

Trade Advice Notice

on

Spirotetramat

in the product

Movento 240 SC Insecticide

[APVMA Product Number 61864]

August 2009

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1. PREFACE

1.1 About this Document

This is a Trade Advice Notice.

It indicates that the Australian Pesticides and Veterinary Medicines Authority (APVMA) is considering an application for registration of an agricultural or veterinary chemical. It provides a summary of the APVMA's residue and trade assessment.

Comment is sought from industry groups and stakeholders on the information contained within this notice.

The APVMA will only consider comment on submissions that relate to the **trade implications** of the proposed use of the product. Comments received on matters other than trade implications will not be considered by the APVMA. Comments received on appropriate grounds will be considered with details posted on the APVMA website noting what action has/will be taken in regard to concerns.

Any advice the APVMA receives through this consultation, which it relies on to grant this application will be noted in a subsequent Advice Summary.

Advice Summaries can be found at:

http://www.apvma.gov.au/registration/data_requirements_subpage.shtml

1.2 Prior to Submission

Please note that subject to the *Freedom of Information Act 1982*, the *Privacy Act 1988* and the Agvet Codes all submissions received may be made publicly available. They may be listed or referred to in any papers or reports prepared on this subject matter.

The APVMA reserves the right to reveal the identity of a respondent (you) unless a request for anonymity accompanies your submission. If no request for anonymity is made, you will be taken to have consented to the disclosure of your identity for the purposes of Information Privacy Principle 11 of the *Privacy Act 1988*.

The contents of any submission will not be treated as confidential or confidential commercial information unless they are marked as such and you have provided justification such that the material is capable of being classified as confidential or confidential commercial information in accordance with the *Freedom of Information Act 1982* or the Agvet Codes as the case may be.

1.3 About this consultation

The APVMA invites comment on this Trade Advice Notice until the 7 September 2009. Submissions should be addressed to:

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2. INTRODUCTION

The Australian Pesticides and Veterinary Medicines Authority (APVMA) has before it an application from Bayer CropScience Pty Ltd to register the foliar insecticide Movento 240 SC Insecticide (240 g/L spirotetramat) for the control of various insect pests in mango, citrus and onions.

A category 1 application (ATS No: 41736), for the registration of the active constituent spirotetramat and for the control of silverleaf whitefly in brassica vegetable crops has been finalised and the product registered. A category 11 application (ATS no: 45286) seeking to vary the use of Movento 240 SC Insecticide to include an additional range of vegetable crops was submitted in June 2008 and is currently under consideration.

The potential for spirotetramat residues resulting from the proposed use of Movento 240 SC Insecticide to unduly prejudice Australian trade is discussed below.

2.1 Proposed Use

The proposed use pattern for Movento 240 SC Insecticide is presented below:

Movento 240 SC Insecticide (240 g/L spirotetramat)

Crop	Pest	Rate	WHP	Critical Comments
Citrus	Red scale, mussel scale, white louse scale (citrus snow scale)	<u>Dilute spraying</u> 20-30 mL/100 L water plus adjuvant* (4.8-7.2 g ai/ 100L water)	21 days	Monitor crops and commence applications after flowering at the onset of crawler emergence or when pest numbers reach economic threshold. Continue to monitor crops and apply a second application 21-35 days after the first application if required. Where applicable, use the higher rate under high pest pressure or to provide longer residual control. For red scale the higher rate will provide control of an established population of the pest. A total of three applications can be made in citrus in a twelve month period, however no more than two applications should be made within 90 days of harvest. Apply thoroughly to ensure complete coverage using dilute spraying equipment (concentrate spraying is not appropriate for this use). * Add a specified spray adjuvant. Refer to the Adjuvant section in GENERAL INSTRUCTIONS.
	Soft brown scale	<u>Dilute spraying</u> 30 mL/100 L water plus adjuvant* (7.2 g ai/ 100L water)		
	Pink wax scale, citrus mealybug (suppression only)	<u>Dilute spraying</u> 30-40 mL/100 L water plus adjuvant* (7.2-9.6 g ai/ 100L water)		

