A	ALL	Available in berries 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
Cercospora Leaf Spot (*Cercospora citrullina*) **Priority: Low**							
Rated as a high priority in NSW, and as a low priority in QLD & WA. Cercospora is a common disease but is usually not important in well-managed crops. The use of good farm hygiene will generally ensure that additional control measures will not be required.							
Chlorothalonil (Bravo)	M5	Protectant	1	A	ALL	Registered in cucurbits for control of Downy Mildew (*Pseudoperonospora cubensis*), Gummy Stem Blight (*Didymella bryoniae*), Anthracnose (*Colletotrichum orbiculare*), Leaf Blight (*Alternaria cucumerina*), **Target Leaf Spot** (*Cercospora citrullina*) and suppression of Belly Rot (*Rhizoctonia solani*). Apply as a foliar spray using a 7-14 day retreatment interval. Maximum number of treatments per crop not specified.	R3
Pydiflumetofen + Difenoconazole (Miravis Duo) Syngenta	7+3	Protectant & Curative	1	A	ALL	Registered in cucurbits for control of Powdery Mildew (*Sphaerotheca fuliginea*, *Erysiphe* spp., *Podosphora xanthii*), Gummy Stem Blight (*Stagonosporopsis cucurbitacearum* nee *Didymella bryoniae*), Alternaria Leaf Spot (*Alternaria spp.*) and **Cercospora Leaf Spot** (*Cercospora* spp.) Apply as a foliar spray when conditions favour disease and before onset of symptoms. Use a minimum retreatment interval of 7-10 days. Maximum of 2 applications per crop per year.	R3
Fluopyram + Tebuconazole (Luna Experience) Bayer	7+3	Protectant & Curative	1	P-A	ALL	Registered in cucurbits for control of Powdery Mildew (*Podosphaera xanthii*) and Gummy Stem Blight (*Didymella bryoniae*). US registration for control of ***Cercospora* spp.** in Brassica leafy vegetables and okra, and for control of Powdery Mildew, Alternaria Leaf Spot Gummy Stem Blight, Belly Rot and Anthracnose in cucurbits.	R3
Hydrogen Peroxide + Peroxyacetic Acid (Peratec Plus)	M	Protectant	1	P-A	ALL	Registered in cucurbits for control of Powdery Mildew (*Sphaerotheca* spp.) Registered for control of ***Cercospora* spp.** in celery.	-
Penthiopyrad (Fontelis) Corteva	7	Protectant	1 NG	P-A	ALL	Registered in cucurbits for control of Grey Mould (*Botrytis cinerea*), Powdery Mildew (*Sphaerotheca fuliginea*, *Erysiphe cichoracearum*) and Gummy Stem Blight (*Didymella bryoniae*). US registration for control of ***Cercospora* spp.** in leafy greens, leaf petiole vegetables, legume vegetables, peanut and root vegetables.	-

Disease / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Regulatory risk
Pyraclostrobin + Fluxapyroxad (Merivon) BASF	11+7	Protectant & Curative	NR	P-A	ALL	Registered in cucurbits (field only) for control of Gummy Stem Blight (*Didymella bryoniae*) and Powdery Mildew (*Podosphaera fuliginea*). US registration for control of **Cercospora Leaf Spot** in cucurbits.	-
Azoxystrobin + Difenoconazole (Amistar Top) Syngenta	3+11	Protective & curative		P		Registered for control of ***Cercospora* spp.** in carrots.	R3
Bacillus amyloliquefaciens (Serifel) BASF	BM02	Biological	NR	P		Registered in grapes, strawberries and berries (including blackberries, blueberries and raspberries) for control of Grey Mould (*Botrytis cinerea*). US registration for control of **Cercospora** in leafy vegetables, sugar beet and tobacco.	-
Bacillus amyloliquefaciens strain QST 713 (Serenade Opti) Bayer	BM 02	Biological / Protectant	NR	P		Registered in grapevines and strawberries for control of Botrytis, in tomatoes, capsicums and chillies for suppression of Bacterial Spot and in avocado and other tropical fruits (excluding banana) for control of Anthracnose and suppression of Stem End Rot. US registration for control of ***Cercospora* spp.** in brassica leafy vegetables, cereal grains, legume vegetables, olives, peanuts, root & tuber vegetables, soybeans and watercress (Serenade ASO label).	**-**
Pydiflumetofen + Fludioxonil (Miravis Prime) Syngenta	7+12	Protectant / Curative		P		Registered for control of various diseases in grapes, berries, leafy vegetables, lettuce and potato. US registration for control of ***Cercospora* spp.** in cucurbits.	R3

4.2 Insect and other pests of Melon

4.2.1 Insect and other pest priorities

Insects and Other Pests	Priority
Native Budworm (*Helicoverpa punctigera*)	H
Cotton Bollworm (*Helicoverpa armigera*)	H
Western Flower Thrips (*Frankliniella occidentalis*)	H
Melon Thrips (*Thrips palmi*)	H
Silverleaf Whitefly (*Bemisia tabaci*)	H
Two-Spotted Mite (*Tetranychus urticae*)	M
Melon Aphid (*Aphis gossypii*)	M
Green Peach Aphid (*Myzus persicae*)	M
Cucumber Moth (*Diaphania indica*)	M
Cutworms (*Agrostis* spp.)	M
Fall Armyworm (*Spodoptera frugiperda*)	M
Queensland Fruit Fly (*Bactrocera tryoni*)	L
Mediterranean Fruit Fly (*Ceratitis capitata*)	L
Cucumber Fruit Fly (*Bactrocera cucumis*)	L
European Red Mite (*Panonychus ulmi*)	L
Broad Mite (*Polyphagotarsonemus latus*)	L
Tomato Russet Mite (*Aculops lycopersici*)	L
Onion Thrips (*Thrips tabaci*)	L
Greenhouse Whitefly (*Trialeurodes vaporariorum*)	L
Cucurbit Stemborer (*Melittia cucurbitae*)	L

Melons are impacted by a wide variety of insect and other pests, with Native Budworm, Cotton Bollworm, Western Flower Thrips, Melon Thrips and Silverleaf Whitefly rated as high priority pests. It is important to take an Integrated Pest Management (IPM) Approach to pest control in melons. The diversity of insects that will attack these crops mean that a planned, strategic approach is required. A range of control measures should be used, including cultural controls, biological controls and insecticides. Beneficial insects such as predators, parasitoids and pollinators should be encouraged and can be introduced artificially if required. Insecticide choice should be made with regard to preserving the beneficial insects that play an important role in the crop.

The diverse range of insect and mite pests in melon necessitates careful planning with resistance management. Growers should refer to resistance management strategies listed on the CropLife website[7] when planning their pest management programs.

[7] https://www.croplife.org.au/resources/programs/resistance-management/

4.2.2 Available and potential products for priority insects and other pests

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 2019-20 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
Native Budworm (*Helicoverpa punctigera*) **Cotton Bollworm** (*Helicoverpa armigera*) **Priority: High**								
Rated as a high priority in QLD, and as a moderate priority in NSW & WA. Helicoverpa occur in all growing regions although they tend to be more abundant in warmer areas. Damage is caused by caterpillars (larval stage), and they will feed on leaves, flowers and fruit. Frass can be a contamination issue at harvest. An integrated pest management approach should be used, including preservation of beneficial species and use of spray thresholds to inform the application of insecticides.								
Bacillus thuringiensis subsp Kurstaki Strain HD-1 (DiPel)	11	Biological / Ingestion	NR	A	ALL	Registered in vegetables for control of Armyworm (*Spodoptera* spp.), **Cotton Bollworm** (*Helicoverpa armigera*), **Native Budworm** (*Helicoverpa punctigera*), Cabbage Moth (*Plutella xylostella*), Cabbage White Butterfly (*Pieris rapae*), Green Looper (*Chrysodeixis eriosoma*), Light Brown Apple Moth (*Epiphyas postvittana*), Pear Looper (*Ectropis excursaria*), Soybean Looper (*Thysanoplusia orichalcea*), Vine Moth (*Phalaenoides glycinae*, *Agarista agricola*) and Tobacco Looper (*Chrysodeixis argentifera*). Time spraying to coincide with egg hatch. Treatments per season not limited.	VL Bee:VL	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Bifenthrin (Talstar)	3A	Contact	1	A	ALL	Registered in cucurbits (field grown only) for control of **Native Budworm** (*Helicoverpa punctigera*), **Corn Earworm** (*Helicoverpa armigera*) and Cucumber Moth (*Diaphania indica*). Apply as a foliar spray to coincide with egg hatch and when small larvae are present. Use a retreatment interval of 7-10 days. Maximum of 2 applications per crop.	VH Bee:H	R3
Carbaryl	1A	Contact	NR	A	ALL	Registered in melons (up to time of flowering only) for control of **Budworms** (*Heliothis* spp.), Pumpkin Beetle and 28-Spotted Ladybird. Apply as a foliar spray at first sign of pest activity. Retreatment interval and maximum number of applications not specified.	H Bee:H	R2
Chlorantraniliprole (Coragen)	28	Ingestion	1 G:7	A	ALL	Registered in fruiting vegetables (cucurbits) for control of **Cotton Bollworm** (*Helicoverpa armigera*), **Native Budworm** (*Helicoverpa punctigera*) and Cucumber Moth (*Diaphania indica*). Apply as a foliar spray to coincide with egg hatch and when small larvae are present. Use a minimum retreatment interval of 5 days. Maximum of 3 applications per crop, and no more than 2 consecutive applications.	L Bee:VL	-
Cyantraniliprole (Benevia) FMC	28	Ingestion	1 NG	A	ALL	Registered in fruiting vegetables (cucurbits) for control of Melon Aphid (*Aphis gossypii*), Silverleaf Whitefly (*Bemisia tabaci*), **Cotton Bollworm** (*Helicoverpa armigera*), Cucumber Moth (*Diaphania indica*), **Native Budworm** (*Helicoverpa punctigera*) and suppression of Western Flower Thrips (*Frankliniella occidentalis*). Apply as a foliar spray to coincide with egg hatch and when small larvae are present. Use a retreatment interval of 7-10 days. Maximum of 2 applications per crop.	L Bee:L	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Cyantraniliprole + Diafenthiuron (Minecto Forte) Syngenta	28+12A	Ingestion	1	A	ALL	Registered in cucurbits (open field only) for control of Silverleaf Whitefly (*Bemisia tabaci*), Melon Aphid (*Aphis gossypii*), **Cotton Bollworm** (*Helicoverpa armigera*), **Native Budworm** (*Helicoverpa punctigera*), Cucumber Moth (*Diaphania indica*), Cluster Caterpillar (*Spodoptera litura*), Green Peach Aphid (*Myzus persicae*) and Two-Spotted Mite (*Tetranychus urticae*), and suppression of Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*) and Plague Thrips (*Thrips imaginis*). Apply as a foliar spray targeting eggs and newly hatched larvae. Retreatment interval not specified. Maximum of 2 applications per crop.	M Bee:VH	-
Emamectin (Proclaim Opti) Syngenta	6	Ingestion	3 NG	A	ALL	Registered in cucurbits for control of **Heliothis** (*Helicoverpa* spp.), Cluster Caterpillar (*Spodoptera litura*) and Cucumber Moth (*Diaphania indica*). Apply as a foliar spray to coincide with egg hatch and when small larvae are present. Use a minimum retreatment interval of 7 days. Maximum of 4 applications per crop.	M Bee:H	-
Flubendiamide (Belt) Bayer	28	Ingestion	1	A	ALL	Registered in fruiting vegetables (cucurbits) for control of **Heliothis** (*Helicoverpa* spp.) and Cucumber Moth (*Diaphania indica*). Apply as a foliar spray to coincide with egg hatch and when small larvae are present. Use a retreatment interval of 7-14 days. Maximum of 3 applications per crop.	L-M Bee:L	-
Indoxacarb (Avatar eVo) FMC	22A	Ingestion	3 NG	A	ALL	Registered in cucurbits for control of **Cotton Bollworm** (*Helicoverpa armigera*), **Native Budworm** (*Helicoverpa punctigera*) and Cluster Caterpillar (*Spodoptera litura*). Apply as eggs and larvae reach economic thresholds and damage is observed. Use a minimum retreatment interval of 7 days. Maximum of 3 applications per crop, with no more than 2 consecutive applications.	M Bee:H	R3

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Isocycloseram (Simodis) Syngenta	30	Ingestion	1 NG	A	ALL	Registered in cucurbits for control of Two-Spotted Mite (*Tetranychus urticae*), Cucumber Moth (*Diaphania indica*), and suppression of Broad Mite (*Polyphagotarsonemus latus*), Bean Red Spider Mite (*Tetranychus ludeni*), Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*), Melon Thrips (*Thrips palmi*), Plague Thrips (*Thrips imaginis*) and **Heliothis** (*Helicoverpa* spp.) Apply as a foliar spray based on local thresholds and targeting egg hatch and newly hatched larvae. Use a minimum retreatment interval of 7 days. Maximum of 2 applications per crop.	H Bee:VH	-
Methomyl (Lannate) PER82428	1A	Contact	3	A	ALL	Permitted in cucurbits for control of ***Helicoverpa* spp.**, Cucumber Moth, Cluster Caterpillar, Loopers, Webworm, Rutherglen Bug and Thrips including Western Flower Thrips. Apply as a foliar spray when eggs and small larvae are present. Use a retreatment interval of 7 days. Maximum of 6 applications per crop.	H Bee:H	R2
Nuclear Polyhedrosis Virus (Vivus Max) AgBiTech	-	Biological / Ingestion	NR	A	ALL	Registered in cucurbits for control of **Corn Earworm** (*Helicoverpa armigera*) and **Native Budworm** (*Helicoverpa punctigera*). Apply as a foliar spray targeting at egg hatch and small larvae. Residual activity is short, and retreatment may be required at 2-3 day intervals. Maximum number of applications not specified.	VL Bee:L	-
Spinetoram (Success Neo) Corteva	5	Ingestion	3	A	ALL	Registered in cucurbits for control of Cucumber Moth, **Helicoverpa** and Western Flower Thrips. Apply as a foliar spray targeting at egg hatch and small larvae. Use a retreatment interval of 7-14 days. Maximum of 4 applications per season.	M Bee:H	-
Spinosad (Entrust Organic) Corteva	5	Ingestion	3	A	ALL	Registered in cucurbits for control of Cucumber Moth, **Helicoverpa** and Western Flower Thrips. Apply as a foliar spray targeting at egg hatch and small larvae. Use a retreatment interval of 7-14 days. Maximum of 4 applications per season.	L Bee:L	-
Clitoria ternatea Extract (Sero-X) Growth Agriculture		Biological / Ingestion	NR	P		Registered in cotton for control of ***Helicoverpa* spp.**, Green Mirids and Silverleaf Whitefly and in brassica leafy vegetables for control of Diamondback Moth.		-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Methoxyfenozide (Prodigy) Corteva	18	Ingestion		A		Registered for control of various lepidopteran pests in pome fruit, blueberries, citrus, grapevines, kiwifruit, almonds, avocado, coffee, custard apple, eggplant, longan, lychee, peppers, okra, macadamia and tomatoes.	VL Bee:VL	-
Tebufenozide (Mimic) Corteva	16A	Ingestion / IGR		P		Registered for control of various lepidopteran pests in apples, pears, citrus, grapevines, avocado, custard apple, kiwifruit, longan, lychee, macadamia and eucalyptus.	L Bee:L	-
Western Flower Thrips (*Frankliniella occidentalis*) **Melon Thrips** (*Thrips palmi*) **Priority: High**								
Rated as a high priority in QLD, and as a moderate priority in NSW & WA. Thrips feeding activity causes chlorosis and silvering of leaves and scarring of fruit. They are also potential vectors of plant viruses. Control of thrips with insecticides is difficult and an integrated pest management approach should be used to ensure that crop damage is minimised on an ongoing basis.								
Cyantraniliprole (Benevia) FMC	28	Ingestion	1 NG	A	ALL	Registered in fruiting vegetables (cucurbits) for control of Melon Aphid (*Aphis gossypii*), Silverleaf Whitefly (*Bemisia tabaci*), Cotton Bollworm (*Helicoverpa armigera*), Cucumber Moth (*Diaphania indica*), Native Budworm (*Helicoverpa punctigera*) and suppression of **Western Flower Thrips** (*Frankliniella occidentalis*). Apply as a foliar spray to a newly developing infestation. Use a retreatment interval of 7-10 days. Maximum of 2 applications per crop.	L Bee:L	-
Cyantraniliprole + Diafenthiuron (Minecto Forte) Syngenta	28+12A	Ingestion	1	A	ALL	Registered in cucurbits (open field only) for control of Silverleaf Whitefly (*Bemisia tabaci*), Melon Aphid (*Aphis gossypii*), Cotton Bollworm (*Helicoverpa armigera*), Native Budworm (*Helicoverpa punctigera*), Cucumber Moth (*Diaphania indica*), Cluster Caterpillar (*Spodoptera litura*), Green Peach Aphid (*Myzus persicae*) and Two-Spotted Mite (*Tetranychus urticae*), and suppression of **Western Flower Thrips** (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*) and Plague Thrips (*Thrips imaginis*). Apply as a foliar spray targeting an early stage population. Retreatment interval not specified. Maximum of 2 applications per crop.	M Bee:VH	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Diazinon	1B	Contact	14	A	ALL (excl. TAS)	Registered in cucurbits for control of **Thrips**. Apply as a foliar spray when thrips are in damaging numbers at flowering. Retreatment interval and maximum number of applications not specified.	H Bee:H	R1
Dimethoate	1B	Contact	7	A	ALL	Registered in melons for control of Aphids, Jassids, Mites, Leafhoppers, Green Vegetable Bug, **Thrips** and Wingless Grasshopper. Apply as a foliar spray when pests are present. Retreatment interval and maximum number of applications not specified.	H Bee:H	R2
Isocycloseram (Simodis) Syngenta	30	Ingestion	1 NG	A	ALL	Registered in cucurbits for control of Two-Spotted Mite (*Tetranychus urticae*), Cucumber Moth (*Diaphania indica*), and suppression of Broad Mite (*Polyphagotarsonemus latus*), Bean Red Spider Mite (*Tetranychus ludeni*), **Western Flower Thrips** (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*), **Melon Thrips** (*Thrips palmi*), Plague Thrips (*Thrips imaginis*) and Heliothis (*Helicoverpa* spp.) Apply as a foliar spray based on local thresholds. Use a minimum retreatment interval of 7 days. Maximum of 2 applications per crop.	H Bee:VH	-
Methomyl (Lannate) PER82428	1A	Contact	3	A	ALL	Permitted in cucurbits for control of *Helicoverpa* spp., Cucumber Moth, Cluster Caterpillar, Loopers, Webworm, Rutherglen Bug and Thrips including **Western Flower Thrips**. Apply as a foliar spray when nymphs and adults are present. Use a retreatment interval of 7 days. Maximum of 6 applications per crop.	H Bee:H	R2
Petroleum Oil	-	Contact	1	A	ALL	Registered in cucurbits for control of Aphids, Mites, **Thrips** and Laefhopper. Apply as a foliar spray when whitefly numbers are low. Retreatment interval and maximum number of applications not specified.	L Bee:L	-
Potassium Salts of Fatty Acid (Natrasoap)	-	Contact	NR	A	ALL	Registered in fruit for control of Aphids, **Thrips**, Mealybug, Two-Spotted Mite, Spider Mite and Whitefly. Apply as a cover spray. Retreatment interval and maximum number of treatments not specified.	L Bee:L	-

