

CHOKO (Chayote) Agrichemical Regulatory Risk Assessment

June 2025

Regulatory pressures on agrichemicals are increasing globally, with many being either restricted or withdrawn from use.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 require 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 to ensure compliance, as 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. Consequently, 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 **choko (chayote)** in Australia, as well as assisting with any current initiatives aimed at identifying and addressing pest management deficiencies.

Choko Agrichemical Regulatory Risk Assessment

R1	Short-term risk: Critical concern over retaining access < 1 year
R2	Medium-term risk: Maintaining access of significant concern <2-5 years
R3	Long-term risk: Potential issues associated with use – Monitoring required > 5 years
R4	No current risk / concerns

Blue text = new APVMA approved uses

INSECTICIDES/MITICIDES - Insect and other Pests Control

Active Constituent	MoA Group	Pest	Risks and Comments
ABAMECTIN	6	Root-knot nematodes	Australia: APVMA nominated for reconsideration and spray drift assessment EU: Approved Canada: In review
AFIDOPYROPEN	9D	Cabbage aphid, Cotton / melon aphid, Currant lettuce aphid, Green peach aphid, Silverleaf (Poinsettia) whitefly	Australia: No current concerns. EU: Not approved UK: No registrations Canada: No current review USA: Approved
ALPHA-CYPERMETHRIN	3A	Permit PER80138 for the control of Cucumber fruit fly	Australia: APVMA nominated for reconsideration Permit PER80138 Expiry date: 31/12/2029 Canada: No current review
BIFENAZATE	20D	Bryobia mite, Two-spotted (Red spider) mite	Australia: No current concerns. Codex MRL: 0.5 mg/Kg EU: Approved UK: Approved Canada: In review
BIFENTHRIN	3A	Brown marmorated stink bug, Caterpillars, Cucumber moth, Helicoverpa, Mites, Moths, Silverleaf (Poinsettia) whitefly, Whiteflies, Yellow spotted stink bug	Australia: APVMA nominated for reconsideration EU: Not approved Canada: No current review
BUPROFEZIN	16	Permit PER82467 for the control of Cotton (Sweet Potato) whitefly, Greenhouse whitefly, Silverleaf (Poinsettia) whitefly	Australia: No current concerns. Permit PER82467 Expiry date: 31/03/2030 Codex MRL: 0.7 mg/Kg EU: Approved UK: Approved Canada: No current review
CARBARYL	1A	28-spotted potato ladybird, Armyworms, Cucurbit stem borer, Cutworms, European earwig, Green vegetable bug, Helicoverpa, Leaf eating ladybirds, Potato moth (Leafminer), Pumpkin beetle, Rutherglen bug, Wingless grasshopper	Australia: No current concerns. EU: Not approved Canada: In review USA: Review upcoming
CHLORANTRANILIPROLE	28	Cucumber moth, Helicoverpa	Australia: No current concerns. Codex MRL: 0.3 mg/Kg EU: Approved UK: Approved Canada: In review