	Kelly's citrus thrips	<u>Dilute spraying</u> 30-40 mL/100 L water plus adjuvant* (7.2-9.6 g ai/ 100L water)		<p>Monitor crops from flowering onwards for the presence of Kelly's citrus thrips. Apply Movento, after flowering, once local pest thresholds are reached. A single application may be suitable where thrips pressure is low. Continue to monitor crops and where thrips pressure is moderate to high apply a second application, no less than 14 days after the first, and prior to calyx closure.</p> <p>Use the higher rate under high pest pressure or to provide longer residual control.</p> <p>Overlapping cropping situations e.g. lemons, Valencia oranges: If any maturing fruits is present on the tree and is within six weeks of harvest, a second application for control of Kelly's citrus thrips should be at least 21 days after the first and ideally prior to calyx closure.</p> <p>A total of three applications can be made in citrus in a twelve month period, however no more than two applications should be made within 90 days of harvest.</p> <p>Apply thoroughly to ensure complete coverage using dilute spraying equipment (concentrate spraying is not appropriate for this use).</p> <p>* Add a specified spray adjuvant. Refer to the Adjuvant section in GENERAL INSTRUCTIONS.</p>
Mangoes (post flowering applications)	Mango scale, citrus mealybug (suppression only)	<p><u>Fruit less than 50 mm diameter</u> <u>Dilute spraying</u> 30-40 mL/100 L water plus adjuvant* (7.2-9.6 g ai/ 100L water) or 40 mL/100 L water <u>without</u> adjuvant** (9.6 g ai/ 100L water) <u>Fruit greater than 50 mm diameter</u> 40 mL/100 L water <u>without</u> adjuvant** (9.6 g ai/ 100L water)</p>	14 days	<p>Monitor crops and commence applications from immediately after flowering coinciding with crawler emergence. Continue to monitor crops and apply a second application 21-35 days after the first application in required. Use the higher rate under high pest pressure or to provide longer residual control.</p> <p>Apply no more than two applications post flowering.</p> <p>Do not apply an adjuvant with Movento 240 SC for applications to fruit greater than 50 mm diameter.</p> <p>** When Movento 240 SC is applied without an adjuvant for the control of mango scale or citrus mealybug, lower levels of control may be evident.</p> <p>Apply thoroughly to ensure complete coverage using dilute spraying equipment (concentrate spraying is not appropriate for this use).</p> <p>* Add a specified spray adjuvant. Refer to the Adjuvant section in GENERAL INSTRUCTIONS.</p>

	Pink wax scale	<p><u>Fruit less than 50 mm diameter</u> <u>Dilute spraying</u> 30-40 mL/100 L water plus adjuvant* (7.2-9.6 g ai/ 100L water)</p> <p><u>Fruit greater than 50 mm diameter</u> Not recommended</p>		
Mangoes (post harvest applications)	Mango scale, pink wax scale	<p><u>Dilute spraying</u> 30-40 mL/100 L water plus adjuvant* (7.2-9.6 g ai/ 100L water)</p> <p><u>Concentrate spraying</u> Refer to the Application Section</p>	-	<p>Apply after harvest and after tree pruning (if performed) to ensure good scale control on new growth. Use the higher rate under high pest pressure or to provide longer residual control.</p> <p>Apply thoroughly to ensure complete coverage. Apply by dilute or concentrate spraying equipment. Apply the same total amount of product to the target crop whether applying this product by dilute or concentrate spraying methods. For concentrate spraying, do not use at rates greater than two times the dilute spraying rate (i.e. at a concentration factor greater than 2X).</p> <p>* Add a specified spray adjuvant. Refer to the Adjuvant section in GENERAL INSTRUCTIONS.</p>
Onions	Onion thrips (<i>Thrips tabaci</i>)	200 mL/ha plus adjuvant * (48 g ai / ha)	7 days	<p>Movento 240 SC is not highly effective against the adult stage of onion thrips, however a decline in the total thrips population will occur over time as the juvenile stages are controlled.</p> <p>Monitor crops and commence applications once local thresholds are reached.</p> <p>Continue to monitor crops and make a subsequent application as necessary. Do not re-apply within 14 days of a previous Movento spray.</p> <p>Do not apply more than 2 applications per crop.</p> <p>* Add a specified spray adjuvant. Refer to the Adjuvant section in GENERAL INSTRUCTIONS.</p>

Withholding periods

Citrus: Do not harvest for 21 DAYS after application.

Mangoes: Do not harvest for 14 DAYS after application.

Onions: Do not harvest for 7 DAYS after application.

Export of treated produce

Growers should note that suitable MRLs or import tolerances do not exist in all markets for produce treated with Movento 240 SC. In some situations export requirements may be met by limiting application number and/or imposing a longer withholding period than specified above. If you are growing produce for export, please check with Bayer CropScience Pty Ltd or your industry body for the latest information on any potential trade issues and their management before using Movento 240 SC.

2.2 Current and Proposed Australian MRLs for Spirotetramat

Current MRLs and residue definition for spirotetramat are presented below.

