Generation of Residue Data for Pesticide Minor-use Permit Applications in Vegetable Crops 2008 - Peracto

Kate Allen
Peracto Pty Ltd

Project Number: VG07188

VG07188

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FINAL REPORT

Generation of residue data for pesticide minor use permit applications in vegetable crops 2008

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30 July 2010

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Table of Contents

Media Summary

The selective use of pesticides to control pests, weeds and diseases plays an important role in increasing production, improving the quality of Australia's horticultural crops and enabling growers to earn reasonable returns on their investments. At the same time, today's health conscious society is extremely sensitive to issues relating to chemical use and it is essential that consumers be protected by adequate regulations governing the use of agrochemicals.

The introduction of new and emerging crops, pesticide resistance, integrated pest management, the continual vigilance of horticultural industries for improved agrochemical choices and the disinclination of manufacturers to register for minor crops has led to the need for this project.

Horticultural produce must meet minimum standards relating to quality, safety and consumer expectation. To meet these exacting standards, the whole production process including agrochemical use, residues, and withholding periods require substantial rigorous data to justify the APVMA decision to issue a minor use permit.

The APVMA's National Permit System adds some flexibility to the lengthy registration process and legalises the availability of products for minor-use purposes, not specified on the product label. However, off-label permits issued by the APVMA still must be applied for along with information/data that verifies that the permitted use will be effective and will not have any harmful effects on humans, the crops or the environment. This project is of national importance because it goes some way towards addressing the above issues.

A total of 62 residue trials were conducted, from 2008 to 2010, in specified regions throughout Australia. All the data from this project has been submitted to the APVMA together with the relevant Applications for Permits/Permit Renewals.

Technical Summary

This project generated pesticide residue data in a range of vegetable crops to support minor-use permit applications to the APVMA. The list of studies undertaken and completed is as follows:

Study ID	Problem	Crop	Product	Active	No. Sites
HAL1646	Two-spotted mite	eggplant & peppers	Acramite Miticide	bifenazate	6
AVG799	Two-spotted mite	eggplant & peppers	Talstar 250 EC	bifenthrin	6
HAL1200, HAL1424	Sclerotinia Alternaria/ botrytis	spring onion (2), leek (2), carrot (3), cucumber (3), capsicum (2), chilli (1), eggplant (2), leafy lettuce (2), head lettuce (1)	Filan	boscalid	18
HAL1648	Two-spotted mite	snow peas	Paramite Selective Miticide	etoxazole	2
AVG1070	Silverleaf whitefly	beans (3), lettuce (3), okra (2)	Confidor Guard Soil Insecticide	imidacloprid	8
HAL1543, AVG1095	Helicoverpa sp.	beans (4) snow peas (4)	Avatar Insecticide	indoxacarb	8
HAL1525	Grass & broadleaf weeds	parsnip	Linuron DF	linuron	2
HAL1644	Phytophthora & pythium	parsnip	Ridomil Gold 25G	metalaxyl-m	2
HRB644	Lepidoptera sp.	parsley	Ambush	permethrin	2
AVG915	Aphids	spring onion	Pirimor WG Aphicide	pirimicarb	2
AVG855	Grass & broadleaf weeds	parsnip	Gesagard 500 SC	prometryn	2
HAL1534	Powdery mildew	snow peas	Prosper 500 EC	spiroxamine	2
HAL1281	Field & root rots	sweet potato	Tecto Flowable Fungicide	thiabendazole	2

The formulations of the pesticides used in the studies were as follows:

Product name	Active ingredient (ai)	Concentration of active ingredient	Formulation	Source
Acramite Miticide	bifenazate	480 g a.i./L	Suspension Concentrate	Chemtura Australia Pty Ltd
Talstar 250 EC	bifenthrin	250 g a.i./L	Emulsifiable Concentrate	FMC Australasia Pty Ltd
Filan 500 WG	boscalid	500 g a.i./kg	Water Dispersible Granule	Nufarm Australia Limited
Paramite Selective Miticide	etoxazole	110 g a.i./L	Suspension Concentrate	Sumitomo Chemical Australia Pty Limited
Confidor Guard Soil Insecticide	imidacloprid	350 g a.i./L	Suspension Concentrate	Bayer CropScience Pty Ltd
Avatar Insecticide	indoxacarb	300 g a.i./kg	Water Dispersible Granule	DuPont Australia Limited
Liunron DF	linuron	500 g a.i./kg	Dry Flowable	DuPont Australia Limited
Ridomil Gold 25G	metalaxyl-m	25 g a.i./kg	Granular formulation	Syngenta Crop Protection Pty Ltd
Ambush	permethrin	500 g a.i./L	Emulsifiable Concentrate	Syngenta Crop Protection Pty Ltd
Pirimor WG Aphicide	pirimicarb	500 g a.i./kg	Water Dispersible Granule	Syngenta Crop Protection Pty Ltd
Gesagard 500 SC	prometryn	500 g a.i./L	Suspension Concentrate	Syngenta Crop Protection Pty Ltd
Prosper 500 EC	spiroxamine	500 g a.i./L	Emulsifiable Concentrate	Bayer CropScience Pty Ltd
Tecto Flowable Fungicide	thiabendazole	500 g a.i./L	Suspension Concentrate	Novartis Crop Protection Australasia Pty Ltd

The field investigation phases of these studies were conducted using Peracto Pty Ltd's Standard Operating Procedures, which comply with the OECD Principles of Good Laboratory Practice Number 1 (revised 1997), Paris 1998 and Number 13, June 2002, GLP Facility No: 14609. All specimens were analysed by AgriSolutions Australia at their laboratory at Deception Bay in Brisbane, Facility No: 14951.

Introduction

The selective use of pesticides to control pests, weeds and diseases plays an important role in increasing production, improving the quality of Australia's horticultural crops and enabling growers to earn reasonable returns on their investments. At the same time, today's health conscious society is extremely sensitive to issues relating to chemical use and it is essential that consumers be protected by adequate regulations governing the use of agrochemicals.

The introduction of new and emerging crops, pesticide resistance, integrated pest management, the continual vigilance of horticultural industries for improved agrochemical choices and the disinclination of manufacturers to register for minor crops has led to the need for this project.

Horticultural produce must meet minimum standards relating to quality, safety and consumer expectation. To meet these exacting standards, the whole production process including agrochemical use, residues, and withholding periods require substantial rigorous data to justify the APVMA decision to issue a minor use permit.

A total of 62 residue trials were conducted, from 2008 to 2010, in specified regions throughout Australia. All the data from this project will be submitted to the APVMA together with the relevant Applications for Permits/Permit Renewals.

Materials and Methods

The field investigation phases of these studies were conducted using Peracto Pty Ltd's Standard Operating Procedures, which comply with the OECD Principles of Good Laboratory Practice Number 1 (revised 1997), Paris 1998 and Number 13, June 2002, GLP Facility No: 14609. All specimens were analysed by AgriSolutions Australia at their laboratory at Deception Bay in Brisbane, Facility No: 14951.

The formulations of the pesticides used in the studies were as follows:

Product name	Active ingredient (ai)	Concentration of active ingredient	Formulation	Source
Acramite Miticide	bifenazate	480 g a.i./L	Suspension Concentrate	Chemtura Australia Pty Ltd
Talstar 250 EC	bifenthrin	250 g a.i./L	Emulsifiable Concentrate	FMC Australasia Pty Ltd
Filan 500 WG	boscalid	500 g a.i./kg	Water Dispersible Granule	Nufarm Australia Limited
Paramite Selective Miticide	etoxazole	110 g a.i./L	Suspension Concentrate	Sumitomo Chemical Australia Pty Limited
Confidor Guard Soil Insecticide	imidacloprid	350 g a.i./L	Suspension Concentrate	Bayer CropScience Pty Ltd
Avatar Insecticide	indoxacarb	300 g a.i./kg	Water Dispersible Granule	DuPont Australia Limited
Liunron DF	linuron	500 g a.i./kg	Dry Flowable	DuPont Australia Limited
Ridomil Gold 25G	metalaxyl-m	25 g a.i./kg	Granular formulation	Syngenta Crop Protection Pty Ltd
Ambush	permethrin	500 g a.i./L	Emulsifiable Concentrate	Syngenta Crop Protection Pty Ltd
Pirimor WG Aphicide	pirimicarb	500 g a.i./kg	Water Dispersible Granule	Syngenta Crop Protection Pty Ltd
Gesagard 500 SC	prometryn	500 g a.i./L	Suspension Concentrate	Syngenta Crop Protection Pty Ltd
Prosper 500 EC	spiroxamine	500 g a.i./L	Emulsifiable Concentrate	Bayer CropScience Pty Ltd
Tecto Flowable Fungicide	thiabendazole	500 g a.i./L	Suspension Concentrate	Novartis Crop Protection Australasia Pty Ltd

The list of trials undertaken and completed is as follows:

Study ID	Problem	Crop	Product	Active	State
HAL1646	Two-spotted mite	eggplant	Acramite Miticide	bifenazate	QLD
		eggplant			Vic
		eggplant			QLD
		chilli			QLD
		capsicum			Vic
		capsicum			QLD
AVG799	Two-spotted mite	eggplant	Talstar 250 EC	bifenthrin	QLD
		eggplant			Vic
		eggplant			QLD
		capsicum			QLD
		capsicum			Vic
		chilli			Vic
HAL1200	Sclerotinia	spring onion	Filan 500 WG	boscalid	QLD
		spring onion			Tas
		leek			Vic
		carrot			QLD
		carrot			Vic
		leek			SA
		carrot			WA
HAL1424	Alternaria/ botrytis	cucumber	Filan 500 WG	boscalid	Tas
		cucumber			SA
		cucumber			QLD
		capsicum			SA
		capsicum			QLD
		chilli			SA
		eggplant			SA
		eggplant			Tas
		leafy lettuce			Tas
		leafy lettuce			SA
		head lettuce			SA
HAL1648	Two-spotted mite	snow peas	Paramite Selective Miticide	etoxazole	QLD
					Tas
AVG1070	Silverleaf whitefly	beans	Confidor Guard Soil Insecticide	imidacloprid	QLD
		beans			QLD
		beans			Tas
		leafy lettuce			Tas
		leafy lettuce			Tas
		leafy lettuce			QLD
		okra			QLD
		okra			QLD
HAL1543	Helicoverpa sp.	beans	Avatar Insecticide	indoxacarb	QLD
					QLD
					Tas
					Tas
AVG1095	Helicoverpa sp.	snow peas	Avatar Insecticide	indoxacarb	QLD
					QLD
					Tas
					Tas
HAL1525	Grass & broadleaf weeds	parsnip	Linuron DF	linuron	Tas
					SA
HAL1644	Phytophthora & pythium	parsnip	Ridomil Gold 25G	metalaxyl-m	Tas
					SA
HRB644	Lepidoptera spp.	parsley	Ambush	permethrin	Tas
					QLD

Study ID	Problem	Crop	Product	Active	State
AVG915	Aphids	spring onion	Pirimor WG Aphicide	pirimicarb	QLD
					NSW
AVG855	Grass & broadleaf weeds	parsnip	Gesagard 500 SC	prometryn	Vic
					Tas
HAL1534	Powdery mildew	snow peas	Prosper 500 EC	spiroxamine	QLD
					Tas
HAL1281	Field & root rots	sweet potato	Tecto Flowable Fungicide	thiabendazole	WA
					QLD

Results and Discussion

For each study, a GLP compliant field trial report and analytical report, to GLP standard, was prepared. The results are summarised below.