Choko Agrichemical Regulatory Risk Assessment

Active Constituent	MoA Group	Pest	Risks and Comments
CHLORPYRIFOS	1B	Ants, Australian plague locust, Field crickets / Mole crickets, Migratory locust, Spur-throated locust, Whiteflies, Yellow spotted stink bug	Australia: The APVMA issued a final decision in September 2024. All cucurbit uses were cancelled. Products with previously approved labels must not be possessed or used after September 30, 2025. The final decision was published in the APVMA Official Gazette on October 3, 2024 . Codex: All Codex MRLs deleted EU: Not approved Canada: All uses cancelled 2023 USA: Upcoming review
<i>CLITORIA TERNATEA</i> EXTRACT		Silverleaf whitefly (biotype b)	Australia: No current concerns.
CLOTHIANIDIN	4A	Cucumber Fruit Fly	Australia: APVMA: Currently under review. Proposed regulatory decisions expected between Dec. 2025 to Oct. 2026 . Codex MRL: 0.02 mg/Kg EU: Not approved Canada: In review USA: Review upcoming
CYANTRANILIPROLE	28	Cotton / melon aphid, Cucumber moth, Helicoverpa, Silverleaf (Poinsettia) whitefly, Western flower thrips, Vegetable leafminer (PER90387)	Australia: No current concerns. Codex MRL: 0.3 mg/Kg EU: Approved UK: Approved Canada: No current review
CYROMAZINE	17	Liriomyza species, including Vegetable Leafminer; Serpentine Leafminer (PER81867)	Australia: Reviewed in 2014. No current concerns. PER81867 expires 30 September 2026 EU: Not approved Canada: No current review
DIAFENTHIURON + CYANTRANILIPROLE	12A + 8	Cotton / melon aphid, Cucumber moth, Green peach aphid, Helicoverpa, Melon thrips, Plague thrips, Silverleaf (Poinsettia) whitefly, Tomato thrips, Two-spotted (Red spider) mite, Western flower thrips	DIAFENTHIURON Australia: No current concerns. EU: Not approved CYANTRANILIPROLE Australia: No current concerns. Codex MRL: 0.3 mg/Kg EU: Approved UK: Approved Canada: No current review
DIAZINON	1B	No uses approved in Australia	Australia: APVMA made a final decision on 10 September 2024. Agricultural uses were not supported during the review. NO use of cancelled labels after 10 September 2025. Publication of Final Decision . Codex: All MRLs deleted EU: Not approved Canada: No current review USA: Upcoming

Choko Agrichemical Regulatory Risk Assessment

Active Constituent	MoA Group	Pest	Risks and Comments
EMAMECTIN	6	Cluster caterpillar, Cucumber moth, Helicoverpa, Tomato grub	Australia: APVMA nominated for reconsideration and for targeted spray drift reconsideration EU: Approved, candidate for substitution UK: Withdrawn. Expiry date: 30/11/2024 Canada: No current review
ETHANEDINITRILE	-	Root-knot nematodes	Australia: APVMA: nominated for reconsideration (fumigants)
ETOXAZOLE	10B	Two-spotted mite (Tetranychus urticae) Tomato red spider mite (Tetranychus evansi) (PER82460)	Australia: No current concerns. PER82460 expires 31 May 2028. EU: Only use in greenhouse ornamentals approved & Candidate for substitution
FLONICAMID	29	Cotton / melon aphid, Green peach aphid, Silverleaf (Poinsettia) whitefly	Australia: Codex MRL: 0.2 mg/Kg Canada: No current review
FLUAZAINDOLIZINE	N-UN	Root-knot nematodes	Australia: No current concerns. EU: Pending Canada: No current review
FLUBENDIAMIDE	28	Cluster caterpillar, Helicoverpa	Australia: No current concerns. Codex MRL: 0.2 mg/Kg EU: Not approved UK: Withdrawn. Expiry date: 30/11/2024 Canada: No current review USA: No registrations
FLUENSULFONE	-	Root-knot nematodes	Australia: No current concerns. Canada: No current review
FLUPYRADIFURONE	4D	Cotton / melon aphid, Green peach aphid, Greenhouse whitefly, Silverleaf (Poinsettia) whitefly	Australia: No current concerns. EU: Approved UK: Approved Canada: No current review
HEXYTHIAZOX	10A	Permit PER95394 for the control of Tomato spider mite, Twospotted mite, Broad mite, Tomato russet mite	Australia: Permit PER95394 Expiry date: 30/09/2029 Codex MRL: 0.05 mg/Kg EU: Approved UK: Approved Canada: No current review
IMIDACLOPRID	4A	Green peach aphid, Silverleaf (Poinsettia) whitefly	Australia: APVMA: Currently under review. Proposed regulatory decisions expected between Dec. 2025 to Oct. 2026. EU: Not approved Canada: Field uses cancelled or amended USA: Re-registration with risk mitigation measures. Review upcoming

