

Zucchini Agrichemical Regulatory Risk Assessment

September 2023

Regulatory pressures on agrichemicals are increasing globally, with many being either restricted or withdrawn from use.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.

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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: No authorisations
		Cotton /melon aphid	
		Currant lettuce aphid	
		Green peach aphid	
		Silverleaf (Poinsettia) whitefly	
Alpha-cypermethrin	3A	Cucumber fly	EU: No authorisations UK: No authorisation
<i>Bacillus thuringiensis</i>	11A	Armyworms	EU: Under review for renewal
		Cabbage white butterfly	
		Helicoverpa	
		Loopers	
Beta-cyfluthrin	3A	Cucumber moth	EU: Not authorised
		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)	

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Active Constituents	Chemical Group	Problem	Comment
Bifenthrin	3A	Caterpillars	Canada: Not authorised EU: Not authorised
		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: Authorisation not renewed 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	

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Active Constituents	Chemical Group	Problem	Comment
Chlorantraniliprole	28	Cucumber moth	
		Helicoverpa	
Chlorpyrifos	1B	Australian plague locust	APVMA: Under review. Codex: All Codex MRLs revoked Canada: Cancellation of all uses. EU: 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)	
Clothianidin	4A	Cucumber fly(PER80101)	APVMA: Under review Canada: Some field uses cancelled or amended strawberries and turf EU: No authorisations USA: Re-registration with new risk mitigation measures
Cyanogen (ethanedinitrile)	-	Root-knot nematodes	
Cyantraniliprole	28	Cotton /melon aphid	
		Cucumber moth	
		Helicoverpa	
		Silverleaf (Poinsettia) whitefly	
		Western flower thrips	

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Active Constituents	Chemical Group	Problem	Comment
Cyromazine	17	Leafminers- Liriomyza (PER81867)	EU: No authorisation in place
Diafenthiuron + cyantraniliprole	12A + 28	Cluster caterpillar	<u>Diafenthiuron</u> Codex: No MRLs EU: No authorisation 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: Under review EU: No authorisation in place Codex: Withdrawal of Codex MRLs recommended
		Cutworms	
		Thrips	
Dimethoate	1B	Cucumber fly	Codex: No MRL EU: No authorisations
		Green vegetable bug	
		Jassids	
		Leafhoppers	
		Mites	
		Wingless grasshopper	

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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	
		Helicoverpa	
Fluensulfone	-	Root-knot nematodes	EU: No authorisations
Flupyradifurone	4D	Cotton /melon aphid	EU: Under review
		Green peach aphid	
		Greenhouse whitefly	
		Silverleaf (Poinsettia) whitefly	

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Active Constituents	Chemical Group	Problem	Comment
Helicoverpa NPV	31	Helicoverpa	
Hexythiazox	10A	Broad mite(PER14765)	
		Tomato russet mite(PER14765)	
		Two-spotted (Red spider) mite(PER14765)	
Imidacloprid	4A	Green peach aphid	APVMA: Under review Canada: Some field uses cancelled or amended EU: No authorisations USA: Re-registration with new risk mitigation measures
		Silverleaf (Poinsettia) whitefly	
Malathion/Maldison	1B	28-spotted potato ladybird	APVMA: Under review Codex: Re-evaluation scheduled EU: Use restricted to permanent greenhouses USA: Under review, label use patterns amended
		Aphids	
		Australian plague locust	
		Green vegetable bug	
		Jassids	
		Leafhoppers	
		Migratory locust	
		Pumpkin beetle	
		Redlegged earth mite	
		Rutherglen bug	
		Spur-throated locust	

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Active Constituents	Chemical Group	Problem	Comment
Methomyl	1A	Cluster caterpillar	APVMA: nominated for review Canada: Re-evaluation completed. Majority of uses removed EU: No authorisations in place USA: Under review
		Cucumber moth	
		Helicoverpa	
		Loopers	
		Rutherglen bug	
		Thrips	
		Webworms	
		Western flower thrips	
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 Codex: No registrant support EU: No authorisations in place
		Cowpea aphid	
		Green peach aphid	
		Greenhouse whitefly	
		Potato aphid	
		Silverleaf (Poinsettia) whitefly	

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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	
		Caterpillars	
		Cucumber moth	
		Helicoverpa	
		Loopers	
		Melon thrips	
		Western flower thrips	
		Vegetable leafminer(PER91155)	

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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	
		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: No authorisations USA: No MRLs

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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: No authorisation in place (benalaxyl-M approved)
		Gummy stem blight	
		Alternaria leaf blight	
		Downy mildew	
Boscalid	7	Powdery mildew	Canada: Under review
Bupirimate	8	Powdery mildew	

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Active Constituents	Chemical Group	Problem	Comment
Chlorothalonil	M5	Alternaria leaf blight	APVMA: nominated for review Canada: Cancellation of uses proposed EU: 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	
		Rust	
		Septoria leaf spot	
		Target spot (Early blight)	
Cyanogen (Ethanedinitrile)	-	Damping off	
		Fungal diseases: Fusarium	
		Fungal diseases: Rhizoctonia	
		Fusarium wilt	
		Phytophthora trunk/collar rot	
		Rhizoctonia rot	
		Root and collar rot	
		Sclerotium crown rot Spot blotch	

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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: No authorisation 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 2024/25 EU: Authorisation not renewed
		Anthracnose	
		Downy mildew	
		Gummy stem blight	
		Powdery mildew	
		Septoria leaf spot	
Melaleuca oil		Powdery mildew	

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Active Constituents	Chemical Group	Problem	Comment
Metalaxyl/metalaxyl-M	4	Alternaria leaf blight	Metalaxyl EU: Candidate for substitution Metalaxyl-M EU: Restricted use approval
		Anthracnose	
		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 2024/25 EU: Under review
		Gummy stem blight	
Metrafenone	50	Powdery mildew	
Oxadixyl	4	Anthracnose	EU: No authorisation 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	Anthracnose	APVMA: Nominated for review EU: No authorisation in place Codex: To be reviewed 2024/25
		Downy mildew	
		Gummy stem blight	

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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 Pydiflumetofen: EU: Pending
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: 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: No authorisation in place USA: Registration cancelled
Zineb	M3	Anthracnose	APVMA: Nominated for review
		Downy mildew	Codex: To be reviewed 2024/25 EU: No authorisation in place

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Active Constituents	Chemical Group	Comment
Broadleaf weeds and grasses		
Clomazone	13	
Fluazifop-P	1	
Sethoxydim	1	EU: No authorisation in place
Plant growth regulators		
Paclobutrazol		EU: Candidate for substitution

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