Table 1

Compound	Food	MRL (mg/kg)	
Spirotetramat	VB 0040	Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassicas [except Brussels sprouts]	T7 ¹
	VB 0402	Brussels sprouts	T1 ¹
	FC 0001	Citrus fruits	T1
	SO 0691	Cotton seed	T1
	MO 0105	Edible offal (mammalian)	T0.05 ¹
	FI 0345	Mango	T0.3
	VC 0045	Fruiting vegetables, Cucurbits	T2
	VL 0482	Lettuce, Head	T5
	VL 0483	Lettuce, Leaf	T10
	MM 0095	Meat (mammalian)	T*0.01 ¹
	ML 0106	Milks	T*0.005 ¹
	VA 0385	Onion, Bulb	T0.5
	VO 0445	Peppers, Sweet [capsicums]	T5
	VO 0448	Tomato	T7

Table 3

Compound	Residue
Spirotetramat	<p>{T} For enforcement for commodities of plant and animal origin: Sum of spirotetramat, and cis-3-(2,5-dimethylphenyl)-4-hydroxy-8-methoxy-1-azaspiro[4.5]dec-3-en-2-one, expressed as spirotetramat.</p> <p>{T} Commodities of plant origin for dietary exposure assessment: Sum of spirotetramat, cis-3-(2,5-dimethylphenyl)-4-hydroxy-8-methoxy-1-azaspiro[4.5]dec-3-en-2-one, cis-3-(2,5-dimethylphenyl)-3-hydroxy-8-methoxy-1-azaspiro[4.5]decane-2,4-dione, cis-3-(2,5-dimethylphenyl)-4-hydroxy-8-methoxy-1-azaspiro[4.5]decan-2-one and the glucoside of cis-3-(2,5-dimethylphenyl)-4-hydroxy-8-methoxy-1-azaspiro[4.5]dec-3-en-2-one, expressed as spirotetramat.</p> <p>{T} Commodities of animal origin for dietary exposure assessment: Sum of spirotetramat, cis-3-(2,5-dimethylphenyl)-4-hydroxy-8-methoxy-1-azaspiro[4.5]dec-3-en-2-one and the glucuronic acid conjugate of cis-3-(2,5-dimethylphenyl)-4-hydroxy-8-methoxy-1-azaspiro[4.5]dec-3-en-2-one, expressed as spirotetramat.</p>

¹ Please note that these MRLs will be published as permanent MRLs in the September 2009 Gazette as a result of the category 1 application being finalised in August 2009.

The following amendments to the MRL Standard are proposed. MRLs in Table 1 will be recommended for inclusion in the Australia New Zealand Food Standards Code:

Table 1

Compound	Food	MRL (mg/kg)	
DELETE:			
Spirotetramat	FC 0001	Citrus fruits	T1
	FI 0345	Mango	T0.3
	VA 0385	Onion, Bulb	T0.5
ADD:			
Spirotetramat	FC 0001	Citrus fruits	1
	FI 0345	Mango	0.3
	VA 0385	Onion, Bulb	0.5

Table 4

Compound	Animal feed commodity	MRL (mg/kg)	
ADD:			
Spirotetramat	AB 0001	Citrus pulp, dry	2

3. TRADE CONSIDERATIONS

3.1 Commodities Exported

Export commodities relevant to the consideration are mangoes, citrus fruits, onions and livestock commodities derived from animals fed on citrus pulp. Residues in these commodities resulting from the use of Movento have the potential to unduly prejudice trade.

3.2 Destinations and Value of Exports

Mango

In 2007/2008 Australia exported \$11 million worth of mango. The major export markets are summarised below.

Table 1: Export Markets for Australian mangoes in 2007/2008

Destination	Value, \$'000
Hong Kong	3,715.9
Japan	2,082.9
Singapore	1,492.6
New Zealand	855.2
United Arab Emirates	679.5
Malaysia	547.5
Qatar	313.7
Netherlands	311.6
Lebanon	305.2
Canada	94.9
Other	615.5
Total	11,015

Citrus

In 2007/2008 Australia exported \$172 million worth of citrus. The major export markets are summarised below.

Table 2: Export Markets for Australian citrus in 2007/2008

Destination	Value, \$ million
United States	52.2
Hong Kong	30.5
Japan	20.1
Malaysia	9.2
United Arab Emirates	8.4
New Zealand	7.9
Singapore	6.6
Indonesia	5.9
United Kingdom	4.5
Canada	4.2
Other	22.1
Total	171.4

Onion

In 2007/2008 Australia exported \$28 million worth of citrus. The major export markets are summarised below.