Choko Agrichemical Regulatory Risk Assessment

Active Constituent	MoA Group	Pest	Risks and Comments
ISOCYCLOSERAM	30	Two-spotted mites; Broad mite (Suppression); Bean red spider mite (Suppression); Cucumber moth; Thrips (Suppression); Helicoverpa spp (Suppression)	Australia: No current concerns. Canada: No current review
MALATHION	1B	Spotted potato ladybird, Aphids, Green vegetable bug, Jassids, Leafhoppers, Pumpkin beetle, Redlegged earth mite, Rutherglen bug, Spur-throated locust	Australia: The final regulatory decision was published in APVMA Special Gazette on 2 May 2024 . Labels containing malathion as an active constituent have been varied. Products bearing previously approved labels must not be supplied after 1 May 2026. EU: Approved UK: Withdrawn. Expiry date: 30/04/2025 Canada: In review USA: Upcoming review
METHOMYL	1A	Cluster caterpillar, Cucumber moth, Loopers, Rutherglen bug, Thrips, Webworms, Western flower thrips, Helicoverpa (PER82428)	Australia: APVMA reconsideration. Prioritised to be commenced in 2026 . Codex MRL: 0.1 mg/Kg EU: Not approved Canada: In review USA: Review upcoming
NUCLEAR POLYHEDROSIS VIRUS OF HELICOVERPA ARMIGERA		Helicoverpa	Australia: No current concerns. EU: Approved
PETROLEUM OIL	UN	Aphids, Greenhouse whitefly, Leafhoppers, Mites, Silverleaf (Poinsettia) whitefly, Thrips	Australia: No current concerns.
PIRIMICARB	1A	Aphids	Australia: No current concerns. Codex MRL: 1 mg/Kg EU: Approved, candidate for substitution UK: Approved Canada: No current review USA: No registrations
PYMETROZINE	9B	Cotton / melon aphid, Cowpea aphid, Green peach aphid, Greenhouse whitefly, Potato aphid, Silverleaf (Poinsettia) whitefly	Australia: APVMA nominated for reconsideration and spray drift assessment . EU: Not approved Canada: No current review
PYRETHRINS	3A	Ants, Cabbage white butterfly, Caterpillars, Earwig, Flies, Helicoverpa, Leafhoppers, Scale insects, Thrips, Two-spotted (Red spider) mite, Whiteflies, Aphids	Australia: No current concerns. Codex MRL: 0.05 mg/Kg EU: Approved UK: Approved Canada: No current review
PYRIPROXYFEN	7C	Silverleaf (Poinsettia) whitefly	Australia: No current concerns. EU: Approved UK: Approved Canada: No current review

Choko Agrichemical Regulatory Risk Assessment

Active Constituent	MoA Group	Pest	Risks and Comments
SPINETORAM	5	Cabbage white butterfly, Caterpillars, Cucumber moth, Helicoverpa, Loopers, Melon thrips, Western flower thrips	Australia: No current concerns. EU: Not approved UK: Withdrawn. Expiry date: 30/09/2024 Canada: In review
SPINOSAD	5	Cucumber moth, Helicoverpa, Western flower thrips, Fall armyworm	Australia: Reviewed in 2014. No current concerns. Codex MRL: 0.2 mg/Kg EU: Approved UK: Approved Canada: In review
SPIROTETRAMAT	23	Cotton / melon aphid, Green peach aphid, Silverleaf (Poinsettia) whitefly	Australia: No current concerns. Codex MRL: 0.2 mg/Kg EU: Not approved UK: Approved Canada: In review
SULFOXAFLOX	4C	Cotton / melon aphid, Green peach aphid, Greenhouse whitefly	Australia: No current concerns. Codex MRL: 0.5 mg/Kg EU: Approved UK: Approved Canada: No current review
TRICHLORFON	1B	Cutworms	Australia: APVMA nominated for reconsideration Codex MRL: No MRLs EU: Not approved Canada: No current review USA: Review upcoming

FUNGICIDES – Disease Control

Active Constituent	MoA Group	Pest	Risks and Comments
AMETOCTRADIN + DIMETHOMORPH	45 + 40	Downy mildew	<p>AMETOCTRADIN</p> <p>Australia: No current concerns. Codex MRL: 3 mg/Kg EU: Approved UK: Approved Canada: No current review </p> <p>DIMETHOMORPH</p> <p>Australia: No current concerns. Codex MRL: 0.5 mg/Kg EU: Not approved UK: Approved Canada: No current review </p>
AUREOBASIDIUM PULLULANS	NC	Botrytis/Grey mould, Sclerotinia	Australia: No current concerns. EU: Approved
AZOXYSTROBIN	11	Downy mildew, Gummy stem blight, Powdery mildew	Australia: No current concerns. Codex MRL: 1 mg/Kg EU: Approved UK: Approved Canada: In review