HAL1646 – Determination of the levels of bifenazate in eggplants, capsicums and chillies following one (1) application of Acramite Miticide

This study was conducted at six field sites; Wacol, Queensland, three sites at Bowen, Queensland and two sites at Mooroopna, Victoria.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./100 L)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	3DALA
2	Acramite Miticide	bifenazate	31.2	3DBH	0, 3, 5 & 7DALA

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of bifenazate in the treated eggplant samples taken at 7DALA ranged from 0.01 mg/kg to less than the Limit of Quantitation (LOQ).
Residues of bifenazate in the treated capsicum & chilli samples taken at 7DALA ranged from 0.03 to 0.01 mg/kg.

AVG799 – Determination of the level of bifenthrin residues in eggplants, capsicums and chillies following two (2) applications of Talstar 250 EC Insecticide/Miticide

This study was conducted at six sites; Wacol, Queensland, two sites at Bowen, Queensland and three sites at Mooroopna, Victoria.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./100 L)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	1DALA
2	Talstar 250 EC	bifenthrin	6	15 & 1DBH	0, 3, 5 & 7DALA

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of bifenthrin in the treated eggplant, capsicum & chilli samples taken at 7DALA were less than the LOQ.

HAL1200 – Determination of the level of boscalid residues in spring onions (*Allium fistulosum*), leeks and carrots following three (3) applications of Filan fungicide

This study was conducted at six field sites; Northdown, Tasmania, two sites in Bowen, Queensland and three sites in Werribee, Victoria.

The treatment information and sample timings for spring onions and leeks were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	1DALA
2	Filan Fungicide	boscalid	400	34, 24, 14DBH	7, 14, 21, 28DALA

DBH = Days Before Harvest
DALA = Days After Last Application

The treatment information and sample timings for carrots were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	1DALA
2	Filan Fungicide	boscalid	400	35, 28, 21DBH	14, 21, 28 & 35DALA

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of boscalid in the treated spring onion samples taken 28 days after the last application ranged from 0.01 mg/kg to less than the LOQ.

Residues of boscalid in the treated leek samples taken 28DALA were less than the LOQ.

Residues of boscalid in the treated carrot samples taken 35DALA were less than the LOQ.

HAL1424 – Determination of the level of boscalid residues in cucumbers, capsicums, chillies, eggplants and leafy lettuce grown in a protected cropping environment (hydroponics greenhouse) following two (2) applications of Filan fungicide

This study was conducted at eleven field sites; Latrobe, Tasmania, Pallara ,Queensland, The Summit, Queensland, two sites at Kindred, Tasmania and six sites at Tranmere, South Australia.

The treatment information and sample timings for cucumbers, capsicums, chillies and eggplants were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./100 L)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	7DALA
2	Filan Fungicide	boscalid	50	14 & 7DBH	3, 7, 14 & 21DALA

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of boscalid in the treated cucumber samples taken at 21DALA ranged from 0.08 mg/kg to less than the LOQ.

Residues of boscalid in the treated eggplant samples taken at 21DALA ranged from 0.03 to 0.01 mg/kg.

Residues of boscalid in the treated capsicum & chilli samples taken at 21DALA ranged from 0.60 to 0.02 mg/kg.

The treatment information and sample timings for head lettuce and leafy lettuce were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./100 L)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	14DALA
2	Filan Fungicide	boscalid	50	21 & 14DBH	7, 14 & 21DALA

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of boscalid in the treated leafy lettuce samples taken at 21DALA ranged from 1.31 to 0.07 mg/kg.

Residues of boscalid in the treated head lettuce samples taken at 21DALA were 0.02 mg/kg.

HAL1648 – Determination of the levels of etoxazole residues in snow peas following one (1) application of Paramite Selective Miticide

This study was conducted at two sites; Forth, Tasmania and Bowen, Queensland.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing	
1	Untreated control	Nil	N/A	N/A	Pods	21DALA
					Foliage	
2	Paramite Selective Miticide	etoxazole	3.85	21DBH	Pods	14 & 21DALA
					Foliage	21DALA

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of etoxazole in the treated snow pea pod and foliage samples taken at 21DALA were less than the LOQ.

