

Managing pesticide access in horticulture

Peter Dal Santo
AgAware Consulting Pty Ltd

Project Number: MT07029

MT07029

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Across Horticulture (HAL Use Only)
Vegetables

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Know-how for Horticulture™



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Project No: MT07029

AgAware Consulting

June 2010

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MT07029

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Purpose of the report:

This project was funded by Horticulture Australia Ltd to coordinate and consolidate the minor-use permit for all of horticulture. The project involved liaising with horticultural industry bodies, researchers and advisors to determine their pesticide requirements and coordinate any data that needed to be generated to ensure maximum efficiency. Residue data generation was contracted with qualified field researchers and analytical laboratories to ensure that they completed the designated task allotted to them with respect to data generation. Minor-use permit applications were written and submitted to the Australian Pesticides & Veterinary Medicines Authority for permit approval. Many industries conducted pest management analyses using SARP. This report summarises the processes undertaken with industry and the applications submitted in the project.

Funding sources:

- Australian Federal Government through Horticulture Australia Ltd
- Horticulture Industry levy through the Industry Management Committee
- Vegetable Industry Levy

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Disclaimer:

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Media Summary

Australia horticulture is often restricted in its production due to the limitations imposed by a whole range of factors, including diseases, growth habits, insects, rodents and weeds (plant pests).

Access to appropriate pesticides is adequate in some crops, but limited in others. This only adds to the difficulty in managing plant pest issues, especially in 'minor' crops.

The project 'MT07029 - Managing pesticide access in horticulture' was conducted from July 2007 to June 2010 to assist horticultural industries gain access to the pesticides necessary for sustainable production by:

- Critically assessing the pesticide uses and requirements of horticultural industries.
- Developing a systematic approach to facilitate access to minor use permits across all horticulture industries.
- Managing research projects to gather data to support permit requests.
- Receive quicker permit approvals for horticultural industries through the APVMA.
- Work with international minor-use agencies and agrichemical companies to pursue new and innovative pest management strategies and options.
- Conduct a Strategic Agrichemical Review Process to plan for future pesticide requirements.

The project assisted horticultural industries to access pesticides necessary for sustainable production. This involved extensive consultation with stakeholders - growers, industry associations, consultants, the retail network, agrichemical manufacturers and the APVMA.

The project submitted the following permit applications during the 3 years of the project:

- Emergency and urgent permits - 41
- Consolidated applications by active (renewal by multiple crops) – 25
- Consolidated applications by crop – 9
- Data generation (new) applications – 32
- Data generation (renewal) applications – 44
- Desktop applications – 36
- Renewal applications (single crops) – 82

In total 269 applications for permits were submitted to APVMA or Vic DPI.

In the 2009 data generation projects, approximately 15% of the total project funds necessary were sourced via voluntary contributions from agchem manufacturers. This involvement is expected to increase in the future, reducing the demand on levy funds.

The spread of horticultural crops for which minor-use permits have been applied are:

- Vegetables - 51%
- Fruit crops - 17%
- Nuts - 13%
- Berries - 7%
- Nursery/flowers - 6%
- Others (multi-crop, olive, turf) - 6%

The project currently manages the following permit on behalf of HAL:

- Total – 342 (includes 32 permits to be issued in next 2 months)
- Total number of uses – 511 (281 veges [55%], 232 fruit, nuts & others [45%])
- Total number of crops – 74 (42 vegetables, 32 fruit, nuts & others)

The horticultural crops for which minor-use permits are managed are:

- Vegetables - 71.5%
- Fruit crops - 6.6%
- Nuts - 8.0%
- Berries - 7.5%
- Nursery/flowers - 2.3%
- Others - 4.1%

The on-going issue of the permit holder name on the permits AgAware manages for Horticulture Australia Ltd continued during the 3 years of this project. Recent conversations with HAL suggest that the permit holder will be listed as, 'Horticulture Aust Ltd c/- AgAware Consulting P/L', for future permits. AgAware is also working with APVMA to change the permit holder name on existing permits.

