

Cucumber 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Regulatory pressures on agrichemicals are increasing globally, with many being either restricted or withdrawn from use.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 cucumbers 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	Comments
INSECT AND OTHER PESTS			
Abamectin	6	Root-knot nematodes	APVMA: Nominated for spray drift label review Canada: Some uses amended and cancelled EU: Use restricted to permanent greenhouses
		Two-spotted (Red spider) mite	
		Western flower thrips	
		Red tomato spider mite (PER14722)	
		Vegetable leafminer (PER81876)	
Afidopyropen	9D	Cabbage aphid	EU: No authorisations
		Currant lettuce aphid	
		Cotton / melon aphid	
		Green peach aphid	
		Silverleaf whiteflies	
Alpha-cypermethrin	3A	Plague thrips	EU: No authorisation
		Vegetable weevil	UK: No authorisations
		Cucumber fly (PER80138)	
B. thuringiensis Israelensis	11A	Fungus gnats (PER14694)	
Beta-cyfluthrin	3A	Cucumber moth	EU: No authorisation in place
		Helicoverpa	
Bifenazate	20D	Bryobia mite	Canada: Review initiated
		Two-spotted (Red spider) mite	EU: Use restricted to non-edible crops grown in permanent greenhouses
		Red tomato spider mite (PER82341)	

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Active Constituents	Chemical Group	Problem	Comments
Bifenthrin	3A	Caterpillars	Canada: Not authorised
		Cucumber moth	EU: Not authorised
		Helicoverpa	
		Mites	
		Moths	
		Silverleaf whiteflies	
		Thrips	
		Whiteflies	
		Yellow spotted stink bug	
Buprofezin	16	Greenhouse whitefly (PER82467)	EU: MRLs set to limit of quantification
		Silverleaf whiteflies (PER82467)	
Carbaryl	1A	28-spotted potato ladybird	Canada: Reviewed, large number of uses deleted
		Armyworms	Codex: Review scheduled, support uncertain
		Cucurbit stem borer	EU: Authorisation not renewed
		Cutworms	USA: Under review
		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	Comments
Chlorantraniliprole	28	Cucumber moth	
		Helicoverpa	
Chlorpyrifos	1B	Ants	APVMA: Under review. Codex: All Codex MRLs deleted Canada: Cancellation of all uses. EU: No authorisation in place USA: EPA decision to cancel use on food crops
		Australian plague locust	
		Field crickets	
		Mealybugs	
		Migratory locust	
		Spur-throated locust	
		Whiteflies	
Clothianidin	4A	Cucumber fly (PER80101-Expires 30/9/23)	APVMA: Under review Canada: Field uses cancelled or amended EU: Not authorised USA: Re-registration with new risk mitigation measures
Cyantraniliprole	28	Cotton / melon aphid	
		Cucumber moth	
		Helicoverpa	
		Silverleaf whiteflies	
		Western flower thrips	
		Vegetable leafminer (PER90387)	
Cyromazine	17	Vegetable leafminer (PER81867)	EU: No authorisation

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Active Constituents	Chemical Group	Problem	Comments
Diafenthiuron + cyantraniliprole	12A + 28	Cluster caterpillar	Diafenthiuron: Codex: No MRLs EU: No authorisation in place
		Cotton / melon aphid	
		Cucumber moth	
		Green peach aphid	
		Helicoverpa	
		Plague thrips	
		Silverleaf whiteflies	
		Thrips	
		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: Not authorised
Dimpropridaz	36	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)	

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Active Constituents	Chemical Group	Problem	Comments
Fatty acids - K salt	UN	Greenhouse & Silverleaf whitefly	
Flonicamid	29	Cotton / melon aphid	
		Green peach aphid	
		Silverleaf whiteflies	
Fluazaindolizine	N-UN	Root-knot nematodes	EU: Pending
Flubendiamide	28	Cluster caterpillar	
		Helicoverpa	
Fluensulfone	-	Root-knot nematodes	EU: No authorisation
Flupyradifurone	4D	Cotton / melon aphid	EU: Under review
		Green peach aphid	
		Greenhouse whitefly	
		Silverleaf whiteflies	
Helicoverpa NPV	31	Helicoverpa	
Hexythiazox	10A	Broad mite (PER14765)	
		Red tomato spider mite (PER14765)	
		Tomato russet mite (PER14765)	
		Two-spotted (Red spider) mite (PER14765)	
Imidacloprid	4A	Green peach aphid	APVMA: Under review
		Silverleaf whiteflies	Canada: Field uses cancelled or amended
		Greenhouse whitefly (PER12489)	EU: No authorisation USA: Re-registration with new risk mitigation measures

