



Australian Government
**Australian Pesticides and
Veterinary Medicines Authority**



Reconsideration of Methiocarb: Update to Residues Assessment

The reconsideration of the approvals of the active constituent methiocarb,
registration of products containing methiocarb and their associated labels

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1 INTRODUCTION

Methiocarb is a carbamate, non-systemic pesticide that has been registered for use in Australia for over 30 years. It kills insects, slugs and snails by interfering with the activity of acetylcholinesterase, an enzyme in the nervous system.

1.1 Background

In 1995 the APVMA commenced a review of methiocarb due to concerns over public health, occupational health and safety, residues and the environment. In April 2005 the APVMA published a Preliminary Review Findings Report (which will be referred to as the 2005 preliminary report) containing interim regulatory decisions including proposed variations to product labels, the deletion of some registered uses and a number of recommended changes to the MRL (maximum residue limit) Standard.

Based on the available residue data, it was recommended in the 2005 preliminary report that the APVMA could not be satisfied that continued use of methiocarb products for food and animal feeds would not pose an undue risk to safety and trade. There were insufficient residues data available to accurately calculate the National Estimated Dietary Intake (NEDI) and National Estimated Short Term Intake (NESTI), or determine the level of methiocarb residues in animal feed items.

The following conclusions were made in 2005 based on the uses that were approved at the time and the available residue and metabolism data:

1. No change to the current residue definition for methiocarb (the sum of methiocarb, methiocarb sulfoxide and methiocarb sulfone, expressed as methiocarb) was considered to be necessary.
2. Crop residue data would be required for all crops for which future registration is sought, for both the bait and wettable powder formulations.
3. Residue data are also required for commodities that may constitute significant animal feeds, such as pulse and legume vegetables, oilseeds, cereals, pastures and some fruit by-products (eg pome fruit pomace). Data on representative crops may be sufficient to set group MRLs.
4. Data would be required to address storage stability of methiocarb and its metabolites in currently registered commodities.
5. The recommended temporary MRLs will be deleted from the MRL Standard after finalisation of the review. The adequacy of the temporary MRLs will be assessed if residues data are submitted for crops and animal feed commodities.
6. Complete livestock transfer studies were not provided for review. To allow permanent mammalian animal commodity MRLs to be recommended, complete cow transfer studies would be required.
7. Processing data are required for major processed commodities of crops proposed for continued registration. Processed commodities requiring data include fruit pomace, oilseed oils and meals, and cereal milled fractions. Suitable argument may be accepted in the absence of processing studies.

8. The critical comments statement on the 750 g/kg wettable powder formulation for the use on grapevines (butt treatment) was inconsistent and contradictory to the intended use pattern.
9. The continued use of methiocarb baits in home garden situations is subject to the outcomes of the review for the commercial uses of methiocarb. In the event that broad scale agricultural uses of methiocarb baits on fruits and vegetables are not supported in this review, the use of methiocarb in home garden situations should not continue.
10. The chronic and acute dietary exposure will need to be assessed once residues data are reviewed.
11. The potential prejudice to Australian trade from the use of methiocarb will be assessed once residues data are reviewed and MRLs are recommended.

The 2005 preliminary report considered four registered products containing methiocarb that were approved at the time. Two products were formulated as baits, one was a suspension concentrate (SC) and one was a wettable powder (WP). Both the SC and WP products are no longer registered in Australia, leaving only the two bait formulations as registered products containing methiocarb.

As a result, the current residues evaluation for the review of methiocarb will only consider data for bait formulations which are currently approved. Data for bait formulations considered in the 2005 preliminary review and data that have been submitted since the preliminary review were evaluated.

Consequently, some conclusions drawn in the 2005 preliminary review may no longer be relevant, such as recommended MRLs and conclusions specific to formulation types. The current evaluation will consider the available information and propose new recommendations relevant to current approved bait products.

1.2 Label and maximum treatment regime

The use of the product has been considered according to the following label instructions:

1. Mesurol® Snail and Slug Bait (20 g/kg methiocarb) [APVMA No. 33274: Label Approval Number 33274/1209 (approved June 2010)]

Crop	Pest	Rate	Critical Comments
Berry crops (including grapevines), cereals, gardens, nurseries, oilseed crops, orchards, pastures, vegetable crops	Common garden snail, slugs	5.5 kg/ha (110 g ai/ha)	For most infestations apply low rate. For heavy infestations or where pasture is tall or dense apply higher rate. Scatter bait evenly onto ground where snails or slugs occur. DO NOT HEAP PELLETS. When applying in vegetable crops, ensure pellets do not become lodged in plant foliage. Equipment such as fertiliser spinners, combines or sod seeders are satisfactory for spreading the pellets and can easily be calibrated to apply 5.5 kg/ha. Gloves should be worn when pellets are spread by hand.
	White Italian snail, white snail (not Qld)	11-22 kg/ha (220-440 g ai/ha)	
Sunflowers (Qld, SA only)	False wireworm beetle	2.5 kg/ha (50 g ai/ha) (10 pellets/m ²)	Apply Mesurol 1-3 days after sowing. Scatter bait evenly onto ground where false wireworm beetles occur. DO NOT HEAP PELLETS.

Precaution: Avoid application of pellets to foliage of edible crops.

Protection of Livestock: DO NOT treat areas on which poultry graze.

Export of treated produce: Growers should note that MRLs or import tolerances do not exist in all markets for edible produce treated with Mesurol. If you are growing edible produce for export, please check with Bayer CropScience Pty Ltd for the latest information on MRLs and import tolerances BEFORE using Mesurol.

Withholding periods:

Edible crops: DO NOT harvest for 7 DAYS after application.

Treated areas: DO NOT graze or cut for stock food for 7 DAYS after application.

2. Baysol® Snail & Slug Bait (20 g/kg methiocarb) [APVMA No. 51851 : Label Approval Number 51851/100882 (approved March 2015)]

Situation	Pest	Rate	How to Apply
Gardens	Snails, Slugs, Slaters, Millipedes	100 pellets/m ² (500 g ai/ha equivalence)	Sprinkle evenly onto ground. Heaping is unnecessary and wasteful, and may pose a risk to dogs and cats.

Restrictions: DO NOT apply to food producing crops. DO NOT heap pellets.

Precaution: DO NOT treat areas on which poultry graze.

Protections: DO NOT apply to edible crops.

1.3 Current Australian MRLs and residue definition

Current entries in the APVMA MRL Standard for methiocarb are listed below¹:

Table 1

COMPOUND		FOOD	MRL (mg/kg)
Methiocarb			
FC	0001	Citrus Fruits	0.1
		Fruits (except citrus fruits; grapes)	T0.1
FB	0269	Grapes	0.5
		Vegetables	0.1
		Wine	0.1

Table 3

COMPOUND	RESIDUE
Methiocarb	Sum of methiocarb, its sulfoxide and sulfone, expressed as methiocarb

Table 5

Substance	Use
Methiocarb	<ul style="list-style-type: none"> In baits for the control of garden pests {T} in baits for the control of garden pests on herbs, lemon balm, lemon grass, kaffir lime leaves, lemon verbena and tumeric

There are no animal feed commodity MRLs currently established in Table 4 of the MRL Standard for methiocarb.

1.4 Toxicological information

The following health standards have been set:

Compound	Dietary Standard, mg/kg bw		No Observable Effect Level (NOEL), mg/kg bw	Uncertainty Factor
	ADI	ARfD		
Methiocarb	ADI	0.002	0.2	100
	ARfD	0.005	0.5	100

The APVMA Health Assessment team recommended a revision of the ARfD in 2017 as a more recent rat developmental study revealed a NOAEL that is relevant for the establishment of an acute reference dose. The NOAEL for clinical signs (muscle fasciculations) in dams was 0.5 mg/kg bw/d. This clinical sign, which is likely to

¹ A full listing of MRLs current at the time of evaluation can be found in the *Agricultural and Veterinary Chemicals Code Instrument No. 4 (MRL Standard) 2012* current at the time that the evaluation was finalised. See <http://www.comlaw.gov.au/Series/F2012L02501>.

arise following a single exposure was considered suitable to establish an amended ARfD for methiocarb. Furthermore, the NOAEL is lower than previously observed in other rat and rabbit developmental studies. The revised ARfD of 0.005 mg/kg bw is lower than the previous ARfD of 0.03 mg/kg bw that was established in 2001. There were no additional studies identified that would require an amendment of the ADI that was established in 2000.

2 EVALUATION

2.1 Metabolism

The metabolism of methiocarb in plants and animals has been previously evaluated in the 2005 preliminary report and further metabolism information was not requested. No additional metabolism studies have been submitted since, and no further consideration of methiocarb metabolism is required.

2.2 Analytical methods

In the Australian trials, samples were analysed using analytical test method ATM-0022. Using this method residues were extracted from the samples with acetonitrile. The extract was filtered using a polyethylene frit before being diluted with acetonitrile. Quantitation of residues was performed by liquid chromatography coupled to a triple quadrupole mass spectrometer scanning in MS/MS mode with external standardisation. The Limit of Quantitation (LOQ) of methiocarb, methiocarb sulfoxide and methiocarb sulfone was 0.02 mg/kg for each component and 0.06 mg/kg when expressed at total methiocarb parent equivalents.

The analytical method was verified by performing recovery experiments of the test items concurrently with the analysis of the test sample extracts. Untreated control samples were fortified with methiocarb, methiocarb sulfoxide and methiocarb sulfone at concentrations of 0.02 and 1.0 mg/kg. Results are given in the following table and were within the acceptable range (70–120%).