Choko Agrichemical Regulatory Risk Assessment

Active Constituent	MoA Group	Pest	Risks and Comments
BENALAXYL	4	Gummy stem blight, Downy mildew	Australia: No current concerns. EU: Not approved
BOSCALID	7	Powdery mildew	Australia: No current concerns. Codex MRL: 3 mg/Kg EU: Approved UK: Approved Canada: In review
BUPIRIMATE	8	Powdery mildew	Australia: EU: Approved UK: Approved
CHLOROTHALONIL	M5	Alternaria leaf blight, Anthracnose, Downy mildew, Gummy stem blight, Powdery mildew, Rhizoctonia ground rot, Target leafspot	Australia: APVMA reconsideration. Prioritised to be commenced in 2028. EU: Not approved Canada: In review, cancellation of uses proposed USA: Review upcoming
COPPER	M1	Angular leaf spot, Anthracnose, Bacterial spot, Downy mildew, Gummy stem blight, Late (Irish) blight, Leaf diseases/spots, Powdery mildew, Rust, Septoria leaf spot, Target spot (Early blight)	Australia: No current concerns. EU: Approved, candidate for substitution Canada: No current review
CYFLUFENAMID	U6	Powdery mildew	Australia: No current concerns. EU: Approved UK: Approved Canada: No current review
DIMETHOMORPH	40	Alternaria leaf blight, Anthracnose, Downy mildew, Gummy stem blight, Septoria spot	Australia: No current concerns. Codex MRL: 0.5 mg/Kg EU: Not approved UK: Approved Canada: No current review
ETHANEDINITRILE	#N/A	Damping off	Australia: No current concerns.
FLORYLPICOXAMID	21	Powdery mildew	Australia: EU: Pending Canada: No current review
FLUOPICOLIDE	43	Downy mildew	Australia: Codex MRL: 0.5 mg/Kg EU: Approved, candidate for substitution UK: Approved Canada: No current review
FLUOPYRAM + TEBUCONAZOLE	7 + 3	Powdery mildew	<p>FLUOPYRAM</p> <p>Australia: No current concerns. EU: Approved UK: Approved Canada: No current review </p> <p>TEBUCONAZOLE</p> <p>Australia: APVMA: Removed from nomination list - maintain watching brief EU: Approved, candidate for substitution UK: Approved Canada: In review USA: Review upcoming </p>
IODINE	M	Bactericide	Australia: No current concerns. EU: Canada: No current review

Choko Agrichemical Regulatory Risk Assessment

Active Constituent	MoA Group	Pest	Risks and Comments
IPRODIONE		Botrytis/Grey mould	Australia: No current concerns. EU: Not approved Canada: No current review USA: Review upcoming
KRESOXIM-METHYL	11	Powdery mildew	Australia: No current concerns. Codex MRL: 0.5 mg/Kg EU: Approved UK: Approved Canada: No current review
MANCOZEB	M3	Alternaria leaf blight, Anthracnose, Downy mildew, Gummy stem blight, Powdery mildew, Septoria spot	Australia: APVMA reconsideration. Prioritised to be commenced in 2027. EU: Not approved UK: Withdrawn. Expiry date: 31/05/2024 Canada: Most of uses were cancelled. USA: Review upcoming
METALAXYL	4	Phytophthora soil fungus (Dieback	Australia: No current concerns. EU: Approved, candidate for substitution UK: Approved Canada: In review
METIRAM	M3	Downy mildew, Gummy stem blight	Australia: APVMA reconsideration. Prioritised to be commenced in 2027. Codex MRL: To be reviewed EU: Not approved UK: Approved Canada: No current review
METRAFENONE	50	Powdery mildew	Australia: Codex MRL: 0.5 mg/Kg EU: Approved UK: Approved Canada: No current review
OXADIXYL	#N/A	Downy mildew, Gummy stem blight	Australia: No current concerns. EU: Not approved
OXATHIPIPROLIN	49	Downy mildew	Australia: No current concerns. Codex MRL: 0.2 mg/Kg EU: Approved UK: Approved Canada: No current review
PENTHIOPYRAD	7	Botrytis/Grey mould, Gummy stem blight, Powdery mildew	Australia: No current concerns. Codex MRL: 0.5 mg/Kg EU: Approved UK: Approved Canada: No current review
PHOSPHOROUS (PHOSPHONIC) ACID AS MONO-DI K PHOSPHONATE	P07 (33)	Downy mildew	Australia: No current concerns.
POTASSIUM BICARBONATE	M2	Powdery mildew	Australia: No current concerns. EU: Canada: In review

