

**Generation of Residue Data for Vegetable  
Minor-use Permit Applications - 2009 -  
Peracto**

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Project Number: VG09134

## **VG09134**

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# FINAL REPORT

## Generation of residue data for vegetable minor use permit applications 2009

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## **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 18 residue trials were conducted, from 2009 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
HAL1401	Whiteflies, jassids/ leafhoppers	capsicums & leafy lettuce (field & protected cropping)	Applaud 440 SC	buprofezin	6
AVG1189	Whitefly, thrips & aphids	Asian root vegetables	Confidor 200 SC	imidacloprid	2
HAL1212	Downy mildew	Broccoli, cauliflower & Brussels sprouts	Agrifos 600	phosphorous acid	3
AVG856 & HAL1809	Powdery mildew	Eggplant (field & protected cropping), parsnips & radish	Bayfidan 250 EC	triadimenol	7

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

Product name	Active ingredient (ai)	Concentration of active ingredient	Formulation	Source
Applaud 440 SC	buprofezin	440 g a.i./L	Suspension Concentrate	Dow AgroSciences Australia Limited
Confidor 200 SC	imidacloprid	200 g a.i./L	Suspension Concentrate	Bayer CropScience Pty Ltd
Agrifos 600	phosphorous acid	600 g a.i./L	Liquid	Agrichem
Bayfidan 250 EC	triadimenol	250 g a.i./L	Emulsifiable Concentrate	Bayer CropScience 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. Specimens were analysed by GLP certified laboratories; Agrisolutions Australia, Bayer CropScience and Agrisearch Analytical.

## **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 18 residue trials were conducted, from 2009 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.



## **Materials and Methods**

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<b>Product name</b>	<b>Active ingredient (ai)</b>	<b>Concentration of active ingredient</b>	<b>Formulation</b>	<b>Source</b>
Applaud 440 SC	buprofezin	440 g a.i./L	Suspension Concentrate	Dow AgroSciences Australia Limited
Confidor 200 SC	imidacloprid	200 g a.i./L	Suspension Concentrate	Bayer CropScience Pty Ltd
Agrifos 600	phosphorous acid	600 g a.i./L	Liquid	Agrichem
Bayfidan 250 EC	triadimenol	250 g a.i./L	Emulsifiable Concentrate	Bayer CropScience Pty Ltd

The list of trials undertaken and completed is as follows:

Study ID	Problem	Crop	Product	Active	State
HAL1401	Whiteflies, jassids, leafhoppers	Capsicum (field)	Applaud 440 SC	buprofezin	QLD
		Capsicum (protected)			SA
		Capsicum (protected)			Tas
		Leafy lettuce (field)			Vic
		Leafy lettuce (protected)			SA
		Leafy lettuce (protected)			Tas
AVG1189	Whitefly, thrips & aphids	Daikon	Confidor 200 SC	imidacloprid	QLD
		Daikon			Vic
HAL1212	Downy mildew	Brussels sprouts	Agrifos 600	phosphorous acid	Tas
		Cauliflower			Vic
		Broccoli			Tas
AVG856 & HAL1809	Powdery mildew	Parsnip	Bayfidan 250 EC	triadimenol	Tas
		Parsnip			Vic
		Radish			Vic
		Radish			QLD
		Eggplant (field)			QLD
		Eggplant (protected)			SA
		Eggplant (protected)			Tas

## 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.

### **HAL1401 – Determination of residues of buprofezin in capsicum and leafy lettuce (field and protected cropping) following two (2) applications of Applaud**

This study was conducted at six field sites; Gatton, Queensland, Clyde North, Victoria, Virginia and Tranmere, South Australia and Kindred and Stoney Rise, Tasmania.

The treatment information and sample timings were as follows:

Treatment Number	Test Item	Active Ingredient	Rate Applied	Application Timing	Sample Timing
T1	Untreated control	Nil	N/A	N/A	N/A
T2	Applaud 440 SC	buprofezin	26.4 g ai/100 L or 264 g ai/ha	10 & 3DBH	0, 1, 3 & 5DALA

DBH = Days Before Harvest

DALA = Days After Last Application

Residues of buprofezin in the treated capsicum samples taken at 5DALA ranged from 0.07 to 0.02 mg/kg.