Recovery results for methiocarb and metabolites (methiocarb sulfoxide and methiocarb sulfone) from fortified samples using analytical method ATM-0022.

Test Sample (Study number)	Fortification Level (mg/kg)	Recovery Mean (%)±RSD* (% Range)		
		Methiocarb	Methiocarb Sulfoxide	Methiocarb Sulfone
Strawberries (BCS-0153)	0.02	100 ± 2 (97 - 102)	90 ± 3 (87 - 93)	99 ± 2 (97 - 101)
	1.0	91 ± 6 (85 - 96)	90 ± 6 (84 - 95)	89 ± 6 (83 - 94)
Grapes (BCS-0125)	0.02	96 ± 4 (91 - 101)	95 ± 1 (94 - 96)	100 ± 2 (99 - 103)
	1.0	92 ± 2 (90 - 94)	92 ± 1 (91 - 94)	92 ± 1 (90 - 93)
Oranges (BCS-0152)	0.02	99 ± 3 (95 - 102)	101 ± 1 (100 - 102)	90 ± 2 (87 - 92)
	1.0	89 ± 1 (88 - 90)	99 ± 1 (98 - 101)	87 ± 2 (85 - 88)
Brassicas (Cabbage and Broccoli) (BCS-0145)	0.02	88 ± 6 (82 - 95)	75 ± 2 (74 - 78)	90 ± 6 (81 - 93)
	1.0	89 ± 6 (80 - 93)	86 ± 7 (77 - 91)	85 ± 3 (80 - 89)
Leafy Vegetables (BCS-0155)	0.02	93 ± 2 (91 - 95)	80 ± 9 (74 - 87)	87 ± 6 (81 - 93)
	1.0	83 ± 14	81 ± 14	83 ± 13

Test Sample (Study number)	Fortification Level (mg/kg)	Recovery Mean (%)±RSD* (% Range)		
		Methiocarb	Methiocarb Sulfoxide	Methiocarb Sulfone
		(73 - 93)	(70 - 90)	(74 - 93)
Wheat Grain (BCS-0137)	0.02	94 ± 8 (86 - 101)	84 ± 5 (80 - 89)	84 ± 5 (79 - 89)
	1.0	86 ± 6 (82 - 91)	87 ± 7 (82 - 92)	86 ± 6 (81 - 91)
Wheat Straw (BCS-0137)	0.02	94 ± 4 (90 - 98)	86 ± 1 (85 - 87)	88 ± 5 (82 - 92)
	1.0	88 ± 2 (85 - 90)	87 ± 3 (84 - 90)	88 ± 1 (87 - 90)
Canola Seed (BCS-0137)	0.02	91 ± 3 (88 - 94)	87 ± 8 (80 - 95)	89 ± 3 (85 - 92)
	1.0	83 ± 5 (78 - 87)	84 ± 6 (79 - 88)	83 ± 6 (78 - 87)
Clover Pasture (BCS-0137)	0.02	92 ± 5 (88 - 97)	100 ± 3 (96 - 102)	89 ± 5 (86 - 94)
	1.0	72 ± 19 (59 - 85)	79 ± 22 (64 - 95)	74 ± 21 (61 - 88)

* : LOQ is relative standard deviation.

In the overseas trials considered for this evaluation, samples from critical residue trials were analysed using analytical methods 00616, 00616/M001 and 01336.

For methods 00616 and 00616/M001, residues were extracted from samples with a mixture of acetonitrile/water. The extract was filtered and concentrated to the aqueous remainder. Acetic acid was added with the raw extract and subjected to further clean-up by solid phase extraction on a non-polar column filled with polymer material. After elution of the analytes with acetonitrile, the eluate was evaporated to dryness and the residue redissolved in a mixture of acetonitrile/water. Residues were determined using LC-MS/MS. The limit of quantitation for each analyte was 0.01 mg/kg, with a LOQ of 0.03 mg/kg (rounded) for total methiocarb (calculated and expressed as methiocarb equivalents). For straw samples the LOQ was 0.05 mg/kg for each analyte or 0.15 mg/kg for total methiocarb.

Method 01336 involved the analysis of methiocarb, methiocarb sulfoxide and methiocarb sulfone as well as their phenols. Residues of methiocarb and its metabolites were extracted from the samples using a mixture of acetonitrile/ water/ acetic acid. The acetonitrile was evaporated off and the aqueous remainder was subject to enzymatic hydrolysis. Residues were quantified by LC-MS/MS and the LOQ was 0.01 mg/kg.

Animal transfer studies for lactating cows and laying hens are discussed in Section 2.6. Residues were determined in poultry tissues and eggs with a GLC method (Method I340) with an LOD of 0.02 mg/kg for total methiocarb residues and a validated LOQ of 0.05 mg/kg. Residues were determined in cattle tissues and milk with a gas-chromatographic method (Method 171) that was validated with an LOQ of 0.05 mg/kg for muscle and fat and 0.005 mg/kg for milk.

2.3 Storage stability

Since the 2005 preliminary report, no new storage stability data have been submitted. The following storage stability data were considered in the 2005 preliminary review.

The storage stability of methiocarb, methiocarb sulfoxide and methiocarb sulfone were investigated for periods up to 24 months in potato, field pea seed, canola seed and grapes when stored at -18°C. All samples were tested periodically at around 0, 27, 91, 181, 362, 540 and 733 days in storage. Total methiocarb residues were acceptable for all storage periods tested, ranging from 73–98% in all matrices except a single canola seed sample, which was just below the acceptable threshold at 68% when sampled after 358 days in storage. The storage stability of total methiocarb is considered acceptable up to 24 months for potato, field pea seed, canola seed and grapes when stored at -18°C.

For the Australian residue trials, all strawberry, grape, orange, cabbage, broccoli, lettuce and spinach samples were maintained under freezer conditions prior to analysis and were tested within 6 months of collection. For the European trials, sunflowers, oranges, artichokes and Brussels sprouts were tested within 6 months of collection. This is acceptable for the purposes of this assessment.

The Australian clover pasture and grass pasture samples were stored between 29 and 33 weeks (\approx 7–8 months). For the European trials, the maximum storage duration was 13 months for strawberries, 11 months for potatoes, 13 months for cabbage, 12 months for lettuce and 13 months for spinach. Storage for the Australian and European trials are considered acceptable for the purposes of this assessment, given that the stability study indicates methiocarb, methiocarb sulfoxide and methiocarb sulfone are stable in a variety of plant matrices for up to 24 months.

2.4 Residue definition

No changes to the established residue definition (sum of methiocarb, methiocarb sulfoxide and methiocarb sulfone, expressed as methiocarb) were recommended in the 2005 preliminary report for methiocarb. There are no proposed changes to the residue definition of methiocarb for the current evaluation.

2.5 Residues in foods and animal feeds

In support of this review, Bayer CropScience Pty Ltd has provided a number of trials for a variety of commodities conducted in Australia and Europe, which have been used for the residues assessment. Data considered in the 2005 preliminary review and data that have been submitted since the preliminary review will be considered.

One methiocarb product is currently registered for use on foods and animal feeds: Mesurol Snail and Slug Bait (33274/48888). Details of residue trials involving the bait formulation only are summarised and discussed in the evaluation below.

Currently, two statements are included on the label that ensure application to edible crops is not to the foliage of plants. One is in the critical comments section “when applying to vegetable crops, ensure pellets do not become lodged in plant foliage” and one is in the precaution section “avoid application of pellets to foliage of edible crops.” These two statements are not consistent as one applies to vegetable crops and one applies to edible crops. It is

noted that residues of methiocarb in plant commodities may increase significantly on direct contact or where pellets may be lodged in the crop. It is also noted that the available residue trials generally involved either application to soil around crop plants or at early growth stages for broadacre crops. It is therefore recommended that the aforementioned label statements be replaced with a DO NOT statement in the restraints section of the label as follows:

“DO NOT apply directly onto edible plants or to crops where baits may be collected with harvested commodities”

For horticultural crops, the aforementioned restriction is considered to be practicable with the current label harvest withholding period of 7 days. For broadacre crops cereals and oilseeds however, it is not considered to be practicable to observe this restriction unless the use is restricted to crop pre-emergence. The following restriction should be associated with the use of methiocarb on cereal and oilseed crops:

“DO NOT apply to cereal or oilseed crops after crop emergence”

The currently approved use patterns for berry crops (including grapevines), cereals, oilseed crops, orchards, pastures and vegetable crops includes two application rates. The 5.5 kg/ha rate (110 g ai/ha) is to be used for most infestations while the 11–22 kg/ha rate (220–440 g ai/ha) is to be used for heavy infestations or where pasture is tall or dense. Some Australian residues data address the maximum application rate of 440 g ai/ha, whereas the majority of the overseas residues data are applicable to the rate of 110 g ai/ha.

For the purpose of the residues risk assessment for each crop group, the application rates of 110 g ai/ha and 440 g ai/ha will be considered separately.

For non-edible crops that were previously covered by label uses in nurseries and gardens, it is recommended that a use on ‘ornamentals’ at 220–440 g ai/ha be retained and no further consideration to this non-food use is required by this residues assessment.

2.5.1 Broadacre crops

2.5.1.1 Cereals

Methiocarb is registered for use on cereal crops at rates of 110 and 220–440 g ai/ha. Pellets are not to be applied to foliage of edible crops. The harvest withholding period (WHP) is 7 days. Treated areas are not to be grazed or cut for stockfood for 7 days after application.

The use in cereal crops is not covered by any existing methiocarb MRLs for grain, forage or fodder.