Table 3: Export Markets for Australian onion in 2007/2008

Destination	Value, \$ million
Germany	7.8
France	2.5
Spain	2.5
Italy	2.5
United Kingdom	2.2
Belgium	2.0
Japan	2.0
Other	6.4
Total	27.9

Animal Commodities

Animal commodities derived from livestock fed that are fed citrus pulp are considered to be major export commodities.

The value and destinations of Australian exports of beef, mutton, lamb and dairy products are summarised in the following tables.

Table 4: Value of Australian beef exports from 2000 – 2007.

	2000	2001	2002	2003	2004	2005	2006	2007
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Beef and veal								
Americas								
Canada	148.1	204.4	320.2	110.9	38.1	32.6	43.8	51.2
United States	1 172.8	1 699.7	1 593.6	1 332.3	1 374.4	1 186.4	1 180.7	1 136.3
Asia								
Chinese Taipei	116.7	132.6	152.3	126.7	124.2	148.3	134.6	117.4
Hong Kong, China	18.2	17.8	17.1	15.0	27.3	18.7	13.5	21.5
Indonesia	40.8	37.2	46.1	38.4	26.7	33.5	39.0	83.3
Japan	1 537.3	1 728.2	1 237.7	1 384.4	2 189.9	2 244.7	2 172.1	1 844.0
Korea, Rep. of	221.8	228.9	320.4	250.7	434.4	494.8	734.7	725.6
Malaysia	15.0	16.0	20.2	15.9	12.1	7.8	10.0	17.1
Philippines	34.3	55.8	36.1	23.0	4.3	5.9	3.7	7.2
Singapore	18.5	20.4	20.8	22.5	17.3	15.5	19.2	29.7
Europe								
European Union	37.3	48.4	53.5	49.2	62.8	56.8	77.2	61.6
CIS	3.8	14.4	2.9	0.7	2.0	4.6	61.0	32.2
Eastern Europe	6.3	1.2	9.1	4.5	1.3	0.4	0.4	0.1
Middle East								
Kuwait	0.3	4.6	1.8	9.8	3.4	1.0	0.9	2.3
Saudi Arabia	2.1	23.0	11.6	7.8	3.1	1.7	4.5	3.0
United Arab Emirates	4.4	11.6	10.9	7.8	12.0	13.7	15.6	20.4
Oceania								
New Zealand	11.1	6.3	25.6	15.9	9.8	8.8	8.0	7.8
Pacific Isles	5.2	7.2	7.4	5.4	4.5	4.0	6.3	10.0
Papua New Guinea	14.1	11.5	9.8	4.9	5.2	4.3	5.8	7.6
Total beef and veal	3 464.0	4 357.3	4 002.6	3 475.4	4 390.3	4 346.6	4 604.0	4 258.1
a Regarded as fifteen countries to May 2004, twenty five countries from June 2004, then twenty seven countries from January 2007. Source: Department of Agriculture, Fisheries and Forestry, <i>Export Statistics, Livestock Exports</i> , Canberra; ABS, <i>International Trade</i> , Australia, cat. no. 5465.0, Canberra								

Table 5: Value of Australian sheep exports from 2000 – 2007.

	2000	2001	2002	2003	2004	2005	2006	2007
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Mutton a								
Canada	4.6	6.8	5.2	3.6	5.8	5.4	7.1	2.9
Chinese Taipei	26.3	36.9	48.9	32.2	41.9	34.8	29.8	23.2
CIS	3.1	3.7	5.4	1.3	5.8	13.5	33.1	23.5
European Union b	34.1	42.0	41.4	28.1	43.2	48.3	46.7	40.3
Japan	34.0	42.7	51.1	29.9	47.1	38.1	31.5	29.9
Korea, Rep. of	1.7	2.3	3.3	2.2	3.1	3.1	2.9	2.6
Malaysia	16.5	21.7	22.9	15.9	22.6	18.5	25.1	21.8
Papua New Guinea	6.2	7.4	6.6	6.1	5.1	5.2	4.2	6.5
Saudi Arabia	43.9	90.1	77.5	65.0	53.0	63.9	67.3	58.9
Singapore	18.4	23.4	23.2	20.4	22.0	18.6	19.5	19.3
South Africa	46.3	30.9	17.6	11.1	14.1	18.7	29.2	21.8
United States	43.9	56.4	64.7	67.9	48.6	44.4	50.2	43.2
Other	97.1	146.3	152.0	91.7	113.6	119.7	141.3	135.2
Total	376.4	510.6	519.7	375.3	426.0	432.0	487.9	429.2
Lamb								
European Union b	74.3	105.7	89.3	96.9	93.4	83.9	85.6	82.2
Japan	30.7	37.0	40.8	42.3	53.5	79.1	83.0	56.0
Papua New Guinea	16.0	18.0	15.7	14.4	17.3	19.4	20.0	23.8
South Africa	15.3	5.5	1.2	2.1	3.5	5.3	9.0	7.5
United Arab Emirates	24.2	27.4	31.6	29.9	27.0	32.8	47.1	56.4
United States	150.2	219.9	218.2	257.5	259.9	324.2	319.0	328.4
Other	137.0	165.7	169.5	159.8	184.7	233.1	229.4	268.0
Total	447.7	579.1	566.2	602.9	639.3	777.8	793.2	822.3
a Includes young sheep and hoggets. b Regarded as twenty five countries Sources: ABS, <i>International Trade</i> , Australia, cat. no. 5465.0, Canberra.								

