Organophosphate/Carbamate Reassessment

ACVM information paper

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1 Introduction

Due to the Environmental Protection Authority (EPA) reassessment of organophosphates/carbamates*, MPI has undertaken a reassessment to consider:

- revision of labels such as revised use patterns and removal of claims, and
- acceptability of food-producing claims from a dietary intake exposure perspective.

At the time of the EPA reassessment, there were 74 agricultural chemicals, involving 17 different active ingredients, registered under the Agricultural Compounds and Veterinary Medicines (ACVM) Act 1997 affected by the reassessment. Based on the acceptable daily intakes (ADIs) for the reassessed active ingredients, there were dietary intake concerns for acephate, diazinon, fenamiphos, maldison and methamidophos.

ACVM risk areas are not affected by changes to EPA controls for carbaryl, chlorpyrifos, dimethoate, methomyl, oxamyl, phorate, pirimicarb, pirimiphos-methyl, prothiofos and terbufos. The label changes that EPA require do not impact on ACVM label content, and these are not discussed further.

Dichlorvos was not included in the MPI reassessment as the EPA has only recently completed their reassessment.

Label changes arising from the MPI reassessment, including new use patterns and withholding periods (WHPs), are effective immediately. However, revised maximum residue limits (MRLs) will not be promulgated until the MRL round starting in July 2016. This is to allow labels in the marketplace to be replaced over the coming season and reduce unintentional MRL non-compliance by users.

Revised use patterns are available on product labels approved after July 2015. See https://eatsafe.nzfsa.govt.nz/web/public/acvm-register for a list of registered trade name products, their labels and associated registration conditions.

* For a summary of the EPA reassessment, see http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/hsno/hsno-guidance-pages/using-insecticides-safely

2 Acephate

- The EPA has set a control for the substance of a maximum application rate of 3500 g acephate / ha, with a maximum application frequency of 3 times per crop cycle.

- Off-label use will be prohibited by MPI from 1 July 2016.
- Approved use claims: Avocados, boysenberries, cabbage, cauliflower, citrus, lettuce, roses and other ornamentals, tamarillos, tomatoes (outdoor only). See approved labels (post July 2015) for use patterns.
- Removed claims: Previous claims for potatoes and tomatoes (indoor) have been removed, and WHPs for lettuce and tomatoes (outdoor) changed from 3 to 14 days.
- WHPs:
    - Avocado – 28 days
    - Boysenberries – Implied
    - Citrus – 14 days
    - Cabbages, Cauliflowers – 7 days
    - Lettuce – 14 days
    - Tamarillos – 14 days
    - Tomatoes (outdoor) – 14 days.
- The following MRLs will be proposed in July 2016:
    - Avocado, Boysenberries – 0.1 mg/kg
    - Cabbages, Cauliflowers, Lettuce – 2 mg/kg
    - Citrus fruits – 5 mg/kg
    - Tamarillos – 0.5 mg/kg
    - Tomatoes – 1 mg/kg
    - Any other food – 0.01(*) mg/kg.
- The number of applications has been capped at 3 applications per crop cycle (EPA control). However, some uses have been restricted to 2 applications by MPI, to ensure compliance with the proposed lower MRL.
- Methamidophos is a metabolite of acephate, and is also used as an active ingredient in its own right. To prevent dietary intake of methamidophos residues from occurring through both acephate and methamidophos product use on the same crop, a label statement will be applied to ensure users are aware of this, such as “Methamidophos residues can occur as a breakdown of acephate use on treated crops. It is recommended that use of acephate and methamidophos products in the same season on the same crops should be avoided to ensure compliance with maximum residue limits”.

3 Diazinon

- The EPA control has set maximum use rates (see individual substance approvals for specific rates), with a maximum application frequency of 2 times per crop cycle. Current HSNO approvals for diazinon-containing substances will be phased out by 1 July 2028.
- Off-label use has been prohibited by MPI.
- Approved use claims: Established pasture, newly sown pastures and bean, peas, cereals, leafy vegetables (except lettuce), tomatoes (outdoor), avocados, apples and pears (non-bearing), pasture, cereals, mandarins and oranges, seed crops, strawberries (bearing plants and non-bearing runner plants) and forage brassicas, seed crops (clover and vegetables), carrots and parsnips. See labels (post July 2015) for allowable use patterns.
- Removed claims: Previous claims for kiwifruit, grapes, tamarillos, lettuce, onions, beans, cabbages, stonefruit, cauliflower, sweetcorn, brassicas and apples and pears (bearing) have been removed.
- WHPs:
    - Apples, Pears – Use on Non-Bearing Trees Only
    - Avocados – 14 days
    - Carrots – 14 days
    - Parsnips – not applicable when used as directed (prior to or at sowing only).

    - Mandarins, Oranges – 21 days
    - Cereals – 14 days
    - Forage Brassicas – Nil
    - Pasture – Nil
    - Strawberries (Bearing) – Use Pre-Flower Only
    - Tomatoes (Outdoor) – 14 days
    - Keep ducks, geese and hens off treated areas for 7 days following spraying to control surface feeding insects.
- The following MRLs will be proposed in July 2016:
    - Oranges and mandarins – 0.5 mg/kg
    - Tomatoes – 0.2 mg/kg
    - Carrots – 0.5 mg/kg
    - Avocado – 0.1 mg/kg
    - Strawberries – 0.5 mg/kg
    - Cereal Grains – 0.1 mg/kg
    - Sheep meat – 0.05 mg/kg
    - Any other fruit, vegetable or nut – 0.01(*) mg/kg.