Application of Mesuroil Snail and Slug Bait at 22 kg/ha (440 g ai/ha)

One Australian GLP (good laboratory practice) trial on wheat (grain and straw) is available that involved application of bait at 440 g ai/ha and a 7 day harvest and grazing withholding period. Residues reported were <0.06 mg/kg in straw (n = 1) and grain (n = 1). It is noted that forage residues were not reported. Results are summarised below.

Residue data for wheat, Australian trial

Crop (Trial ID)	Location and year	Rate (g ai/ha)	Days after last application (DALA)	Residues (mg/kg) in: Grain and Straw *
Trial submitted after the 2005 review				
Wheat (BCS-0137 C132)	Australia – WA 2005	440 × 1	0, 3, 7, 14	<0.06 (grain) <0.06 (straw)

* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition); LOQ = 0.06 mg/kg for the Australian trials.

Application of Mesuroil Snail and Slug Bait at 5.5 kg/ha (110 g ai/ha)

Full details of wheat trials conducted in Italy (n = 1), Spain (n = 1), UK (n = 2), France (n = 3), Portugal (n = 1) and Germany (n = 2) were submitted. Trials were conducted with 2 applications of methiocarb at an application rate of 120 g ai/ha. Residues above the method LOQs were not detected. Residues were <0.03 mg/kg in plant (taken 16–64 days after last application (DALA)) and grain (taken 75–120 DALA) and were <0.03 or <0.3 mg/kg in straw (taken 75–120 DALA). This data is not consistent with the current label withholding period of 7 days.

Full details of barley trials conducted in Greece (n = 1), France (n = 1) and Germany (n = 2) and summary residue data from barley trials conducted in France (n = 2), Italy (n = 1) and Germany (n = 2) were submitted. Trials were conducted with 2 applications of methiocarb at an application rate of 120 g ai/ha. Residues above the LOQ were not reported. Residues were <0.03 mg/kg in plant (taken 14–64 DALA) and grain (taken 79–141 DALA) and were <0.15 mg/kg in straw (taken 79–141 DALA). These data are not consistent with the current label withholding period of 7 days.

Summary residue data from maize trials conducted in Italy (n=1) and Spain (n=2) and full details of trials conducted in France (n=2), Germany (n = 3) and Spain (n=1) were submitted. Trials were conducted with two or three applications of methiocarb at an application rate of 120 g ai/ha. Residues above the LOQ were not reported. Residues were <0.03 mg/kg in plant (taken 43–122 DALA), cobs (taken 99–122 DALA) and kernels (taken 80–147 DALA). These data are not consistent with the current label withholding period of 7 days.

Conclusion on cereals

One trial on wheat at the 440 g ai/ha rate is not sufficient to retain the use on cereals at the high rate use pattern.

Numerous trials conducted on wheat, barley and maize relevant to the 110 g ai/ha rate are available. These trials do not address the 7 day withholding period as grain samples were collected 75–147 days after the last treatment. The available data however support the use at the 110 g ai/ha rate provided application is restricted to before crop emergence with a harvest withholding period of 'Not required when used as directed'. A methiocarb MRL for cereal grains at *0.06 mg/kg is considered to be appropriate.

Animal Feeds

Residues above LOQ were not observed in wheat or barley forage treated at the 120 g ai/ha rate at 14–64 DALA or in straw at 75–141 DALA and MRLs for forage and fodder will be discussed with other animal feeds at Section 2.5.3 Animal Feeds.

2.5.1.2. Oilseed crops

Methiocarb is registered for use on oilseed crops at rates of 110 and 220–440 g ai/ha (rate dependent on infestation pressure). Pellets are not to be applied to foliage of edible crops and the harvest WHP is 7 days. Treated areas are not to be grazed or cut for stockfeed for 7 days after application.

In addition to the use on oilseeds generally, methiocarb is also registered for use on sunflowers at a rate of 50 g ai/ha (10 pellets/m²). Pellets are not to be applied to foliage of edible crops. The harvest WHP is 7 days, however application is to be made 1–3 days after sowing. The grazing WHP is 7 days.

The use in oilseed crops is not covered by any existing methiocarb MRLs for seed, forage or fodder.

Application of Mesuroil Snail and Slug Bait at 22 kg/ha (440 g ai/ha)

One Australian GLP trial on canola (seed and straw) is available that involved application of bait at 440 g ai/ha and a 7 day harvest and grazing withholding periods. Residues reported were <0.06 mg/kg in straw (n = 1) and grain (n = 1). It is noted that forage residues were not reported. Results are summarised below.

Residue data for canola, Australian trial

Crop (Trial ID)	Location and year	Rate (g ai/ha)	DALA	Residues (mg/kg) in: Grain and Straw *
Trial submitted after the 2005 review				
Canola (BCS-0137 C133)	Australia – NSW 2005	440 × 1	0, 3, 7, 14	<0.06 (seed) <0.06 (straw)

* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition); LOQ = 0.06 mg/kg for the Australian trials.

Application of Mesuroil Snail and Slug Bait at 5.5 kg/ha (110 g ai/ha)

Summary residue data from canola trials for seed and forage conducted in France (n = 2), Germany (n = 4), Belgium (n = 1), UK (n = 1) and Sweden (n = 1) were submitted after the 2005 preliminary review, along with the full details of trials for canola seed only, conducted in Belgium (n = 1), UK (n = 2), France (n = 3) and Italy (n = 2). Full details of trials for seed and forage conducted in Belgium (n = 1), France (n = 1), UK (n = 1) and Germany (n = 1) were available for the 2005 preliminary review. All trials were conducted with 2 applications of methiocarb at an application rate of 120 g ai/ha. Residues above the combined LOQ (0.03 mg/kg) were not reported for any seed samples (taken 95 - 294 DALA). This data is not consistent with the current label withholding period of 7 days.

Finite residues in green plant material were reported at 0 DALA (0.04–2.5 mg/kg), 4 DALA (0.07 mg/kg), 69 DALA (0.09 mg/kg) and 161 DALA (0.05 mg/kg). It is noted that the 69 and 161 DALA residues were observed in the same winter rape trial conducted in Sweden in 2001/02. It is not clear if the forage results were reported on a dry weight basis.

Two European GLP trials for sunflower seeds are available that involve two applications made at 120 g ai/ha. Residues in sunflower seeds were <0.03 mg/kg (n = 2) when sampled 84 days after the last application. It is noted that forage and fodder residues were not reported.

Conclusion on Oilseeds

One trial on canola at the 440 g ai/ha rate is not sufficient to retain the use on cereals at the high rate use pattern.

Numerous trials conducted on canola and two trials conducted on sunflower relevant to the 110 g ai/ha rate are available. These trials do not address the 7 day withholding period as grain samples were collected 84–294 days after the last treatment. The available data, however, support the use at the 110 g ai/ha rate provided application is restricted to before crop emergence with a harvest withholding period of 'Not required when used as directed'. A methiocarb MRL for oilseeds at *0.06 mg/kg is considered to be appropriate. The additional use on sunflowers at a rate of 50 g ai/ha (10 pellets/m²) is also supported.

Processed Products

Oilseeds can be processed into oil and meal. Residues above the LOQ are not expected in oilseeds due to the use of methiocarb. As a result, residues of methiocarb are unlikely to concentrate on processing and no further consideration is required.

Animal Feeds

Residues above LOQ were observed in canola green material treated at the 120 g ai/ha rate and MRLs for forage and fodder will be discussed with other animal feeds at Section 2.5.3 Animal Feeds.

2.5.2 Fruit crops**2.5.2.1. Berry crops (including grapevines)**

Methiocarb is registered for use on berry crops (including grapevines) at rates of 110 and 220–440 g ai/ha (rate dependent on infestation pressure). Pellets are not to be applied to foliage of edible crops and the harvest WHP is 7 days.

The uses are currently covered by the methiocarb MRL of 0.5 mg/kg for grapes, 0.1 mg/kg for fruits (except citrus fruits; grapes) and 0.1 mg/kg for wine.

Application of Mesuroi Snail and Slug Bait at 22 kg/ha (440 g ai/ha)

Four Australian GLP trials (2 on strawberries and 2 on grapes) are available that involved application of bait at 440 g ai/ha and a 7 day harvest withholding period. Residues <LOQ (<0.06 mg/kg) were reported for both strawberries (n = 2) and grapes (n = 2). Results are summarised below.

Residue data for strawberries and grapes, Australian trials

Crop (Trial ID)	Location and year	Rate g ai/ha (growth stage)	DALA	Residues (mg/kg), plant part*
Strawberry data - trials submitted after the 2005 review				
Strawberries (BCS-0153 C142) [field]	Aust-Qld 2006	440 × 1 (flowering & fruiting)	3, 7, 14	Fruit <u><0.06</u>

Crop (Trial ID)	Location and year	Rate g ai/ha (growth stage)	DALA	Residues (mg/kg), plant part*
Strawberries: (BCS-0153 C143) [field]	Aust-Vic 2006	440 × 1 (harvest)	3, <u>7</u> , 14	Fruit <u><0.06</u>
Grape data - trials submitted after the 2005 review				
Grapes (BCS-0125 C130)	Aust-Vic 2005	440 × 1	0, 3, <u>7</u> , 14	Fruit <u><0.06</u>
Grapes (BCS-0125 C131)	Aust-WA 2005	440 × 1	0, 3, <u>7</u> , 14	Fruit <u><0.06</u>

* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition); LOQ = 0.06 mg/kg for the Australian trials.

It is noted that strawberries are a ground crop, such that fruit may be in contact with the ground where pellets are applied. For the Australian trials, application was made to plants at either flowering to fruiting or at harvest which is likely to result in the highest residue scenario for strawberry fruits. Pellets were applied by hand in the trials and this was indicated in the 2005 preliminary report to be normal practice for berry crops.