Table 6: Value of Australian dairy exports from 2001 – 2008.

	Unit	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Cheese								
Japan	\$m	429.5	272.0	299.6	378.9	298.5	337.9	426.7
Philippines	\$m	20.0	15.7	11.1	18.4	13.7	13.1	23.4
Saudi Arabia	\$m	148.2	98.9	69.0	81.5	103.5	86.7	89.7
United Kingdom	\$m	21.5	15.2	18.3	20.5	20.1	14.8	21.2
United States	\$m	48.3	36.1	33.9	45.4	54.2	52.7	37.2
Other	\$m	367.3	362.4	307.4	332.0	347.2	319.0	370.1
Total	\$m	1 034.8	800.3	739.2	876.7	837.2	824.2	968.3
Butter and butterfat ^a								
Egypt	\$m	23.5	18.9	6.4	10.5	12.5	13.9	5.0
Malaysia	\$m	14.4	12.7	13.5	11.6	15.8	11.0	17.4
Philippines	\$m	5.1	3.7	1.9	2.8	5.4	3.2	2.4
Singapore	\$m	20.4	15.5	18.2	16.8	21.1	14.4	26.2
Thailand	\$m	23.0	13.2	12.7	13.5	12.0	9.8	13.9
Other	\$m	211.1	160.0	130.1	133.2	157.9	126.2	129.6
Total	\$m	297.5	224.0	182.9	188.5	224.7	178.6	194.6
Skim milk powder								
Japan	\$m	53.7	29.6	13.3	10.6	12.5	11.1	9.8
Malaysia	\$m	88.4	51.4	52.7	64.2	77.1	72.2	63.4
Philippines	\$m	143.5	71.8	60.1	49.4	72.0	46.1	64.1
Singapore	\$m	52.8	38.4	42.4	57.8	56.1	67.1	61.8
Thailand	\$m	69.1	33.2	20.0	21.7	76.8	51.1	48.6
Other	\$m	290.5	184.1	199.0	216.4	234.3	257.3	285.6
Total	\$m	698.0	408.5	387.5	420.1	528.9	505.0	533.2
Casein								
Japan	\$m	26.7	20.6	23.3	23.1	30.4	31.8	38.4
United States	\$m	80.5	81.4	68.8	56.6	27.3	32.4	42.2
Other	\$m	15.5	26.4	30.5	36.5	31.3	49.3	44.2
Total	\$m	122.6	128.4	122.5	116.2	89.0	113.5	124.8
Wholemilk powder								
Malaysia	\$m	39.2	22.3	28.9	33.1	23.8	14.5	27.3
Singapore	\$m	29.7	25.2	21.4	30.9	44.6	41.4	88.9
Taiwan	\$m	54.1	44.9	40.0	31.5	22.8	13.5	11.8
Thailand	\$m	22.6	14.0	12.0	8.6	10.5	12.3	14.7
Other	\$m	425.5	273.4	219.6	220.3	231.9	193.1	249.4
Total	\$m	571.1	379.8	321.8	324.4	333.6	274.9	392.2
Other products								
Fresh milk	\$m	98.2	98.2	104.0	108.8	107.3	96.3	83.6
Other fresh products	\$m	7.9	5.6	9.6	9.1	6.3	11.8	12.0
Condensed milk	\$m	123.7	133.3	121.0	139.8	147.5	156.9	152.4
Other powders	\$m	277.3	274.4	257.3	248.3	241.5	211.0	247.4
Total	\$m	507.0	511.5	492.0	506.0	502.6	476.0	495.4

^a Includes ghee, dry butterfat, butter concentrate and butter oil, all expressed as butter.
Source: ABS, *International Trade*, Australia, cat. no. 5465.0, Canberra.

3.3 Results from Residues Trials Presented to the APVMA

Details of 8 Australian mango trials, 12 Australian citrus trials and 8 Australian onion trials were provided. Results from a previously submitted animal transfer study and citrus processing studies were also considered.

