

Zucchini 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Regulatory pressures on agrichemicals are increasing globally, with many being either restricted or withdrawn from use.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 zucchini as well as current initiatives aimed at addressing identified pest management deficiencies.

Zucchini 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	Comment
Abamectin	6	Root-knot nematodes	APVMA: Nominated for spray drift label review Canada: Some uses amended, others cancelled EU: Use restricted to permanent greenhouses
		Two-spotted (Red spider) mite	
		Red tomato spider mite(PER14722)	
		Vegetable leafminer(PER81876)	
Afidopyropen	9D	Cabbage aphid	EU/UK: No authorisations in place
		Cotton /melon aphid	
		Currant lettuce aphid	
		Green peach aphid	
		Silverleaf (Poinsettia) whitefly	
Alpha-cypermethrin	3A	Cucumber fly	EU/UK: No authorisations in place
<i>Bacillus thuringiensis</i>	11A	Armyworms	EU: Under review for renewal
		Cabbage white butterfly	
		Helicoverpa	
		Loopers	
Beta-cyfluthrin	3A	Cucumber moth	EU/UK: No authorisations in place
		Helicoverpa	
Bifenazate	20	Bryobia mite	Canada: Under review EU: Use restricted to non-edible crops in permanent greenhouses
		Two-spotted (Red spider) mite	
		Red tomato spider mite(PER82341)	

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Bifenthrin	3A	Caterpillars	Canada: Not authorised EU/UK: No authorisations in place
		Cucumber moth	
		Helicoverpa	
		Mites	
		Silverleaf (Poinsettia) whitefly	
		Whiteflies	
Buprofezin	16	Greenhouse whitefly(PER82467)	EU: MRLs set to limit of quantification
		Silverleaf (Poinsettia) whitefly(PER82467)	
Carbaryl	1A	28-spotted potato ladybird	Canada: Reviewed, large number of uses deleted Codex: Review scheduled, support uncertain EU/UK: No authorisations in place USA: Under review
		Armyworms	
		Cucurbit stem borer	
		Cutworms	
		European earwig	
		Green vegetable bug	
		Helicoverpa	
		Leaf eating ladybirds	
		Potato moth (Leafminer)	
		Pumpkin beetle	
		Rutherglen bug	
		Wingless grasshopper	

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Chlorantraniliprole	28	Cucumber moth	
		Helicoverpa	
Chlorpyrifos	1B	Australian plague locust	APVMA: Proposed deletion of uses Codex: All Codex MRLs revoked Canada: Cancellation of all uses. EU/UK: No authorisation in place USA: Cancellation of all uses on food crops
		Field crickets	
		Mealybugs	
		Migratory locust	
		Mole crickets	
		Spur-throated locust	
		Whiteflies	
		Ants(PER14575)	
Cyanogen (ethanedinitrile)	-	Root-knot nematodes	
Cyantraniliprole	28	Cotton /melon aphid	
		Cucumber moth	
		Helicoverpa	
		Leaf miners (PER93849)	
		Silverleaf (Poinsettia) whitefly	
		Western flower thrips	
Cyromazine	17	Leafminers- Liriomyza (PER81867)	EU/UK: No authorisations in place

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Diafenthiuron + cyantraniliprole	12A + 28	Cluster caterpillar	Diafenthiuron Codex: No MRLs EU/UK: No authorisations in place
		Cotton /melon aphid	
		Cucumber moth	
		Green peach aphid	
		Helicoverpa	
		Plague thrips	
		Silverleaf (Poinsettia) whitefly	
		Tomato thrips	
		Two-spotted (Red spider) mite	
		Western flower thrips	
Diazinon	1B	Caterpillars	APVMA: Proposed deletion of uses EU/UK: No authorisation in place Codex: Codex MRLs deleted
		Cutworms	
		Thrips	
Dimethoate	1B	Cucumber fly	Codex: No MRL EU/UK: No authorisations in place
		Green vegetable bug	
		Jassids	
		Leafhoppers	
		Mites	
		Wingless grasshopper	

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Dimpropridaz	36	Cotton/melon aphid	Codex: Evaluation for MRLs scheduled for 2025 EU: Authorisation pending
		Greenhouse whitefly	
		Silverleaf whitefly	
Emamectin benzoate	6	Cluster caterpillar	EU: Candidate for substitution
		Cucumber moth	
		Helicoverpa	
		Tomato grub	
Etoxazole	10B	Red tomato spider mite(PER82460)	EU: Only uses on greenhouse ornamentals approved & Candidate for substitution
		Two-spotted (Red spider) mite (PER82460)	
Flonicamid	29	Cotton /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 authorisations in place
Flupyradifurone	4D	Cotton /melon aphid	EU: Under review
		Green peach aphid	
		Greenhouse whitefly	
		Silverleaf (Poinsettia) whitefly	

