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Proposed Maximum Residue Limit

PMRL2020-24

Acephate and Methamidophos

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Under the authority of the [Pest Control Products Act](#), Health Canada's Pest Management Regulatory Agency (PMRA) granted continued registration of products containing acephate for sale and use in Canada.

Before registering a pesticide for food use in Canada or allowing for continued registration, the PMRA must determine the quantity of residues that are likely to remain in or on the food when the pesticide is used according to label directions and that such residues will not be a concern to human health. This quantity is then legally established as a maximum residue limit (MRL). An MRL applies to the identified raw agricultural food commodity as well as to any processed food product that contains it, except where separate MRLs are specified for the raw agricultural commodity and a processed product made from it.

A dietary risk assessment for acephate and its metabolite methamidophos was conducted for the re-evaluation review and was published in the [PRVD2016-01](#). The re-evaluation review proposed revocations and changes to the MRLs for acephate and methamidophos in order to mitigate health risk concerns, to account for the discontinuation of methamidophos registrations as an active ingredient, and/or to better reflect the supported use pattern for acephate.

Specifically, the revocation of acephate and methamidophos MRLs on succulent beans is proposed to mitigate dietary risk concerns from food sources and to account for the phase out of succulent bean use in the United States. No revision to the MRL on dry beans is required. Thus, the food commodity descriptors for the established acephate and methamidophos MRLs for beans are proposed to be revised to the food commodity descriptors for individual dry bean commodities only. The dry bean commodities include: grain lupin, dry kidney beans, dry lima beans, dry navy beans, dry pink beans, dry pinto beans, dry tepary beans, dry beans, dry adzuki beans, dry blackeyed peas, dry catjang seeds, dry cowpea seeds, dry moth beans, dry mung beans, dry rice beans, dry southern peas, dry urad beans, dry broad beans, dry chickpeas, dry guar seeds, and dry lablab beans.

The revocation of the methamidophos MRL on tomatoes is proposed to mitigate dietary risk concerns from food sources. The risk is driven by residues found on imported tomatoes, which is likely the result of methamidophos uses in the past. Quantifiable residues of acephate and methamidophos are not expected in/on tomatoes as a result of the acephate registration as acephate is only applied to tomatoes during the transplanting period.

The revocation of the acephate and methamidophos MRL on potatoes is proposed to mitigate dietary risk concerns from drinking water.

The revocation of methamidophos MRLs on broccoli, cucumber, and eggplants is proposed to account for the discontinuation of methamidophos registrations in Canada and the United States. Acephate is not registered for use on these crops.

The revocation of the acephate and methamidophos MRLs for leaf lettuce is proposed to reflect the use pattern for acephate in Canada. Acephate is only registered for domestic use on head lettuce and not leaf lettuce. Thus, the existing acephate and methamidophos MRLs for lettuce are proposed to be revised to head lettuce.

The revocation of the acephate MRLs for all varieties of corn except sweet corn is proposed to reflect the use pattern for acephate in Canada. Acephate is only registered for domestic use on sweet corn and seed corn and not field corn or popcorn. Thus, the existing acephate MRL for corn is proposed to be revised to sweet corn. A MRL for seed corn is not required as this variety is not used for human consumption. There are no methamidophos MRLs for any corn varieties.

The revocation of the acephate MRL for milk is proposed as crops treated with acephate are prohibited from being fed to livestock. There is no methamidophos MRL for milk.

The proposed MRL revisions are indicated in Table 1.

Table 1 Proposed MRL revisions for Acephate and Methamidophos

Commodity	Current MRL (ppm)		Proposed revisions ²	
	Acephate	Methamidophos	Acephate	Methamidophos
Beans	1.0	0.3	Revise food commodity descriptor to specific dry bean commodities ³	Revise food commodity descriptor to specific dry bean commodities ³
Broccoli	0.1 ¹	1.0	No Revision	Revoke MRL
Corn	0.5	0.1 ¹	Revise food commodity descriptor to Sweet Corn Kernels plus cob with husks removed ⁴	No Revision
Cucumbers	0.1 ¹	0.5	No Revision	Revoke MRL
Eggplants	0.1 ¹	0.5	No Revision	Revoke MRL
Lettuce	1.0	1.0	Revise food commodity descriptor to Head Lettuce	Revise food commodity descriptor to Head Lettuce
Milk	0.05	0.1 ¹	Revoke MRL	No Revision
Potatoes	0.5	0.1	Revoke MRL	Revoke MRL
Tomatoes	0.1 ¹	0.5	No Revision	Revoke MRL

¹ Residues are regulated under Subsection B.15.002 (1) of the *Food and Drugs Act*. This requires that residues do not exceed 0.1 ppm and has been considered a general MRL for enforcement purposes.