Application of Mesuroil Snail and Slug Bait at 5.5 kg/ha (110 g ai/ha)

Two European GLP trials on greenhouse grown strawberries involved two applications (14–15 days apart) at 120 g ai/ha and sampling of mature fruit at 0, 3, 8 and 14 days after the last application. Total methiocarb residues were <LOQ in both trials at each time point in protected grown strawberries treated at 120 g ai/ha.

Conclusion on Berry crops (including grape vines)

Residue data for strawberries and grapes support the use of methiocarb at the 110 and 440 g ai/ha rates with a 7 day withholding period. The available data are not sufficient to retain the use on all berry crops as data for crops other than strawberry and grapes are not available. It is recommended that established MRLs for methiocarb in fruits (except citrus fruits, grapes) at T0.1 mg/kg and grapes at 0.5 mg/kg be deleted from the MRL Standard. Methiocarb MRLs at *0.06 mg/kg for strawberries and grapes are considered to be appropriate. Use on protected grown strawberries is considered acceptable for the pellet product applied to the soil.

Processed Products

Grapes can be processed into juice, wine, pomace and dried grapes. Residues above the LOQ are not expected in grapes as a result of the use of methiocarb, therefore, residues of methiocarb are unlikely to concentrate on processing.

It is recommended that the established MRL of 0.1 mg/kg for wine be removed from the MRL Standard, as any residues arising in wine are likely to be covered by the recommended MRL of *0.06 mg/kg for grapes.

Animal feeds

Grape pomace is considered to be a significant animal feed. As methiocarb residues above the LOQ are not expected in grapes, finite residues are not expected in grape pomace. Consideration of the grazing of treated vineyards is available in Section 2.5.3 Animal Feeds.

2.5.2.2. Orchards

Methiocarb is registered for use on orchards at rates of 110 and 220–440 g ai/ha (rate dependent on infestation pressure). Pellets are not to be applied to foliage of edible crops and the harvest WHP is 7 days.

The uses are covered by the methiocarb MRLs of 0.1 mg/kg for citrus fruits and T0.1 mg/kg for fruits (except citrus fruits, grapes). It is noted that an MRL is not established for nut crops.

Application of Mesuroi Snail and Slug Bait at 22 kg/ha (440 g ai/ha)

Two Australian GLP trials are available for oranges that involved application of bait at 440 g ai/ha and a 7 day harvest withholding period. Residues were <LOQ (<0.06 mg/kg, n =2). Results are summarised below.

Residue data for oranges, Australian trials

Crop (Trial ID)	Location and year	Rate (g ai/ha)	DALA	Residues (mg/kg), plant part*
Trials submitted after the 2005 review				
Oranges (BCS-0152 C152)	Aust-Vic 2006	440 × 1	0, 4, <u>7</u> , 14	Fruit: <u><0.06</u>
Oranges (BCS-0152 C153)	Aust-WA 2006	440 × 1	0, 3, <u>7</u> , 11	Fruit: <u><0.06</u>

* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition); LOQ = 0.06 mg/kg for the Australian trials.

Application of Mesuroi Snail and Slug Bait at 5.5 kg/ha (110 g ai/ha)

No residues data addressing the 110 g ai/ha rate is available for any orchard crop.

Conclusion on Orchard crops

The available data consisting of two orange trials is not sufficient to retain the use on orchards as residues data for tree crop groups other than citrus are not available. However, given that methiocarb is not a systemic pesticide and application is by pellets to the ground (not directly to the plant or edible portion), the data is considered acceptable to establish an MRL for citrus crops.

The continued use of the 110 g ai/ha and 440 g ai/ha rates is supported for citrus crops only with a 7 day withholding period. It is recommended that established MRLs for methiocarb in citrus fruits at 0.1 mg/kg and fruits (except citrus fruits, grapes) at T0.1 mg/kg be deleted from the MRL Standard. A methiocarb MRL at *0.06 mg/kg for citrus fruits is considered to be appropriate.

Processed Products

Citrus can be processed into juice, pulp and peel. Residues above the LOQ are not expected in oranges due to the use of methiocarb, therefore, residues of methiocarb are unlikely to concentrate on processing and no further consideration is required.

Animal feeds

Citrus pulp is considered to be a significant animal feed. As methiocarb residues above the LOQ are not expected in citrus, finite residues are not expected in citrus pulp. Consideration of the grazing of treated orchards is available in Section 2.5.4 Animal Feeds.

2.5.3 Vegetable crops

Methiocarb is registered for use on vegetable crops at rates of 110 and 220–440 g ai/ha (rate dependent on infestation pressure). Pellets are not to be applied to foliage of edible crops and the harvest WHP is 7 days.

The uses are covered by the methiocarb MRL of 0.1 mg/kg for Vegetables. It is recommended that this MRL be deleted from the MRL Standard so that MRLs can be established for individual vegetable crops or vegetable crop groups as supported by residues data.

No residues data have been submitted for crops belonging to the Bulb vegetable, Fruiting vegetable (Cucurbit) or the Legume vegetable groups and the continued use of methiocarb in those crop groups cannot be supported.

For pulses, only two European field pea trials were submitted which found that two applications of methiocarb at an application rate of 120 g ai/ha resulted in residues <LOQ (<0.03 mg/kg) in dry seeds (taken 57 or 80 DALA). For Fruiting vegetables other than cucurbits, only four European tomato trials and two European sweet pepper trials were submitted that found 2 applications of methiocarb at an application rate of 120 g ai/ha resulted in residues <LOQ (<0.03 mg/kg) in dry seeds (taken 62–81 DALA). These limited data do not address the current label withholding period of 7 days and continued use of methiocarb in those crop groups cannot be supported.

Relevant residues data for crops within the Brassica vegetable, Leafy vegetable, Root and Tuber and Stalk and stem vegetable crop groups have been submitted and will be discussed below.

2.5.3.1. Brassica vegetables

For brassica vegetables, relevant information is available for cabbage, broccoli and Brussels sprouts.

Application of Mesuroi Snail and Slug Bait at 22 kg/ha (440 g ai/ha)

Two Australian GLP trials on brassicas (one on cabbage and one on broccoli) are available that involved application of bait at 440 g ai/ha and a 7 day harvest withholding period. Residues were reported as <LOQ (<0.06 mg/kg) for both cabbage and broccoli. Results are summarised below.

Residue data for cabbage and broccoli, Australian trials

Crop (Trial ID)	Location and year	Rate (g ai/ha)	DALA	Residues (mg/kg)*
(Cabbage: n = 1), (Broccoli: n = 1)				Plant part analysed = head
Trials submitted after the 2005 preliminary review				
Cabbage (BCS-0145, C144)	Australia – Qld 2006	440 x 1	3, 7, 15	<0.06
Broccoli (BCS-0145, C145)	Australia – Tas 2006	440 x 1	3, 7, 14	<0.06

* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition); LOQ = 0.06 mg/kg for the Australian trials.

Application of Mesuroil Snail and Slug Bait at 5.5 kg/ha (110 g ai/ha)

Four trials each for head cabbage and Brussels sprouts that involved application of bait at 200 g ai/ha were considered during the 2005 preliminary evaluation. Five trials on head cabbage and two trials on Brussels sprouts that involved application of bait at 120 g ai/ha were submitted after the 2005 preliminary evaluation. Results are summarised below.

Residue data for cabbage and Brussels sprouts, European trials

Crop (Trial ID)	Location and year	Rate (g ai/ha)	DALA	Residues (mg/kg)*
(Cabbage: n = 8)				Plant part analysed = head
Trials considered in the 2005 preliminary review				
Head Cabbage (red) (RA-2140/99 R 1999 0577/7)	EU - Germany 1999	200 × 2 (14 d apart)	0 <u>7</u> 14 21	0.06 <0.03 <u>0.03</u> <0.03
Head Cabbage (red) (RA-2140/99 R 1999 0578/5)	EU – Germany 1999	200 × 2 (14 d apart)	0 <u>7</u> , 14, 21	0.06 <0.03
Head Cabbage (white) (RA-2140/99 R 1999 0579/3)	EU - UK 1999	200 × 2 (15 d apart)	-0 +0 <u>7</u> 10 14 21 28	0.07 0.17 0.08 <u>0.09</u> 0.07 0.08 0.06
Head Cabbage (white) (RA-2140/99 R 1999 0580/7)	EU -Netherlands 1999	200 × 2 (14 d apart)	-0, +0, <u>7</u> , 10, 14, 20, 28	<0.03
Trials submitted after the 2005 preliminary review				
Head Cabbage (RA-2170/06 R 2006 0022/4)	EU - France 2006	120 × 2 (88 d apart)	0, 3, <u>7</u> , 14	<0.03
Head Cabbage (RA-2170/06 R 2006 0023/2)	EU - Spain 2006	120 × 2 (133 d apart)	0, 3, <u>7</u> , 14	<0.03
Head Cabbage (RA-2170/06 R 2006 0024/0)	EU - Greece 2006	120 × 2 (85 d apart)	0, 14	<0.03
Head Cabbage (RA-2170/06 R 2006 0025/9)	EU - Italy 2006	120 × 2 (67 d apart)	0, 14	<0.03
Head Cabbage (12-2090-01)	EU – Italy 2012	120 × 2 (7 d apart)	39	<u>0.041</u>

(Brussels Sprouts: n = 6)				Plant part analysed = sprouts
Trials considered in the 2005 preliminary review				
Brussels Sprouts (RA-2001/00 R 2000 0011/1)	EU- Netherlands 2000	200 x 2 (14 d apart)	0, 14	<0.03
Brussels Sprouts (RA-2170/06 R 2000 0013/8)	EU - France 2000	200 x 2 (14 d apart)	0, 14	<0.03
Brussels Sprouts (RA-2170/06 R 2000 0014/6)	EU - UK 2000	200 x 2 (14 d apart)	0 14 35	0.17 <0.03 <0.03
Brussels Sprouts (RA-2170/06 R 2000 0015/4)	EU – Germany 2000	200 x 2 (14 d apart)	0, 13	<0.03
Trials submitted after the 2005 preliminary review				
Brussels Sprouts (RA-2350/06 R 2006 0020/8)	EU - France 2006	120 x 2 (118 d apart)	0, 3, 7, 15	<0.03
Brussels Sprouts (RA-2350/06 R 2006 0021/6)	EU - Italy 2006	120 x 2 (124 d apart)	0, 3, 7, 15	<0.03

* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition); LOQ = 0.03 mg/kg for the European trials.

