

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Regulatory pressures on agrichemicals are increasing globally, with many being either restricted or withdrawn from use.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

Cucumber 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 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/UK: No authorisations |
| | | Currant lettuce aphid | |
| | | Cotton / melon aphid | |
| | | Green peach aphid | |
| | | Silverleaf whiteflies | |
| Alpha-cypermethrin | 3A | Plague thrips | EU: No authorisation UK: No authorisations |
| | | Vegetable weevil | |
| | | Cucumber fly (PER80138) | |
| B. thuringiensis Israelensis | 11A | Fungus gnats (PER14694) | |
| Beta-cyfluthrin | 3A | Cucumber moth | EU/UK: No authorisation in place |
| | | Helicoverpa | |
| Bifenazate | 20D | Bryobia mite | Canada: Review initiated EU: Use restricted to non-edible crops grown in permanent greenhouses |
| | | Two-spotted (Red spider) mite | |
| | | Red tomato spider mite (PER82341) | |

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|---------------------|----------------|----------------------------------|--|
| Bifenthrin | 3A | Caterpillars | Canada: Not authorised |
| | | Cucumber moth | EU/UK: Not authorised |
| | | Helicoverpa | |
| | | Mites | |
| | | Moths | |
| | | Silverleaf whiteflies | |
| | | Thrips | |
| | | Whiteflies | |
| | | Yellow spotted stink bug | |
| Botanical oil | UN | Silverleaf whitefly (PER14077) | |
| 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/UK: No authorisation |
| | | 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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|---------------------|----------------|---|--|
| Chlorantraniliprole | 28 | Cucumber moth | |
| | | Helicoverpa | |
| Chlorpyrifos | 1B | Ants | APVMA: Proposed deletion of uses 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/UK: 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/UK: No authorisation |

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| Diafenthiuron + cyantraniliprole | 12A + 28 | Cluster caterpillar | Diafenthiuron: Codex: No MRLs EU/UK: 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: Proposed deletion of uses EU/UK: No authorisation in place Codex: MRLs deleted |
| | | Cutworms | |
| | | Thrips | |
| Dimethoate | 1B | Cucumber fly | Codex: No MRL EU/UK: 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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|----------------------|----------------|---|---|
| Fatty acids - K salt | UN | Greenhouse & Silverleaf whitefly (PER13920) | |
| Flonicamid | 29 | Cotton / melon aphid | |
| | | Green peach aphid | |
| | | Silverleaf whiteflies | |
| Fluazaindolizine | N-UN | Root-knot nematodes | EU: Pending |
| Flubendiamide | 28 | Cluster caterpillar | EU: Authorisation expiry August 2024 |
| | | Helicoverpa | |
| Fluensulfone | - | Root-knot nematodes | EU/UK: No authorisation |
| Flupyradifurone | 4D | Cotton / melon aphid | EU: Under review |
| | | Green peach aphid | |
| | | Greenhouse whitefly | |
| | | Silverleaf whiteflies | |
| Helicoverpa NPV | 31 | Helicoverpa | |
| Imidacloprid | 4A | Green peach aphid | APVMA: Under review |
| | | Silverleaf whiteflies | Canada: Field uses cancelled or amended |
| | | Greenhouse whitefly (PER12489) | EU/UK: No authorisation USA: Re-registration with new risk mitigation measures |

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|---------------------|----------------|------------------------------------|--|
| Isocycloseram | 30 | Two-spotted mites | EU/UK: 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/UK: No authorisations in place USA: Under review |
| | | Cucumber moth | |
| | | Helicoverpa | |
| | | Loopers | |
| | | Rutherglen bug | |
| | | Thrips | |
| | | Webworms | |
| | | Western flower thrips | |

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| 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/UK: Not authorised |
| | | Cowpea aphid | |
| | | Green peach aphid | |
| | | Greenhouse whitefly | |
| | | Potato aphid | |
| | | Silverleaf whiteflies | |
| Pyrethrins | 3A | Ants | Canada: Under review EU: Under review |
| | | Cabbage white butterfly | |
| | | Caterpillars | |
| | | Diamondback (Cabbage) moth | |
| | | Earwig | |
| | | Flies | |
| | | Leafhoppers | |
| | | Light brown apple moth | |
| | | Mealybugs | |
| | | Plague thrips | |
| | | Rutherglen bug | |
| | | Thrips | |

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| Pyrethrins | 3A | Two-spotted (Red spider) mite | Canada: Under review |
| | | Whiteflies | |
| | | Aphids | |
| | | Green peach aphid | |
| | | Rose aphid | |
| Pyriproxyfen | 7C | Silverleaf whiteflies | |
| Spinetoram | 5 | Caterpillars | EU: Authorisation expiry 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) | |
| Spirotetramat | 23 | Cotton / melon aphid | EU: Authorisation expiry June 2024 |
| | | Green peach aphid | |
| | | Silverleaf whiteflies | |
| Spodoptera frugiperda 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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| 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/UK: No authorisations USA: No MRLs |

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|--------------------------------|----------------|---|---|
| DISEASES | | | |
| Ametoctradin + dimethomorph | 45 + 40 | Downy mildew | Dimethomorph 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 | Canada: Review initiated |
| Bupirimate | 8 | Powdery mildew | |
| Captan | M4 | Grey mould / Botrytis | Codex: Review scheduled 2025 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/UK: 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/UK: 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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|--------------------------------------|----------------|----------------------------------|---|
| Dimethomorph | 40 | Alternaria leaf blight | EU: Under review |
| | | Anthracoze | |
| | | 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/UK: 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: MRL deleted EU/UK: 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 EU/UK: Authorisation not renewed |
| | | Anthracoze | |
| | | Downy mildew | |
| | | Grey mould / Botrytis (PER14046) | |
| | | Gummy stem blight | |
| | | Powdery mildew | |
| | | Septoria leaf spot | |

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|-----------------------|----------------|------------------------------------|--|
| Melaleuca oil | | Powdery mildew | |
| Metalaxyl | 4 | Phytophthora soil fungus (Dieback) | <u>Metalaxyl</u> |
| Metalaxyl/metalaxyl-M | 4 | Anthraco | 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 EU/UK: No authorisation |
| Metrafenone | 50 | Powdery mildew | |
| Oxadixyl | 4 | Anthraco | EU/UK: 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) | |
| Propamocarb HCl | 28 | Downy mildew | |
| Propineb | M3 | Anthraco | APVMA: nominated for review |
| | | Downy mildew | EU/UK: No authorisation in place |
| | | Gummy stem blight | Codex: To be reviewed |
| Proquinazid | 13 | Powdery mildew | |

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| 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 | 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/UK: 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 |
| | | Downy mildew | Codex: To be reviewed EU/UK: No authorisation in place |

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

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