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 cucurbits for control of Cucumber Moth, Helicoverpa and **Western Flower Thrips**. Apply as a foliar spray targeting early-stage instars of the pest. Apply 3 consecutive treatments at either 3-5 day intervals when temperatures are above 20°C or at 6-12 day intervals when temperatures are less than 20°C. Maximum of 4 applications per season.	M Bee:H	-
Spinosad (Entrust Organic) Corteva	5	Ingestion	3	A	ALL	Registered in cucurbits for control of Cucumber Moth, **H**elicoverpa and **Western Flower Thrips**. Apply as a foliar spray targeting early-stage instars of the pest. Apply 3 consecutive treatments at either 3-5 day intervals when temperatures are above 20°C or at 6-12 day intervals when temperatures are less than 20°C. Maximum of 4 applications per season.	L Bee:L	-
Flupyradifurone (Sivanto Prime) Bayer	4D	Contact & Ingestion	1	P-A	ALL	Registered in cucurbits for control of Cotton Aphid (*Aphis gossypii*), Green Peach Aphid (*Myzus persicae*), Greenhouse Whitefly (*Trialeurodes vaporariorum*) and Silverleaf Whitefly (*Bemisia tabaci*). Registered for control of Scirtothrips in macadamias.	L Bee:L	-
Spirotetramat (Movento) Bayer	23	Ingestion	1	P-A	ALL	Registered in cucurbits for control of Cotton Aphid (*Aphis gossypii*), Green Peach Aphid (*Myzus persicae*) and Silverleaf Whitefly (*Bemisia tabaci*). Registered for control of **Western Flower Thrips** in green beans, eggplant, peppers, tomato and lettuce, control of **Western Flower Thrips** and Plague Thrips in celery, rhubarb, herbs and bulb vegetables (excluding onions), and control of Plague Thrips in grapes.	M Bee:VL	-
Acetamiprid + Pyriproxyfen (Trivor) Adama	4A+7C	Ingestion / IGR		P		Registered for control of Kelly's Citrus Thrips in citrus.	M Bee:H	R2
Beauveria bassiana (Velifer) BASF	UN			P		Registered for suppression of **Onion Thrips** and **Western Flower Thrips** in protected vegetables and ornamentals and has activity on Thrips, Aphids, Whitefly and Mites.	L Bee:L	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Silverleaf Whitefly (*Bemisia tabaci*) **Priority: High**								
Rated as a high priority in QLD, and as a moderate priority in NSW & WA. Silverleaf Whitefly cause damage through adults and nymphs sucking sap from plants which stunts growth and reduces yield. Whiteflies excrete a sticky honeydew which encourages sooty mould growth, and they can also be vectors for plant viruses. An integrated pest management approach should be used to ensure that crop damage is minimised on an ongoing basis. Beneficial species play a key role in suppressing whitefly populations.								
Afidopyropen (Versys) BASF	9D	Ingestion	1	A	ALL	Registered in cucurbits for control of Green Peach Aphid (*Myzus persicae*), Cabbage Aphid (*Brevicoryne brassicae*), Currant Lettuce Aphid (*Nasonovia ribis-nigri*), Cotton Aphid / Melon Aphid (*Aphis gossypii*) and Corn Aphid (*Rhopalosiphum maydis*) and suppression of **Silverleaf Whitefly** (*Bemisia tabaci*). Apply as a single foliar spray when local thresholds are reached. Maximum of 2 applications for Whitefly control per crop.	L Bee:L	-
Bifenthrin (Talstar)	3A	Contact	1	A	QLD, NSW, NT & WA	Registered in cucurbits (field grown only) for control of **Silverleaf Whitefly** (*Bemisia tabaci*). Apply as a foliar spray as indicated by field checks before populations reach damaging levels, targeting the adult stage of the pest. Retreatment interval not specified. Maximum of 2 applications per crop.	VH Bee:H	R3
Chlorpyrifos	1B	Contact	5	A	NSW	Registered in cucurbits for control of **Whiteflies**. Apply as a foliar spray when pest is first detected. Use a retreatment interval of 10-14 days. Maximum number of applications not specified.	H Bee:H	R1
Clitoria ternatea extract (Sero-X) Growth Agriculture	-	Biological	NR	A	ALL	Registered in cucurbits for control of **Silverleaf Whitefly** (*Bemisia tabaci*). Apply as a foliar spray when pest threshold is exceeded. Use a retreatment interval of 7 days. Maximum number of applications not specified.	L Bee:L	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Cyantraniliprole (Benevia) FMC	28	Ingestion	1 NG	A	ALL	Registered in fruiting vegetables (cucurbits) for control of Melon Aphid (*Aphis gossypii*), **Silverleaf Whitefly** (*Bemisia tabaci*), Cotton Bollworm (*Helicoverpa armigera*), Cucumber Moth (*Diaphania indica*), Native Budworm (*Helicoverpa punctigera*) and suppression of Western Flower Thrips (*Frankliniella occidentalis*). Apply as a foliar spray to a newly developing infestation. Use a retreatment interval of 7-10 days. Maximum of 2 applications per crop.	L Bee:L	-
Cyantraniliprole + Diafenthiuron (Minecto Forte) Syngenta	28+12A	Ingestion	1	A	ALL	Registered in cucurbits (open field only) for control of **Silverleaf Whitefly** (*Bemisia tabaci*), Melon Aphid (*Aphis gossypii*), Cotton Bollworm (*Helicoverpa armigera*), Native Budworm (*Helicoverpa punctigera*), Cucumber Moth (*Diaphania indica*), Cluster Caterpillar (*Spodoptera litura*), Green Peach Aphid (*Myzus persicae*) and Two-Spotted Mite (*Tetranychus urticae*), and suppression of Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*) and Plague Thrips (*Thrips imaginis*). Apply as a foliar spray targeting a newly developing population. Retreatment interval not specified. Maximum of 2 applications per crop.	M Bee:VH	-
Dimpropyridaz (Efficon) BASF	36	Ingestion	1	A	ALL	Registered in cucurbits for control of **Silverleaf Whitefly** (*Bemisia tabaci*), Greenhouse Whitefly (*Trialeurodes* spp.) and Cotton/Melon Aphid (*Aphis gossypii*). Apply as a foliar spray when local threshold is exceeded. Use a retreatment interval of 14 days. Maximum of 4 applications per crop, with no more 2 consecutive applications.	M Bee:L	-
Flonicamid (Mainman) UPL	29	Ingestion	1	A	ALL	Registered in cucurbits for control of Green Peach Aphid (*Myzus persicae*), Melon Aphid (*Aphis gossypii*) and **Silverleaf Whitefly** (*Bemisia tabaci*). Apply as a foliar spray at first sign of pest activity. Use a minimum retreatment interval of 14 days. Maximum of 3 applications per crop.	M Bee:VL	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Flupyradifurone (Sivanto Prime) Bayer	4D	Contact & Ingestion	1	A	ALL	Registered in cucurbits for control of Cotton Aphid (*Aphis gossypii*), Green Peach Aphid (*Myzus persicae*), Greenhouse Whitefly (*Trialeurodes vaporariorum*) and **Silverleaf Whitefly** (*Bemisia tabaci*). Apply as a foliar spray once monitoring indicates that thresholds have been reached. Use a minimum retreatment interval of 7 days. Maximum of 2 treatments per year.	L Bee:L	-
Orange Oil (Prev-Am) Oro Agri	-	Contact	NR	A	ALL	Registered in cucurbits for control of **Silverleaf Whitefly** (*Bemisia tabaci*) and Two-Spotted Mite (*Tetranychus urticae*). Apply as a foliar spray starting early in the pest infestation and use at least 2 consecutive applications at a retreatment interval of 5-12 days. Maximum number of applications not specified.	L Bee:L	-
Petroleum Oil	-	Contact	1	A	QLD	Registered in cucurbits for control of **Silverleaf Whitefly** (*Bemisia tabaci*). Apply as a foliar spray when whitefly numbers are low. Retreatment interval and maximum number of applications not specified.	L Bee:L	-
Potassium Salts of Fatty Acid (Natrasoap)	-	Contact	NR	A	ALL	Registered in fruit for control of Aphids, Thrips, Mealybug, Two-Spotted Mite, Spider Mite and **Whitefly**. Apply as a cover spray. Retreatment interval and maximum number of treatments not specified.	L Bee:L	-
Pymetrozine (Chess)	9B	Contact & Ingestion	3	A	ALL	Registered in cucurbits for control of Melon Aphid (*Aphis gossypii*), Green Peach Aphid (*Myzus persicae*), Potato Aphid (*Macrosiphum euphorbiae*) and Cowpea Aphid (*Aphis craccivora*) and suppression of **Silverleaf Whitefly** (*Bemisia tabaci*) and Greenhouse Whitefly (*Trialeurodes vaporariorum*). Apply as a foliar spray based on local thresholds. Use a minimum retreatment interval of 7 days. Maximum of 2 non-consecutive applications per crop.	L Bee:VL	R3
Pyriproxyfen (Admiral)	7C	IGR / Ingestion	1 NG	A	ALL	Registered in cucurbits for control of **Silverleaf Whitefly** (*Bemisia tabaci*). Apply as a foliar spray at first appearance of whitefly. Use a minimum retreatment interval of 14 days. Maximum of 2 applications per season.	VL Bee:L	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Pyriproxyfen + Piperonyl Butoxide (Patriarch RMR) Imtrade	7C	IGR / Ingestion	1 NG	A	ALL	Registered in cucurbits for control of **Silverleaf Whitefly** (*Bemisia tabaci*). Apply as a foliar spray at first appearance of whitefly. Use a minimum retreatment interval of 14 days. Maximum of 2 applications per season.	VL Bee:L	-
Spirotetramat (Movento) Bayer	23	Ingestion	1	A	ALL	Registered in cucurbits for control of Cotton Aphid (*Aphis gossypii*), Green Peach Aphid (*Myzus persicae*) and **Silverleaf Whitefly** (*Bemisia tabaci*). Apply as a foliar spray once local threshold is exceeded. Use a minimum retreatment interval of 7 days. Maximum of 3 applications per crop.	M Bee:VL	-
Beauveria bassiana (Velifer) BASF	UN	Biological		P		Registered for suppression of whitefly in protected vegetables and ornamentals.	L Bee:L	-
Clitoria ternatea Extract (Sero-X) Growth Agriculture	-	Biological	NR	P		Registered in cotton for control of *Helicoverpa* spp., Green Mirids and **Silverleaf Whitefly** and in brassica leafy vegetables for control of Diamondback Moth.	L Bee:VL	-
Two-Spotted Mite (*Tetranychus urticae*) **Priority: Moderate**								
Rated as a moderate priority in NSW & QLD, and as a high priority in WA. Two-Spotted Mites feed on the underside of leaves, causing stippling and yellowing which can coalesce into larger dead patches. Mite abundance is favoured by hot, dry weather and populations can be flared by the use of broad-spectrum chemistry which disrupts beneficial species. An integrated pest management strategy should be employed, including preservation of beneficials, suppression of dust and general farm hygiene measures.								
Bifenazate (Acramite)	20D	Contact & Ingestion	3	A	ALL	Registered in cucurbits for control of **Two-Spotted Mite** (*Tetranychus urticae*) and Bryobia Mite (*Bryobia rubrioculus*). Apply as a foliar spray as soon as mites appear. Maximum of 1 application per season.	L Bee:H	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Cyantraniliprole + Diafenthiuron (Minecto Forte) Syngenta	28+12A	Ingestion	1	A	ALL	Registered in cucurbits (open field only) for control of Silverleaf Whitefly (*Bemisia tabaci*), Melon Aphid (*Aphis gossypii*), Cotton Bollworm (*Helicoverpa armigera*), Native Budworm (*Helicoverpa punctigera*), Cucumber Moth (*Diaphania indica*), Cluster Caterpillar (*Spodoptera litura*), Green Peach Aphid (*Myzus persicae*) and **Two-Spotted Mite** (*Tetranychus urticae*), and suppression of Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*) and Plague Thrips (*Thrips imaginis*). Apply as a foliar spray targeting a newly developing population. Retreatment interval not specified. Maximum of 2 applications per crop.	M Bee:VH	-
Dimethoate	1B	Contact	7	A	ALL	Registered in melons for control of Aphids, Jassids, **Mites**, Leafhoppers, Green Vegetable Bug, Thrips and Wingless Grasshopper. Apply as a foliar spray when pests are present. Retreatment interval and maximum number of applications not specified.	H Bee:H	R2
Etoxazole (Paramite) Sumitomo PER14650	10B	IGR / Contact	7	A	ALL (excl. VIC)	Permitted in melons for control of **Two-Spotted Mite** (*Tetranychus urticae*). Apply as a foliar spray at first sign of mite crawlers. Maximum of 1 application per crop.	L Bee:VL	-
Hexythiazox (Calibre) PER14765 (permit not current at time of publication)	10A	IGR / Contact	3	A	ALL	Permitted in cucurbits for control of Tomato Russet Mite, Broad Mite and **Two-Spotted Mite**. NOTE: this permit is being considered for renewal by the APVMA at time of publication.	L Bee:L	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Isocycloseram (Simodis) Syngenta	30	Ingestion	1 NG	A	ALL	Registered in cucurbits for control of **Two-Spotted Mite** (*Tetranychus urticae*), Cucumber Moth (*Diaphania indica*), and suppression of Broad Mite (*Polyphagotarsonemus latus*), Bean Red Spider Mite (*Tetranychus ludeni*), Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*), **Melon Thrips** (*Thrips palmi*), Plague Thrips (*Thrips imaginis*) and Heliothis (*Helicoverpa* spp.) Apply as a foliar spray based on local thresholds to an early stage population. Use a minimum retreatment interval of 7 days. Maximum of 2 non-consecutive applications per crop.	H Bee:VH	-
Magnesium Hydroxide (Magnera) UPL	-	Contact	NR	A	ALL	Registered in cucurbits for suppression of **Two-Spotted Mite**. Apply as a foliar spray prior to presence of the pest. Use a retreatment interval of 7-14 days. Maximum number of applications not specified.	L Bee:L	-
Orange Oil (Prev-Am) Oro Agri	-	Contact	NR	A	ALL	Registered in cucurbits for control of Silverleaf Whitefly (*Bemisia tabaci*) and **Two-Spotted Mite** (*Tetranychus urticae*). Apply as a foliar spray starting early in the pest infestation and use at least 2 consecutive applications at a retreatment interval of 5-12 days. Maximum number of applications not specified.	L Bee:L	-
Petroleum Oil	-	Contact	1	A	ALL	Registered in cucurbits for control of Aphids, **Mites**, Thrips and Laefhopper. Apply as a foliar spray when whitefly numbers are low. Retreatment interval and maximum number of applications not specified.	L Bee:L	-
Potassium Salts of Fatty Acid (Natrasoap)	-	Contact	NR	A	ALL	Registered in fruit for control of Aphids, Thrips, Mealybug, **Two-Spotted Mite**, Spider Mite and Whitefly. Apply as a cover spray. Retreatment interval and maximum number of treatments not specified.	L Bee:L	-
Propargite	12C	Contact	7	A	ALL	Registered in vegetables for control of **Two-Spotted Mite**. Apply as a foliar spray when pests appear. Retreatment interval and maximum number of applications not specified.	M Bee:L	R3