Note "-0 DALA" = sample taken 0 days before the last application. "+0 and 0 DALA" = sample taken 0 days after the last application.

In addition to the trials described above, summaries of four trials conducted on head cabbage and four trials conducted on Brussels sprouts in Europe were submitted after the 2005 preliminary review. Residues in Brussels sprouts taken 7 days after two applications of methiocarb at 200 g ai/ha were <0.03 (4) mg/kg. For cabbage, finite residues were reported 14 days after two applications at 200 g ai/ha. The finite residues were 0.04 and 0.05 mg/kg. These summary results can be used as supporting information.

Conclusion on Brassica vegetables

Two trials at the 440 g ai/ha rate are not sufficient to establish MRLs for the brassica vegetable crop group or the individual commodities, cabbage and broccoli (one trial each). However, there are sufficient data to consider the use on brassica vegetables, provided the lower rate on the label at 110 g ai/ha remains and the higher rates at 220–440 g ai/ha are removed from the label.

Numerous trials conducted on cabbage and Brussels sprouts relevant to the 110 g ai/ha rate are, however, available. Residues in cabbage 7 days after treatment with two applications of methiocarb at 200 g ai/ha were: <0.03 (2), 0.03 and 0.09 mg/kg. When scaled to 110 g ai/ha, residues become: <0.03 (3) and 0.05 mg/kg. Residues in cabbage 7 days after treatment with two applications of methiocarb at 120 g ai/ha were (2): <0.03 (2) mg/kg. Residues in cabbage (1) and broccoli (1) 7 days after treatment with one application of methiocarb at 440 g ai/ha were <0.06 mg/kg. Residues in Brussels sprouts 7 days after treatment with two applications of methiocarb at 120 g ai/ha were: <0.03 (2) mg/kg. It is noted that for one cabbage trial, higher residues were reported after the 7 day harvest WHP. The residue in cabbage after two applications at 120 g ai/ha and sampled 39 DALA was 0.041 mg/kg. It is prudent to consider this data point in recommending an MRL.

The combined dataset suitable for MRL estimation is, in rank order (n = 11): <0.03 (7), 0.041, 0.05 and <0.06 (2) mg/kg. The STMR is 0.03 mg/kg and the OECD MRL calculator estimates an MRL of 0.09 mg/kg, with a high uncertainty of MRL estimate due to a high level of censoring.

The available data support the use on brassica vegetables at the 110 g ai/ha rate with a 7 day harvest withholding period. A methiocarb MRL for 'Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassica' at *0.06 mg/kg is considered to be appropriate.

The rate and MRL are supported by the summary information provided, where the highest residue reported after two separate 200 g ai/ha applications was 0.05 mg/kg, which is lower than the recommended MRL.

2.5.3.2. Leafy vegetables

For leafy vegetables, relevant information is available for head lettuce, leafy lettuce and spinach.

Application of Mesuroi Snail and Slug Bait at 22 kg/ha (440 g ai/ha)

Three Australian GLP trials on leafy vegetables (one each on head lettuce, leafy lettuce and spinach) are available that involved application of bait at 440 g ai/ha and a 7 day harvest withholding period. Results are summarised below.

Residue data for head lettuce, leafy lettuce and spinach, Australian trials

Crop (Trial ID)	Location and year	Rate (g ai/ha)	DALA	Residues (mg/kg)*
Trials submitted after the 2005 review				
Head Lettuce (BCS-0155 C146)	Australia – Qld 2006	440 × 1	0, 3, <u>7</u> , 15	<0.06
Leafy Lettuce [Cos] (BCS-0155 C175)	Australia – Tas 2006	440 × 1	0, 3, <u>7</u> , 14	<0.06
Leafy Spinach (BCS-0155 C176)	Australia – Vic 2006	440 × 1	0, 3, <u>7</u> , 14	<0.06 0.06 <0.06

* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition); LOQ = 0.06 mg/kg for the Australian trials.

Residues were reported as <0.06 (3) mg/kg and 0.06 mg/kg in leafy vegetables at 7 days after treatment for the 440 g ai/ha rate.

The supporting summary information supplied for the 2005 preliminary evaluation described an Australian trial in which residues of methiocarb were determined as methiocarb, its sulfoxide and its sulfone. Methiocarb was applied to lettuce seedlings four times (14 day intervals) at 400 g ai/ha. Residues of methiocarb were 0.1 mg/kg, 7 days after the last application.

Application of Mesuroi Snail and Slug Bait at 5.5 kg/ha (110 g ai/ha)

Full details of seven suitable European GLP trials were submitted after the 2005 preliminary evaluation and are summarised below.

Residue data for head lettuce, leafy lettuce and spinach, Europe trials

Crop (Trial ID)	Location and year	Rate (g ai/ha)	DALA	Residues (mg/kg)*
(Head lettuce: n = 4)				Plant part analysed = head
Trials submitted after the 2005 review				
Head Lettuce (10-2160-01)	EU – France 2010	120 × 2 (15 d apart)	8	<0.03
Head Lettuce (10-2160-02)	EU – Italy 2010	120 × 2 (7 d apart)	20	0.04
Head Lettuce (10-2161-01)	EU – Germany 2010	120 × 2 (7 d apart)	18	0.05
Head Lettuce (10-2161-02)	EU – France 2010	120 × 2 (7 d apart)	13	0.08
(Spinach: n = 3)				Plant part analysed = leaf
Trials submitted after the 2005 review				
Spinach (RA-2017/06 R 2007, 0279/5)	EU - France 2007	120 × 2 (7 d apart)	-0, 0, 3, 7, 14, 21	<0.03 0.06 <0.03
Spinach (RA-2017/06 R 2007, 0457/7)	EU- Germany 2007	120 × 2 (7 d apart)	-0, 0, 3, 7, 14, 21	<0.03 0.04 <0.03
Spinach (09-2104-02)	EU – Italy 2009	120 × 2 (7 d apart)	33 40	0.49 <0.03

* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition); LOQ = 0.03 mg/kg for the European trials.

For the European data, residues after treatment with two applications 7 days apart of methiocarb at 120 g ai/ha were <0.03 mg/kg in head lettuce harvested 8 DALA and <0.03 and 0.04 mg/kg in spinach harvested 7 DALA. For head lettuce after two applications at 120 g ai/ha, sampled 13 – 20 DALA, residues were (n = 3): 0.04, 0.05 and 0.08 mg/kg. For spinach taken 33 days after the last of two applications that were made at the seedling stage (plants 1–5 cm in height), the residue was 0.49 mg/kg.

Conclusion on Leafy Vegetables

Three trials at the 440 g ai/ha rate are not sufficient to establish MRLs for the leafy vegetable crop group or the individual commodities (head lettuce, leafy lettuce and spinach, one trial each). However, there is sufficient data to establish a crop group MRL for methiocarb on leafy vegetables, provided the lower rate at 110 g ai/ha remains on the label and the higher rates at 220–440 g ai/ha are removed from the label.

The combined dataset for residues in leafy lettuce, head lettuce and spinach 7 or 8 days after application (or later if finite residues were observed) at either 120 g ai/ha or 440 g ai/ha is, in rank order (n = 10): <0.03 (2), 0.04 (2), 0.05, <0.06 (2), 0.06, 0.08 and 0.49 mg/kg. The STMR is 0.06 mg/kg and the OECD MRL calculator estimates an MRL of 0.7 mg/kg.

While it is noted that the observed HR of 0.49 mg/kg was much higher than the next highest residue (0.08 mg/kg) it was observed 33 days after application was made to spinach seedlings (plants 1–5 cm in height) and it is not expected that pellets directly contacted the plant or were lodged in the plant sampled for analysis. This residue value is considered to be valid for the use of methiocarb on leafy vegetables at 110 g ai/ha with a 7 day withholding period.

As discussed in Section 3.2, acute dietary exposure calculations for leafy vegetables based on the HR of 0.49 mg/kg, the ARfD of 0.005 mg/kg bw/day and the Australian large portion consumption values, shows that the acute dietary exposure for leafy vegetables exceeds the acute reference dose for children (2-6 years) and the general population (2+ years). With the exception of head lettuce, continued use on leafy vegetables is not supported due to acute dietary exposure concerns.