Strategic Agrichemical Review Process have been undertaken in vegetables (41), nuts (3), berries and grapes (5), temperate tree fruit (3), tropical fruit (6), turf (1), hops (1) and olive (1). Each of these crops are in various stages of having their reports completed from initial data gathering to completed reports. The principle issue with completing of many reports is the delays in the review process undertaken by some industries.

It is planned to revisit and update SARP reports with each industry every 3 years to:

- Keep abreast of changing biosecurity concerns and chemical access / regulations for each industry.
- Include new pest management strategies and innovations to ensure relevance.
- Negotiate new priorities with industries as appropriate.
- This will be conducted either face-to-face, electronically or by teleconferencing.

Planning is in progress to conduct SARP programs with new industries including bananas, avocado, citrus and other tree nuts.

During this project, many improvements were implemented on top of those in the preceding project AH04009, to add to the efficiency of the information gathering and minor-use permit process. These included:

- Improvement of the communication systems.
- Improved database management leading to targeted project selection.
- Strengthen collaboration between horticultural industries.
- International collaboration to the benefit of Australian horticultural industries.

Communication to industry was predominately by email where appropriate. The project relied on the multiplier effect by the recipients on the circulation list to circulate the information to their clients, as well as the information being presented in magazines and meetings. Permit notifications are currently distributed to 277 email recipients. Information was also distributed by:

- Articles for industry and HAL publications.
- e-Newsletters.
- Presentation at meetings.
- Teleconferences.

Every three months the project prepared a complete list of all horticultural permits (HAL based and others) and circulated to each horticultural industry to distribute.

The recommendations included in this final report have been included in the follow-on project, 'MT10029 - Managing pesticide access in horticulture'.

Introduction

In July 2007, AgAware Consulting Pty Ltd was awarded the project, 'MT07029 – Managing pesticide access in horticulture' by Horticulture Australia Ltd (HAL) to coordinate the pesticide minor-use program for all horticultural industries associated with HAL. This project was a continuation and expansion of the project, 'AH07009 - Coordination of minor-use permits for horticulture' that operated from 2004 to 2007.

Growers of horticultural crops frequently suffer from a lack of legal access to crop protection products (pesticides). Whilst all crops are valuable, they are often too small individually for agrichemical companies to bear the high cost of registering products for use on them. It is also a problem in larger crops where the problem is only localised or sporadic in nature.

Growers are increasingly confronted with the situation where they face severe losses from diseases; insects and weeds (plant pests) if they do nothing to protect their crops, or face penalties if they use a product that is not registered or permitted.

The consequences of unregistered or non-permitted pesticide use can be severe; including product rejection and fines.

Pesticides have always been an important tool in many horticultural industries. Access to the most suitable pesticide for the proposed task is essential to ensure produce of the highest quality, free of unacceptable pesticide residues. In this project, the pesticide selection criteria has had an emphasis on 'soft' pesticides that are compatible with Integrated Pest Management for all crops.

During the project, the Strategic Agrichemical Review Process (SARP) which assesses the pesticide needs of each horticultural industry and determines any future pesticide requirements was expanded to more industries and developed in to new projects.

Project aims

The aims of the project were to assist all horticulture industries and growers to:

- Protect their crops from current diseases, insects and weeds and plan for any future plant pests;
- Solve crop protection problems by providing access to pesticides that are currently not legally available to them;
- Assist in the management of pesticide resistance and sustainable production by providing access to a suite of reduced-risk pesticides with different modes of action;
- Meet legal requirements regarding pesticide use;
- Ensure produce does not contain unacceptable pesticide residues;
- Meet the requirements of quality assurance systems for domestic and export markets.

For all pesticides selected, the project undertook the assessment of:

- Chemical suitability;
- Resistance management;
- IPM suitability;
- Residue compliance (domestically and exports).