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Helicoverpa NPV	31	Helicoverpa	
Imidacloprid	4A	Green peach aphid	APVMA: Under review
		Silverleaf (Poinsettia) whitefly	Canada: Some field uses cancelled or amended EU/UK: No authorisations in place USA: Re-registration with new risk mitigation measures
Malathion/Maldison	1B	28-spotted potato ladybird	APVMA: Under review
		Aphids	Codex: Re-evaluation scheduled
		Australian plague locust	EU: Use restricted to permanent greenhouses
		Green vegetable bug	USA: Under review, label use patterns amended
		Jassids	
		Leafhoppers	
		Migratory locust	
		Pumpkin beetle	
		Redlegged earth mite	
		Rutherglen bug	
Spur-throated locust			

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Methomyl	1A	Cluster caterpillar	APVMA: nominated for review
		Cucumber moth	Canada: Re-evaluation completed. Majority of uses removed
		Helicoverpa	EU/UK: No authorisations in place
		Loopers	USA: Under review
		Rutherglen bug	
		Thrips	
		Webworms	
		Western flower thrips	
NPVirus	31	Helicoverpa spp.	
Orange oil	UN	Whitefly (<i>Bemisia tabaci</i>)	
Paraffinic oil	UN	Aphids(PER88171)	
		Thrips(PER88171)	
Petroleum oil	UN	Greenhouse whitefly	
		Leafhoppers	
		Mites	
		Silverleaf (Poinsettia) whitefly	
Pirimicarb	1A	Aphids	Codex: JMPR re-evaluation scheduled EU: Candidate for substitution
Pymetrozine	9B	Cotton /melon aphid	Canada: Restricted use to glasshouses only
		Cowpea aphid	Codex: No registrant support
		Green peach aphid	EU/UK: No authorisations in place
		Greenhouse whitefly	
		Potato aphid	
		Silverleaf (Poinsettia) whitefly	

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Pyrethrins	3A	Cabbage white butterfly	Canada: Under review
		Diamondback (Cabbage) moth	
		Earwig	
		Flies	
		Helicoverpa	
		Mealybugs	
		Scale insects	
		Two-spotted (Red spider) mite	
		Ants(PER87918 Po)	
		Aphids(PER87918 Po)	
		Caterpillars(PER87918 Po)	
		Leafhoppers(PER87918 Po)	
		Thrips(PER87918 Po)	
		Whiteflies(PER87918 Po)	
Pyriproxyfen	7C	Silverleaf (Poinsettia) whitefly	
Spinetoram	5	Cabbage white butterfly	EU: Authorisation expires June 2024
		Caterpillars	
		Cucumber moth	
		Helicoverpa	
		Loopers	
		Melon thrips	
		Western flower thrips	
		Vegetable leafminer(PER91155)	

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Spinosad	5	Cucumber moth	
		Helicoverpa	
		Western flower thrips	
		Fall armyworm(PER89870)	
		Vegetable leafminer(PER90928)	
Spirotetramat	23	Cotton /melon aphid	EU: Authorisation expires April 2024
		Green peach aphid	
		Silverleaf (Poinsettia) whitefly	
Spodoptera Nucleopolyhedrovirus (NPV)	31	Fall armyworm(PER90820)	
Sulfoxaflor	4C	Cotton /melon aphid	USA: Pollinator concerns EU: Use restricted to permanent glasshouses
		Green peach aphid	
		Greenhouse whitefly	
Trichlorfon	1B	Cutworms	APVMA: nominated for review Codex: No MRLs EU/UK: No authorisations in place USA: No MRLs

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Ametoctradin + dimethomorph	45 + 40	Downy mildew	<u>Dimethomorph</u> EU: Under review
<i>Aureobasidium pullulans</i>	NC	Botrytis / Grey mould	
		Sclerotinia	
Azoxystrobin	11	Downy mildew	Canada: Review proposed
		Gummy stem blight	
		Powdery mildew	
Azoxystrobin + Oxathiapiprolin	11 + 49	Downy mildew	
		Gummy stem blight	
		Powdery mildew	
		Sclerotinia	
Benalaxyl	4	Anthracnose	EU/UK: No authorisations in place (benalaxyl-M approved)
		Gummy stem blight	
		Alternaria leaf blight	
		Downy mildew	
Boscalid	7	Powdery mildew	Canada: Under review
Bupirimate	8	Powdery mildew	

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Chlorothalonil	M5	Alternaria leaf blight	APVMA: nominated for review Canada: Cancellation of uses proposed EU/UK: No authorisations 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	
		Rust	
		Septoria leaf spot	
		Target spot (Early blight)	
Cyanogen (Ethanedinitrile)	-	Damping off	EU/UK: No authorisations in place
		Fungal diseases: Fusarium	
		Fungal diseases: Rhizoctonia	
		Fusarium wilt	
		Phytophthora trunk/collar rot	
		Rhizoctonia rot	
		Root and collar rot	
		Sclerotium crown rot	
		Spot blotch	