Four head lettuce trials involving two applications 7 days apart at 120 g ai/ha are available and residues were <0.03, 0.04, 0.05 and 0.08 mg/kg at 8–20 DALA. This is supported by one Australian trial involving one application at 440 g ai/ha which found residues <0.06 mg/kg at 7 DALA in head lettuce. The available dataset for head lettuce relevant to the 110 g ai/ha rate is, in rank order (n=5), <0.03, 0.04, 0.05, <0.06 and 0.08 mg/kg. The STMR is 0.06 mg/kg and the OECD MRL calculator estimates an MRL of 0.15 mg/kg. The acute exposure associated with a HR of 0.08 mg/kg in head lettuce is calculated to be acceptable.

Based on the available information, the continued use of methiocarb on head lettuce only is supported provided the lower application rate (110 g ai/ha) is retained and the higher rates (220–440 g ai/ha) are removed from the label. A MRL at 0.2 mg/kg is considered to be appropriate for VL 0482 Head lettuce with a 7 day withholding period. The continued use of methiocarb on leafy vegetable crops other than head lettuce is not supported.

2.5.3.3. Stalk and stem vegetables

For stalk and stem vegetables, relevant information is available for artichokes only.

Application of Mesuroi Snail and Slug Bait at 22 kg/ha (440 g ai/ha)

No residues data addressing the 440 g ai/ha rate is available for any stalk and stem vegetable crop.

Application of Mesuroi Snail and Slug Bait at 5.5 kg/ha (110 g ai/ha)

Full details of 2 European GLP trials and summary information for 2 European trials are suitable and were submitted after the 2005 preliminary evaluation and are summarised below.

Residue data for artichokes, European trials

Crop (Trial ID)	Location and year	Rate (g ai/ha)	DALA	Residues (mg/kg) in flower head*
Trials submitted after the 2005 review				
Artichoke head (R 2007, 0277/9 RA-2015/07)	EU – France 2007	150 x 2 (14 d apart)	-0, 0, 2, 7, 14, 21	<0.03
Artichoke head	EU- Italy 2007	150 x 2 (14 d apart)	-0, 0, 3, 7, 14, 21	<0.03

(R 2007, 0459/3 RA- 2015/07)				
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* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition); LOQ = 0.03 mg/kg for the European trials.

Note "-0 DALA" = sample taken 0 days before the last application.

Residue data for artichokes - European trials submitted as summaries that were also considered by the 2005 JMPR

Crop (Trial ID)	Location and year	Rate (g ai/ha)	DALA	Residues (mg/kg) in head*
Artichoke (LN24-93/2 ITA-315-93)	EU – Italy 1993	100 x 1	0 14, 21	0.13 <0.014
Artichoke (LN24-93/2 ITA-316-93)	EU – Italy 1993	100 x 1	0, 14, 21	<0.014

* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition). It was unclear if results were expressed as LOD or LOQ for the trial summaries provided. The 2005 JMPR reports the total methiocarb LOQ as 0.014 mg/kg (2 trials) and 0.03 mg/kg (2 trials).

Conclusion on Stalk and Stem Vegetables

No residue trials are available at the maximum treatment rate of 440 g ai/ha or above, therefore the available data are not sufficient to retain use at the maximum label rate.

European data is available at an application rate of 150 g ai/ha with a 7 day PHI, which is supportive of the lower application rate of 110 g ai/ha for artichokes. Residues in treated artichoke were <0.03 mg/kg (n = 2) at a 7 day PHI. No residues data for stalk and stem vegetable crops other than artichokes are available and therefore continued use in artichokes only can be supported from a residues perspective.

Based on the available information, the continued use of methiocarb on artichokes only is supported provided the lower application rate (110 g ai/ha) is retained and the higher rates (220–440 g ai/ha) are removed from the label. An MRL at *0.06 mg/kg is considered to be appropriate for Artichoke, globe with a 7 day withholding period.

2.5.3.4. Root and tuber vegetables

For root and tuber vegetables, relevant information is available for potato and sugar beet.

Application of Mesuroi Snail and Slug Bait at 22 kg/ha (440 g ai/ha)

No residues data addressing the 440 g ai/ha rate are available for any root and tuber crop.

Application of Mesuroi Snail and Slug Bait at 5.5 kg/ha (110 g ai/ha)

For potatoes, a total of 12 European trials are available for consideration of the 110 g ai/ha rate. Results are summarised below.

Residue data for potatoes, Europe

Crop (Trial ID)	Location and year	Rate (g ai/ha)	DALA	Residues (mg/kg) in tuber*
Trials considered in the 2005 preliminary review				
Potato (RA-2129/00 R 2000 0330/7)	EU – Germany 2001	150 x 2 (28 days apart)	<u>7</u>	<0.03
Potato (RA-2129/00 R 2000 0486/9)	EU – Germany 2001	150 x 2 (28 days apart)	<u>7</u>	<0.03
Potato (RA-2129/00 R 2000 0487/7)	EU – Germany 2001	150 x 2 (28 days apart)	<u>7</u>	<0.03
Potato (RA-2129/00 R 2000 0488/5)	EU – UK 2001	150 x 2 (28 days apart)	<u>7</u>	<0.03
Trials submitted after the 2005 preliminary review				
Potato (RA-2163/01 R 2001 0419/7)	EU – Germany 2002	150 x 2 (28 days apart)	<u>7</u>	<0.03
Potato (RA-2163/01 R 2001 0420/0)	EU – Germany 2002	150 x 2 (28 days apart)	<u>7</u>	<0.03
Potato (RA-2163/01 R 2001 0421/9)	EU – UK 2002	150 x 2 (29 days apart)	<u>7</u>	<0.03
Potato (RA-2163/01 R 2001 0422/7)	EU – Netherlands 2002	150 x 2 (28 days apart)	<u>7</u>	<0.03
Potato (12-2098-01)	EU – Spain 2013	120 x 2 (7 days apart)	-0, <u>7</u> , 14, 21, 28	<0.03
Potato (12-2098-02)	EU – Italy 2013	120 x 2 (7 days apart)	-0, 21	<0.03
Potato (12-2097-01)	EU – Germany 2013	120 x 2 (7 days apart)	-0, <u>7</u> , 14, 21, 28	<0.03

Potato (12-2097-02)	EU – France 2013	120 × 2 (7 days apart)	-0, 21	<0.03
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* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition).

Note “-0 DALA” in this table means tuber samples taken on the same day as the second application, but just before it was applied.

Details of sugar beet trials conducted in France (n = 3), Germany (n = 3) and the UK (n = 1) were submitted after 2005. Summary residue data from trials conducted in France (n = 3), Germany (n = 5), the UK (n = 1), Italy (n = 1) and Spain (n = 1) were also submitted. Trials were conducted with two applications of methiocarb at an application rate of either 120 or 150 g ai/ha. Residues above the LOQ (0.03 mg/kg) were not reported for any root samples taken 73–145 DALA. Finite residues were reported in plant (whole plant with root) at 0 DALA (0.29 and 1.4 mg/kg) and leaf with root collar at 73 DALA (0.04 mg/kg) and 80 DALA (0.03 mg/kg). This sugar beet data are not suitable for assessment as it is not consistent with the registered use because the harvest WHP is significantly different to the 7 days harvest WHP currently on the label.

Conclusion on Root and Tuber Vegetables

No residue trials are available for root and tuber vegetables at the maximum treatment rate of 440 g ai/ha or above, therefore the available data are not sufficient to retain use at the maximum label rate.

European residues data for potatoes are available at the lower application rates of 120 and 150 g ai/ha and the 7 day harvest withholding period, which are supportive of the lower application rate on the label of 110 g ai/ha. Residues in treated potato were <LOQ (<0.03 mg/kg, n = 10) at both application rates.

No residue data for root and tuber crops, other than potato or sugar beet, were provided. In the sugar beet residue trials, no quantifiable residues were reported, however, the sampling interval (73–145 days) was not consistent with the 7 day harvest withholding period and the residues data are not sufficient to establish an MRL for methiocarb on sugar beet.

The available residues data supports the use at the 110 g ai/ha rate on potatoes only, with a 7 day withholding period. An MRL for methiocarb on VR 0589 Potato at *0.06 mg/kg is recommended.

2.5.4 Animal feeds including pasture

Methiocarb is registered for use on pastures at rates of 110 and 220–440 g ai/ha (rate dependent on infestation pressure). Treated areas are not to be grazed or cut for stock food for 7 days after application. Consideration of forage and fodder of cereals and oilseeds and the inter-rows of vineyards and citrus orchards is also required.

The use in pastures or other animal feeds are not currently covered by any existing methiocarb MRLs in Table 4 of the MRL Standard. No residue data for pastures were submitted for the 2005 preliminary evaluation.

Application of Mesuroil Snail and Slug Bait at 22 kg/ha (440 g ai/ha)

Two suitable Australian GLP trials involving one application at 440 g ai/ha in pasture applied at maturity were submitted after the 2005 preliminary evaluation and are summarised in the table below.

Residue data for clover and grass pasture, Australian trials

Crop (Trial ID)	Location and year	Rate (g ai/ha)	DALA	Residues (mg/kg) in: Forage (fresh weight) *
Pasture: n = 2				
Clover pasture (BCS-0137 C134)	Australia – NSW 2005	440 × 1	0, 7, 13, 28	≤0.06
Grass Pasture (BCS-0137 C135)	Australia - Tas 2005	440 × 1	0, 7, 14, 28	0.10 ≤0.06

* : LOQ is presented as the sum of residues for methiocarb, its sulfone and sulfoxide, expressed as methiocarb (i.e. the current residue definition).

Application of Mesuroi Snail and Slug Bait at 5.5 kg/ha (110 g ai/ha)

No pasture trials addressing the 110 g ai/ha rate are available. The canola residue trials discussed in section 2.5.1.2 involved the analysis of forage and fodder. All canola trials were conducted with two applications of methiocarb at an application rate of 120 g ai/ha. Finite residues in green plant material were reported at 0 DALA (0.04–2.5 mg/kg), 4 DALA (0.07 mg/kg), 69 DALA (0.09 mg/kg) and 161 DALA (0.05 mg/kg). It is not clear if the results were reported on a dry weight basis.