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Acequinocyl (Kanemite) UPL	20B	Contact & Ingestion		P		Registered for control of **Two-Spotted Mite** in pome fruit and stone fruit.	L Bee:L	-
Cyflumetofen (Danisaraba) BASF	25A	Contact		P		Registered for control of **Two Spotted Mite** (*Tetranychus urticae*) in pome fruit, almond, citrus, grapes, strawberries, fruiting vegetables and ornamentals.	L Bee:L	-
Fenbutatin Oxide (Torque) BASF	12B	Contact		P		Registered for control of **Two Spotted Mite** in apples, pears, peaches, nectarines, hops, bananas, strawberries and ornamentals.	L Bee:L	R3
Spiromesifen (Interrupt) Bayer	23	Ingestion		P		Registered for control of **Two Spotted Mite** in pome fruit and stone fruit.	M Bee:VL	-
Melon Aphid (*Aphis gossypii*) **Green Peach Aphid** (*Myzus persicae*) **Priority: Moderate**								
Melon Aphid is rated as a moderate priority in NSW & QLD, and as a high priority in WA. Green Peach Aphid is rated as a moderate priority in NSW & QLD, and as a low priority in WA. Aphids feed on the underside of leaves, causing distortion, reducing photosynthesis and causing loss of foliage in severe cases. They also secrete honeydew which leads to the growth of sooty mould and they can be vectors for plant viruses.								
Afidopyropen (Versys) BASF	9D	Ingestion	1	A	ALL	Registered in cucurbits for control of **Green Peach Aphid** (*Myzus persicae*), Cabbage Aphid (*Brevicoryne brassicae*), Currant Lettuce Aphid (*Nasonovia ribis-nigri*), **Cotton Aphid** / **Melon Aphid** (*Aphis gossypii*) and Corn Aphid (*Rhopalosiphum maydis*) and suppression of Silverleaf Whitefly (*Bemisia tabaci*). Apply as a single foliar spray when local thresholds are reached. Maximum of 4 applications per crop, and a maximum of 2 consecutive applications for aphid control.	L Bee:L	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Cyantraniliprole (Benevia) FMC	28	Ingestion	1 NG	A	ALL	Registered in fruiting vegetables (cucurbits) for control of **Melon Aphid** (*Aphis gossypii*), Silverleaf Whitefly (*Bemisia tabaci*), Cotton Bollworm (*Helicoverpa armigera*), Cucumber Moth (*Diaphania indica*), Native Budworm (*Helicoverpa punctigera*) and suppression of Western Flower Thrips (*Frankliniella occidentalis*). Apply as a foliar spray to a newly developing infestation. Use a retreatment interval of 7-10 days. Maximum of 2 applications per crop.	L Bee:L	-
Cyantraniliprole + Diafenthiuron (Minecto Forte) Syngenta	28+12A	Ingestion	1	A	ALL	Registered in cucurbits (open field only) for control of Silverleaf Whitefly (*Bemisia tabaci*), **Melon Aphid** (*Aphis gossypii*), Cotton Bollworm (*Helicoverpa armigera*), Native Budworm (*Helicoverpa punctigera*), Cucumber Moth (*Diaphania indica*), Cluster Caterpillar (*Spodoptera litura*), **Green Peach Aphid** (*Myzus persicae*) and Two-Spotted Mite (*Tetranychus urticae*), and suppression of Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*) and Plague Thrips (*Thrips imaginis*). Apply as a foliar spray targeting an early stage population. Retreatment interval not specified. Maximum of 2 applications per crop.	M Bee:VH	-
Dimethoate	1B	Contact	7	A	ALL	Registered in melons for control of **Aphids**, Jassids, Mites, Leafhoppers, Green Vegetable Bug, Thrips and Wingless Grasshopper. Apply as a foliar spray when pests are present. Retreatment interval and maximum number of applications not specified.	H Bee:H	R2
Dimpropyridaz (Efficon) BASF	36	Ingestion	1	A	ALL	Registered in cucurbits for control of Silverleaf Whitefly (*Bemisia tabaci*), Greenhouse Whitefly (*Trialeurodes* spp.) and **Cotton/Melon Aphid** (*Aphis gossypii*). Apply as a foliar spray when local threshold is exceeded. Use a retreatment interval of 14 days. Maximum of 4 applications per crop, with no more 2 consecutive applications.	M Bee:L	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Flonicamid (Mainman) UPL	29	Ingestion	1	A	ALL	Registered in cucurbits for control of **Green Peach Aphid** (*Myzus persicae*), **Melon Aphid** (*Aphis gossypii*) and Silverleaf Whitefly (*Bemisia tabaci*). Apply as a foliar spray at first sign of pest activity. Use a minimum retreatment interval of 14 days. Maximum of 3 applications per crop.	M Bee:VL	-
Flupyradifurone (Sivanto Prime) Bayer	4D	Contact & Ingestion	1	A	ALL	Registered in cucurbits for control of **Cotton Aphid** (*Aphis gossypii*), **Green Peach Aphid** (*Myzus persicae*), Greenhouse Whitefly (*Trialeurodes vaporariorum*) and Silverleaf Whitefly (*Bemisia tabaci*). Apply as a foliar spray once monitoring indicates that thresholds have been reached. Use a minimum retreatment interval of 7 days. Maximum of 2 treatments per year.	L Bee:L	-
Imidacloprid (Confidor)	4A	Contact & Ingestion	1 NG	A	ALL	Registered in cucurbits for control of **Green Peach Aphid**. Apply as a foliar spray at first sign of pest infestation. Maximum of 1 application per crop.	M Bee:VH	R2
Petroleum Oil	-	Contact	1	A	ALL	Registered in cucurbits for control of **Aphids**, Mites, Thrips and Laefhopper. Apply as a foliar spray when whitefly numbers are low. Retreatment interval and maximum number of applications not specified.	L Bee:L	-
Pirimicarb (Aphidex)	1A	Contact	2	A	ALL	Registered in cucurbits for control of **Aphids**. Apply as a foliar spray when the pest is present. Use a retreatment interval of 5-10 days. Maximum of 2 non-consecutive applications per crop.	VL Bee:VL	R3
Potassium Salts of Fatty Acid (Natrasoap)	-	Contact	NR	A	ALL	Registered in fruit for control of **Aphids**, Thrips, Mealybug, Two-Spotted Mite, Spider Mite and Whitefly. Apply as a cover spray. Retreatment interval and maximum number of treatments not specified.	L Bee:L	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Pymetrozine (Chess)	9B	Contact & Ingestion	3	A	ALL	Registered in cucurbits for control of **Melon Aphid** (*Aphis gossypii*), **Green Peach Aphid** (*Myzus persicae*), Potato Aphid (*Macrosiphum euphorbiae*) and Cowpea Aphid (*Aphis craccivora*) and suppression of Silverleaf Whitefly (*Bemisia tabaci*) and Greenhouse Whitefly (*Trialeurodes vaporariorum*). Apply as a foliar spray based on local thresholds. Use a minimum retreatment interval of 7 days. Maximum of 2 non-consecutive applications per crop.	L Bee:VL	R3
Spirotetramat (Movento) Bayer	23	Ingestion	1	A	ALL	Registered in cucurbits for control of **Cotton Aphid** (*Aphis gossypii*), **Green Peach Aphid** (*Myzus persicae*) and Silverleaf Whitefly (*Bemisia tabaci*). Apply as a foliar spray once local threshold is exceeded. Use a minimum retreatment interval of 7 days. Maximum of 3 applications per crop.	M Bee:VL	-
Sulfoxaflor (Transform) Corteva	4C	Contact & Ingestion	1	A	ALL	Registered in cucurbits for control of **Green Peach Aphid**, **Melon Aphid**, Greenhouse Whitefly and Rutherglen Bug. Apply as a foliar spray when population exceeds pest threshold. Use a retreatment interval of 7-10 days. Maximum of 4 non-consecutive applications per season.	M Bee:VH	-
Beauveria bassiana (Velifer) BASF	UN	Biological		P		Registered for suppression of various Aphids in protected vegetables and ornamentals.	L Bee:L	-
Cucumber Moth (*Diaphania indica*) **Priority: Moderate**								
Rated as a moderate priority in NSW & QLD, and as a high priority in WA. Cucumber Moth are most common in tropical and sub-tropical areas. The larvae feed on leaves and between the veins, then roll the leaves with their silk and feed from the inside. Flowers and fruit may also be attacked. Use an integrated pest management approach including preservation of beneficial species and use of pest thresholds to inform insecticide use.								
Bifenthrin (Talstar)	3A	Contact	1	A	ALL	Registered in cucurbits (field grown only) for control of Native Budworm (*Helicoverpa punctigera*), Corn Earworm (*Helicoverpa armigera*) and **Cucumber Moth** (*Diaphania indica*). Apply as a foliar spray to coincide with egg hatch and when small larvae are present. Use a retreatment interval of 7-10 days. Maximum of 2 applications per crop.	VH Bee:H	R3

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Chlorantraniliprole (Coragen)	28	Ingestion	1 G:7	A	ALL	Registered in fruiting vegetables (cucurbits) for control of Cotton Bollworm (*Helicoverpa armigera*), Native Budworm (*Helicoverpa punctigera*) and **Cucumber Moth** (*Diaphania indica*). Apply as a foliar spray to coincide with egg hatch and when small larvae are present. Use a minimum retreatment interval of 5 days. Maximum of 3 applications per crop, and no more than 2 consecutive applications.	L Bee:VL	-
Cyantraniliprole (Benevia) FMC	28	Ingestion	1 NG	A	ALL	Registered in fruiting vegetables (cucurbits) for control of Melon Aphid (*Aphis gossypii*), Silverleaf Whitefly (*Bemisia tabaci*), Cotton Bollworm (*Helicoverpa armigera*), **Cucumber Moth** (*Diaphania indica*), Native Budworm (*Helicoverpa punctigera*) and suppression of Western Flower Thrips (*Frankliniella occidentalis*). Apply as a foliar spray to coincide with egg hatch and when small larvae are present. Use a retreatment interval of 7-10 days. Maximum of 2 applications per crop.	L Bee:L	-
Cyantraniliprole + Diafenthiuron (Minecto Forte) Syngenta	28+12A	Ingestion	1	A	ALL	Registered in cucurbits (open field only) for control of Silverleaf Whitefly (*Bemisia tabaci*), Melon Aphid (*Aphis gossypii*), Cotton Bollworm (*Helicoverpa armigera*), Native Budworm (*Helicoverpa punctigera*), **Cucumber Moth** (*Diaphania indica*), Cluster Caterpillar (*Spodoptera litura*), Green Peach Aphid (*Myzus persicae*) and Two-Spotted Mite (*Tetranychus urticae*), and suppression of Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*) and Plague Thrips (*Thrips imaginis*). Apply as a foliar spray targeting eggs and newly hatched larvae. Retreatment interval not specified. Maximum of 2 applications per crop.	M Bee:VH	-
Emamectin (Proclaim Opti) Syngenta	6	Ingestion	3 NG	A	ALL	Registered in cucurbits for control of Heliothis (*Helicoverpa* spp.), Cluster Caterpillar (*Spodoptera litura*) and **Cucumber Moth** (*Diaphania indica*). Apply as a foliar spray to coincide with egg hatch and when small larvae are present. Use a minimum retreatment interval of 7 days. Maximum of 4 applications per crop.	M Bee:H	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Flubendiamide (Belt) Bayer	28	Ingestion	1	A	ALL	Registered in fruiting vegetables (cucurbits) for control of Heliothis (*Helicoverpa* spp.) and **Cucumber Moth** (*Diaphania indica*). Apply as a foliar spray to coincide with egg hatch and when small larvae are present. Use a retreatment interval of 7-14 days. Maximum of 3 applications per crop.	L-M Bee:L	-
Isocycloseram (Simodis) Syngenta	30	Ingestion	1 NG	A	ALL	Registered in cucurbits for control of Two-Spotted Mite (*Tetranychus urticae*), **Cucumber Moth** (*Diaphania indica*), and suppression of Broad Mite (*Polyphagotarsonemus latus*), Bean Red Spider Mite (*Tetranychus ludeni*), Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*), Melon Thrips (*Thrips palmi*), Plague Thrips (*Thrips imaginis*) and Heliothis (*Helicoverpa* spp.) Apply as a foliar spray based on local thresholds. Use a minimum retreatment interval of 7 days. Maximum of 2 applications per crop.	H Bee:VH	-
Methomyl (Lannate) PER82428	1A	Contact	3	A	ALL	Permitted in cucurbits for control of *Helicoverpa* spp., **Cucumber Moth**, Cluster Caterpillar, Loopers, Webworm, Rutherglen Bug and Thrips including Western Flower Thrips. Apply as a foliar spray when eggs and small larvae are present. Use a retreatment interval of 7 days. Maximum of 6 applications per crop.	H Bee:H	R2
Spinetoram (Success Neo) Corteva	5	Ingestion	3	A	ALL	Registered in cucurbits for control of **Cucumber Moth**, Helicoverpa and Western Flower Thrips. Apply as a foliar spray targeting at egg hatch and small larvae. Use a retreatment interval of 7-14 days. Maximum of 4 applications per season.	M Bee:H	-
Spinosad (Entrust Organic) Corteva	5	Ingestion	3	A	ALL	Registered in cucurbits for control of **Cucumber Moth**, Helicoverpa and Western Flower Thrips. Apply as a foliar spray targeting at egg hatch and small larvae. Use a retreatment interval of 7-14 days. Maximum of 4 applications per season.	L Bee:L	-
Indoxacarb (Avatar eVo) FMC	22A	Ingestion	3 NG	P-A	ALL	Registered in cucurbits for control of Cotton Bollworm (*Helicoverpa armigera*), Native Budworm (*Helicoverpa punctigera*) and Cluster Caterpillar (*Spodoptera litura*).	M Bee:H	R3

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Methoxyfenozide (Prodigy) Corteva	18	Ingestion		A		Registered for control of various lepidopteran pests in pome fruit, blueberries, citrus, grapevines, kiwifruit, almonds, avocado, coffee, custard apple, eggplant, longan, lychee, peppers, okra, macadamia and tomatoes.	VL Bee:VL	-
Tebufenozide (Mimic) Corteva	16A	Ingestion / IGR		P		Registered for control of various lepidopteran pests in apples, pears, citrus, grapevines, avocado, custard apple, kiwifruit, longan, lychee, macadamia and eucalyptus.	L Bee:L	-
Cutworms (*Agrostis* spp.) **Priority: Moderate**								
Rated as a moderate priority in NSW, QLD & WA. Cutworms are a soil borne pest. The larvae are most active at night, when they will chew off seedlings at the base. They are most damaging when caterpillars transfer from summer and autumn weeds onto newly emerged seedlings. Natural predators and early control of summer and autumn weeds will help reduce larval survival prior to crop emergence. If required, cutworms can be controlled with insecticides; spot spraying may provide adequate control.								
Trichlorfon	1B	Contact	2	A	QLD & NT	Registered in cucurbits for control of **Cutworm**. Apply to the bases of plants and surrounding soil at early establishment. Best results are achieved with spraying in the late afternoon and night. Retreatment interval and maximum number of applications not specified.	H Bee:H	R2
Fall Armyworm (*Spodoptera frugiperda*) **Priority: Moderate**								
Rated as a moderate priority in NSW, QLD & WA. Fall Armyworm generally prefers tropical and sub-tropical climates, so can occur year-round in northern areas and late summer to autumn in the south. Adults are strong flyers and can travel hundreds of kilometres from their origin. The larvae feed voraciously on leaves and stems and will attack melons if favoured hosts are not available.								
Spinosad (Entrust Organic) Corteva PER89870	5	Ingestion	3 G:14	A	ALL (excl. VIC)	Permitted in cucurbits for control of **Fall Armyworm** (*Spodoptera frugiperda*). Apply as a foliar spray targeting at egg hatch and small larvae. Use a retreatment interval of 7-14 days. Maximum of 4 applications per season.	L Bee:H	-
Chlorantraniliprole (Coragen)	28	Ingestion	1 G:7	P-A	ALL	Registered in fruiting vegetables (cucurbits) for control of Cotton Bollworm (*Helicoverpa armigera*), Native Budworm (*Helicoverpa punctigera*) and Cucumber Moth (*Diaphania indica*).	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	6	Ingestion	3 NG	P-A	ALL	Registered in cucurbits for control of Heliothis (*Helicoverpa* spp.), Cluster Caterpillar (*Spodoptera litura*) and Cucumber Moth (*Diaphania indica*).	M Bee:H	-
Flubendiamide (Belt) Bayer	28	Ingestion	1	P-A	ALL	Registered in fruiting vegetables (cucurbits) for control of Heliothis (*Helicoverpa* spp.) and Cucumber Moth (*Diaphania indica*).	L-M Bee:L	-
Indoxacarb (Avatar eVo) FMC	22A	Ingestion	3 NG	P-A	ALL	Registered in cucurbits for control of Cotton Bollworm (*Helicoverpa armigera*), Native Budworm (*Helicoverpa punctigera*) and Cluster Caterpillar (*Spodoptera litura*).	M Bee:H	R3
Isocycloseram (Simodis) Syngenta	30	Ingestion	1 NG	P-A	ALL	Registered in cucurbits for control of Two-Spotted Mite (*Tetranychus urticae*), Cucumber Moth (*Diaphania indica*), and suppression of Broad Mite (*Polyphagotarsonemus latus*), Bean Red Spider Mite (*Tetranychus ludeni*), Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*), Melon Thrips (*Thrips palmi*), Plague Thrips (*Thrips imaginis*) and Heliothis (*Helicoverpa* spp.)	H Bee:VH	-
Methoxyfenozide (Prodigy) Corteva	18	Ingestion		A		Registered for control of various lepidopteran pests in pome fruit, blueberries, citrus, grapevines, kiwifruit, almonds, avocado, coffee, custard apple, eggplant, longan, lychee, peppers, okra, macadamia and tomatoes.	VL Bee:VL	-
Tebufenozide (Mimic) Corteva	16A	Ingestion / IGR		P		Registered for control of various lepidopteran pests in apples, pears, citrus, grapevines, avocado, custard apple, kiwifruit, longan, lychee, macadamia and eucalyptus.	L Bee:L	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Queensland Fruit Fly (*Bactrocera tryoni*) **Mediterranean Fruit Fly** (*Ceratitis capitata*) **Cucumber Fruit Fly** (*Bactrocera cucumis*) **Priority: Low**								
Queensland Fruit Fly is rated as a moderate priority in NSW & QLD, and as a low priority in WA. Mediterranean Fruit Fly is rated as a low priority in NSW, and as a moderate priority in QLD & WA. Cucumber Fruit Fly Adults are highly mobile and larvae feed inside the fruit, liquefying the flesh. Fruit Fly are a major quarantine issue for exported host product, including that transported to domestic markets in other parts of Australia. Export protocols for export to New Zealand require specific in-crop treatment for Cucumber Fruit Fly.								
Clothianidin (Samurai) PER95266	4A	Contact & Ingestion	7 NG	A	ALL	Permitted in cucurbit vegetables for control of **Cucumber Fruit Fly** (*Bactrocera cucumis*). Apply as a foliar spray as part of a strategic fruit fly control program and when monitoring indicates fruit fly activity. Do not apply in the field unless the crop is post bloom. Use a minimum retreatment interval of 7 days. Maximum of 2 applications per crop.	M Bee:H	R2
Dimethoate	1B	Contact	7	A	QLD, NSW, WA & NT	Registered in melons for control of **Cucumber Fly**. Apply as a foliar spray when pests appear. Retreatment interval and maximum number of treatments not specified.	H Bee:H	R2
Dimethoate PER87065	1B	Contact	NR	A	ALL (excl. VIC)	Permitted in melons as a post-harvest treatment for control of **Cucumber Fly** (*Bactrocera cucumis*), Lesser Queensland Fruit Fly *(Bactrocera neohumeralis*), **Queensland Fruit Fly** (*Bactrocera tryoni*), **Mediterranean Fly** (*Ceratitis capitata*), Banana Fly (*Bactrocera musae*) and Mango Fly (*Bactrocera frauenfeldi*). Immerse fruit in dip for 1 minute.	H Bee:H	R2
Pyrethrins (Pyganic)	3A	Contact	NR	A	ALL	Registered in cucurbits as a cleanup spray just prior to harvest for control of **Fruit Fly**, Rutherglen Bug and Spiders.	VH Bee:H	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Spinosad (Naturalure) Corteva	5	Bait / Ingestion	NR	A	ALL	Registered in fruit for control of Fruit Flies including **Queensland Fruit Fly** and **Mediterranean Fruit Fly**. Apply as either a band or a spot spray to the lower canopy of fruiting plants. Begin applications as soon as monitoring traps indicate flies are present and fruit is at a susceptible stage. Repeat applications every 7 days, re-applying sooner if rain washes off the deposit. Avoid spraying the fruit as phytotoxicity may occur.	L Bee:H	-
Malathion (Fyfanon) FMC	1B	Contact	3	P-A	ALL	Registered in cucurbits for control of Pumpkin Beetle (*Aulocophora hilaris*). Registered for control of **Fruit Fly** in apples, pears, citrus, grapevines, persimmons, stone fruit, strawberries, blueberries, rubus and ribes, capsicum, tomato and cucumber.	H Bee:H	R3
Acetamiprid + Pyriproxyfen (Trivor) Adama	4A+7C	Contact & Ingestion / IGR		P		Registered for control of **Queensland Fruit Fly** and **Mediterranean Fruit Fly** in avocado, citrus and mango.	M Bee:H	-
Tetraniliprole (Vayego) Bayer	28	Ingestion		P	ALL	Registered for control of **Mediterranean Fruit Fly** in stone fruit.	L-M Bee:VH	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
European Red Mite (*Panonychus ulmi*) **Broad Mite** (*Polyphagotarsonemus latus*) **Tomato Russet Mite** (*Aculops lycopersici*) **Priority: Low**								
European Red Mite is rated as a low priority in NSW, and as a moderate priority in QLD & WA. Broad Mite is rated as a low priority in NSW, QLD & WA. Tomato Russet Mite is rated as a low priority in NSW & WA, and as a moderate priority in QLD. Mites feed on the underside of leaves, causing stippling and yellowing which can coalesce into larger dead patches. Mite abundance is favoured by hot, dry weather and populations can be flared by the use of broad-spectrum chemistry which disrupts beneficial species. An integrated pest management strategy should be employed, including preservation of beneficials, suppression of dust and general farm hygiene measures.								
Dimethoate	1B	Contact	7	A	ALL	Registered in melons for control of Aphids, Jassids, **Mites**, Leafhoppers, Green Vegetable Bug, Thrips and Wingless Grasshopper. Apply as a foliar spray when pests are present. Retreatment interval and maximum number of applications not specified.	H Bee:H	R2
Hexythiazox (Calibre) PER14765 (permit not current at time of publication)	10A	IGR / Contact	3	A	ALL	Permitted in cucurbits for control of **Tomato Russet Mite**, **Broad Mite** and Two-Spotted Mite. NOTE: this permit is being considered for renewal by the APVMA at time of publication.	L Bee:L	-
Isocycloseram (Simodis) Syngenta	30	Ingestion	1 NG	A	ALL	Registered in cucurbits for control of Two-Spotted Mite (*Tetranychus urticae*), Cucumber Moth (*Diaphania indica*), and suppression of **Broad Mite** (*Polyphagotarsonemus latus*), Bean Red Spider Mite (*Tetranychus ludeni*), Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*), Melon Thrips (*Thrips palmi*), Plague Thrips (*Thrips imaginis*) and Heliothis (*Helicoverpa* spp.) Apply as a foliar spray based on local thresholds to an early developing population. Use a minimum retreatment interval of 7 days. Maximum of 2 applications per crop.	H Bee:VH	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Petroleum Oil	-	Contact	1	A	ALL	Registered in cucurbits for control of Aphids, **Mites**, Thrips and Laefhopper. Apply as a foliar spray when whitefly numbers are low. Retreatment interval and maximum number of applications not specified.	L Bee:L	-
Bifenazate (Acramite)	20D	Contact & Ingestion	3	P-A	ALL	Registered in cucurbits for control of Two-Spotted Mite (*Tetranychus urticae*) and Bryobia Mite (*Bryobia rubrioculus*). Registered for control of **European Red Mite** (*Panonychus ulmi*) in apples, pears, apricots, nectarines, peaches and plums.	L Bee:H	-
Etoxazole (Paramite) Sumitomo PER14650	10B	IGR / Contact	7	P-A	ALL (excl. VIC)	Permitted in melons for control of Two-Spotted Mite (*Tetranychus urticae*). Registered for control of European Red Mite in pome fruit, stone fruit (except cherries) and almonds.	L Bee:VL	-
Cyflumetofen (Danisaraba) BASF	25A	Contact		P		Registered for control of **European Red Mite** (*Tetranychus urticae*) in pome fruit, almond, strawberries, fruiting vegetables and ornamentals.	L Bee:L	-
Fenbutatin Oxide (Torque) BASF	12B	Contact		P		Registered for control of **European Red Mite** in apples, pears, peaches, nectarines and ornamentals.	L Bee:L	R3
Onion Thrips (*Thrips tabaci*) **Priority: Low**								
Rated as a moderate priority in NSW & QLD, and as a low priority in WA. Thrips feeding activity causes chlorosis and silvering of leaves and scarring of fruit. They are also potential vectors of plant viruses. Control of thrips with insecticides is difficult and an integrated pest management approach should be used to ensure that crop damage is minimised on an ongoing basis.								
Diazinon	1B	Contact	14	A	ALL (excl. TAS)	Registered in cucurbits for control of **Thrips**. Apply as a foliar spray when thrips are in damaging numbers at flowering. Retreatment interval and maximum number of applications not specified.	H Bee:H	R1
Dimethoate	1B	Contact	7	A	ALL	Registered in melons for control of Aphids, Jassids, Mites, Leafhoppers, Green Vegetable Bug, **Thrips** and Wingless Grasshopper. Apply as a foliar spray when pests are present. Retreatment interval and maximum number of applications not specified.	H Bee:H	R2