4 Fenamiphos

- EPA controls: maximum of 1 application per crop cycle, with a maximum application rate of 8000 g fenamiphos/ha. Current HSNO approvals for fenamiphos-containing substances will be phased out by 1 July 2023.
- Off-label use is prohibited.
- Approved use claims: The claims for potatoes and carrots remain on the label, with a maximum of 1 application per crop cycle (EPA control). A previously off-label use for parsnips has been appraised and added as a new label claim. See labels (post July 2015) for direction for use.
- WHPs:
    - Potatoes, Carrots, Parsnips – 90 days.
- Removed claims: Label claims for kiwifruit, lucerne, kumara and roses have been removed.
- The following MRLs will be proposed in July 2016
    - Potatoes – 0.2 mg/kg
    - Carrots – 0.2 mg/kg
    - Parsnips – 0.2 mg/kg
    - Any other food – 0.01 (*) mg/kg.

5 Maldison

- EPA controls: Maximum of 2 applications per crop cycle. For the 500g/L EC formulation, there is a maximum application rate of 4500 gai/ha.
- Off-label use is allowed as dietary intake is unlikely to exceed the PDE(food) set by the EPA in their reassessment.
- Approved use claims: No claims have been removed from the label, however the number of applications has been capped at 2 applications per crop as a direct result of the EPA restriction, and the withholding period for pasture has been changed from 3 days to 7 days. Other WHPs remain unchanged. See labels (post July 2015) for approved use patterns.
- Animal transfer has not been reconsidered, as the residue burden has not increased from that previously assessed. The residue levels in animals are expected to remain the same as previously assessed.

- Currently maldison has an MRL of "Any other food 0.5 mg/kg". It is proposed that this will be removed, leaving the default MRL of 0.1 mg/kg to apply. However, the Maximum Permissible Limits (MPLs) are scheduled to be reviewed by MPI under the Animal Products Act at a future date, likely late in 2016. In order to ensure that the MPLs and MRLs align, the proposed MRL change will not be made until the MPL review is completed.
- The proposed MRLs (subject to confirmation once MPLs have been reviewed) are:
    - Citrus fruits; Grapes; Stonefruit, Bulb vegetables, Cabbages, Cauliflowers, Celery, Leafy vegetables, Tomatoes – 5 mg/kg
    - Pomefruit – 0.5 mg/kg
    - Asparagus – 1 mg/kg
    - Broccoli, Brussel sprouts, Fruiting vegetables (except cucumbers, melons, mushrooms, peppers (sweet), sweetcorn, tomatoes) – 8 mg/kg
    - Cucumbers – 0.2 mg/kg
    - Legume vegetables, Root and Tuber vegetables – 3 mg/kg
    - Mushrooms, Sweetcorn, Peppers (Sweet) – 1 mg/kg
    - Melons, Avocados – 2 mg/kg
    - The MRLs for cattle fat, eggs, horse fat and pig fat remain as 1 mg/kg.

6 Methamidophos

- EPA controls: The application rate has been capped at 900 gai/ha by the EPA. Current HSNO approvals for methamidophos-containing substances will be phased out by 1 July 2023.
- Off-label use has been prohibited.
- Approved use claims: Maize, sweetcorn, onions, potatoes, kumara, tamarillos, tomatoes (outdoor), vegetable brassicas: Brussels sprouts, broccoli, cabbages, cauliflower. See product labels (post July 2015) for approved use patterns.
- WHPs are:
    - Sweetcorn – 5 days
    - Brussels sprouts, Broccoli, Cabbages, Cauliflowers, Kumara, Maize, Onions, Potatoes – 14 days
    - Tamarillos – 42 day.
- A range of other claims, such as for control of pests in snap beans and tomatoes (indoor), have been removed.
- Acephate, another known active ingredient used in its own right, breaks down into methamidophos. It is expected that with use of acephate, methamidophos residues may be detected.
- The MRLs which will be proposed in July 2016 are:
    - Broccoli – 1 mg/kg
    - Brussel sprouts – 1 mg/kg
    - Cabbages – 1 mg/kg
    - Cauliflowers – 1 mg/kg
    - Kumara – 0.01(*) mg/kg
    - Maize – 0.1 mg/kg
    - Onions – 0.05 mg/kg
    - Potatoes – 0.01(*) mg/kg
    - Sweetcorn – 0.1 mg/kg
    - Tamarillos – 0.05 mg/kg
    - Tomatoes – 0.1 mg/kg
    - Any other food – 0.01(*) mg/kg.
- To manage the detection of methamidophos residues due to acephate use, the following additional MRLs will be proposed for methamidophos:

- Citrus fruits – 0.5 mg/kg
- Lettuce – 0.2 mg/kg.

However, the use of methamidophos alone on these crops is prohibited.

- Additionally, to prevent dietary intake of methamidophos residues from occurring through both acephate and methamdiphos product use on the same crop, a label statement must be applied to ensure users are aware of this, such as 'Methamidiphos residues can occur as a breakdown of acephate use on treated crops. It is recommended that use of acephate and methamidophos products in the same season on the same crops should be avoided to ensure compliance with maximum residue limits".