Wherever possible, all pesticides selected for pest management strategies had to address and satisfy this criteria.

Methodology

The success of the project is largely based on the reference and communication network established and maintained by AgAware. This was initiated in project AH04009. Industries where new and expanded contacts were made during project MT07029 are:

- Berries (blueberry, Ribes, Rubus, strawberry)
- Dried fruit
- Grape (table)
- Herbs
- Nurseries (production) and ornamentals (cut flowers)
- Pome fruit (apple, pear)
- Summer fruit (stone fruit, cherry)
- Spices (ginger)
- Tomato (protected & processing)
- Tree nuts (ANIC, chestnut, hazelnut, macadamia, walnut)
- Tropical and sub-tropical fruit (edible peel - olive, persimmon)
- Tropical and sub-tropical fruit (inedible peel - avocado, banana, custard apple, lychee, mango, papaya)
- Turf

Contacts were established and developed with:

- Agrichemical manufacturers (horticulture, registration and technical managers):
 - Agrichemical manufacturers are now involved in the data generation process in many crops and contribute via a Voluntary Contribution (VC) for many projects.
- Key retailers (sales managers and agronomists/horticulturalists):
 - Elders, IHD, Wesfarmers
- Horticultural associations
- Horticultural consultants and researchers
- State Departments of Primary Industries (researchers and extension)

The project was promoted by:

- Articles for industry and HAL publications
- Emails
- Newsletters
- Presentation at meetings/conferences
- Teleconferences

Outcomes

Pesticide requests

From the project's association with horticultural industries, requests for minor-use permits were requests from:

- Growers
- Consultants
- Associations
- State governments
- Retailers
- Manufacturers

Before any further action is undertaken, all requests are recorded on the HAL Minor-use database maintained by AgAware. See Figure 1.

Figure 1: HAL database –wishlist entry

The screenshot shows the 'Wishlist - Microsoft Access' application. The form is titled 'Form View' and displays the following data for item HAL1233:

- Item Code:** HAL1233
- Is Project:** **Desktop?:**
- Priority:** 1 **Date Started:** 23/12/2004
- Crop:** Papaya (Pawpaw) **Contact:** Clark **Project Group:** Not specified
- Product:** Vertimec **Active Constituent:** abamectin
- Company:** various **Formulation:** 18 g/L EC
- Problem:** Two spotted mite **Application Rate:** 90 mL/100 L
- States:** NSW, QLD, NT, WA **Application Timing:** Max 2 applications, 7 day WHF
- Status:** Proposed **No of Trials:** 3 **No of Samples:**
- Est Trial Costs:** \$26,000.00 **Est Lab Costs:**
- Current Approved Uses:** Registered and permits in many horticultural crops for TSM control. PER11618 – Fenbutatin oxide and abamectin / Papaya (Pawpaw) / Two-spotted or Spider mites. Valid 8/4/10 to 30/6/13. NSW, Qld, NT and WA. 4 trials required with each product.
- Crop Residue Details:** EU MRL - 0/01 mg/kg in papaya, Aust MRL in apples, citrus, pears & toms - 0.01 mg/kg. APVMA have no residue data to support permit - need 3 residue trials
- Availability of Other Products:** Kelthane is registered and results are variable.
- Pest Information:** Application prepared by Growcom. No manufacturer support for registration.
- Agchem Company Response:** Company: [dropdown], Company Letter Sent: , Company OK: , Support Level: [text box]
- APVMA Response:** APVMA evaluation category: 5, APVMA Letter Sent: , APVMA Reply: , Reply date: [text box], Data Requirements: PER11618 – Fenbutatin oxide and abamectin / Papaya (Pawpaw) / Two-

There are currently 1901 requests on the HAL Minor-use database that have been submitted by industry (to June 2010) and which are at various stages of progress; ranging from industry nomination to APVMA approval. Of these approximately 64% are for vegetables (approx 1217) and 36% fruit and other horticultural crops (approx. 684).