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 cucurbits for control of *Helicoverpa* spp., Cucumber Moth, Cluster Caterpillar, Loopers, Webworm, Rutherglen Bug and **Thrips** including Western Flower Thrips. Apply as a foliar spray when eggs and small larvae are present. Use a retreatment interval of 7 days. Maximum of 6 applications per crop.	H Bee:H	R2
Petroleum Oil	-	Contact	1	A	ALL	Registered in cucurbits for control of Aphids, Mites, **Thrips** and Laefhopper. Apply as a foliar spray when whitefly numbers are low. Retreatment interval and maximum number of applications not specified.	L Bee:L	-
Potassium Salts of Fatty Acid (Natrasoap)	-	Contact	NR	A	ALL	Registered in fruit for control of Aphids, **Thrips**, Mealybug, Two-Spotted Mite, Spider Mite and Whitefly. Apply as a cover spray. Retreatment interval and maximum number of treatments not specified.	L Bee:L	-
Cyantraniliprole (Benevia) FMC	28	Ingestion		P-A		Registered in fruiting vegetables (cucurbits) for control of Melon Aphid (*Aphis gossypii*), Silverleaf Whitefly (*Bemisia tabaci*), Cotton Bollworm (*Helicoverpa armigera*), Cucumber Moth (*Diaphania indica*), Native Budworm (*Helicoverpa punctigera*) and suppression of Western Flower Thrips (*Frankliniella occidentalis*). Registered for control of **Onions Thrips** in bulb vegetables and strawberries.	L Bee:L	-
Flupyradifurone (Sivanto Prime) Bayer	4D	Contact & Ingestion	1	P-A	ALL	Registered in cucurbits for control of Cotton Aphid (*Aphis gossypii*), Green Peach Aphid (*Myzus persicae*), Greenhouse Whitefly (*Trialeurodes vaporariorum*) and Silverleaf Whitefly (*Bemisia tabaci*). Registered for control of Scirtothrips in macadamias.	L Bee:L	-
Isocycloseram (Simodis) Syngenta	30	Ingestion	1 NG	P-A	ALL	Registered in cucurbits for control of Two-Spotted Mite (*Tetranychus urticae*), Cucumber Moth (*Diaphania indica*), and suppression of Broad Mite (*Polyphagotarsonemus latus*), Bean Red Spider Mite (*Tetranychus ludeni*), Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*), Melon Thrips (*Thrips palmi*), Plague Thrips (*Thrips imaginis*) and Heliothis (*Helicoverpa* spp.)	H Bee:VH	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Beauveria bassiana (Velifer) BASF	UN			P		Registered for suppression of **Onion Thrips** and **Western Flower Thrips** in protected vegetables and ornamentals and has activity on Thrips, Aphids, Whitefly and Mites.	L Bee:L	-
Greenhouse Whitefly (*Trialeurodes vaporariorum*) **Priority: Low**								
Rated as a moderate priority in NSW, and as a low priority in QLD & WA. Nymphs and adults suck sap from plants, stunting growth and reducing yield. Leaves develop silvery patches and may drop. Whiteflies excrete sticky honeydew, which encourages sooty mould growth and are a critical transmitter of some viruses.								
Chlorpyrifos	1B	Contact	5	A	NSW	Registered in cucurbits for control of **Whiteflies**. Apply as a foliar spray when pest is first detected. Use a retreatment interval of 10-14 days. Maximum number of applications not specified.	H Bee:H	R1
Dimpropyridaz (Efficon) BASF	36	Ingestion	1	A	ALL	Registered in cucurbits for control of Silverleaf Whitefly (*Bemisia tabaci*), **Greenhouse Whitefly** (*Trialeurodes* spp.) and Cotton/Melon Aphid (*Aphis gossypii*). Apply as a foliar spray when local threshold is exceeded. Use a retreatment interval of 14 days. Maximum of 4 applications per crop, with no more 2 consecutive applications.	M Bee:L	-
Flupyradifurone (Sivanto Prime) Bayer	4D	Contact & Ingestion	1	A	ALL	Registered in cucurbits for control of Cotton Aphid (*Aphis gossypii*), Green Peach Aphid (*Myzus persicae*), **Greenhouse Whitefly** (*Trialeurodes vaporariorum*) and Silverleaf Whitefly (*Bemisia tabaci*). Apply as a foliar spray once monitoring indicates that thresholds have been reached. Use a minimum retreatment interval of 7 days. Maximum of 2 treatments per year.	L Bee:L	-
Potassium Salts of Fatty Acid (Natrasoap)	-	Contact	NR	A	ALL	Registered in fruit for control of Aphids, Thrips, Mealybug, Two-Spotted Mite, Spider Mite and **Whitefly**. Apply as a cover spray. Retreatment interval and maximum number of treatments not specified.	L Bee:L	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Pymetrozine (Chess)	9B	Contact & Ingestion	3	A	ALL	Registered in cucurbits for control of Melon Aphid (*Aphis gossypii*), Green Peach Aphid (*Myzus persicae*), Potato Aphid (*Macrosiphum euphorbiae*) and Cowpea Aphid (*Aphis craccivora*) and suppression of Silverleaf Whitefly (*Bemisia tabaci*) and **Greenhouse Whitefly** (*Trialeurodes vaporariorum*). Apply as a foliar spray based on local thresholds. Use a minimum retreatment interval of 7 days. Maximum of 2 non-consecutive applications per crop.	L Bee:VL	R3
Sulfoxaflor (Transform) Corteva	4C	Contact & Ingestion	1	A	ALL	Registered in cucurbits for control of Green Peach Aphid, Melon Aphid, **Greenhouse Whitefly** and Rutherglen Bug. Apply as a foliar spray when population exceeds pest threshold. Use a retreatment interval of 7-10 days. Maximum of 4 non-consecutive applications per season.	M Bee:VH	-
Beauveria bassiana (Velifer) BASF	UN	Biological		P		Registered for suppression of whitefly in protected vegetables and ornamentals.	L Bee:L	-
Cucurbit Stemborer (*Melittia cucurbitae*) **Priority: Low**								
Rated as a moderate priority in NSW, and as a low priority in QLD & WA. Cucurbit Stemborer is a minor pest of melons. The larvae tunnel into vines to feed, destroying the vascular tissue and interrupting the flow of water and nutrients in the plant. The use of good farm hygiene, particularly the destruction of crop residues, should ensure that additional control measures are unnecessary.								
Chlorantraniliprole (Coragen)	28	Ingestion	1 G:7	P-A	ALL	Registered in fruiting vegetables (cucurbits) for control of Cotton Bollworm (*Helicoverpa armigera*), Native Budworm (*Helicoverpa punctigera*) and Cucumber Moth (*Diaphania indica*).	L Bee:VL	-
Emamectin (Proclaim Opti) Syngenta	6	Ingestion	3 NG	P-A	ALL	Registered in cucurbits for control of Heliothis (*Helicoverpa* spp.), Cluster Caterpillar (*Spodoptera litura*) and Cucumber Moth (*Diaphania indica*).	M Bee:H	-
Flubendiamide (Belt) Bayer	28	Ingestion	1	P-A	ALL	Registered in fruiting vegetables (cucurbits) for control of Heliothis (*Helicoverpa* spp.) and Cucumber Moth (*Diaphania indica*).	L-M Bee:L	-

Pest / Active Ingredient (Trade Name)	Chemical group	Activity	WHP, days	Availability	States	Comments	Impact on beneficials	Regulatory risk
Indoxacarb (Avatar eVo) FMC	22A	Ingestion	3 NG	P-A	ALL	Registered in cucurbits for control of Cotton Bollworm (*Helicoverpa armigera*), Native Budworm (*Helicoverpa punctigera*) and Cluster Caterpillar (*Spodoptera litura*).	M Bee:H	R3
Isocycloseram (Simodis) Syngenta	30	Ingestion	1 NG	P-A	ALL	Registered in cucurbits for control of Two-Spotted Mite (*Tetranychus urticae*), Cucumber Moth (*Diaphania indica*), and suppression of Broad Mite (*Polyphagotarsonemus latus*), Bean Red Spider Mite (*Tetranychus ludeni*), Western Flower Thrips (*Frankliniella occidentalis*), Tomato Thrips (*Frankliniella schultzei*), Melon Thrips (*Thrips palmi*), Plague Thrips (*Thrips imaginis*) and Heliothis (*Helicoverpa* spp.)	H Bee:VH	-
Spinetoram (Success Neo) Corteva	5	Ingestion	3	P-A	ALL	Registered in cucurbits for control of Cucumber Moth, Helicoverpa and Western Flower Thrips.	M Bee:H	-
Spinosad (Entrust Organic) Corteva	5	Ingestion	3	P-A	ALL	Registered in cucurbits for control of Cucumber Moth, Helicoverpa and Western Flower Thrips.	L Bee:L	-
Methoxyfenozide (Prodigy) Corteva	18	Ingestion		A		Registered for control of various lepidopteran pests in pome fruit, blueberries, citrus, grapevines, kiwifruit, almonds, avocado, coffee, custard apple, eggplant, longan, lychee, peppers, okra, macadamia and tomatoes.	VL Bee:VL	-
Tebufenozide (Mimic) Corteva	16A	Ingestion / IGR		P		Registered for control of various lepidopteran pests in apples, pears, citrus, grapevines, avocado, custard apple, kiwifruit, longan, lychee, macadamia and eucalyptus.	L Bee:L	-

4.3 Weeds of Melon

4.3.1 Weed priorities

Weeds	Priority
Pigweed (*Portulaca* spp.)	H
Blackberry Nightshade (*Solanum nigrum*)	H
Nutgrass (*Cyperus rotundus*)	H
Fat-Hen (*Chenopodium album*)	H
Feather Top Rhodes Grass (*Chloris virgata*)	H
Amaranth (*Amaranthus* spp.)	M
Flaxleaf Fleabane (*Conyza bonariensis*)	M
Paddy Melon (*Cucumis myriocarpus*)	M
Afghan Melon / Wild Melon (*Citrullus lanatus*)	M
Awnless Barnyard Grass (*Echinochloa colona*)	L
Couch Grass (*Cynodon dactylon*)	L
Johnson Grass (*Sorghum halepense*)	L
Paspalum (*Paspalum dilatatum*)	L
Bellvine (*Ipomoea plebeia*)	L
Innocent Weed (*Cenchrus echinatus*)	L

Weed priorities can vary substantially between regions, and weed management generally is guided more by cultural methods than by specific problem weed species. An integrated weed management program incorporating mulch and inter-row grass cover should be used to reduce the need for herbicides in plantations. Our industry consultation identified Pigweed, Blackberry Nightshade, Nutgrass, Fat Hen and Feather Top Rhodes Grass as high priorities. These are invasive species which are difficult to kill and must be managed using a sustained management program incorporating multiple control measures.

The risk of herbicide resistance should also be considered in devising a weed management program. Specific resistance management strategies for high resistance risk (1 and 2) and moderate resistance risk (3, 4, 6, 9, 10, 12, 13, 14, 15, 18, 19, 22, 23, 27, 29, 30 and 31) herbicide modes of action are available on the CropLife Australia webpage[8].

[8] https://www.croplife.org.au/resources/programs/resistance-management/

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
Pigweed (*Portulaca* spp.) **Priority: High** Rated as a high priority in NSW & WA, and as a moderate priority in QLD. Summer growing broadleaf weed that competes aggressively and can be difficult to control with herbicides.							
Clomazone	13**	Rockmelons Watermelon	Registered in rockmelons and watermelon for control of various broadleaf weeds, including **Pigweed**. Apply post-plant pre-emergent before weeds emerge.	NR	A	ALL	-
Paraquat (Gramoxone)	22**	Vegetables / Pre-Plant / Post-Emergence Inter-Row Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply pre-plant or as an inter-row directed or shielded spray. Avoid spray contact with any part of the crop. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3

Active ingredient (Trade Name)	Chemical Group	Crop/ Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory risk
Paraquat + Diquat (SpraySeed)	22**	Vegetables / Pre-Crop Emergence Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply prior to crop emergence. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Dimethenamid-P (Outlook) BASF	15**		Registered for control of grass and broadleaf weeds, including **Pigweed** in sweet corn, beans, peas, pumpkins and kabocha.		P		-
Fluroxypyr (Starane) Corteva	4**		Registered for control of **Pigweed** in summer fallow, lucerne, sorghum, maize, millets and sweet corn.		P		-
Norflurazon (Zoliar) AgNova	12**		Registered for control of **Pigweed** in citrus, grapes, almonds, pome fruit and stone fruit.		P		-
S-Metolachlor (Dual Gold) Syngenta	15**		Registered for control of grass and broadleaf weeds in Brassica vegetables, Brassica leafy vegetables, sweet potatoes, spring onions, shallots, spinach, silverbeet, rhubarb, culinary herbs and beans.		P		-
Blackberry Nightshade (*Solanum nigrum*) **Priority: High**							
Rated as a high priority in QLD, and as a moderate priority in NSW & WA. Blackberry Nightshade is a competitive weed that is widespread in all regions. Herbicide control is effective but requires timely application and avoidance of seed set over several years to bring the soil seed bank down.							
Clomazone	13**	Rockmelons Watermelon	Registered in rockmelons and watermelon for control of various broadleaf weeds, including **Blackberry Nightshade**. Apply post-plant pre-emergent before weeds emerge.	NR	A	ALL	-
Aclonifen (Emerger) Bayer	32**	Pre-Emergence	Bayer is expected to seek registration for pre-emergent control of grass and broadleaf weeds in various vegetable crops. Registered in Europe for use in potatoes, legume vegetables and cereals. **Blackberry Nightshade** is listed as moderately susceptible at a high rate.		P		-

Active ingredient (Trade Name)	Chemical Group	Crop/ Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory risk
Dimethenamid-P (Outlook) BASF	15**		Registered for control of grass and broadleaf weeds, including **Blackberry Nightshade** in sweet corn, beans, peas, pumpkins and kabocha.		P		-
Fluroxypyr (Starane) Corteva	4**		Registered for control of **Blackberry Nightshade** in non-crop areas and pastures.		P		-
Norflurazon (Zoliar) AgNova	12**		Registered for control of **Blackberry Nightshade** in citrus, grapes, almonds, pome fruit and stone fruit.		P		-
S-Metolachlor (Dual Gold) Syngenta	15**		Registered for control of grass and broadleaf weeds in Brassica vegetables, Brassica leafy vegetables, sweet potatoes, spring onions, shallots, spinach, silverbeet, rhubarb, culinary herbs and beans.		P		-
Nutgrass (*Cyperus rotundus*) **Priority: High**							
Rated as a high priority in NSW & QLD, and as a moderate priority in WA. Prefers damp, water-logged soils but the nuts can survive for years underground during dry times. Herbicide options are limited and unreliable. Improve soil drainage if possible.							
Cyhalofop-Butyl + Florpyrauxifen-Benzyl (Agixa Rinskor) Corteva	1*** + 4**		Registered for control of **Nutgrass** in rice.		P		-
Dimethenamid-P (Outlook) BASF	15**		Registered for control of grass and broadleaf weeds in sweet corn, beans, peas, pumpkins and kabocha. Permitted in bulb onions for suppression of **Nutgrass** and other *Cyperus* species in bulb onions.		P		-
Halosulfuron-Methyl (Sempra)	2***		Registered for control of **Nutgrass** in turf and sugarcane.		P		-
Norflurazon (Zoliar) AgNova	12**		Registered for control of **Nutgrass** in asparagus.		P		-