² As all methamidophos uses are discontinued, the MRLs for methamidophos will be modified to account for acephate uses only. Therefore, the residue definition for acephate for enforcement purposes will change to acephate (O,S-dimethyl acetylphosphoramidothioate) and methamidophos (O,S-dimethyl phosphoramidothioate) with individual MRLs listed for each compound.

³ Specific dry bean commodities include: grain lupin, dry kidney beans, dry lima beans, dry navy beans, dry pink beans, dry pinto beans, dry tepary beans, dry beans, dry adzuki beans, dry blackeyed peas, dry catjang seeds, dry cowpea seeds, dry moth beans, dry mung beans, dry rice beans, dry southern peas, dry urad beans, dry broad beans, dry chickpeas, dry guar seeds, and dry lablab beans.

⁴ PRVD2016-01 indicates the change as “sweet corn kernels plus cob with husks”. The correct food commodity descriptor is “sweet corn kernels plus cob with husks removed”.

Following the revocation of acephate and/or methamidophos MRLs for the commodities indicated above, residues will be regulated under subsection B.15.002(1) of the Food and Drug Regulations, which requires that residues not exceed 0.1 ppm. Consultation on the revocation of these MRLs is being conducted via this document.

To comply with Canada’s international trade obligations, consultation on the proposed MRLs is also being conducted internationally by notifying the [World Trade Organization](#), as coordinated by the [Canada’s Notification Authority and Enquiry Point](#).

International situation and trade implications

MRLs may vary from one country to another for a number of reasons, including differences in pesticide use patterns and the locations of the crop field trials used to generate residue chemistry data.

Tables 2 and 3 compares the proposed MRL changes for acephate and methamidophos in Canada with corresponding American tolerances and Codex MRLs¹. American tolerances are listed in the [Electronic Code of Federal Regulations](#), 40 CFR Part 180, by pesticide. A listing of established Codex MRLs is available on the Codex Alimentarius [Pesticide Index](#) webpage, by pesticide or commodity.

Table 2 Comparison of Canadian MRLs, American tolerances, and Codex MRLs for Acephate

Food commodity	Canadian MRL (ppm)	American Tolerance (ppm)	Codex MRL (ppm)
Beans	1.0 (dry bean commodities)	3.0 (bean, dry, seed)	5.0 (beans, except broad and soya bean)
Corn	0.5 (sweet corn)	Not established	Not established
Leaf Lettuce	Revoke 1.0 ppm MRL ¹	Not established	Not established
Head Lettuce	1.0	10	Not established
Milk	Revoke 0.05 ppm MRL ¹	0.1	0.02
Potatoes	Revoke 0.5 ppm MRL ¹	Not established	Not established

¹ Following the revocation of the MRLs, all crops will be regulated under subsection B.15.002 (1) of the Food and Drug Regulations, which requires that residues do not exceed 0.1 ppm.

¹ The Codex Alimentarius Commission is an international organization under the auspices of the United Nations that develops international food standards, including MRLs.

Table 3 Comparison of Canadian MRLs, American Tolerances, and Codex MRLs for methamidophos

Food commodity	Canadian MRL (ppm)	American Tolerance (ppm)	Codex MRL (ppm)
Beans	0.3 (dry bean commodities)	1.0 (bean, dry, seed)	1.0 (beans, except broad bean and soya bean)
Broccoli	Revoke 1.0 ppm MRL ¹	Not established	Not established
Cucumbers	Revoke 0.5 ppm MRL ¹	Not established	Not established
Eggplants	Revoke 0.5 ppm MRL ¹	Not established	Not established
Leaf Lettuce	Revoke 1.0 ppm MRL ¹	Not established	Not established
Head Lettuce	1.0	1.0	Not established
Potatoes	Revoke 0.1 ppm MRL ¹	Not established	0.05
Tomatoes	Revoke 0.5 ppm MRL ¹	Not established	Not established

¹ Following the revocation of the MRLs, all crops will be regulated under subsection B.15.002(1) of the Food and Drug Regulations, which requires that residues do not exceed 0.1 ppm.

Next steps

The PMRA invites the public to submit written comments on the proposed revisions and revocations of MRLs for acephate and methamidophos up to 75 days from the date of publication of this document. Please forward your comments to Publications (see the contact information on the cover page of this document). The PMRA will consider all comments received before making a final decision on the proposed revisions and revocations of MRLs. Comments received will be addressed in a separate document linked to this PMRL. The established MRLs will be legally in effect as of the date that they are entered into the [Maximum Residue Limit Database](#). The revocation of MRLs will take effect to allow sufficient time for legally treated commodities to clear the channels of trade.