Conclusion on animal feeds including pasture

For animal feeds that may be grazed by livestock, consideration should be given to the potential for inadvertent ingestion of pellets during grazing. The 2005 preliminary report noted that “pellets begin to disintegrate through weathering within a week but are likely to remain visible for up to a month unless consumed”.

Considering that pellets should degrade within 28 days, it is prudent to consider the grazing withholding period of ‘DO NOT graze or cut treated areas for stock food for 28 DAYS after application’ to prevent the inadvertent ingestion of the pellet product by livestock during grazing.

Two Australian GLP trials are available for pasture (one clover and one grass) that involve the maximum rate of 440 g ai/ha. Samples were taken 0, 7, 13 or 14 and 28 DALA and only one sample (grass pasture, 0 DALA) contained a residue (0.10 mg/kg) above LOQ. Finite levels of total methiocarb residues were, however, detected in canola forage (green material) treated with 2 applications at 120 g ai/ha after 28 DALA, with residues of 0.09 and 0.05 mg/kg observed in the same trial. These results in addition to the leafy vegetable trials discussed in Section 2.5.3.2 (a HR of 0.49 mg/kg in spinach at 33 DALA following treatment at 120 g ai/ha) demonstrate a potential for finite residues in pasture and forage following application at 110 g ai/ha with a 28 day grazing withholding period.

Based on the available information, the continued use of methiocarb on pasture at the 440 g ai/ha rate cannot be supported as only two pasture trials addressing that application rate are available. However, consistent with the recommendations for broadacre crops (cereals and oilseeds), the 110 g ai/ha rate can be supported in pasture with a 28 day grazing withholding period. It is recommended that a MRL at 1 mg/kg be established for ‘Primary feed commodities’ to cover the use of methiocarb in pasture, cereals and oilseed at 110 g ai/ha with a 28 day grazing withholding period. Consideration should also be given to the collection of pellets during harvesting.

Noting that there are insufficient residues data to support the 440 g ai/ha rate in pasture of broadacre crops, and that the continued use on grapevines and citrus orchards is supported at the 440 g ai/ha rate, the grazing

withholding period statement of 'DO NOT graze treated orchards or vineyards' is recommended for a label if it includes the 440 g ai/ha rate for grapevines and citrus orchards.

2.5.5 Permits

There are two permits currently approved that allow the use of methiocarb. PER81321 allows the use of methiocarb on ornamental crops which is a non-food situation. PER13353 allows the use of methiocarb on oilseed mustard with the same use as approved for canola (oilseeds) and the recommendations made for oilseeds in Section 2.5.1.2 are applicable for this permit use on oilseed mustard.

2.5.6 Uses of methiocarb where MRLs are not necessary

The following Table 5 entries are currently listed in the MRL Standard for methiocarb and should be removed as they are not required for use patterns supported by this residues assessment:

- In baits for the control of garden pests
- {T} in baits for the control of garden pests on herbs, lemon balm, lemon grass, kaffir lime leaves, lemon verbena and turmeric.

2.6 Animal transfer studies and animal commodities MRLs

Grape pomace, citrus pulp, potato culls, pastures (including vineyards and orchard floors), cereal grains and oilseed are all considered to be significant animal feeds. Finite residues are not expected in cereal grains, oilseeds, potatoes, citrus pulp and grape pomace as a result of the supported uses of methiocarb. Finite residues in pasture and forage with a 28 day grazing withholding period may occur and a 'Primary feed commodity' MRL at 1 mg/kg is recommended.

For the 2005 preliminary evaluation, a dairy cow metabolism study was considered which indicated that within 144 hours of dosing with methiocarb, 96% of the administered radioactivity was eliminated in the urine. For the poultry metabolism study, after treatment with methiocarb, 85% of the dose was excreted within 96 hours and 84% was excreted in 24 hours.

For the 2005 preliminary evaluation, a complete poultry transfer study was provided and summary reports were available for the cow transfer studies. These studies are summarised in the 1999 JMPR evaluation of methiocarb.

The following feeding study information has been taken from the 2005 preliminary evaluation. Lactating dairy cows were fed methiocarb at 10, 30 or 100 ppm in the feed for 28-29 consecutive days. Total methiocarb residues in milk were determined on days 28 and 29 of the dosing period. In a separate study, cattle were fed a feed pre-mixture containing methiocarb at 10, 30 or 100 ppm for 28 consecutive days. Residues were determined in various tissues and organs and fat as summarised below.

Methiocarb residues in tissues and milk of cows

Tissue	Total methiocarb residues (mg/kg)			
	Control	10 ppm	30 ppm	100 ppm
Liver	<0.05	<0.05	0.08	0.10
Kidney	<0.05	<0.05	<0.05	0.08
Muscle ^a	<0.05	<0.05	<0.05	<0.05
Fat ^b	<0.05	<0.05	<0.05	<0.05
Milk (28 day)	-	0.006	0.016	0.030
Milk (29 day)	-	0.007	0.020	0.033

^a Includes loin steak, round steak and flank steak. ^b Includes omental fat, renal fat and back fat.

Noting residues above the LOQ of 0.05 mg/kg were not observed in cattle tissues and a high residue of 0.007 mg/kg was observed in milk following feeding at 10 ppm in the feed, residues above the LOQs of 0.05 and 0.005 mg/kg for tissues and milk respectively are not expected in mammalian tissues or milk given the maximum potential dietary exposure is 1 ppm in the feed.

In the poultry feeding study, groups of laying hens were fed a feed pre-mixture containing a 9:1 mixture of methiocarb and methiocarb sulfoxide at 0, 20, 60, 120 or 360 ppm for 28 consecutive days. Combined residues of methiocarb and methiocarb sulfoxide were determined in tissues and eggs at the end of the dosing period as summarised below.

Methiocarb residues in tissues and eggs of poultry

Sample	Methiocarb + methiocarb sulfoxide residues (mg/kg) ^a				
	0 ppm	20 ppm	60 ppm	120 ppm	360 ppm
Giblets ^b	<0.02	<0.02	0.07	0.28	0.13
Fat	<0.02	NA	NA	<0.02	<0.02
Muscle	<0.02	NA	NA	<0.02	<0.02
Skin	<0.02	NA	<0.02	<0.02	0.06
Egg	<0.02	<0.02	<0.02	<0.02	0.06

^a Highest residues in each group shown. ^b Includes heart, gizzard, liver

Given finite residues are not expected in cereal grains, oilseeds, and citrus pulp which may be fed to poultry, residues above the LOQ of 0.05 mg/kg are not expected in poultry tissues or eggs.

Based on the available information and considering residues above the LOQ are not expected in the animal feed commodities, the following animal commodity MRLs at the method LOQs are recommended:

MO 0105 Edible offal Mammalian	*0.05
MM 0095 Meat [mammalian]	*0.05
ML 0106 Milks	*0.005
PE 0112 Eggs	*0.05
PM 0110 Poultry meat	*0.05
PO 0111 Poultry, Edible Offal of	*0.05

It is noted that the following statement is currently on the label under “protection of livestock”:

“DO NOT treat areas on which poultry graze”. This statement is considered appropriate to prevent the exposure of poultry to the pellet product, however, should be moved to the withholding period section of the label.

2.7 Crop rotation

A rotational crop study conducted on cereal, legume and root crops planted at 30, 60, 90, 120 and 365 days after treatment has been previously submitted. Methiocarb was applied to bare soil at rates of 20, 40, 80 and 160 oz ai/acre (equivalent to approximately 1.4, 2.8, 5.6 and 11.2 kg ai/ha). Rates are considerably higher than the highest Australian rate of 440 g ai/ha. At the 1.4 kg ai/ha application rate, residues were not detected. Residues are not expected to occur in rotational crops.

3 DIETARY RISK ASSESSMENT

3.1 Chronic dietary exposure assessment

The chronic dietary exposure to methiocarb is estimated by the National Estimated Daily Intake (NEDI) calculation encompassing all registered/temporary uses of the chemical and the mean daily dietary consumption data derived primarily from the 2011–2012 National Health and Physical Activity Survey. The NEDI calculation is made in accordance with WHO Guidelines² and is a conservative estimate of dietary exposure to chemical residues in food. The NEDI for methiocarb is equivalent to <40 % of the ADI. The HARVEST³ model estimated the chronic dietary exposure of methiocarb as < 40 % of the ADI for the general population. It is concluded that the chronic dietary exposure of methiocarb is acceptable.

3.2 Acute dietary exposure assessment

The acute dietary exposure is estimated by the National Estimated Short Term Intake (NESTI) calculation. The NESTI calculations are made in accordance with the deterministic method used by the JMPR with 97.5th percentile food consumption data derived primarily from the 2011–2012 National Health Survey. NESTI calculations are conservative estimates of short-term exposure to chemical residues in food.

The acute dietary intake associated with the uses supported by residues data are summarised below:

Food commodity	MRL	NESTI (% ARfD)	
		Children (2-6 yrs)	General Pop (2+ yrs)
Edible offal (Mammalian)	*0.05	<1	<1
Meat [mammalian]	*0.05	11	6
Milks	*0.005	8	3
Eggs	*0.05	5	2
Poultry, Edible offal of	*0.05	8	2
Poultry, meat	*0.05	13	7
Cereal grains	*0.06	5	4
Cereal grain fractions		13	5
Early milling products		8	4
Grapes	*0.06	22	28
Grapes, for juice		22	9
Grapes, for wine		-	33
Strawberry	*0.06	9	3
Citrus fruits	*0.06	60	21
Oranges for juice		41	19

² WHO (2008). Consultations and workshops: Dietary Exposure Assessment of Chemicals in Food: Report of a joint FAO/WHO Consultation, Annapolis, Maryland, USA, 2-6 May 2005.