Active ingredient (Trade Name)	Chemical Group	Crop/ Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory risk
Fat-Hen (*Chenopodium album*) **Priority: High**							
Rated as a moderate priority in NSW & WA, and as a high priority in QLD. Herbicide control can be difficult and targeting weeds at early growth stages is critical.							
Clomazone	13**	Rockmelons Watermelon	Registered in rockmelons and watermelon for control of various broadleaf weeds, including **Fat-Hen**. Apply post-plant pre-emergent before weeds emerge.	NR	A	ALL	-
Paraquat (Gramoxone)	22**	Vegetables / Pre-Plant / Post-Emergence Inter-Row Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply pre-plant or as an inter-row directed or shielded spray. Avoid spray contact with any part of the crop. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Paraquat + Diquat (SpraySeed)	22**	Vegetables / Pre-Crop Emergence Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply prior to crop emergence. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Aclonifen (Emerger) Bayer	32**	Pre-Emergence	Bayer is expected to seek registration for pre-emergent control of grass and broadleaf weeds in various vegetable crops. Registered in Europe for use in potatoes, legume vegetables and cereals. **Fat Hen** is listed as susceptible.		P		-
Dimethenamid-P (Outlook) BASF	15**		Registered for control of grass and broadleaf weeds, including **Fat Hen** in sweet corn, beans, peas, pumpkins and kabocha.		P		-
Norflurazon (Zoliar) AgNova	12**		Registered for suppression of **Fat Hen** in citrus, grapes, almonds, pome fruit and stone fruit.		P		-
S-Metolachlor (Dual Gold) Syngenta	15**		Registered for control of grass and broadleaf weeds in Brassica vegetables, Brassica leafy vegetables, sweet potatoes, spring onions, shallots, spinach, silverbeet, rhubarb, culinary herbs and beans.		P		-

Active ingredient (Trade Name)	Chemical Group	Crop/ Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory risk
Feather Top Rhodes Grass (*Chloris virgata*) **Priority: High**							
Rated as a high priority in NSW & QLD, and as a low priority in WA. Feathertop Rhodes Grass is an aggressive grass weed that is difficult to control with herbicides. Multiple applications are required.							
Paraquat (Gramoxone)	22**	Vegetables / Pre-Plant / Post-Emergence Inter-Row Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply pre-plant or as an inter-row directed or shielded spray. Avoid spray contact with any part of the crop. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Paraquat + Diquat (SpraySeed)	22**	Vegetables / Pre-Crop Emergence Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply prior to crop emergence. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Fluazifop-P (Fusilade)	1***	Avocados / Directed Spray	Registered in avocados as a directed spray for the control of grass weeds, including **Feather Top Rhodes Grass**.	14	A	NSW, QLD, NT & WA	-
S-Metolachlor (Dual Gold) Syngenta	15**		Registered for control of grass and broadleaf weeds in Brassica vegetables, Brassica leafy vegetables, sweet potatoes, spring onions, shallots, spinach, silverbeet, rhubarb, culinary herbs and beans.		P		-
Amaranth (*Amaranthus* spp.) **Priority: Moderate**							
Rated as a moderate priority in NSW, QLD & WA. Amaranth is a short-lived, summer-growing annual broadleaf weed that is a prolific seed producer.							
Clomazone	13**	Rockmelons Watermelon	Registered in rockmelons and watermelon for control of various broadleaf weeds, including suppression of **Amaranth**. Apply post-plant pre-emergent before weeds emerge.	NR	A	ALL	-

Active ingredient (Trade Name)	Chemical Group	Crop/ Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory risk
Paraquat (Gramoxone)	22**	Vegetables / Pre-Plant / Post-Emergence Inter-Row Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply pre-plant or as an inter-row directed or shielded spray. Avoid spray contact with any part of the crop. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Paraquat + Diquat (SpraySeed)	22**	Vegetables / Pre-Crop Emergence Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply prior to crop emergence. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Dimethenamid-P (Outlook) BASF	15**		Registered for control of grass and broadleaf weeds, including **Amaranth** in sweet corn, beans, peas, pumpkins and kabocha.		P		-
Fluroxypyr (Starane)	4**		Registered for control of broadleaf weeds, including **Amaranth** in sorghum, maize, sweet corn and millet.		P		-
S-Metolachlor (Dual Gold) Syngenta	15**		Registered for control of grass and broadleaf weeds, including **Amaranth** in Brassica vegetables and beans.		P		-
Flaxleaf Fleabane (*Conyza bonariensis*) **Priority: Moderate**							
Rated as a moderate priority in NSW, as a high priority in QLD, and as a low priority in WA. Flaxleaf Fleabane is a widespread weed that is difficult to control with herbicides. It seeds prolifically and can germinate year-round. Weed control should be targeted at small, actively growing weeds and usually multiple applications will be required. A combination of residual and knockdown herbicides should form part of an integrated approach to managing Flaxleaf Fleabane.							
Paraquat (Gramoxone)	22**	Vegetables / Pre-Plant / Post-Emergence Inter-Row Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply pre-plant or as an inter-row directed or shielded spray. Avoid spray contact with any part of the crop. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3

Active ingredient (Trade Name)	Chemical Group	Crop/ Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory risk
Paraquat + Diquat (SpraySeed)	22**	Vegetables / Pre-Crop Emergence Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply prior to crop emergence. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Amitrole	34**		Registered for control of **Fleabane** in fallow and pine plantations.		P		-
Flumioxazin (Chateau) Sumitomo	14**		Registered for control of **Flaxleaf Fleabane** in grapes, pome fruit, stone fruit, citrus, nut trees, olives, avocados and berries.		P		-
Saflufenacil (Sharpen) BASF	14**		Registered for control of **Flaxleaf Fleabane** in citrus, pome fruit & almonds.		P		-
S-Metolachlor (Dual Gold) Syngenta	15**		Registered for control of grass and broadleaf weeds in Brassica vegetables, Brassica leafy vegetables, sweet potatoes, spring onions, shallots, spinach, silverbeet, rhubarb, culinary herbs and beans.		P		-
Paddy Melon (*Cucumis myriocarpus*) **Afghan Melon / Wild Melon** (*Citrullus lanatus*) **Priority: Moderate**							
Rated as a moderate priority in NSW, QLD & WA. Paddy Melon and Afghan Melon are summer-growing, annual broadleaf vine weeds. They grow rapidly and can be difficult to control with herbicides alone. Their similarity to cucurbits creates additional challenges with finding selective herbicide options for use in melon crops.							
Paraquat (Gramoxone)	22**	Vegetables / Pre-Plant / Post-Emergence Inter-Row Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply pre-plant or as an inter-row directed or shielded spray. Avoid spray contact with any part of the crop. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3

Active ingredient (Trade Name)	Chemical Group	Crop/ Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory risk
Paraquat + Diquat (SpraySeed)	22**	Vegetables / Pre-Crop Emergence Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply prior to crop emergence. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Triclopyr (Garlon)	4		Registered for control of **Camel Melon** and **Prickly Paddy Melon** in fallow.		P		-
Awnless Barnyard Grass (*Echinochloa colona*) **Priority: Low**							
Rated as a low priority in NSW & WA, and as a high priority in QLD. Barnyard Grass is a summer annual grass weed that is a prolific seeder, is highly competitive and is difficult to control with herbicides. It is prone to development of herbicide resistance, with confirmed cases of resistance to Group 9 and Group 5 herbicides.							
Fluazifop-P (Fusilade)	1***	Cucurbits / In-crop, post-emergence weed control	Registered in cucurbits for control of grass weeds, including **Barnyard Grass**. Do not apply before the 5 true leaf stage of the crop.	35	A	ALL	-
Paraquat (Gramoxone)	22**	Vegetables / Pre-Plant / Post-Emergence Inter-Row Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply pre-plant or as an inter-row directed or shielded spray. Avoid spray contact with any part of the crop. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Paraquat + Diquat (SpraySeed)	22**	Vegetables / Pre-Crop Emergence Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply prior to crop emergence. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Quizalofop-P-Ethyl	1***	Honey Dew Melons / In-crop, post-emergence weed control	Registered in honey dew melons for control of grass weeds, including **Barnyard Grass**. Do not apply before the 5 true leaf stage of the crop.	63	A	ALL	R3
Sethoxydim (Sertin)	1***	Melons / In-crop, post-emergence weed control	Registered in melons for control of grass weeds, including **Barnyard Grass**. Apply to young, actively growing weeds.	28	A	ALL	-

Active ingredient (Trade Name)	Chemical Group	Crop/ Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory risk
S-Metolachlor (Dual Gold) Syngenta	15**		Registered for control of grass and broadleaf weeds in Brassica vegetables, Brassica leafy vegetables, sweet potatoes, spring onions, shallots, spinach, silverbeet, rhubarb, culinary herbs and beans.		P		-
Couch Grass (*Cynodon dactylon*) **Priority: Low**							
Rated as a low priority in NSW, and as a moderate priority in QLD & WA. Couch Grass is a widespread, perennial weed that grows year-round in most areas. Herbicide control is effective provided it is targeted to young, actively growing weeds. Multiple applications are usually required.							
Fluazifop-P (Fusilade)	1***	Cucurbits / In-crop, post-emergence weed control	Registered in cucurbits for control of grass weeds, including seedlings of **Couch Grass**. Do not apply before the 5 true leaf stage of the crop.	35	A	ALL	-
Quizalofop-P-Ethyl	1***	Honey Dew Melons / In-crop, post-emergence weed control	Registered in honey dew melons for control of grass weeds, including seedlings of **Couch Grass**. Do not apply before the 5 true leaf stage of the crop.	63	A	ALL	R3
Norflurazon (Zoliar) AgNova	12**		Registered for suppression of **Couch Grass** in citrus, grapes, almonds, pome fruit and stone fruit.		P		-
S-Metolachlor (Dual Gold) Syngenta	15**		Registered for control of grass and broadleaf weeds in Brassica vegetables, Brassica leafy vegetables, sweet potatoes, spring onions, shallots, spinach, silverbeet, rhubarb, culinary herbs and beans.		P		-
Johnson Grass (*Sorghum halepense*) **Priority: Low**							
Rated as a low priority in NSW & WA, and as a moderate priority in QLD. Johnson Grass is a large, summer growing perennial that is difficult to eradicate with herbicides.							
Fluazifop-P (Fusilade)	1***	Cucurbits / In-crop, post-emergence weed control	Registered in cucurbits for control of grass weeds, including seedlings of **Johnson Grass**. Do not apply before the 5 true leaf stage of the crop.	35	A	ALL	-

Active ingredient (Trade Name)	Chemical Group	Crop/ Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory risk
Quizalofop-P-Ethyl	1***	Honey Dew Melons / In-crop, post-emergence weed control	Registered in honey dew melons for control of grass weeds, including **Johnson Grass**. Do not apply before the 5 true leaf stage of the crop.	63	A	ALL	R3
Sethoxydim (Sertin)	1***	Melons / In-crop, post-emergence weed control	Registered in melons for control of grass weeds, including seedling **Johnson Grass**. Apply to young, actively growing weeds.	28	A	ALL	-
Norflurazon (Zoliar) AgNova	12**		Registered for suppression of **Johnson Grass** in citrus, grapes, almonds, pome fruit and stone fruit.		P		-
S-Metolachlor (Dual Gold) Syngenta	15**		Registered for control of grass and broadleaf weeds in Brassica vegetables, Brassica leafy vegetables, sweet potatoes, spring onions, shallots, spinach, silverbeet, rhubarb, culinary herbs and beans.		P		-
Paspalum (*Paspalum dilatatum*) **Priority: Moderate**							
Rated as a low priority in NSW & WA, and as a moderate priority in QLD. Paspalum is a perennial grass weeds that forms clumps that are tough to control. They are aggressive and fast-growing and ongoing control measures are required to keep them in check. Spot spraying can be effective, but it is important to target newly germinated weeds to achieve effective control.							
Fluazifop-P (Fusilade)	1***	Passionfruit / Directed Spray	Registered in passionfruit for control of Barnyard Grass, Crowsfoot Grass, Giant Paspalum (seedling), Green Panic (seedling), Johnson Grass, Para Grass, Prairie Grass, Rhodes Grass, Stinkgrass and Summer Grass (Crabgrass). Registered for control of **Paspalum** in blueberries, hops, various vegetables, citrus, potatoes, strawberries, pineapples and ornamentals.	14	P-A	NSW, QLD, NT & WA	-
Norflurazon (Zoliar) AgNova	12**		Registered for control of **Paspalum** in citrus, grapes, almonds, pome fruit and stone fruit.		P		-

Active ingredient (Trade Name)	Chemical Group	Crop/ Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory risk
S-Metolachlor (Dual Gold) Syngenta	15**		Registered for control of grass and broadleaf weeds in Brassica vegetables, Brassica leafy vegetables, sweet potatoes, spring onions, shallots, spinach, silverbeet, rhubarb, culinary herbs and beans.		P		-
Bellvine (*Ipomoea plebeia*) **Priority: Low**							
Rated as a low priority in NSW & WA, and as a moderate priority in QLD. Bellvine is an invasive summer broadleaf that is difficult to control. The rapid growth pattern necessitates timely herbicide application to young and actively growing weeds.							
Paraquat (Gramoxone)	22**	Vegetables / Pre-Plant / Post-Emergence Inter-Row Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply pre-plant or as an inter-row directed or shielded spray. Avoid spray contact with any part of the crop. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Paraquat + Diquat (SpraySeed)	22**	Vegetables / Pre-Crop Emergence Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply prior to crop emergence. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3
Innocent Weed (*Cenchrus echinatus*) **Priority: Low**							
Rated as a low priority in NSW, QLD & WA. Innocent Weed is an annual grass which prefers drier, inland environments. Effective herbicide control should be targeted at young, actively growing weeds							
Paraquat (Gramoxone)	22**	Vegetables / Pre-Plant / Post-Emergence Inter-Row Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply pre-plant or as an inter-row directed or shielded spray. Avoid spray contact with any part of the crop. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3

Active ingredient (Trade Name)	Chemical Group	Crop/ Situation	Comment / Use / Weed	WHP (days)	Availability	States	Regulatory risk
Paraquat + Diquat (SpraySeed)	22**	Vegetables / Pre-Crop Emergence Weed Control	Registered in vegetables for control of annual grass and broadleaf weeds. Apply prior to crop emergence. NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	NR G:1	A	ALL	R3

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	www.legislation.gov.au/F2023L01350/latest/text
APVMA Permit search	Agricultural And Veterinary Permits Search - portal.apvma.gov.au
APVMA Product search	Public Chemical Registration Information System Search - portal.apvma.gov.au
Codex MRL database	http://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/en/
Cotton Pest Management Guide 2023-24	https://www.cottoninfo.com.au/publications/cotton-pest-management-guide
CropLife Australia	https://www.croplife.org.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 melon
Appendix 2. Products available for control of insects and other pests in melon
Appendix 3. Products available for weed control in melon
Appendix 4. Current permits for use in melon
Appendix 5. Melon Maximum Residue Limits (MRLs)
Appendix 6. Melon regulatory risk assessment

Appendix 1. Products available for disease control in melons

Active Ingredient (Trade Name)	Chemical Group	Situation	Diseases / Comments	States	WHP Days	Regulatory Risk
Azoxystrobin (Amistar)	11	Cucurbits	Powdery Mildew (*Sphaerotheca fuliginea*) Downy Mildew (*Pseudoperonospora cubensis*) Gummy Stem Blight (*Didymella bryoniae*)	ALL	1	-
Azoxystrobin + Oxathiapiprolin (Orondis Flexi) Syngenta	11+49	Cucurbits	Downy Mildew (*Pseudoperonospora cubensis*) Suppression of: Powdery Mildew (*Sphaerotheca fuliginea*) Gummy Stem Blight (*Didymella bryoniae*) *Sclerotinia* spp.	ALL	3 NG	-
BLAD (Problad)	BM01	Fruiting Vegetables, Cucurbits	Powdery Mildew (*Podosphaera xanthii*, *Sphaerotheca fuliginea*)	ALL	NR	-
Boscalid + Kresoxim-Methyl (Colliss) BASF	7+11	Cucurbits	Powdery Mildew (*Podosphaera xanthii*)	ALL	7	-
Bromo Chloro Dimethyl Hydatoin (BCDMH)	-	Sanitiser / Post-Harvest Treatment	External Rot Causing Organisms	ALL	NR	-
Bupirimate (Nimrod)	8	Cucurbits	Powdery Mildew	ALL	1	-
Chlorine	-	Sanitiser / Post-Harvest Treatment	Bacteria and Fungi	ALL	NR	-
Chloropicrin + 1,3-Dichloropropene	8B	Soil Fumigant	Soil-borne diseases (including *Fusarium* & *Verticillium* Wilts, *Rhizoctonia*, *Pythium*)	ALL	NR	-
Chlorothalonil (Bravo)	M5	Cucurbits	Downy Mildew (*Pseudoperonospora cubensis*) Gummy Stem Blight (*Didymella bryoniae*) Anthracnose (*Colletotrichum orbiculare*) Leaf Blight (*Alternaria cucumerina*) Target Leaf Spot (*Cercospora citrullina*) Suppression of: Belly Rot (*Rhizoctonia solani*)	ALL	1	R3

Active Ingredient (Trade Name)	Chemical Group	Situation	Diseases / Comments	States	WHP Days	Regulatory Risk
Copper as Copper Octanoate	M1	Cucurbits	Powdery Mildew Downy Mildew	ALL	1	-
Copper as Copper Hydroxide, Tribasic Copper Sulfate, Copper Oxychloride, Cuprous Oxide			Angular Leaf Spot (*Pseudomonas syringae pv. lachrymans*) Bacterial Leaf Spot (*Xanthomonas campestris pv. cucurbitae*)			
Copper as Copper Ammonium Acetate Complex			Downy Mildew (*Pseudoperonospora cubensis*) Angular Leaf Spot (*Pseudomonas syringae pv. lachrymans*) Bacterial Leaf Spot (*Xanthomonas campestris pv. cucurbitae*)			
Cyflufenamid (Flute) AgNova	U6	Cucurbits	Powdery Mildew (*Podosphaera xanthii*)	ALL	1	-
Dimethomorph (Acrobat)	40	Cucurbits	Downy Mildew (*Pseudoperonospora cubensis*)	ALL	7	-
			Anthracnose (*Colletotrichum* spp.) Gummy Stem Blight (*Didymella bryoniae*) Alternaria Leaf Spot (*Alternaria* spp.)	QLD & NT		
Dimethomorph + Ametoctradin (Zampro) BASF	40+45	Cucurbits	Downy Mildew (*Pseudoperonospora cubensis*)	ALL	1	-
Florylpicoxamid (Verpixo Adavelt) Corteva	21	Cucurbits	Powdery Mildew (*Podosphaera xanthii*)	ALL	1	-
Fluopyram + Tebuconazole (Luna Experience) Bayer	7+3	Cucurbits	Powdery Mildew (*Podosphaera xanthii*) Gummy Stem Blight (*Didymella bryoniae*)	ALL	1	R3
Guazatine Acetates (Panoctine)	M7	Rockmelons, Honeydew Melons	Sour Rot (*Geotrichum candidum*)	ALL	NR	-

Active Ingredient (Trade Name)	Chemical Group	Situation	Diseases / Comments	States	WHP Days	Regulatory Risk
Hydrogen Peroxide (Huwa-San TR-50) PER93702	-	Cucurbits / Protected Crops	Hairy Root / Crazy Root (*Rhizobium rhizogenes*)	ALL	NR	-
Hydrogen Peroxide + Peroxyacetic Acid (Peratec Plus)	M	Cucurbits	Powdery Mildew (*Sphaerotheca* spp.)	ALL	1	-
Imazalil (Magnate)	3	Rockmelons / Post-Harvest	Post-Harvest Decays: *Penicillium* spp. *Alternaria* spp., *Fusarium* spp.	ALL	NR	R3
Iodine	-	Sanitiser / Cucurbits	Bacteria & Fungi	ALL	NR	-
Mancozeb	M3	Cucurbits	Downy Mildew Anthracnose Gummy Stem Blight Septoria Spot	ALL	7	R2
Mancozeb + Dimethomorph (Acrobat WDG)	M3+40	Cucurbits	Downy Mildew (*Pseudoperonospora cubensis*)	ALL	7	R2
			Anthracnose (*Colletotrichum* spp.) Gummy Stem Blight (*Didymella bryoniae*) Alternaria Leaf Spot (*Alternaria* spp.)	QLD & NT		
Mancozeb + Metalaxyl-M (Ridomil Gold MZ)	M3+4	Cucurbits	Downy Mildew	ALL	7	R2
			Anthracnose Gummy Stem Blight Alternaria Leaf Spot	QLD & NT		
Mandestrobin (Intuity) Sumitomo	11	Cucurbits / Field Only	Powdery Mildew (*Podosphaera xanthii*)	ALL	7 G:7	-