AVG1070 – Determination of the levels of imidacloprid residues in beans, leafy lettuce and okra following one (1) application of Confidor Guard Soil Insecticide

This study was conducted at eight sites; Richmond, Tasmania, Rochedale, Queensland, two sites at Forth, Tasmania, two sites at Bowen, Queensland and two sites at Lawes, Queensland.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./100 m row)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	Commercial harvest
2	Confidor Guard Soil Insecticide	imidacloprid	4.9	6 ± 1 days after transplanting or 6 ± 1 days after emergence if planted from seed	Commercial harvest
				Not earlier than 5 days prior to planting	
				At planting or within 2 days of planting	

Residues of imidacloprid in the treated beans, leafy lettuce and okra samples taken at harvest were less than the LOQ.

HAL1543 – Determination of the level of indoxacarb residues in beans following three (3) applications of Avatar Insecticide

This study was conducted at four sites; Forth, Tasmania, Merseylea, Tasmania and two sites at Bowen, Queensland.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing	
1	Untreated control	Nil	N/A	N/A	Pods	3DALA
					Foliage	
2	Avatar Insecticide	indoxacarb	75	17, 10 & 3DBH	Pods	0, 1, 3 & 7DALA
					Foliage	3 & 7DALA

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of indoxacarb in the treated bean pod samples taken at 7DALA ranged from 0.11 mg/kg to 0.07 mg/kg.

Residues of indoxacarb in the treated bean foliage samples taken at 7DALA ranged from 5.52 mg/kg to 3.35 mg/kg.

AVG1095 – Determination of the level of indoxacarb residues in snow peas and sugar snap peas following three (3) applications of Avatar Insecticide

This study was conducted at four sites; Cuprona, Tasmania, Forth, Tasmania and two sites at Bowen, Queensland.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing	
1	Untreated control	Nil	N/A	N/A	Pods	3DALA
					Foliage	
2	Avatar Insecticide	indoxacarb	75	17, 10 & 3DBH	Pods	0, 1, 3 & 7DALA
					Foliage	3 & 7DALA

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of indoxacarb in the treated snow pea pod samples taken at 7DALA ranged from 0.18 mg/kg to 0.09 mg/kg.

Residues of indoxacarb in the treated sugar snap pea pod samples taken at 7DALA were 1.14 mg/kg.

Residues of indoxacarb in the treated foliage samples taken at 7DALA ranged from 2.07 mg/kg in snow peas to 13.94 mg/kg for sugar snap peas.

HAL1525 – Determination of the level of linuron residues in parsnips following one (1) application of Linuron DF

This study was conducted at two sites; Merseylea, Tasmania, and Tranmere, South Australia.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	Commercial harvest
2	Linuron DF	Linuron	350	70DBH	Commercial harvest

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of linuron in the treated parsnip samples taken at 70DALA were 0.02 mg/kg.

HAL1644 – Determination of the level of metalaxyl-m residues in parsnips following one (1) application of Ridomil Gold 25G

This study was conducted at two sites; Merseylea, Tasmania, and Tranmere, South Australia.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	Commercial harvest
2	Ridomil Gold 25G	metalaxyl-m	1000	Planting or early seedling	Commercial harvest

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of metalaxyl-m in the treated parsnip samples taken at commercial harvest were less than the LOQ.

HRB644 – Determination of the level of permethrin residues in parsley following three (3) applications of Ambush

This study was conducted at two sites; Latrobe, Tasmania, and Stanthorpe, Queensland.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	2DALA
2	Ambush	permethrin	100	22, 12 & 2DBH	0, 2, 5 & 7DALA

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of permethrin in the treated parsley samples taken at 7DALA ranged from 2.96 to 10.49 mg/kg.

AVG915 – Determination of the level of pirimicarb residues in spring onions following three (3) applications of Pirimor WG Aphicide

This study was conducted at two sites; Forth, Tasmania, and Bowen, Queensland.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	2DALA
2	Pirimor WG Aphicide	pirimicarb	250	12 & 2DBH	0, 2 & 5DALA

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of pirimicarb in the treated spring onion samples taken at 5DALA ranged from 0.50 to 0.82 mg/kg.