Since early 2007, the majority of requests have been received from fruit, nut and ornamental industries, with vegetable requests increased by 77 (6.7%) and fruit, nuts and other horticultural crops by 194 (39.6%).

Since the creation of the database in 2000, 1901 requests have been recorded. Of these, 921 have progressed to the projects database (studies initiated/completed). The balance of requests has not progressed for the following reasons (980 requests):

- 162 requests are duplications;
- 20 requests have existing permits;
- 195 requests were already registered;
- 20 requests were modified to combine with other requests;
- 219 were stopped for lack of information, commercial or technical reasons;
- 35 requests after initiation were stopped as the use was to be registered by the agricultural manufacturer;
- 329 requests are proposed awaiting prioritisation by industries. The majority of these requests have been screened by the project, APVMA and manufacturers for data requirements. Individual industries have been asked to prioritise their needs according to estimated costs and available funding. The SARP will determine if these requests are prioritised or not.

During 2009/10, there were several technical problems with the database due to the amount of data being stored in a 2000 version of MS Access. This caused the database to fail on several

occasions. With the support of Brad Wells, HAL Plant Health Manager, we explored developing a new database or updating the current system. In the end, Theory Cawley, HAL Business Systems Manager, updated, repaired and improved the database, where it is now almost glitch-free. There are still a few minor problems to sort out.

Every 6 months a list of proposed studies are circulated to each industry to determine if:

- The study is relevant to the industry (prioritise)
- If so, is it applicable to all states or just a state/region
- Possible funds available to conduct the required work (data generation)

The undertaking of all studies was prioritised by each individual industry. AgAware assisted with technical information. In most cases, each industry used their own experts in their evaluation processes.

Tenders were prepared in association with HAL for contractors qualified to conduct the necessary work to a standard suitable to APVMA for a minor-use permit or registration. In selected situation (very small industries), APVMA allows the industry to conduct the field component of the residue trial, with the samples then analysed by an accredited laboratory.

This information was transferred to the projects database which maintains a running diary of all aspects of the study. See Figure 2.

Figure 2: Database – project entry

The screenshot shows a Microsoft Access form titled 'Project details and status'. The form contains various fields for project information, including Item Code (AVG731), Crop (Eggplant), Target (Two spotted mite), Contact ID (Dal Santo), Status (Completed), Start date (7/11/2001), Submission date NPVMA (4/07/2008), Approval Date (17/10/2008), States (All States), Permit Number (10948), Expiry Date (30/10/2013), Project group (Spring 2001), APVMA Ref (10948), Company (Various), Chemical (abamectin), Product Name (Vertimec), Formulation (18 g/L), Application Method (foliar), Application Rate (450 mL/ha), and No and Timing of Applications (2 applications at 7 day intervals). It also displays financial data like Trial Costs (\$8,800.00) and Lab Costs (\$6,010.00). A 'View List' table at the bottom shows a timeline of events from 7/11/2001 to 26/06/2003.

| Date | Status |
|------------|---|
| 7/11/2001 | trials commissioned |
| 1/09/2002 | all trials completed and delivered to lab - AGAL |
| 4/12/2002 | AGAL WA rang (Kumar) saying that can only get 50% recoveries. Need method development & validation - extra \$3530. OK |
| 12/02/2003 | received analytical report |
| 28/05/2003 | prepared residue report and letter for APVMA to support permit renewal - 6650 |
| 26/06/2003 | emailed APVMA - also want WFT on permit application |

HAL uses certain selection criteria to allocate all work (not in any particular order):

- Capacity to undertake the work
- Previous performance with HAL projects
- Pricing
- Value adding opportunities
- Efficacy and timeliness
- Geographic spread

Contracts have a prescribed completion date to ensure access to permits or registration is as timely as possible.

Once the priorities and funds were approved, then the study is initiated.