In each trial, residues of spirotetramat, as well as its metabolites spirotetramat-enol, spirotetramat-keto-hydroxy, spirotetramat-mono-hydroxy and spirotetramat-enol-

glucoside were determined. Results are expressed below in accordance with the Australian residue definition for dietary risk assessment ('Total' residues; sum of spirotetramat and spirotetramat-enol, spirotetramat-keto-hydroxy, spirotetramat-mono-hydroxy and spirotetramat-enol-glucoside expressed as spirotetramat) and enforcement (sum of spirotetramat and spirotetramat-enol). A number of markets utilise a residue definition for enforcement purposes that is equivalent to the Australian definition for dietary risk assessment.

Citrus: The proposed use on citrus involves a maximum of 3 applications at the rate of 9.6 g ai/100L with a 21-day withholding period. The highest residues that resulted from the proposed GAP, at or beyond the proposed withholding period (WHP), in each Australian citrus trial are summarised in Table 7.

Table 7: Summary of Australian citrus residue trials.

Commodity	Max. Rate (applications)	WHP (days)	Residues* (Total [†]) (mg/kg)	Residues* (spirotetramat + spirotetramat-enol [‡]) (mg/kg)
Orange	9.6 g ai/100L (3)	21	0.22, 0.29, 0.29 ⁺ , 0.37, 0.38, 0.71	0.15, 0.22, 0.23 ⁺ , 0.26, 0.28, 0.54
Mandarin	9.6 g ai/100L (3)	21	0.16, 0.59 ⁺ , 0.60	0.07, 0.19, 0.47 ⁺
Lemon	9.6 g ai/100L (3)	21	0.33, 0.35, 0.60	0.25, 0.27, 0.50
Highest Residue (Group)			0.71	0.54

* Highest residue observed in individual trials at or after WHP

⁺ Samples were treated with only two applications at the rate of 10.8 g ai/100L

[†] Sum of spirotetramat and spirotetramat-enol, spirotetramat-keto-hydroxy, spirotetramat-mono-hydroxy and spirotetramat-enol-glucoside expressed as spirotetramat

[‡] Expressed as spirotetramat

A spirotetramat MRL of 1 mg/kg is recommended for citrus (FC 0001).

Processing: In the European and US processing studies transfer factors of 1.4× and 1.3× were observed for the total spirotetramat residue in dried pomace and pulp respectively. The transfer factors for the parent + enol (the enforcement residue definition) were 1.5x and 1.2x in dried pomace and pulp respectively. Applying the transfer factor of 1.5× to the highest BYI 08330 + BYI 08330-enol residue of 0.54 mg/kg gives a maximum predicted residue of 0.81 mg/kg in dry citrus pulp. A Table 4 entry for spirotetramat of 2 mg/kg for citrus pulp, dry (AB 0001) is recommended.

Mango: The highest residues in each trial resulting from treatment approximating the proposed GAP are summarised in Table 8.

Table 8: Summary of Australian mango residue trials.

Commodity	Max. Rate (applications)	WHP (days)	Residues* (Total†) (mg/kg)		Residues* (spirotetramat + spirotetramat-enol‡) (mg/kg)	
			Peel + pulp	Whole Fruit	Peel + pulp	Whole Fruit
Mango	9.6 g ai/100L (2)	14	<0.11, 0.11, 0.14, 0.15, 0.17, 0.25	<0.09, 0.09, 0.12, 0.13, 0.15, 0.22	<0.04, 0.04, 0.07, 0.08, 0.08, 0.18	<0.04, 0.04, 0.06, 0.07, 0.07, 0.16
Highest Residue (Group)			0.25	0.22	0.18	0.16

* Highest residue observed in individual trials at or after WHP

† Sum of spirotetramat and spirotetramat-enol, spirotetramat-keto-hydroxy, spirotetramat-mono-hydroxy and spirotetramat-enol-glucoside expressed as spirotetramat

‡ Expressed as spirotetramat

A spirotetramat MRL of 0.3 mg/kg is recommended for mango (FI 0345).

Onion: The highest residues in each trial resulting from treatment approximating the proposed GAP are summarised in Table 9.

Table 9: Summary of Australian onion residue trials.