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Active Constituents	Chemical Group	Problem	Comments
Isocycloseram	30	Two-spotted mites	EU: No authorisation
		Broad mite (Suppression)	
		Bean red spider mite (Suppression)	
		Cucumber moth	
		Thrips (Suppression)	
		Helicoverpa spp (Suppression)	
Malathion/Maldison	1B	28-spotted potato ladybird	APVMA: Under review Codex: Re-evaluation scheduled for 2025/26 EU: Restricted use to permanent greenhouses
		Aphids	
		Fruit flies	
		Green vegetable bug	
		Jassids	
		Leafhoppers	
		Pumpkin beetle	
		Redlegged earth mite	
		Rutherglen bug	
		Spur-throated locust	
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	

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Active Constituents	Chemical Group	Problem	Comments
Helicoverpa NPV	31	Helicoverpa spp.	
Petroleum oil	UNM	Aphids	
		Leafhoppers	
		Mites	
		Thrips	
		Greenhouse whitefly (PER12221)	
		Silverleaf whiteflies (PER12221)	
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: Not authorised
		Cowpea aphid	
		Green peach aphid	
		Greenhouse whitefly	
		Potato aphid	
		Silverleaf whiteflies	
Pyrethrins	3A	Ants	Canada: Under review
		Cabbage white butterfly	Codex: Under review
		Caterpillars	
		Diamondback (Cabbage) moth	
		Earwig	
		Flies	
		Leafhoppers	
		Light brown apple moth	
		Mealybugs	
		Plague thrips	
		Rutherglen bug	
		Thrips	

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Active Constituents	Chemical Group	Problem	Comments
Pyrethrins	3A	Two-spotted (Red spider) mite	Canada: Under review
		Whiteflies	Codex: Under review
		Aphids	
		Green peach aphid	
		Rose aphid	
Pyriproxyfen	7C	Silverleaf whiteflies	
Spinetoram	5	Caterpillars	
		Cucumber moth	
		Helicoverpa	
		Western flower thrips	
		Vegetable leafminer (PER91155)	
Spinosad	5	Cucumber moth	
		Helicoverpa	
		Western flower thrips	
		Fall armyworm (PER89870)	
		Vegetable leafminer (PER90928)	
Spirotetramat	23	Cotton / melon aphid	
		Green peach aphid	
		Silverleaf whiteflies	
<i>Spodoptera frugiperda</i> NPV	31	Fall armyworm (PER90820)	
Sulfoxaflor	4C	Cotton / melon aphid	USA: Pollinator concerns
		Green peach aphid	EU: Restricted to permanent glasshouses only
		Greenhouse whitefly	

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Active Constituents	Chemical Group	Problem	Comments
Tebufenpyrad	21A	European red mite	EU: Candidate for substitution
		Two-spotted (Red spider) mite	
Trichlorfon	1B	Cutworms	APVMA: nominated for review
		Green vegetable bug	Codex: No MRLs
		Rutherglen bug	EU: No authorisations USA: No MRLs

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Active Constituents	Chemical Group	Problem	Comments
DISEASES			
Ametoctradin + dimethomorph	45 + 40	Downy mildew	<u>Dimethomorph</u> EU: Under review
<i>Aureobasidium pullulans</i>	NC	Grey mould / Botrytis Sclerotinia rot	
Azoxystrobin	11	Downy mildew Gummy stem blight Powdery mildew	Canada: Review proposed
Benalaxyl	4	Gummy stem blight Alternaria leaf blight Anthracnose Downy mildew	EU: No authorisation in place (benalaxyl-M approved)
Boscalid + kresoxim-methyl	7 + 11	Powdery mildew	<u>Boscalid:</u> Canada: Review initiated
Bupirimate	8	Powdery mildew	
Captan	M4	Grey mould / Botrytis	EU: Under review proposed restriction to use in permanent greenhouses only USA: Under review
Chlorothalonil	M5	Alternaria leaf blight Anthracnose Downy mildew Gummy stem blight Powdery mildew Rhizoctonia ground rot Target leafspot Grey mould / Botrytis (PER82895)	APVMA: nominated for review Canada: Cancellation of uses proposed EU: No authorisation in place USA: Under review