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
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: Authorisation pending
Fluopicolide	43	Downy mildew	EU: Candidate for substitution
Hydrogen peroxide +peroxyacetic acid	M	Powdery mildew	
Iodine	M	Bactericide	
		Fungi	
Iprodione	2	Botrytis / Grey mould	Canada: Majority of food crop uses deleted Codex: Review scheduled EU/UK: No authorisations in place USA: Proposed deletion or restriction of uses
Kresoxim-methyl	7	Powdery mildew	Canada: Reduced number of applications
Mancozeb	M3	Alternaria leaf blight	APVMA: Nominated for review Canada: Many uses cancelled Codex: To be reviewed EU/UK: No authorisations in place
		Anthracnose	
		Downy mildew	
		Gummy stem blight	
		Powdery mildew	
		Septoria leaf spot	
Melaleuca oil		Powdery mildew	

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Metalaxyl/metalaxyl-M	4	Alternaria leaf blight	Metalaxyl EU: Candidate for substitution Metalaxyl-M EU: Restricted use approval
		Anthracoese	
		Damping off	
		Downy mildew	
		Gummy stem blight	
		Phytophthora soil fungus (Dieback)	
Metiram	M3	Downy mildew	APVMA: Nominated for review Canada: Proposed cancelling of foliar uses other than potato Codex: To be reviewed EU/UK: No authorisations in place
		Gummy stem blight	
Metrafenone	50	Powdery mildew	
Oxadixyl	4	Anthracoese	EU/UK: No authorisations in place
		Downy mildew	
		Gummy stem blight	
Oxathiapiprolin	49	Downy mildew	
Penthiopyrad	7	Botrytis / Grey mould	
		Gummy stem blight	
		Powdery mildew	
Phosphorous acid	33	Downy mildew	
Potassium bicarbonate		Powdery mildew	
Propamocarb HCl	28	Downy mildew	
Propineb	M3	Anthracoese	APVMA: Nominated for review EU/UK: No authorisations in place Codex: To be reviewed
		Downy mildew	
		Gummy stem blight	

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Problem	Comment
Proquinazid	13	Powdery mildew	
Pydiflumetofen + difenoconazole	7 + 3	Alternaria leaf spot	Difenoconazole:
		Gummy stem blight	APVMA: nominated for review
		Cercospora leaf spot	EU: Candidate for substitution
		Powdery mildew	USA: Under review
Pyrimethanil	9	Botrytis / Grey mould	Canada: Under review
Pyriofenone	50	Powdery mildew	
<i>Streptomyces lydicus</i>	BM02	Powdery mildew	
Sulfur	M2	Anthracnose	
		Downy mildew	
		Rust	
		Septoria leaf spot	
		Target spot (Early blight)	
Triadimefon	3	Powdery mildew	APVMA: nominated for review EU/UK: No authorisations 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 authorisations in place USA: Registration cancelled
Zineb	M3	Anthracnose	APVMA: Nominated for review
		Downy mildew	Codex: To be reviewed EU/UK: No authorisations in place

Zucchini Agrichemical Regulatory Risk Assessment

Active Constituents	Chemical Group	Comment
HERBICIDES		
Clomazone	13	
Fluazifop-P	1	
Sethoxydim	1	EU/UK: No authorisations in place
Plant growth regulators		
Paclobutrazol		EU: Candidate for substitution

Funding statement: MT20007 - Regulatory Support & Response Co-ordination. This *multi-industry* project has been funded by Hort Innovation, using *industry research and development levies* and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

Disclaimer:

Horticulture Innovation Australia Limited (Hort Innovation) makes no representations and expressly disclaims all warranties (to the extent permitted by law) about the accuracy, completeness, or currency of information in MT20007 – Regulatory Support & Response Co-ordination. Reliance on any information provided by Hort Innovation is entirely at your own risk. Hort Innovation is not responsible for, and will not be liable for, any loss, damage, claim, expense, cost (including legal costs) or other liability arising in any way, including from any Hort Innovation or other person's negligence or otherwise from your use or non-use of MT20007 – Regulatory Support & Response Co-ordination, or from reliance on information contained in the material or that Hort Innovation provides to you by any other means.

Legal notice

Copyright © Horticulture Innovation Australia Limited 2024

Copyright subsists in Ag-Chemical Update. Horticulture Innovation Australia Limited (Hort Innovation) owns the copyright, other than as permitted under the Copyright ACT 1968 (Cth). The Ag-Chemical Update (in part or as a whole) cannot be reproduced, published, communicated or adapted without the prior written consent of Hort Innovation. Any request or enquiry to use the Ag-Chemical Update should be addressed to:

Communications Manager

Hort Innovation

Level 7, 141 Walker Street

North Sydney NSW 2060

Australia

Email: communications@horticulture.com.au

Phone: 02 8295 2300