³ HARVEST is a computer dietary modelling program based upon statistical software that is used by FSANZ.

Food commodity	MRL	NESTI (% ARfD)	
		Children (2-6 yrs)	General Pop (2+ yrs)
Mandarins		21	8
Oranges		60	21
Lemon		9	6
Oilseeds	*0.06	2	1
Peanut		2	1
Brassica vegetables	0.1	59	25
Cabbages, head		59	25
Broccoli		57	17
Cauliflower		59	19
Brussels sprouts		20	6
Leafy vegetables	0.49	139	66
Brassica leafy vegetables (pak choi)	(HR)	139	151
Lettuce, Head	0.2	39	14
Potato	*0.06	41	17
Asparagus	*0.06	24	3

The acute dietary exposure calculations for leafy vegetables based on the HR of 0.49 mg/kg, the ARfD of 0.005 mg/kg bw/day and the Australian large portion consumption values, shows that the acute dietary exposure for leafy vegetables exceeds the acute reference dose for children (2–6 years) and the general population (2+ years). With the exception of head lettuce, the continued use on leafy vegetables is not supported due to acute dietary exposure concerns.

With the exclusion of the leafy vegetable crop group (other than head lettuce), the acute exposure for the uses of methiocarb supported by residues data is acceptable.

4 RESIDUE RELATED ASPECT OF TRADE

Citrus fruit, grapes (including dried grapes and wine) and animal commodities are considered to be major trade commodities. Finite residues of methiocarb are not expected in citrus, grapes or animal commodities, and MRLs at the LOQ are recommended. It is therefore considered that the use of methiocarb as directed is unlikely to pose an undue risk to trade.

The following statement is on the Mesurol Snail and Slug Bait label and is considered appropriate:

Export of treated produce: Growers should note that MRLs or import tolerances do not exist in all markets for edible produce treated with Mesurol. If you are growing edible produce for export, please check with Bayer CropScience Pty Ltd for the latest information on MRLs and import tolerances BEFORE using Mesurol.

5 CONCLUSIONS

All registered products containing methiocarb, which are *Mesurool Snail and Slug Bait (33274)* and *Baysol Snail and Slug Bait (51851)*, have been considered in the residues evaluation for the review of methiocarb.

The available metabolism, residue trial data, analytical methodology, fate in storage and processing data, and residues in trade information, including that submitted by the applicant, has been considered to assess the application against the safety and trade criteria, while noting the requirements of section 1A, of the *Agricultural and Veterinary Chemicals Code Act 1994* (the Code Act). The use of the product has been considered according to the proposed label instructions which can be found in detail at *1.2 label and maximum treatment regime*.

5.1 Assessment against the Safety Criteria

The proposed use has been assessed according to the safety criteria as defined by section 5A of the Code Act. Subject to implementation of all required alterations to the application listed below, and imposition of any identified conditions of registration, the APVMA should be satisfied that, with respect to residues, the proposed use meets the safety criteria as defined by s5A(1)(a) & (b) of the Code. In making this recommendation, the requirements of s5A(3)(a) (i), (v), (vi) & (vii); s5A(3)(b) (i), (ii) and (vi); and 5D(1) (a) thru (e) have been considered.

5.1.1 Required alterations

No alterations to the Baysol Snail and Slug Bait label are required to meet the safety criteria.

The following alterations to the Mesurool Snail and Slug Bait label are required to meet the safety criteria:

- Delete the critical comment “when applying in vegetable crops, ensure pellets do not become lodged in plant foliage”.
- Delete the precaution “Avoid application of pellets to foliage of edible crops”.
- Add the restraint “DO NOT apply directly onto edible plants or to crops where baits may be collected with harvested commodities.
- Add the restraint “DO NOT apply to cereal or oilseed crops after crop emergence”.
- Move the statement “DO NOT treat areas on which poultry graze” from protection of livestock to the withholding period section of the label.
- Change the grazing for cereals, oilseeds and pastures WHP from 7 days to 28 days.
- Change the WHP headings from “Edible crops” and “Treated areas” to “Harvest” and “Grazing” respectively.
- Add the words “treated areas” to the grazing WHP.

- The 11–22 kg/ha (220–440 g ai/ha) rate is only supported for citrus, grapes, strawberries and ornamentals (not a food crop).
- The 5.5 kg/ha (110 g ai/ha) rate is also supported for cereals, oilseeds, pastures, artichoke, brassica vegetables, head lettuce and potato.
- The restraint 'DO NOT graze treated orchards or vineyards' is recommended for a label if it includes the 440 g ai/ha rate for grapevines and citrus orchards.

The following use pattern is supported from a residues perspective:

Mesuroi® Snail and Slug Bait (20 g/kg methiocarb)

Crop	Pest	Rate	Critical Comments
Citrus, Grapes, Strawberries, ornamentals	Common garden snail, slugs	5.5 kg/ha (110 g ai/ha)	For most infestations apply low rate. For heavy infestations or where pasture is tall or dense apply higher rate. Scatter bait evenly onto ground where snails or slugs occur. DO NOT HEAP PELLETS. Equipment such as fertiliser spinners, combines or sod seeders are satisfactory for spreading the pellets and can easily be calibrated to apply 5.5 kg/ha. Gloves should be worn when pellets are spread by hand.
	White Italian snail, white snail (not Qld)	or 11-22 kg/ha (220-440 g ai/ha)	
Cereals, Oilseeds, Pastures, Artichoke, Brassica vegetables, Head lettuce, and Potato	Common garden snail, slugs	5.5 kg/ha (110 g ai/ha)	Scatter bait evenly onto ground where snails or slugs occur. DO NOT HEAP PELLETS. Equipment such as fertiliser spinners, combines or sod seeders are satisfactory for spreading the pellets and can easily be calibrated to apply 5.5 kg/ha. Gloves should be worn when pellets are spread by hand. Cereals and Oilseeds: DO NOT apply after crop emergence.
	White Italian snail, white snail (not Qld)		
Sunflowers (Qld, SA only)	False wireworm beetle	2.5 kg/ha (50 g ai/ha) (10 pellets/m ²)	Apply Mesuroi 1-3 days after sowing. Scatter bait evenly onto ground where false wireworm beetles occur. DO NOT HEAP PELLETS.

Restrains:

DO NOT apply directly onto edible plants or to crops where baits may be collected with harvested commodities.

DO NOT apply to cereals or oilseeds after crop emergence.

Withholding periods:**Harvest:**

Cereals and Oilseeds: Not required when used as directed.

Artichoke, Brassica vegetables, Citrus, Grapes, Head lettuce, Strawberries, Potato: DO NOT harvest for 7 DAYS after application.

Grazing:

Cereals, oilseeds and pastures: DO NOT graze or cut treated areas for stock food for 28 DAYS after application.

DO NOT treat areas on which poultry graze.

DO NOT graze treated orchards or vineyards.

Export of treated produce:

Growers should note that MRLs or import tolerances do not exist in all markets for edible produce treated with Mesurol. If you are growing edible produce for export, please check with Bayer CropScience Pty Ltd for the latest information on MRLs and import tolerances BEFORE using Mesurol.

5.1.2 Required amendments to the Agricultural and Veterinary Chemical Code Instrument No. 4 (MRL Standard) 2012

In considering the requirements of s5A(3)(b)(iii) of the Code, the following amendments will be made to the MRL Standard:

Table 1

COMPOUND	FOOD	MRL (mg/kg)
Methiocarb		
<u>DELETE:</u>		
FC 0001	Citrus Fruits	0.1
	Fruits (except citrus fruits; grapes)	T0.1
FB 0269	Grapes	0.5
	Vegetables	0.1
	Wine	0.1

COMPOUND	FOOD	MRL (mg/kg)
ADD:		
VS 0620	Artichoke, globe	*0.06
VB 0040	Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassica	0.1
GC 0080	Cereal grains	*0.06
FC 0001	Citrus fruits	*0.06
MO 0105	Edible offal (Mammalian)	*0.05
PE 0112	Eggs	*0.05
FC 0004	Grapes	*0.06
VL 0482	Lettuce, Head	0.2
MM 0095	Meat [mammalian]	*0.05
ML 0106	Milks	*0.005
SO 0088	Oilseeds	*0.06
VR 0589	Potato	*0.06
PO 0111	Poultry, Edible offal of	*0.05
PM 0110	Poultry meat	*0.05
FB 0275	Strawberries	*0.06

Table 4

COMPOUND	Animal Feed Commodity	MRL (mg/kg)
Methiocarb		
ADD:		
	Primary feed commodities	1

Table 5

Substance	Use
DELETE	
Methiocarb	
	<ul style="list-style-type: none"> In baits for the control of garden pests {T} in baits for the control of gardens pests on herbs, lemon balm, lemon grass, kaffir lime leaves, lemon verbena and tumeric.

5.2 Assessment against the Trade Criteria

The proposed use has been assessed according to the trade criteria as defined by section 5C of the Code Act. It is recommended that APVMA should be satisfied that, with respect to residues, the proposed use meets the trade criteria as defined by s5C(1) of the Code. In making this recommendation, the requirements of s5C(2), (3) and 5D(1) (a) thru (e) have been considered.