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Active Constituents	Chemical Group	Problem	Comments
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: No authorisation
		Fungal diseases: Fusarium	
		Fungal diseases: Rhizoctonia	
		Fusarium wilt	
		Phytophthora trunk/collar rot	
		Rhizoctonia rot	
		Root and collar rot	
		Sclerotium crown rot	
		Spot blotch	
Cyflufenamid	U6	Powdery mildew	
Cyprodinil	9	Grey mould / Botrytis	Canada: Under review EU: Candidate for substitution

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Active Constituents	Chemical Group	Problem	Comments
Dimethomorph	40	Alternaria leaf blight	EU: Under review
		Anthraco-nose	
		Downy mildew	
		Gummy stem blight	
		Septoria leaf spot	
Fenhexamid	17	Grey mould / Botrytis	
Fludioxonil	12	Grey mould / Botrytis	EU: Under review & candidate for substitution
Fluopicolide	43	Downy mildew	EU: Candidate for substitution
Guazatine acetate	M7	Fusarium fruit rot	EU: No authorisation in place
		Rhizopus rot	
Hydrogen peroxide +peroxyacetic acid	M	Powdery mildew	
Imazalil	3	Fusarium fruit rot	EU: Under review. Withdrawal of many EU MRLs proposed.
Iodine	M	Bactericide	
		Fungi	
Iprodione	2	Grey mould / Botrytis (PER81589)	Canada: Majority of food crop uses deleted Codex: Under review EU: No authorisation in place USA: Proposed deletion or restriction of uses
		Sclerotinia rot (PER81589)	
Mancozeb	M3	Alternaria leaf blight	APVMA: nominated for review Canada: Many uses cancelled Codex: To be reviewed 2024/25 EU: Authorisation not renewed
		Anthraco-nose	
		Downy mildew	
		Grey mould / Botrytis (PER14046)	
		Gummy stem blight	
		Powdery mildew	
		Septoria leaf spot	

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Active Constituents	Chemical Group	Problem	Comments
Melaleuca oil		Powdery mildew	
Metalaxyl	4	Phytophthora soil fungus (Dieback)	<u>Metalaxyl</u>
Metalaxyl/metalaxyl-M	4	Anthrachnose	EU: Candidate for substitution
		Damping off	<u>Metalaxyl-M</u>
		Downy mildew	EU: Restricted use approval
		Gummy stem blight	
Metiram	M3	Downy mildew	APVMA: nominated for review
		Gummy stem blight	Canada: Proposed cancelling of foliar uses other than potato Codex: To be reviewed 2024/25 EU: Under review
Metrafenone	50	Powdery mildew	
Oxadixyl	4	Anthrachnose	EU: No authorisation
		Downy mildew	
		Gummy stem blight	
Oxathiapiprolin	49	Downy mildew	
Penthiopyrad	7	Grey mould / Botrytis	
		Powdery mildew	
		Gummy stem blight	
Phosphorous acid	33	Downy mildew	
Potassium bicarbonate	M	Powdery mildew (PER13695)	EU: No authorisation in place
Propamocarb HCl	28	Downy mildew	
Propineb	M3	Anthrachnose	APVMA: nominated for review
		Downy mildew	EU: No authorisation in place
		Gummy stem blight	Codex: To be reviewed 2024/25
Proquinazid	13	Powdery mildew	

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Active Constituents	Chemical Group	Problem	Comments
Pydiflumetofen + difenoconazole	7 + 3	Alternaria leaf spot	Difenoconazole: APVMA: nominated for review EU: Candidate for substitution USA: Under review Pydiflumetofen: EU: Pending authorisation
		Gummy stem blight	
		Cercospora leaf spot	
		Powdery mildew	
Pyrimethanil	9	Grey mould / Botrytis (PER7909)	Canada: Review initiated
Pyriofenone	50	Powdery mildew	
<i>Streptomyces lydicus</i>	BM02	Powdery mildew	
Sulfur	M2	Anthracnose	
		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
Trifloxystrobin	11	Powdery mildew (PER14050)	Canada: Review initiated
Zineb	M3	Anthracnose	APVMA: nominated for review Codex: To be reviewed 2024/25 EU: No authorisation in place
		Downy mildew	

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Active Constituents	Chemical Group	Comment
WEEDS		
Clomazone	13	
Diquat	22	APVMA: Currently under review EU: No authorisation in place
Fluazifop-P	1	
Quizalofop-P	1	Canada: Under re-evaluation EU: Candidate for substitution
Sethoxydim	1	EU: No authorisation in place
PLANT GROWTH REGULATORS		
1-methylcyclopropene		EU: Candidate for substitution
Paclobutrazol		EU: Candidate for substitution

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