AVG855 – Determination of the level of prometryn residues in parsnips following one (1) application of Gesagard 500 SC at early post emergent

This study was conducted at two sites; Merseylea, Tasmania, and Devon Meadows, Victoria.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	Commercial harvest
2	Gesagard 500 SC	prometryn	350	63DBH	Commercial harvest

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of prometryn in the treated parsnip samples taken at commercial harvest were less than the LOQ.

HAL1534 – Determination of the level of spiroxamine residues in snow peas following two (2) applications of Prosper 500 EC Fungicide

This study was conducted at two sites; Forth, Tasmania, and Bowen, Queensland.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./100 L)	Application Timing	Sample Timing	
1	Untreated control	Nil	N/A	N/A	Pods	14DALA
					Foliage	14 & 28DALA
2	Prosper 500 EC Fungicide	spiroxamine	30	28 & 14DBH	Pods	14, 21 & 28DALA
					Foliage	14 & 28DALA

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of spiroxamine in the treated snow pea pod samples taken at 28DALA were less than the LOQ.

Residues of spiroxamine in the treated snow pea foliage samples taken at 28DALA ranged from 0.13 mg/kg to less than the LOQ.

HAL1281 – Determination of the level of thiabendazole residues in sweet potato following one (1) application of Tecto Flowable SC Fungicide pre-storage and one (1) application as a pre-planting dip

This study was conducted at two sites; Wanneroo, Western Australia and Lawes, Queensland.

The treatment information and sample timings were as follows:

Treatment No.	Test Item	Active Ingredient	Rate Applied (g a.i./L)	Application Timing	Sample Timing
1	Untreated control	Nil	N/A	N/A	Commercial harvest
2	Tecto Flowable SC Fungicide	thiabendazole	45 g/1.91 L water	Pre-storage	Commercial harvest
			450 g/100 L water	Pre-planting	

DBH = Days Before Harvest
DALA = Days After Last Application

Residues of thiabendazole in the treated sweet potato samples taken at commercial harvest were less than the LOQ.

Technology Transfer

The results from these trials have been submitted in permit applications/renewals to the APVMA as detailed below. AgAware Consulting Pty Ltd will notify the relevant interested parties upon issue/renewal of permits.

Problem	Crop	Product	Active	Permit Application/ Renewal
Two-spotted mite	eggplant & peppers	Acramite Miticide	bifenazate	Minor Use/Emergency Use Permit Application
Two-spotted mite	eggplant & peppers	Talstar 250 EC	bifenthrin	Permit renewal – Category 20
Sclerotinia Alternaria/ botrytis	spring onion, leek, carrot, cucumber, capsicum, chilli, eggplant & lettuce (leafy & head)	Filan	boscalid	Minor Use/Emergency Use Permit Application
Two-spotted mite	snow peas	Paramite Selective Miticide	etoxazole	Minor Use/Emergency Use Permit Application
Silverleaf whitefly	beans, lettuce & okra	Confidor Guard Soil Insecticide	imidacloprid	Permit renewal – Category 20
Helicoverpa sp.	beans & snow peas	Avatar Insecticide	indoxacarb	Minor Use/Emergency Use Permit Application
Grass & broadleaf weeds	parsnip	Linuron DF	linuron	Minor Use/Emergency Use Permit Application
Phytophthora & pythium	parsnip	Ridomil Gold 25G	metalaxyl-m	Minor Use/Emergency Use Permit Application
Lepidoptera spp.	parsley	Ambush	permethrin	Permit renewal – Category 20
Aphids	spring onion	Pirimor WG Aphicide	pirimicarb	Minor Use/Emergency Use Permit Application
Grass & broadleaf weeds	parsnip	Gesagard 500 SC	prometryn	Minor Use/Emergency Use Permit Application
Powdery mildew	snow peas	Prosper 500 EC	spiroxamine	Minor Use/Emergency Use Permit Application
Field & root rots	sweet potato	Tecto Flowable Fungicide	thiabendazole	Permit renewal – Category 20

Recommendations

None applicable at this time.

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