Active Ingredient (Trade Name)	Chemical Group	Situation	Diseases / Comments	States	WHP Days	Regulatory Risk
Mefentrifluconazole (Belanty) BASF	3	Cucurbits	Powdery Mildew (*Podosphaera fuliginea*, *Podosphaera xanthii*) Gummy Stem Blight (*Didymella bryoniae*, *Stagonosporopsis* sp.)	ALL	NR NG	-
Metalaxyl-M (Ridomil Gold 25G)	4	Cucurbits	Damping-Off (*Pythium* spp.) *Phytophthora* spp.	ALL (excl. VIC)	7	-
Metiram (Polyram)	M3	Cucurbits	Downy Mildew (*Pseudoperonospora cubensis*) Gummy Stem Blight (*Didymella bryoniae*)	ALL	7	R2
Metrafenone (Vivando) BASF	50	Cucurbits	Powdery Mildew (*Podosphaera xanthii*)	ALL	7	-
Orange Oil (Prev-Am) Oro Agri	-	Cucurbits	Powdery Mildew (*Podosphaera xanthii*)	ALL	NR	-
Oxathiapiprolin (Zorvec Enicade) Corteva	49	Cucurbits	Downy Mildew (*Pseudoperonospora cubensis*)	ALL	1 NG	-
Penthiopyrad (Fontelis) Corteva	7	Cucurbits	Grey Mould (*Botrytis cinerea*) Powdery Mildew (*Sphaerotheca fuliginea*, *Erysiphe cichoracearum*) Gummy Stem Blight (*Didymella bryoniae*)	ALL	1 NG	-
Peroxyacetic Acid	-	Sanitiser / Post-Harvest Treatment	Bacteria	ALL	NR	-
Phosphorous Acid	33	Cucurbits	Downy Mildew (*Pseudoperonospora cubensis*)	ALL	NR	-
Propamocarb Hydrochloride + Fluopicolide (Infinito) Bayer	28+43	Cucurbits	Downy Mildew (*Pseudoperonospora cubensis*)	ALL	3	-
Propineb (Antracol)	M3	Cucurbits	Downy Mildew	ALL	3	R2

Active Ingredient (Trade Name)	Chemical Group	Situation	Diseases / Comments	States	WHP Days	Regulatory Risk
Propineb + Oxadixyl (Rebound)	M3+4	Cucurbits	Downy Mildew Anthracnose Gummy Stem Blight	ALL	3	R2
Proquinazid (Talendo) Corteva	13	Cucurbits / Field Grown Only	Powdery Mildew	ALL	1 NG	-
Pydiflumetofen + Difenoconazole (Miravis Duo) Syngenta	7+3	Cucurbits	Powdery Mildew (*Sphaerotheca fuliginea*, *Erysiphe* spp., *Podosphora xanthii*) Gummy Stem Blight (*Stagonosporopsis cucurbitacearum* nee *Didymella bryoniae*) Alternaria Leaf Spot (*Alternaria spp.*) Cercospora Leaf Spot (*Cercospora* spp.)	ALL	1	R3
Pyraclostrobin + Fluxapyroxad (Merivon) BASF	11+7	Cucurbits / Field Only	Gummy Stem Blight (*Didymella bryoniae*) Powdery Mildew (*Podosphaera fuliginea*)	ALL	NR	-
Pyriofenone (Kusabi) AgNova	50	Cucurbits / Field Only	Powdery Mildew (*Podosphora xanthii*)	ALL	NR NG	-
Streptomyces lydicus WYEC108 (Actinovate) Novozymes Bioag	BM 02	Cucurbits	Powdery Mildew	ALL	NR	-
		Vegetables / Seed Treatment	*Fusarium*, *Rhizoctonia*, *Pythium*			
Sulfur	M2	Vegetables / Except Rockmelons	Powdery Mildew (*Sphaerotheca* spp.) Rust (*Uromyces* spp.)	QLD	NR	-
Triadimefon	3	Cucurbits	Powdery Mildew	NSW & WA	1	R3
Triadimenol	3	Cucurbits	Powdery Mildew	ALL	1	R3
Zineb	M3	Cucurbits	Downy Mildew Anthracnose	ALL	7	R2

Appendix 2. Products available for control of insects and other pests in melons

Active Ingredient (Trade Name)	Chemical group	Situation	Pests / Comments	States	WHP Days	Regulatory Risk
1,3-Dichloropropene	-	Soil Fumigant	Plant parasitic nematodes	ALL	NR	-
Abamectin	6	Cucurbits	Root-Knot Nematode	ALL	NR	-
Abamectin PER81876 (permit not current at time of publication)	6	Cucurbits	Suppression of Leafminers (*Liriomyza* spp.)	ALL (excl. VIC)	7 NG	-
Afidopyropen (Versys) BASF	9D	Cucurbits	Green Peach Aphid (*Myzus persicae*) Cabbage Aphid (*Brevicoryne brassicae*) Currant Lettuce Aphid (*Nasonovia ribis-nigri*) Cotton Aphid / Melon Aphid (*Aphis gossypii*) Corn Aphid (*Rhopalosiphum maydis*) Suppression of: Silverleaf Whitefly (*Bemisia tabaci*)	ALL	1	-
Alpha-Cypermethrin	3A	Cucurbit Vegetables	Cucumber Fruit Fly (*Bactrocera cucumis*)	ALL (excl. VIC)	1	-
Bacillus thuringiensis subsp Kurstaki Strain HD-1 (DiPel)	11	Vegetables	Armyworm (*Spodoptera* spp.) Cotton Bollworm (*Helicoverpa armigera*) Native Budworm (*Helicoverpa punctigera*) Cabbage Moth (*Plutella xylostella*) Cabbage White Butterfly (*Pieris rapae*) Green Looper (*Chrysodeixis eriosoma*) Light Brown Apple Moth (*Epiphyas postvittana*) Pear Looper (*Ectropis excursaria*) Soybean Looper (*Thysanoplusia orichalcea*) Vine Moth (*Phalaenoides glycinae*, *Agarista agricola*) Tobacco Looper (*Chrysodeixis argentifera*)	ALL	NR	-
Bifenazate (Acramite)	20D	Cucurbits	Two-Spotted Mite (*Tetranychus urticae*) Bryobia Mite (*Bryobia rubrioculus*)	ALL	3	-

Active Ingredient (Trade Name)	Chemical group	Situation	Pests / Comments	States	WHP Days	Regulatory Risk
Bifenthrin (Talstar)	3A	Cucurbits / Field Grown Only	Native Budworm (*Helicoverpa punctigera*) Corn Earworm (*Helicoverpa armigera*) Cucumber Moth (*Diaphania indica*)	ALL	1	R3
			Silverleaf Whitefly (*Bemisia tabaci*)	QLD, NSW, NT & WA		
Carbaryl	1A	Melons / Up to Time of Flowering Only	Budworms (*Heliothis* spp.) Pumpkin Beetle 28-Spotted Ladybird	ALL	NR	R2
Chlorantraniliprole (Coragen)	28	Fruiting Vegetables (Cucurbits)	Cotton Bollworm (*Helicoverpa armigera*) Native Budworm (*Helicoverpa punctigera*) Cucumber Moth (*Diaphania indica*)	ALL	1 G:7	-
Chloropicrin + 1,3-Dichloropropene	-	Soil Fumigant	Plant Parasitic Nematodes Symphylans Wireworms	ALL	NR	-
Chlorpyrifos	1B	Cucurbits	White Flies	NSW	5	R1
Clitoria ternatea extract (Sero-X) Growth Agriculture	-	Cucurbits	Silverleaf Whitefly (*Bemisia tabaci*)	ALL	NR	-
Clothianidin (Samurai) PER95266	4A	Fruiting Vegetables, Cucurbits	Cucumber Fruit Fly	ALL	7 NG	R2
Cyantraniliprole (Benevia) FMC	28	Fruiting Vegetables (Cucurbits)	Melon Aphid (*Aphis gossypii*) Silverleaf Whitefly (*Bemisia tabaci*) Cotton Bollworm (*Helicoverpa armigera*) Cucumber Moth (*Diaphania indica*) Native Budworm (*Helicoverpa punctigera*) Suppression of: Western Flower Thrips (*Frankliniella occidentalis*)	ALL	1 NG	-

Active Ingredient (Trade Name)	Chemical group	Situation	Pests / Comments	States	WHP Days	Regulatory Risk
Cyantraniliprole (Benevia) FMC PER93849	28	Fruiting Vegetables, Cucurbits	Leaf Miners (*Liriomyza* spp.) including Vegetable Leaf Miner (*Liriomyza sativa*) Pea Leaf Miner / Serpentine Leaf Miner (*Liriomyza huidobrensis*)	ALL (excl. VIC)	1 NG	-
Cyantraniliprole + Diafenthiuron (Minecto Forte) Syngenta	28+12A	Cucurbits / Open Field Only	Silverleaf Whitefly (*Bemisia tabaci*) Melon Aphid (*Aphis gossypii*) Cotton Bollworm (*Helicoverpa armigera*) Native Budworm (*Helicoverpa punctigera*) Cucumber Moth (*Diaphania indica*) Cluster Caterpillar (*Spodoptera litura*) Green Peach Aphid (*Myzus persicae*) Two-Spotted Mite (*Tetranychus urticae*) Suppression of: Western Flower Thrips (*Frankliniella occidentalis*) Tomato Thrips (*Frankliniella schultzei*) Plague Thrips (*Thrips imaginis*)	ALL	1	-
Cyromazine (Diptex) PER81867	17	Fruiting Vegetables, Cucurbits	Leaf Miners (*Liriomyza* spp.) including Vegetable Leaf Miner (*Liriomyza sativa*) Serpentine Leaf Miner (*Liriomyza huidobrensis*)	ALL	7 NG	-
Diazinon	1B	Cucurbits	Thrips	ALL (excl. TAS)	14	R1
Dimethoate	1B	Melons	Aphids Jassids Mites Leafhoppers, Green Vegetable Bug Thrips Wingless Grasshopper	ALL	7	R2
			Cucumber Fly	QLD, NSW, WA & NT		

Active Ingredient (Trade Name)	Chemical group	Situation	Pests / Comments	States	WHP Days	Regulatory Risk
Dimethoate PER87065	1B	Melons / Post-Harvest	Cucumber Fly (*Bactrocera cucumis*) Lesser Queensland Fruit Fly *(Bactrocera neohumeralis*) Queensland Fruit Fly (*Bactrocera tryoni*) Mediterranean Fly (*Ceratitis capitata*) Banana Fly (*Bactrocera musae*) Mango Fly (*Bactrocera frauenfeldi*)	ALL (excl. VIC)	NR	R2
Dimpropyridaz (Efficon) BASF	36	Cucurbits	Silverleaf Whitefly (*Bemisia tabaci*) Greenhouse Whitefly (*Trialeurodes* spp.) Cotton/Melon Aphid (*Aphis gossypii*)	ALL	1	-
Emamectin (Proclaim Opti) Syngenta	6	Cucurbits	Heliothis (*Helicoverpa* spp.) Cluster Caterpillar (*Spodoptera litura*) Cucumber Moth (*Diaphania indica*)	ALL	3 NG	-
Etoxazole (Paramite) Sumitomo PER14650	10B	Melons	Two-Spotted Mite (*Tetranychus urticae*)	ALL (excl. VIC)	7	-
Flonicamid (Mainman) UPL	29	Cucurbits	Green Peach Aphid (*Myzus persicae*) Melon Aphid (*Aphis gossypii*) Silverleaf Whitefly (*Bemisia tabaci*)	ALL	1	-
Fluazaindolizine (Salibro) Corteva	N-UN	Cucurbits	Root Knot Nematode (*Meloidogyne* spp.)	ALL	NR	-
Flubendiamide (Belt) Bayer	28	Fruiting Vegetables (Cucurbits)	Heliothis (*Helicoverpa* spp.) Cucumber Moth (*Diaphania indica*)	ALL	1	-
Fluensulfone (Nimitz) Adama	-	Cucurbits	Root Knot Nematode (*Meloidogyne* spp.)	ALL	NR	-

Active Ingredient (Trade Name)	Chemical group	Situation	Pests / Comments	States	WHP Days	Regulatory Risk
Flupyradifurone (Sivanto Prime) Bayer	4D	Cucurbits	Cotton Aphid (*Aphis gossypii*) Green Peach Aphid (*Myzus persicae*) Greenhouse Whitefly (*Trialeurodes vaporariorum*) Silverleaf Whitefly (*Bemisia tabaci*)	ALL	1	-
Hexythiazox (Calibre) PER14765 (permit not current at time of publication)	10A	Cucurbits	Tomato Russet Mite Broad Mite Two-Spotted Mite	ALL	3	-
Imidacloprid (Confidor)	4A	Cucurbits	Green Peach Aphid	ALL	1 NG	R2
Indoxacarb (Avatar eVo) FMC	22A	Cucurbits	Cotton Bollworm (*Helicoverpa armigera*) Native Budworm (*Helicoverpa punctigera*) Cluster Caterpillar (*Spodoptera litura*)	ALL	3 NG	R3
Isocycloseram (Simodis) Syngenta	30	Cucurbits / Open Field Only	Two-Spotted Mite (*Tetranychus urticae*) Cucumber Moth (*Diaphania indica*) Suppression of: Broad Mite (*Polyphagotarsonemus latus*) Bean Red Spider Mite (*Tetranychus ludeni*) Western Flower Thrips (*Frankliniella occidentalis*) Tomato Thrips (*Frankliniella schultzei*) Melon Thrips (*Thrips palmi*) Plague Thrips (*Thrips imaginis*) Heliothis (*Helicoverpa* spp.)	ALL	1 NG	-
Magnesium Hydroxide (Magnera) UPL	-	Cucurbits	Suppression of: Two-Spotted Mite	ALL	NR	-
Malathion	1B	Cucurbits	Pumpkin Beetle (*Aulocophora hilaris*)	ALL	3	R3
Metaldehyde	-	Horticultural Crops	Snails & Slugs	ALL	7	-

Active Ingredient (Trade Name)	Chemical group	Situation	Pests / Comments	States	WHP Days	Regulatory Risk
Methomyl (Lannate) PER82428	1A	Cucurbits	*Helicoverpa* spp. Cucumber Moth Cluster Caterpillar Loopers Webworm Rutherglen Bug Thrips including Western Flower Thrips	ALL	3	R2
Nuclear Polyhedrosis Virus (Vivus Max) AgBiTech	-	Cucurbits	Corn Earworm (*Helicoverpa armigera*) Native Budworm (*Helicoverpa punctigera*)	ALL	NR	-
Orange Oil (Prev-Am) Oro Agri	-	Cucurbits	Silverleaf Whitefly (*Bemisia tabaci*) Two-Spotted Mite (*Tetranychus urticae*)	ALL	NR	-
Petroleum Oil	-	Cucurbits	Silverleaf Whitefly (*Bemisia tabaci*)	QLD	1	-
			Aphids Mites Thrips Leafhopper	ALL		
Pirimicarb (Aphidex)	1A	Cucurbits	Aphids	ALL	2	R3
Potassium Salts of Fatty Acid (Natrasoap)	-	Fruit	Aphids Thrips Mealybug Two-Spotted Mite Spider Mite Whitefly	ALL	NR	-
Propargite	12C	Vegetables	Two-Spotted Mite	ALL	7	R3

Active Ingredient (Trade Name)	Chemical group	Situation	Pests / Comments	States	WHP Days	Regulatory Risk
Pymetrozine (Chess)	9B	Cucurbits	Melon Aphid (*Aphis gossypii*) Green Peach Aphid (*Myzus persicae*) Potato Aphid (*Macrosiphum euphorbiae*) Cowpea Aphid (*Aphis craccivora*) Suppression of: Silverleaf Whitefly (*Bemisia tabaci*) Greenhouse Whitefly (*Trialeurodes vaporariorum*)	ALL	3	R3
Pyrethrins (Pyganic) Sumitomo	3A	Cucurbits / Clean-Up Prior to Harvest	Insects, including: Fruit Fly Rutherglen Bug Spiders	ALL	NR	-
Pyriproxyfen (Admiral)	7C	Cucurbits	Silverleaf Whitefly (*Bemisia tabaci*)	ALL	1 NG	-
Pyriproxyfen + Piperonyl Butoxide (Patriarch RMR) Imtrade	7C	Cucurbits	Silverleaf Whitefly (*Bemisia tabaci*)	ALL	1 NG	-
Pyriproxyfen (Distance Ant Bait) Sumitomo	7C	Ant Bait	Invasive and Nuisance Ants	ALL	NR	-
Spinetoram (Success Neo) Corteva	5	Cucurbits	Cucumber Moth Helicoverpa Western Flower Thrips	ALL	3	-
Spinetoram (Success Neo) Corteva PER94451	5	Cucurbits	Leaf Miners (*Liriomyza* spp.) including Vegetable Leaf Miner (*Liriomyza sativa*) Pea Leaf Miner / Serpentine Leaf Miner (*Liriomyza huidobrensis*) American Leaf Miner (*Liriomyza trifolii*)	ALL (excl. VIC)	3	-
Spinosad (Entrust Organic) Corteva	5	Cucurbits	Cucumber Moth Helicoverpa Western Flower Thrips	ALL	3	-

Active Ingredient (Trade Name)	Chemical group	Situation	Pests / Comments	States	WHP Days	Regulatory Risk
Spinosad (Entrust Organic) Corteva PER94331	5	Cucurbits	Leaf Miners (*Liriomyza* spp.) including Vegetable Leaf Miner (*Liriomyza sativa*) Pea Leaf Miner / Serpentine Leaf Miner (*Liriomyza huidobrensis*) American Leaf Miner (*Liriomyza trifolii*)	ALL (excl. VIC)	3	-
Spinosad (Entrust Organic) Corteva PER89870	5	Cucurbits	Fall Armyworm (*Spodoptera frugiperda*)	ALL (excl. VIC)	3 G:14	-
Spinosad (Naturalure) Corteva	5	Tree, Fruit, Nut, Vine & Vegetable Crops / Fruit Fly Bait	Queensland Fruit Fly (*Bactrocera tryoni*) Mediterranean Fruit Fly (*Ceratitis capitata*)	ALL	NR	-
Spirotetramat (Movento) Bayer	23	Cucurbits	Cotton Aphid (*Aphis gossypii*) Green Peach Aphid (*Myzus persicae*) Silverleaf Whitefly (*Bemisia tabaci*)	ALL	1	-
Sulfoxaflor (Transform) Corteva	4C	Cucurbits	Green Peach Aphid Melon Aphid Greenhouse Whitefly Rutherglen Bug	ALL	1	-
Trichlorfon	1B	Cucurbits	Cutworm	QLD & NT	2	R2
		Vegetables	Cabbage White Butterfly Cabbage Moth Green Vegetable Bug Rutherglen Bug	ALL		