Choko Agrichemical Regulatory Risk Assessment

Active Constituent	MoA Group	Pest	Risks and Comments
PROPINEB	M3	Anthrachnose, Downy mildew, Gummy stem blight	Australia: APVMA reconsideration. Prioritised to be commenced in 2027. EU: Not approved
PROQUINAZID	13	Powdery mildew	Australia: EU: Approved UK: Approved
PYDIFLUMETOFEN DIFENOCONAZOLE	7 + 3	Cercospora leaf spot, Alternaria leaf spot, Early blight, Powdery mildew	<p>PYDIFLUMETOFEN</p> <p>Australia: No current concerns. Codex MRL: 0.4 mg/Kg EU: Pending UK: Approved Canada: In review</p> <p>DIFENOCONAZOLE</p> <p>Australia: APVMA nominated for reconsideration EU: Approved, candidate for substitution UK: Approved Canada: In review </p>
PYRIMETHANIL	9	Botrytis/Grey mould	Australia: No current concerns. EU: Approved UK: Approved Canada: In review
PYRIOFENONE	50	Powdery mildew	Australia: No current concerns. Codex MRL: 0.2 mg/Kg EU: Approved UK: Approved Canada: No current review
STREPTOMYCES LYDICUS	BMO2	Powdery mildew	Australia: No current concerns EU: Approved
SULFUR	M2	Anthrachnose, Downy mildew, Rust, Septoria spot, Target spot (Early blight)	Australia: No current concerns.
TRIADIMEFON	3	Powdery mildew	Australia: APVMA nominated for reconsideration Codex MRL: 0.2 mg/Kg EU: Not approved Canada: No current review
TEA TREE (MELALEUCA) OIL	-	Powdery Mildew	Australia: No current concerns
ZINEB	M3	Anthrachnose, Downy mildew	Australia: APVMA reconsideration. Prioritised to be commenced in 2027. EU: Not approved Canada: No current review

Choko Agrichemical Regulatory Risk Assessment

HERBICIDES – Weed Control

Active Constituent	MoA Group	Risks and Comments
CLOMAZONE	13	Australia: No current concerns. EU: Approved UK: Approved Canada: In review
DIQUAT (Vegetables)	22	APVMA proposed decisions published July 2024. Only uses up to 283gai/ha to be kept. Publication of the final regulatory decision is expected in December 2025 . Codex: *0.01 mg/kg (2014) EU: Not approved (withdrawn in 2018). UK: Not approved. USA: Registered (under review).
FLUAZIFOP-P PRESENT AS THE BUTYL ESTER	1	Australia: APVMA nominated for reconsideration and for targeted spray drift reconsideration EU: Approved
GLYPHOSATE	9	Australia: APVMA nominated for reconsideration and for targeted spray drift reconsideration EU: Approved UK: Approved Canada: No current review USA: Review upcoming
PARAQUAT (Vegetables)	22	APVMA proposed decisions July 2024. Only uses up to 231gai/ha to be kept. Publication of the final regulatory decision is expected in December 2025 . Codex: 0.05 mg/Kg (2006) Canada: Not approved. EU and UK: Not approved (2007). USA: Restricted use (under review).

Funding statement: MT24008 –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.

Choko Agrichemical Regulatory Risk Assessment

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 MT24008 – 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 MT24008 – 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 2025

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