Residues of buprofezin in the leafy lettuce samples taken at 7DALA ranged from 5.62 to 0.53 mg/kg.

### **AVG1189 – Determination of residues of imidacloprid in taro, daikon, burdock or yams following two (2) applications of Confidor 200 SC**

This study was conducted at two sites; Gatton, Queensland and Pearcedale, Victoria.

The treatment information and sample timings were as follows:

Treatment Number	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing
T1	Untreated control	Nil	N/A	N/A	N/A
T2	Confidor 200 SC	imidacloprid	50	21 & 7DBH	7, 14 & 21DALA

DBH = Days Before Harvest

DALA = Days After Last Application

Residues of imidacloprid in the treated daikon samples taken at 21DALA were less than the Limit of Quantitation.

### HAL1212 – Determination of residues of phosphorus acid in broccoli, cauliflower and Brussels sprouts following four (4) applications of Agri-Fos 600 systemic fungicide

This study was conducted at three sites; Leith and Forth, Tasmania and Werribee South, Victoria.

The treatment information and sample timings were as follows:

Treatment Number	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing
T1	Untreated control	Nil	N/A	N/A	N/A
T2	Agri-Fos 600	phosphorus acid	1800	22, 15, 8 & 1DBH	0, 1, 3 & 7DALA

DBH = Days Before Harvest

DALA = Days After Last Application

Residues of phosphorous acid in the treated Brussels sprouts, cauliflower and broccoli samples taken at 7DALA ranged from 19 to 12 mg/kg.

### AVG856 & HAL1809 – Determination of residues of triadimenol in parsnips and radish following two applications of Bayfidan and in eggplants (protected & field) following three applications of Bayfidan

This study was conducted at seven sites; Merseylea and Latrobe, Tasmania, Cranbourne and Clyde, Victoria, Pallara and South Maclean, Queensland and Virginia, South Australia

The treatment information and sample timings were as follows:

#### Parsnips and Radish Treatment and Sampling Information

Treatment Number	Test Item	Active Ingredient	Rate Applied (g a.i./ha)	Application Timing	Sample Timing
T1	Untreated control	Nil	N/A	N/A	N/A
T2	Bayfidan 250 EC	triadimenol	100	17 & 7DBH	0, 3, 7 & 14DALA

#### Eggplant Treatment and Sampling Information

Treatment Number	Test Item	Active Ingredient	Rate Applied (g a.i./100 L)	Application Timing	Sample Timing
T1	Untreated control	Nil	N/A	N/A	N/A
T2	Bayfidan 250 EC	triadimenol	10	15, 8 & 1DBH	0, 1, 2 & 5DALA

DBH = Days Before Harvest

DALA = Days After Last Application

Residues of triadimenol in the treated radish and parsnip samples taken at 14DALA ranged from 0.03 mg/kg to less than the Limit of Quantitation.

Residues of triadimenol in the treated eggplant samples taken at 5DALA ranged from 0.24 to 0.10 mg/kg.

## 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.

<b>Problem</b>	<b>Crop</b>	<b>Product</b>	<b>Active</b>	<b>Permit Application/ Renewal</b>
Whiteflies, jassids/ leafhoppers	Capsicums & leafy lettuce (field & protected cropping)	Applaud 440 SC	buprofezin	Permit renewal – Category 20
Whitefly, thrips & aphids	Asian root vegetables	Confidor 200 SC	imidacloprid	Permit renewal – Category 20
Downy mildew	Broccoli, cauliflower & Brussels sprouts	Agrifos 600	phosphorous acid	Permit renewal – Category 20
Powdery mildew	Eggplant (field & protected cropping)	Bayfidan 250 EC	triadimenol	Permit renewal – Category 20
Powdery mildew	Radish & parsnip	Bayfidan 250 EC	triadimenol	Permit renewal – Category 20

## **Recommendations**

None applicable at this time.

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