Appendix 3. Products available for weed control in melons

Active ingredient (Trade Name)	Chemical Group	Situation	Comment / Use / Weed	WHP (days)	States	Regulatory Risk
Clomazone	13**	Rockmelons Watermelon	Apple of Peru (*Nicandra physalodes*), Blackberry Nightshade (*Solanum nigrum*), Fat Hen (*Chenopodium album*), Pigweed (*Portulaca oleracea*), Potato Weed (*Galinsoga parviflora*) Suppression of: Amaranth (*Amaranthus powellii*)	NR	ALL	-
Fluazifop-P (Fusilade)	1***	Cucurbits	Annual Ryegrass, Barley Grass, Barnyard Grass, Brome Grasses, Crowsfoot Grass, Guinea Grass, Liverseed Grass, Stinkgrass, Summer Grass, Volunteer Cereals, Wild Oats Seedlings of: Couch Grass, English Couch, Johnson Grass & Water Couch	ALL	35	-
Paraquat (Gramoxone)	22**	Vegetables / Pre-Plant / Post-Emergence Inter-Row Weed Control NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	Annual Grass and Broadleaf Weeds	ALL	NR G:1	R3
Paraquat + Diquat (SpraySeed)	22**	Vegetables / Pre-Crop Emergence Weed Control NOTE: This use pattern is not supported under the draft APVMA review that is currently open for public consultation.	Annual Grass and Broadleaf Weeds	ALL	NR G:1	R3

Active ingredient (Trade Name)	Chemical Group	Situation	Comment / Use / Weed	WHP (days)	States	Regulatory Risk
Quizalofop-P-Ethyl	1***	Honey Dew Melons	Awnless Barnyard Grass (*Echinochloa colona*), Barnyard Grass (*Echinochloa crusgalli*), Couch Grass (*Cynodon dactylon*), Dinebra (*Dinebra retroflexa*), Crowsfoot Grass (*Eleusine indica*), Foxtail Millet (*Setaria italica*), Columbus Grass (*Sorghum x almum*), Johnson Grass (*Sorghum halepense*), Liverseed Grass (*Urochloa panicoides*), Rhodes Grass (*Chloris gayana*), Stink Grass (*Eragrostis cilianensis*), Queensland Blue Grass (*Dichanthium sericeum*), Summer Grass (*Digitaria ciliaris*)	63	ALL	R3
Sethoxydim (Sertin)	1***	Melons	Annual Prairie Grass (seedling), Awnless Barnyard Grass, Barnyard Grass, Crowsfoot Grass, Johnson Grass (seedling), Lesser Canary Grass (*Phalaris minor*), Liverseed Grass, Pigeon Grass (*Setaria verticillata*), Stink Grass, Summer Grass, Volunteer Oats, Volunteer Sorghum, Volunteer Wheat, Wild Oats	28	ALL	-
			Bracheria windersii, *Dinebra retroflexa*, Green Summer Grass		QLD & NT	
			Paradoxa Grass (*Phalaris paradoxa*)		QLD, NSW & NT	
			Pigeon Grass / Foxtail Grass (*Setaria verticillata*)		VIC, TAS & SA	
			Ryegrass		ALL (excl. QLD & NT)	

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

Appendix 4. Current permits for use in melons

Permit ID	Description	Date Issued	Expiry Date	Permit holder
PER82428 Version 4	Methomyl / Cucurbits / Helicoverpa, Cucumber Moth, Cluster Caterpillar, Loopers, Webworm, Rutherglen Bug, Thrips including Western Flower Thrips	22-Apr-16	31-Jan-29	Hort Innovation
PER14650 Version 3	Etoxazole (Paramite) / Melons / Two-Spotted Mite	07-Nov-14	30-Nov-27	Hort Innovation
PER12221 Version 5	Petroleum Oil / Specified Vegetable Crops / Specified Insect Pests	29-Jun-12	30-Sep-27	Hort Innovation
PER94451	Spinetoram (Success Neo) / Various Vegetable & Herb Crops / Leaf Miners	05-Jul-24	31-Jul-27	Hort Innovation
PER93702 Version 2	Hydrogen Peroxide / Cucurbit / Hairy Root or Crazy Root	27-Feb-24	28-Feb-27	Roam Technology NV
PER93849	Cyantraniliprole (Benevia) / Fruiting Vegetables (Cucurbits) / Liriomyza Leafminers	18-Dec-23	31-Dec-26	Hort Innovation
PER81867 Version 3	Cyromazine (Diptex) / Fruiting Vegetables – Cucurbits / Leaf Miner	02-Dec-19	30-Sep-26	Hort Innovation
PER94331	Spinosad (Entrust Organic) / Cucurbits / Dipteran Leaf Miners	29-Apr-24	30-Apr-26	Hort Innovation
PER95266	Clothianidan (Samurai) / Fruiting Vegetables, Cucurbits / Cucumber Fruit Fly	21-Aug-24	31-Jan-26	Hort Innovation
PER87065 Version 2	Dimethoate / Melons (Post-Harvest) / Various Fruit Fly Species	18-Feb-19	30-Nov-25	Hort Innovation
PER89870 Version 2	Spinosad (Entrust Organic) / Cucurbits / Fall Armyworm	21-Jul-20	31-Jul-25	Hort Innovation
PER80138 Version 3	Alpha-Cypermethrin / Cucurbits / Cucumber Fruit Fly	26-Feb-15	31-Mar-25	Hort Innovation
PER81876 Version 4	Abamectin / Cucurbits (except sweet corn & mushrooms) / Vegetable Leafminer (*Liriomyza sativae*) (Permit expired but renewal is under review by APVMA at time of publishing)	24-Jun-16	30-Apr-24	Hort Innovation
PER14765 Version 4	Hexythiazox (Calibre) / Cucurbits incl. Melons / Tomato Russet Mite, Broad Mite & Two-Spotted Mite (Permit expired but renewal is under review by APVMA at time of publishing)	21-Feb-15	30-Sep-23	Hort Innovation

Appendix 5. Melon Maximum Residue Limits (MRLs)

CODEX commodity groupings of melon and subgroups:

	Vegetables
VC 0045	Fruiting Vegetables, Cucurbits
VC 2040	Fruiting Vegetables, Cucurbits – melons, pumpkins & winter squash (subgroup)
VC 0046	Melons, except watermelon
VC 0432	Watermelon
VC 4199	Cantaloupe
VC 4219	Melon, honeydew
VC 4239	Muskmelon

Note: The Australian melon industry supplies the domestic market only. There are no expors or imports of fresh passionfruit in Australia. Available information indicates that in the absence of specific limits in legislation, that some countries defer to Codex, followed by EU MRL standards, or apply a 0.01ppm 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 Code	Description	APVMA MRL mg/kg	Codex MRL mg/kg
Abamectin	VC 0045	Fruiting Vegetables, Cucurbits {except cucumber, squash, summer [zucchini]}	0.2	-
	VC 0046	Melons, except watermelon	-	0.01
Acetamiprid	VC 0045	Fruiting Vegetables, Cucurbits {except cucumber}	-	0.2
Acibenzolar-S-methyl	VC 0045	Fruiting Vegetables, Cucurbits	-	0.8
Afidopyropen	VC 0045	Fruiting Vegetables, Cucurbits	0.7	-
	VC 2040	Fruiting Vegetables, Cucurbits – melons, pumpkins & winter squash (subgroup)	-	0.05
Aldrin & Dieldrin	VC 0045	Fruiting Vegetables, Cucurbits	E0.1	E0.1
Amectotradin	VC 0045	Fruiting Vegetables, Cucurbits	2	-
	VC 0045	Fruiting Vegetables, Cucurbits {except cucumber}	-	3
Azoxystrobin	VC 0045	Fruiting Vegetables, Cucurbits	2	1
Benalaxyl	VC 0046	Melons, except watermelon	-	0.3
	VC 0432	Watermelon	-	0.1
Benzovindiflupyr	VC 0045	Fruiting Vegetables, Cucurbits	-	0.2
Bifenazate	VC 0045	Fruiting Vegetables, Cucurbits	1	0.5
Bifenthrin	VC 0045	Fruiting Vegetables, Cucurbits {except cucumber}	0.1	-
Boscalid	VC 0045	Fruiting Vegetables, Cucurbits	0.5	3
Bupirimate	VC 0045	Fruiting Vegetables, Cucurbits	1	-
Buprofezin	VC 0045	Fruiting Vegetables, Cucurbits	T2	0.7
Captan	VC 0046	Melons, except watermelon	-	10
Carbaryl	VC 0045	Fruiting Vegetables, Cucurbits	*0.01	-
Chlorantraniliprole	VC 0045	Fruiting Vegetables, Cucurbits	0.2	0.3
Chlordane	VC 0045	Fruiting Vegetables, Cucurbits	E0.05	-
Chlorfenapyr	VC 0046	Melons, except watermelon	-	0.4

Chemical	Codex Code	Description	APVMA MRL mg/kg	Codex MRL mg/kg
Chlorothalonil	VC 0045	Fruiting Vegetables, Cucurbits	5	-
	VC 0046	Melons, except watermelon	-	2
Chlorpyrifos		Vegetables {except Asparagus; Brassica vegetables; Cassava; Celery; Leek; Peppers, sweet [capsicum]; Potato; Swede; Sweet potato; Taro; Tomato}	T*0.01	-
Chlorthal-Dimethyl		Vegetables {except lettuce}	5	-
Clofentezine	VC 0046	Melons, except watermelon	-	0.1
Clomazone	VC 0045	Fruiting Vegetables, Cucurbits	*0.05	-
Clothianidin	VC 0045	Fruiting Vegetables, Cucurbits	T0.5	*0.02
Cyantraniliprole	VC 0045	Fruiting Vegetables, Cucurbits	0.5	0.3
Cyazofamid	VC 0045	Fruiting Vegetables, Cucurbits	-	0.09
Cyclaniliprole	VC 2040	Fruiting Vegetables, Cucurbits – melons, pumpkins & winter squash (subgroup)	-	0.1
Cyflufenamid	VC 0045	Fruiting Vegetables, Cucurbits	0.1	-
Cyhalothrin	VC 0045	Fruiting Vegetables, Cucurbits	-	0.05
Cypermethrin	VC 0045	Fruiting Vegetables, Cucurbits	T0.3	0.07
Cyprodinil	VC 0046	Melons, except watermelon	T0.2	-
	VC 0045	Fruiting Vegetables, Cucurbits	-	0.5
Cyrozamine	VC 0045	Fruiting Vegetables, Cucurbits	T0.7	-
	VC 0046	Melons, except watermelon	-	0.5
DDT		Vegetables	E1	-
Deltamethrin	VC 0045	Fruiting Vegetables, Cucurbits	-	0.2
Diafenthiuron	VC 0045	Fruiting Vegetables, Cucurbits	0.5	-
Diazinon		Vegetables	0.7	-
Dichlobenil	VC 0045	Fruiting Vegetables, Cucurbits		*0.01
Dicofol		Vegetables {except Cucumber; Gherkin; Tomato}	5	-
Difenoconazole	VC 0045	Fruiting Vegetables, Cucurbits	0.3	-
	VC 0046	Melons, except watermelon	-	0.7
	VC 0432	Watermelon	-	0.02
Dimethoate	VC 0046	Melons, except watermelon	5	-
	VC 0432	Watermelon	5	-
Dimethomorph	VC 0045	Fruiting Vegetables, Cucurbits	0.5	0.5
Dimpropyridaz	VC 0045	Fruiting Vegetables, Cucurbits	0.3	-
Dinocap	VC 0045	Fruiting Vegetables, Cucurbits	-	*0.05
	VC 0046	Melons, except watermelon	-	0.5
Dinotefuran	VC 0045	Fruiting Vegetables, Cucurbits	-	0.5
Diquat		Vegetables {except Beans; Broad bean; Lupin (dry); Onion, bulb; Peas; Potato; Soya bean (dry); Sugar beet}	*0.05	-
Dithiocarbamates	VC 0045	Fruiting Vegetables, Cucurbits	2	-
	VC 0046	Melons, except watermelon	-	0.5
	VC 0432	Watermelon	-	1
2,2-DPA		Vegetables	*0.1	-
Emamectin	VC 0045	Fruiting Vegetables, Cucurbits	0.01	0.007
Endosulfan	VC 0046	Melons, except watermelon	-	2

Chemical	Codex Code	Description	APVMA MRL mg/kg	Codex MRL mg/kg
Endrin	VC 0045	Fruiting Vegetables, Cucurbits	-	E0.05
EPTC		Vegetables	*0.04	-
Ethoprophos	VC 0046	Melons, except watermelon	-	0.02
Etoxazole	VC 0045	Fruiting Vegetables, Cucurbits	T0.1	-
Fenamidone	VC 0045	Fruiting Vegetables, Cucurbits	-	0.2
Fenamiphos	VC 0046	Melons, except watermelon	-	0.05
Fenazaquin	VC 0045	Fruiting Vegetables, Cucurbits	-	0.3
Fenbuconazole	VC 0046	Melons, except watermelon	-	0.2
Fenpyroximate	VC 0046	Melons, except watermelon	-	0.2
Flonicamid	VC 0045	Fruiting Vegetables, Cucurbits	0.7	0.2
Florylpicoxamid	VC 0045	Fruiting Vegetables, Cucurbits	0.5	-
Fluazaindolizine	VC 0045	Fruiting Vegetables, Cucurbits	0.2	-
	VC 2040	Fruiting Vegetables, Cucurbits – melons, pumpkins & winter squash (subgroup)	-	0.1
Fluazifop-p-butyl	VC 0045	Fruiting Vegetables, Cucurbits	0.1	-
Flubendiamide	VC 0045	Fruiting Vegetables, Cucurbits	0.2	0.2
Fludioxonil	VC 0046	Melons, except watermelon	T0.2	-
	VC 0045	Fruiting Vegetables, Cucurbits	-	0.5
Fluensulfone	VC 0045	Fruiting Vegetables, Cucurbits	0.5	-
	VC 0046	Melons, except watermelon	-	0.3
	VC 0432	Watermelon	-	0.3
Flumioxazin	VC 0045	Fruiting Vegetables, Cucurbits	-	*0.02
Fluopicolide	VC 0045	Fruiting Vegetables, Cucurbits	0.5	0.5
Fluopyram	VC 0045	Fruiting Vegetables, Cucurbits	0.5	-
Flupyradifurone	VC 0045	Fruiting Vegetables, Cucurbits	0.5	-
	VC 0046	Melons, except watermelon	-	0.4
Flutriafol	VC 0045	Fruiting Vegetables, Cucurbits	-	0.3
Fluxapyroxad	VC 0045	Fruiting Vegetables, Cucurbits	0.2	0.2
Folpet	VC 0046	Melons, except watermelon	-	3
Fosetyl Al	VC 0046	Melons, except watermelon	-	60
Guazatine	VC 0046	Melons, except watermelon	10	-
Glyphosate	VC 0045	Fruiting Vegetables, Cucurbits	*0.1	-
Heptachlor		Vegetables {except Carrot; Soya bean (dry); Tomato}	E0.05	-
Hexythiazox	VC 0045	Fruiting Vegetables, Cucurbits	T0.5	-
	VC 0045	Fruiting Vegetables, Cucurbits {except watermelon}	-	0.05
Imazalil	VC 0046	Melons, except watermelon	10	-
Imidacloprid	VC 0045	Fruiting Vegetables, Cucurbits	0.2	-
	VC 0046	Melons, except watermelon	-	0.2
	VC 0432	Watermelon	-	0.2
Indoxacarb	VC 0045	Fruiting Vegetables, Cucurbits	0.2	0.5
Inorganic Bromide		Vegetables {except Peppers, sweet [capsicum]}	20	-
Isocycloseram	VC 0045	Fruiting Vegetables, Cucurbits	0.2	-
Isopyrazam	VC 0046	Melons, except watermelon	-	0.15

Chemical	Codex Code	Description	APVMA MRL mg/kg	Codex MRL mg/kg
Kresoxim-Methyl	VC 0045	Fruiting Vegetables, Cucurbits	0.05	0.5
Lindane		Vegetables	E2	-
Linuron		Vegetables {except Celeriac; Celery; Leek; Parsnip}	*0.05	-
Lufenuron	VC 0046	Melons, except watermelon	-	0.4
Maldison	VC 0045	Fruiting Vegetables, Cucurbits {except cucumber}	2	-
Mandestrobin	VC 0045	Fruiting Vegetables, Cucurbits	0.6	-
Mandipropamid	VC 2040	Fruiting Vegetables, Cucurbits – melons, pumpkins & winter squash (subgroup)	-	0.4
Mefentrifluconazole	VC 0045	Fruiting Vegetables, Cucurbits	0.3	-
	VC 2040	Fruiting Vegetables, Cucurbits – melons, pumpkins & winter squash (subgroup)	-	0.5
Meptyldinocap	VC 0046	Melons, except watermelon	-	0.5
Metaflumizone	VC 0046	Melons, except watermelon	-	1
Metalaxyl	VC 0045	Fruiting Vegetables, Cucurbits	0.2	-
	VC 0046	Melons, except watermelon	-	0.15
	VC 0432	Watermelon	-	0.2
Metaldehyde		Vegetables	1	-
Methiocarb	VC 0046	Melons, except watermelon	-	0.2
		Vegetables	0.1	-
Methomyl	VC 0045	Fruiting Vegetables, Cucurbits	0.1	0.1
Methoxyfenozide	VC 0045	Fruiting Vegetables, Cucurbits {except watermelon}	-	0.3
Methyl bromide		Vegetables {except Cucumber; Peppers}	T*0.05	-
Metolachlor	VC 0045	Fruiting Vegetables, Cucurbits	*0.05	-
Metrafenone	VC 0045	Fruiting Vegetables, Cucurbits	0.2	0.5
Myclobutanil	VC 0045	Fruiting Vegetables, Cucurbits	-	0.2
Novaluron	VC 0045	Fruiting Vegetables, Cucurbits	-	0.2
Omethoate	VC 0046	Melons, except watermelon	0.2	-
	VC 0432	Watermelon	0.2	-
Oxadixyl	VC 0045	Fruiting Vegetables, Cucurbits	0.5	-
Oxamyl	VC 0046	Melons, except watermelon	-	0.01
	VC 0432	Watermelon	-	0.01
Oxathiapiprolin	VC 0045	Fruiting Vegetables, Cucurbits	0.2	0.2
Paclobutrazol	VC 0045	Fruiting Vegetables, Cucurbits	T*0.01	-
Paraquat	VC 0045	Fruiting Vegetables, Cucurbits	-	0.02
		Vegetables {except Potato, Pulses}	*0.05	-
Penconazole	VC 0046	Melons, except watermelon	-	0.15
Penthiopyrad	VC 0045	Fruiting Vegetables, Cucurbits	1	0.5
Permethrin	VC 0046	Melons, except watermelon	-	0.3
Phosphorous Acid	VC 0045	Fruiting Vegetables, Cucurbits	T100	-
Piperonyl butoxide	VC 0045	Fruiting Vegetables, Cucurbits	-	1
		Vegetables	8	-