Commodity	Max. Rate (applications)	WHP (days)	Residues* (Total†) (mg/kg)	Residues* (spirotetramat + spirotetramat-enol‡) (mg/kg)
Onion	48 g ai/ha (2)	7	<0.11, <0.11, <0.11, <0.11, 0.11, 0.16, 0.15, 0.27	<0.04, <0.04, <0.04, <0.04, 0.04, 0.08, 0.10, 0.21
Highest Residue			0.27	0.21

* Highest residue observed in individual trials at or after WHP

† Sum of spirotetramat and spirotetramat-enol, spirotetramat-keto-hydroxy, spirotetramat-mono-hydroxy and spirotetramat-enol-glucoside expressed as spirotetramat

‡ Expressed as spirotetramat

A spirotetramat MRL of 0.5 mg/kg is recommended for onion, bulb (VA 0385).

Animal commodity MRLs: An animal feeding study was provided where residues of spirotetramat and its metabolites spirotetramat-enol and spirotetramat-enol-glucoside were determined in lactating dairy cows following administration of spirotetramat at levels equivalent to 3 ppm, 9 ppm and 30 ppm in the feed for 29 days. Citrus pulp may be fed to livestock at up to 30% of the diet. The estimated livestock burden is summarised below.

Cattle- 500 kg bw, 20 kg DM/day

Commodity	% in diet	Feed intake	Residue (STMR-P), mg/kg	% DM	Livestock dietary exposure		
					mg/animal	ppm	mg/kg bw
Citrus Pulp	30	20	0.504	91	3.23	0.17	0.0066

Residues in tissues and milk at a feeding level of 3 ppm, estimated residues at a maximum dietary burden of 0.17 ppm, and the current MRLs are summarised below.

Sample	Total spirotetramat residues after dosing at 3 ppm (mg/kg)	Estimated Residue (based on HR; mg/kg)	Proposed MRL (mg/kg)
Liver	0.0058, 0.0089, 0.0090	0.00051	0.05
Kidney	0.0193, 0.0194, 0.0235	0.00130	
Muscle	0.0042, 0.0042, 0.0042	0.00024	*0.01
Fat	0.0069, 0.0069, 0.0069	0.00039	
Milk (30 ppm)	0.0041, 0.0048, 0.0048	0.00027	*0.005

The current animal commodity MRLs remain appropriate for the proposed uses.

3.4 Overseas registration and approved label instructions

The applicant indicated that spirotetramat products are registered for use on fruit (including citrus), vegetables, tree nuts and hops in several overseas countries, with several more registrations likely in the next 12 months. A summary of overseas spirotetramat registrations is provided below.

Country	Product Name	Formulation	Crops
Austria	Movento 150 OD	150 g/L spirotetramat	Vegetables, hops
Canada	Movento 240 SC	240 g/L spirotetramat	Fruit, hops, vegetables
Tunisia	Movento 150 OD	150 g/L spirotetramat	Citrus
Turkey	Movento 240 SC	240 g/L spirotetramat	Citrus, pears
United States	Movento 240 SC Movento 150 OD	240 g/L spirotetramat 150 g/L spirotetramat	Fruit (including citrus), tree nuts, hops

The applicant have also provided details about the spirotetramat use patterns that are registered for use in citrus in Tunisia, Turkey and the US, which are described below.

Country	Trade name	Crop	PHI (days)	No. of applications	Rate
Australia	Movento 240 SC	Citrus	21	3	9.6 g ai/100L (288 g ai/ha*)
Tunisia	Movento 150 OD	Citrus	14	1	180 g ai/ha
Turkey	Movento 240 SC	Citrus	14	1	7.2 g ai/100L (216 g ai/ha*)
United States	Movento 150 OD	Citrus	1	2	126-168 g ai/ha

* This rate was estimated based on a typical spray volume of 3,000 L/ha for citrus.

3.5 Codex Alimentarius Commission and overseas MRLs

The Codex Alimentarius Commission (Codex) is responsible for establishing Codex Maximum Residue Limits (CXLs) for pesticides. Codex CXLs are primarily intended to facilitate international trade, and accommodate differences in Good Agricultural Practice (GAP) employed by various countries. Some countries may accept Codex CXLs when importing foods. Spirotetramat was considered by JMPR in 2008 and CXLs were adopted at the Codex Alimentarius Commission meeting in June/July 2009.