Chemical	Codex Code	Description	APVMA MRL mg/kg	Codex MRL mg/kg
Pirimicarb	VC 0046	Melons, except watermelon	-	0.2
		Vegetables {except Celeriac; Celery; Leafy vegetables; Onion, Welsh; Pulses; Shallot; Spring onion; Sweet corn (corn-on-the-cob)}	1	-
Prometryn		Vegetables	*0.1	-
Propargite		Vegetables	3	-
Propamocarb	VC 0045	Fruiting Vegetables, Cucurbits	5	5
Propineb	VC 0045	Fruiting Vegetables, Cucurbits	2	-
Proquinazid	VC 0045	Fruiting Vegetables, Cucurbits	0.2	-
Prothioconazole	VC 0432	Watermelon	T0.2	-
	VC 0045	Fruiting Vegetables, Cucurbits {except watermelon}	-	0.2
Pydiflumetofen	VC 0045	Fruiting Vegetables, Cucurbits	0.2	0.4
Pymetrozine	VC 0045	Fruiting Vegetables, Cucurbits	1	-
Pyraclostrobin	VC 0045	Fruiting Vegetables, Cucurbits	0.2	0.5
	VC 4199	Cantaloupe	-	0.2
Pyrethrins	VC 0045	Fruiting Vegetables, Cucurbits	-	*0.05
		Vegetables	1	-
Pyriofenone	VC 0045	Fruiting Vegetables, Cucurbits	0.7	2
Pyriproxyfen	VC 0045	Fruiting Vegetables, Cucurbits	0.2	-
	VC 0046	Melons, except watermelon	-	0.07
Quinoxyfen	VC 0046	Melons, except watermelon	-	0.1
Quizalofop-ethyl	VC 0046	Melons, except watermelon	*0.02	-
Quizalofop-P-tefuryl	VC 0046	Melons, except watermelon	*0.02	-
Sethoxydim	VC 0045	Fruiting Vegetables, Cucurbits	*0.1	-
Spinetoram	VC 0045	Fruiting Vegetables, Cucurbits	0.05	-
	VC 0046	Melons, except watermelon	-	*0.01
Spinosad	VC 0045	Fruiting Vegetables, Cucurbits	0.2	0.2
Spiromesifen	VC 0046	Melons, except watermelon	-	0.3
Spiropidion	VC 0046	Melons, except watermelon	-	0.9
	VC 0432	Watermelon	-	0.9
Spirotetramat	VC 0046	Melons, except watermelon	0.5	-
	VC 0432	Watermelon	0.5	-
	VC 0045	Fruiting Vegetables, Cucurbits	-	0.2
Sulfoxaflor	VC 0045	Fruiting Vegetables, Cucurbits	0.5	0.5
Tebuconazole	VC 0045	Fruiting Vegetables, Cucurbits	0.5	-
	VC 0046	Melons, except watermelon	-	0.15
Teflubenzuron	VC 0046	Melons, except watermelon	-	0.3
Thiacloprid	VC 0046	Melons, except watermelon	-	0.2
	VC 0432	Watermelon	-	0.2
Thiamethoxam	VC 0045	Fruiting Vegetables, Cucurbits	T1	0.5
Triadimefon	VC 0045	Fruiting Vegetables, Cucurbits	0.2	0.2
Triadimenol	VC 0045	Fruiting Vegetables, Cucurbits	0.5	0.2

Chemical	Codex Code	Description	APVMA MRL mg/kg	Codex MRL mg/kg
Trichlorfon		Vegetables {except Beetroot; Brussels sprouts; Cape gooseberry; Cauliflower; Celery; Egg plant, Thai; Pepino; Peppers; Pulses (dry); Sweet corn (corn-on-the-cob)}	0.1	-
Trifloxystrobin	VC 0045	Fruiting Vegetables, Cucurbits	-	0.3
Trifluralin		Vegetables {except carrot, parsnip, fennel bulb, galangal, greater}	0.05	-
Zoxamide	VC 0045	Fruiting Vegetables, Cucurbits	-	2

NOTE: MRLs are constantly under review and subject to change. Check for current MRLs and do not rely on the values stated above.
Note: Available information indicates that in the absence of specific limits in legislation, some countries defer to Codex, followed by EU MRL standards or apply a 0.01ppm 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.

* Indicates that an MRL is at the Limit of Quantitation (LOQ)
T = Temporary MRL
E = The MRL is based on extraneous residues
Po = The MRL accommodates post-harvest treatment of the commodity

Sources:
APVMA MRLs: Agricultural and Veterinary Chemicals Code (MRL Standard) Instrument 2023. Compilation 4. Prepared 6 July 2024.
CODEX MRLs: CODEX Alimentarius International Food Standards database (August 2024), http://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/en/

Appendix 6. Melon regulatory risk assessment

Melon
Agrichemical Regulatory
Risk Assessment

March 2024

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 almonds as well as current initiatives aimed at addressing identified pest management deficiencies.

Melon 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			
Abamectin	**6**	Root-knot nematodes	APVMA: Nominated for spray drift label review
		Vegetable leafminer	Canada: Some uses amended
			EU: Use restricted to permanent greenhouses
Afidopyropen	**9D**	Cabbage aphid	EU/UK: No authorisation in place
		Cotton aphid (Melon aphid)	
		Currant lettuce aphid	
		Green peach aphid	
		Silverleaf (Poinsettia) whitefly	
Alpha-cypermethrin	**3A**	Cucumber fly	EU/UK: No authorisation in place
Bacillus thuringiensis	**11A**	Armyworms	EU: Authorisation renewal under review
		Cabbage white butterfly	
		Helicoverpa	
		Loopers	
Beta-cyfluthrin	**3A**	Cucumber moth	EU/UK: No authorisation in place
		Helicoverpa	
Bifenazate	**20D**	Bryobia mite	Canada: Review initiated
		Two-spotted (Red spider) mite	EU: Use restricted to non-edible crops in permanent greenhouses.
Bifenthrin	**3A**	Cucumber moth	Canada: Not authorised
		Helicoverpa	EU/UK: No authorisation in place
		Silverleaf (Poinsettia) whitefly	

Melon Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comments
Carbaryl	**1A**	28-spotted potato ladybird	Canada: Reviewed, large number of uses deleted Codex: Review scheduled, support uncertain EU/UK: No authorisation in place USA: Under review
		Armyworms	
		Cucurbit stem borer	
		Cutworms	
		European earwig	
		Green vegetable bug	
		Helicoverpa	
		Leaf eating ladybirds	
		Potato moth (Leafminer)	
		Pumpkin beetle	
		Pumpkin beetle	
		Rutherglen bug	
		Wingless grasshopper	
Chlorantraniliprole	**28**	Cucumber moth	
		Helicoverpa	
Chlorpyrifos	**1B**	Ants	APVMA: Proposed deletion of uses Codex: All MRLs revoked Canada: Cancellation of all uses. EU/UK: No authorisation in place USA: EPA decision to cancel use on food crops
		Australian plague locust	
		Field crickets	
		Mealybugs	
		Migratory locust	
		Mole crickets	
		Spur-throated locust	
		Whiteflies	
Clothianidin	**4A**	Cucumber fly (PER95266)	APVMA: Under review Canada: Field uses cancelled or amended EU/UK: Not authorised USA: Re-registration with new risk mitigation measures

Active Constituents	Chemical Group	Problem	Comments
Cyantraniliprole	28	Cotton aphid (Melon aphid)	
		Cucumber moth	
		Helicoverpa	
		Silverleaf (Poinsettia) whitefly	
		Western flower thrips	
Diafenthiuron + cyantraniliprole	12A + 24	Cluster caterpillar	Diafenthiuron Codex: No MRLs EU/UK: No authorisation in place
		Cotton aphid (Melon aphid)	
		Cucumber moth	
		Green peach aphid	
		Helicoverpa	
		Silverleaf (Poinsettia) whitefly	
		Thrips	
		Two-spotted (Red spider) mite	
		Western flower thrips	
Diazinon	1B	Caterpillars	APVMA: Proposed deletion of uses EU/UK: No authorisation in place Codex: MRLs revoked
		Cutworms	
		Thrips	
Dimethoate	1B	Aphids	Codex: No MRL. EU/UK: No authorisation in place
		Green vegetable bug	
		Jassids	
		Leafhoppers	
		Mites	
		Thrips	
		Wingless grasshopper	
		Banana fruit fly (PER87065)	
		Cucumber fly (PER87065)	
		Lesser Queensland fruit fly (PER87065)	
		Mango fly (PER87065)	
		Mediterranean fruit fly (PER87065)	
		Queensland fruit fly (PER87065)	

Melon Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comments
Emamectin benzoate	**6**	Cluster caterpillar	EU: Candidate for substitution
		Cucumber moth	
		Helicoverpa	
		Tomato grub	
Etoxazole	**10B**	Two-spotted (Red spider) mite (PER14650)	EU: Only uses on greenhouse ornamentals approved & Candidate for substitution
Flonicamid	**29**	Cotton aphid (Melon aphid)	
		Green peach aphid	
		Silverleaf (Poinsettia) whitefly	
Fluazaindolizine	**N-UN**	Root-knot nematodes	EU: Authorisation pending
Flubendiamide	**28**	Cluster caterpillar	EU: Authorisation expires August 2024
		Helicoverpa	
Fluensulfone		Root-knot nematodes	EU/UK: No authorisation in place
Flupyradifurone	**4D**	Cotton aphid (Melon aphid)	EU: Under review
		Green peach aphid	
		Greenhouse whitefly	
		Silverleaf (Poinsettia) whitefly	
Helicoverpa NPV	**31**	Helicoverpa	
Hexythiazox	**10A**	Broad mite(PER14765)	
		Tomato russet mite(PER14765)	
		Two-spotted (Red spider) mite(PER14765)	
Isocycloseram		Cucumber moth	Codex: MRL of 0.15 mg/kg proposed by 2023 JMPR EU/UK: No authorisation in place
		Helicoverpa spp.	
		Two-spotted mites	
		Thrips(Suppression)	
Imidacloprid	**4A**	Green peach aphid	APVMA: Under review
		Silverleaf (Poinsettia) whitefly	Canada: Field uses cancelled or amended EU/UK: No authorisation in place USA: Re-registration with new risk mitigation measures

Melon Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comments
Malathion/Maldison	**1B**	28-spotted potato ladybird	APVMA: Under review Codex: Re-evaluation scheduled for 2025/26 EU: Restricted use to permanent greenhouses
		Aphids	
		Australian plague locust	
		Green vegetable bug	
		Jassids	
		Leafhoppers	
		Migratory locust	
		Pumpkin beetle	
		Pumpkin beetle	
		Redlegged earth mite	
		Rutherglen bug	
		Spur-throated locust	
Methomyl	**1A**	Cluster caterpillar (PER82428)	APVMA: nominated for review Canada: Re-evaluation completed. Majority of uses removed EU/UK: No authorisation in place USA: Under review
		Cucumber moth (PER82428)	
		Helicoverpa (PER82428)	
		Loopers (PER82428)	
		Rutherglen bug (PER82428)	
		Thrips (PER82428)	
		Webworms (PER82428)	
		Western flower thrips (PER82428)	
Paraffinic oil	**UN**	Thrips(PER88171)	
		Aphids	
		Leafhoppers	
		Mites	
		Thrips	
		Greenhouse whitefly(PER12221)	
		Silverleaf (Poinsettia) whitefly(PER12221)	
Pirimicarb	**1A**	Aphids	Codex: JMPR re-evaluation scheduled EU: Candidate for substitution

Active Constituents	Chemical Group	Problem	Comments
Pymetrozine	**9B**	Cotton aphid (Melon aphid)	Canada: Restricted use to glasshouses only Codex: No registrant support EU/UK: No authorisation in place
		Cowpea aphid	
		Green peach aphid	
		Greenhouse whitefly	
		Potato aphid	
		Silverleaf (Poinsettia) whitefly	
Pyrethrins	**3A**	Ants	Canada: Under review
		Aphids	
		Cabbage white butterfly	
		Caterpillars	
		Diamondback (Cabbage) moth	
		Flies	
		Leafhoppers	
		Mealybugs	
		Scale insects	
		Thrips	
		Two-spotted (Red spider) mite	
		Whiteflies	
Pyriproxyfen	**7C**	Ants	
		Greenhouse whitefly	
		Silverleaf (Poinsettia) whitefly	
Spinetoram	**5**	Caterpillars	EU: Authorisation expires June 2024
		Cucumber moth	
		Helicoverpa	
		Western flower thrips	
		Vegetable leafminer (PER91155)	
Spinosad	**5**	Cucumber moth	
		Helicoverpa	
		Western flower thrips	
		Fall armyworm (PER89870)	
		Vegetable leafminer (PER90928)	

Active Constituents	Chemical Group	Problem	Comments
Spirotetramat	**23**	Cotton aphid (Melon aphid)	EU: Authorisation expires April 2024
		Green peach aphid	
		Silverleaf (Poinsettia) whitefly	
Sulfoxaflor	**4C**	Cotton aphid (Melon aphid)	USA: Pollinator concerns EU: Restricted to permanent glasshouses only
		Green peach aphid	
		Greenhouse whitefly	
Trichlorfon	**1B**	Cutworms	APVMA: nominated for review Codex: No MRLs EU/UK: No authorisation in place USA: No MRLs

Active Constituents	Chemical Group	Problem	Comments
DISEASES			
Ametoctradin + dimethomorph	**45 + 40**	Downy mildew	Dimethomorph EU: Under review
Azoxystrobin	**11**	Downy mildew	Canada: Review proposed
		Gummy stem blight	
		Powdery mildew	
		Fungal post-harvest rots (PER91493)	
Benalaxyl	**4**	Anthracnose	EU/UK: No authorisation in place (benalaxyl-M approved)
		Gummy stem blight	
		Alternaria leaf blight	
		Downy mildew	
Boscalid + Kresoxim-methyl	**7 + 11**	Powdery mildew	Boscalid Canada: Under review
Bupirimate	**8**	Powdery mildew	
Chlorothalonil	**M5**	Alternaria leaf blight	APVMA: Nominated for review Canada: Proposed cancellation of use EU/UK: No authorisation in place USA: Under review
		Anthracnose	
		Downy mildew	
		Gummy stem blight	
		Powdery mildew	
		Rhizoctonia ground rot	
		Target leafspot	
Copper	**M1**	Angular leaf spot	EU: Candidates for substitution
		Anthracnose	
		Bacterial spot	
		Downy mildew	
		Gummy stem blight	
		Late (Irish) blight	
		Leaf diseases/spots	
		Powdery mildew	

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Active Constituents	Chemical Group	Problem	Comments
Copper		Rust	EU: Candidates for substitution
		Septoria leaf spot	
		Target spot (Early blight)	
Cyanogen (ethanedinitrile)	-	Fungal diseases: Fusarium	EU/UK: No authorisation in place
		Fungal diseases: Rhizoctonia	
		Fusarium wilt	
		Phytophthora trunk/collar rot	
		Pythium diseases: soil borne	
		Rhizoctonia rot	
		Root and collar rot	
		Sclerotium crown rot	
		Spot blotch	
Cyflufenamid	**U6**	Powdery mildew	
Dimethomorph	**40**	Alternaria leaf blight	EU: Under review
		Anthracnose	
		Downy mildew	
		Gummy stem blight	
		Septoria leaf spot	
Florylpicoxamid	**21**	Powdery mildew	EU: Pending
Fluopicolide + propamocarb HCl	**43 + 28**	Downy mildew	
Guazatine acetate	**M7**	Alternaria fruit rot	EU/UK: No authorisation in place
		Fusarium fruit rot	
		Geotrichum fruit rot (Sour rot)	
		Pink mould rot	
		Rhizopus rot	
Hydrogen peroxide +peroxyacetic acid	**M**	Powdery mildew	
Imazalil	**3**	Alternaria fruit rot	EU: Withdrawal of many EU MRLs proposed
		Fusarium fruit rot	
		Geotrichum fruit rot (Sour rot)	
		Pink mould rot	

Active Constituents	Chemical Group	Problem	Comments
Iodine	M	Bactericide	
		Fungi	
Mancozeb	M3	Alternaria leaf blight	APVMA: Nominated for review Canada: Many uses cancelled Codex: To be reviewed EU/UK: No authorisation in place
		Anthracnose	
		Downy mildew	
		Gummy stem blight	
		Powdery mildew	
		Septoria leaf spot	
Metalaxyl Metalaxyl/Metalaxyl-M	4 4	Phytophthora soil fungus (Dieback)	Metalaxyl EU: Candidate for substitution Metalaxyl-M EU: Restricted use approval
		Alternaria leaf blight	
		Anthracnose	
		Damping off	
		Downy mildew	
		Gummy stem blight	
Metiram	M3	Downy mildew	APVMA: Nominated for review Canada: Only foliar use on potato Codex: To be reviewed EU/UK: No authorisation in place
		Gummy stem blight	
Metrafenone	50	Powdery mildew	
Oxadixyl + Propineb	4 + M3	Downy mildew	Oxadixyl EU/UK: No authorisation in place Propineb APVMA: Nominated for review Codex: To be reviewed EU/UK: No authorisation in place
		Anthracnose	
		Gummy stem blight	
Oxathiapiprolin	49	Downy mildew	
Penthiopyrad	7	Grey mould	
		Gummy stem blight	
		Powdery mildew	

Melon Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comments
Phosphorous acid	**33**	Downy mildew	
Propineb	**M3**	Anthracnose	APVMA: Nominated for review Codex: To be reviewed EU/UK: No authorisation in place
		Downy mildew	
		Gummy stem blight	
Proquinazid	**13**	Powdery mildew	
Pydiflumetofen + difenoconazole	**7 + 3**	Alternaria leaf spot	Difenoconazole: APVMA: nominated for review EU: Candidate for substitution USA: Under review
		Gummy stem blight	
		Cercospora leaf spot	
		Powdery mildew	
Pyriofenone	**50**	Powdery mildew	
Streptomyces lydicus	**BM2**	Powdery mildew	
Sulfur	**M2**	Anthracnose	
		Downy mildew	
		Gummy stem blight	
		Rust	
		Septoria leaf spot	
		Target spot (Early blight)	
Triadimefon	**3**	Powdery mildew	APVMA: nominated for review EU/UK: No authorisation in place USA: Under review. Proposed use restrictions on turf and ornamentals
Triadimenol	**3**	Powdery mildew	APVMA: nominated for review Canada: No authorisation in place EU/UK: No authorisation in place USA: Registration cancelled
Zineb	**M3**	Anthracnose	APVMA: Nominated for review Codex: To be reviewed EU/UK: No authorisation in place
		Downy mildew	

Active Constituents	Chemical Group	Comment
WEEDS		
Clomazone	**13**	
Diquat	**22**	APVMA: nominated for review EU/UK: No authorisation in place
Fluazifop-P	**1**	
Paraquat	**22**	APVMA: Currently under review Canada: Review initiated EU/UK: No authorisation in place Rotterdam Convention - nomination
Pyraflufen-ethyl	**14**	
Quizalofop-P	**1**	Canada: Under re-evaluation EU/UK: No authorisation in place
Sethoxydim	**1**	EU/UK: No authorisation in place
PGRs		
1-Methylcyclopropene		

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Melon Agrichemical Regulatory Risk Assessment

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