The following overseas residue MRLs/ tolerances have been recommended or established:

Country (Status)	Residue Definition (for Enforcement)	Commodity	Tolerance (mg/kg)
Australia (proposed)	Sum of spirotetramat & its enol metabolite	Citrus fruits	1
		Mango	0.3
		Onion, Bulb	0.5
Codex ²	Sum of spirotetramat & its enol metabolite	Citrus fruit	0.5
		Edible offal, (Mammalian)	0.03
		Meat (from mammals other than marine mammals)	0.01*
		Milks	0.005*
Canada ³	Sum of spirotetramat & its enol metabolite	Dry onion bulbs	0.3
		Grapefruit	0.6
		Lemons	0.6
		Limes	0.6
		Cattle, goat, horse, sheep (fat, meat, meat by-products)	0.02
		Milk	0.01
		Oranges	0.6
EU ⁴	Sum of spirotetramat & its 4 metabolites (enol, keto-hydroxy, mono-hydroxy & enol-glucoside)	Grapefruit	*0.1
		Oranges	*0.1
		Lemons	*0.1
		Limes	*0.1
		Mandarins	*0.1
		Citrus Fruit- Other	*0.1
		Onions	*0.1
		Mangoes	*0.1
		Animal Commodities (default)	*0.01
US ⁵	For Plant Commodities: Sum of spirotetramat & its 4 metabolites (enol, keto-hydroxy, mono-hydroxy & enol-glucoside) For animal Commodities: Sum of Spirotetramat & its enol metabolite	Fruit, citrus	0.6
		Onion bulb	0.3
		Cattle, goat, horse, sheep (fat, meat, meat by-products)	0.02
		Milk	0.01

3.6 Potential Risk to Trade

Export of treated produce containing finite (measurable) residues of spirotetramat may pose a risk to Australian trade in situations where (i) no residue tolerance (import tolerance) is established in the importing country or (ii) where residues in Australian produce are likely to exceed a residue tolerance (import tolerance) established in the importing country.

² FAO Plant Production and Protection Paper – Pesticide Residues in Food 2008

http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/JMPR/JMPRReport08.pdf

³ Canada – Health Canada (update 17 November 2008)

<http://www.hc-sc.gc.ca/cps-spc/pest/index-eng.php>

⁴ European Union – Regulation (EC) No. 396/2005 (updated 17 April 2009)

http://ec.europa.eu/food/plant/protection/pesticides/index_en.htm

⁵ US – United States Food and Drug Administration, Code of Federal Regulations Tolerances and exemptions from tolerances for pesticide chemicals in food (current 14 May 2009)

<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=87779ebd2854ff50e1563ce5406b2f3a&rgn=div8&view=text&node=40:23.0.1.1.28.3.19.387&idno=40>

Of the key export markets for mango, citrus and onions, the only countries to currently have established relevant MRLs are Canada and the US (citrus 0.6 mg/kg & onion 0.3 mg/kg) and the EU (TMRLs for mango, citrus and onions of *0.1 mg/kg). A Codex MRL has been established for citrus at 0.5 mg/kg. In each of these cases, the established MRLs are lower than those recommended for establishment in Australia.

The high residue observed in Australian trials in terms of the Australian, Codex and Canadian residue definition for enforcement was 0.16 mg/kg for mango, 0.54 mg/kg for citrus and 0.21 mg/kg for onion. These residues are lower than the Canadian MRLs for citrus (0.6 mg/kg) and onions (0.03 mg/kg). The citrus high residue of 0.54 mg/kg is however slightly higher than the codex citrus MRL (0.5 mg/kg).

The high residue in terms of the EU and US enforcement residue definition was 0.22 mg/kg for mango, 0.71 mg/kg for citrus and 0.27 mg/kg for onion. The high residue observed for onion is less than the established US onion MRL (0.3 mg/kg). The high residue observed in citrus (0.71 mg/kg) is higher than the citrus MRL established in the US (0.6 mg/kg). The EU MRLs for mango, citrus and onions (*0.1 mg/kg) are lower than the high residue observed in the Australian trials for each commodity.

In order to mitigate the risk in trade of mango, citrus and onion with countries where a lower MRL has been established, or to countries where a MRL has not yet been established, the applicant has proposed the following trade advice statement for inclusion on the label:

‘Growers should note that suitable MRLs or import tolerances do not exist in all markets for produce treated with Movento 240 SC. In some situations export requirements may be met by limiting application number and/or imposing a longer withholding period than specified above. If you are growing produce for export, please check with Bayer CropScience Pty Ltd or your industry body for the latest information on any potential trade issues and their management before using Movento 240 SC’

The overall risk to export trade in animal commodities is considered to be minimal as the feeding of citrus pulp, dry is unlikely to result in detectable levels of spirotetramat residues in animal commodities.

4. CONCLUSION

Comment is sought on the potential for the proposed uses of Movento 240 SC Insecticide to prejudice Australian trade in citrus, mango, onion and animal commodities.

A more detailed technical assessment report on the evaluation of the trade implications of this chemical can be obtained by contacting the APVMA at [to be arranged] alternatively, the reports can be viewed at the APVMA Library, which is located at:

18 Wormald Street
SYMONSTON ACT, 2609
Office hours: 9.00 - 5.00 (EST) Monday to Friday