Minor-use permit process – data generation

Data generation studies require efficacy, crop safety and/or residue data to support the permit application.

Studies were only commissioned to appropriately qualified service providers. All studies commissioned during this project had the permit application process (APVMA application) as a component of the data generation process; therefore the responsibility of the service provider.

With data generation studies, project MT07029 was responsible for:

- Ensure the field researchers and analytical laboratories completed all studies according to the conditions set down in the contracts.
- Monitor progress of all permit applications and keep the relevant horticultural industry informed.
- Provide APVMA with additional information required in relation to any permit application.
- Notify all horticultural industries by email and handouts that permits have been issued.
- Maintain the HAL database on each study. See Figure 2.

With all data generation studies, the project worked to:

- Actively involve agchem manufacturers in the data generation requirements for minor use permits.
 - When the manufacturer financially supported data generation studies via VC, they were granted exclusive and confidential access to the HAL data for the purposes of registering the use in a timely manner (within 2 years).
 - The data remains the property of HAL.
 - The project negotiated that Chemtura, Crop Care, Dow and Syngenta contributed 35-45% (via a VC) of the data generation costs for vegetable projects involving their pesticides. This equates to >15% of the overall project costs.
 - This benefits growers by having a registered product which becomes the responsibility of the manufacturer.
- Actively involve agchem manufacturers to convert permits to labels:
 - Actively promote the APVMA policy to convert permits to labels by continuing to develop and enhance close working relationships with key manufacturers.
 - Project MT07029 successfully negotiated permits uses for abamectin, azoxystrobin, bifenthrin, buprofezin, cyprodinil, fenoxycarb, imidacloprid, indoxacarb, linuron, metalaxyl-M, methomyl, phosphorous acid, phenmedipham, pymetrozine, spinosad and tebuconazole to be added to labels.

Minor-use permit process – desktop

Not all studies industry requests required data to be generated to support the permit application. In these cases the permit application process was commissioned to appropriately qualified contractors as ‘desktops’ – use of data to support the application already existed.

With desktop studies, project MT07029 was responsible for:

- Ensure that the contractor completed all studies according to the conditions initially set down in the contracts.
- Monitor progress of all permit applications and keep the horticultural industry informed.
- Provide APVMA with any additional information required in relation to any permit application.
- Notify all horticultural industries by email and handouts that permits had been issued.
- Maintain the HAL database on each study. See Figure 2.

Minor-use permit process – emergency and urgent

The project was responsible for the preparation and submission of all emergency and urgent permit applications as deemed appropriate by each industry.

This was completed in a timely and efficient manner to ensure that the pesticide was accessed as soon as practicable. Emergency permits were acted on immediately all the necessary information was available. Emergency permit applications were generally prepared and submitted with 2-4 days of the emergency being notified. Urgent permit applications were generally prepared and submitted with 1-3 weeks of the request being notified.

All emergency and urgent permits submitted and granted are listed in Table 1.

Table 1: List of all emergency and urgent permits submitted during project MT07029

| PESTICIDE / CROP / TARGET PLANT PEST – PERMIT TYPE & STATUS |
|---|
| Abamectin / raspberries & blackberries / Two-spotted mite - urgent permit issued |
| Abamectin / leeks / Onion thrips - urgent permit issued |
| Ammonium nitrate & calcium nitrate / grape vines used for the production of dried fruit only / chemical cordon bunch removal – urgent permit issued |
| Azoxystrobin / carrots / powdery mildew – emergency permit issued |
| 6-benzyladenine / pistachio / plant growth regulator to increase bud retention – urgent permit issued |
| Boscalid, fenhexamid, quinoxifen / all cut flowers in IPM systems / Botrytis, Sclerotinia, Septoria, Anthracnose – urgent permit still under assessment |
| Carbendazim / onions / Neck rot – urgent permit issued |
| Cyprodinil + fludioxonil / multi vegetables / Sclerotinia – emergency permit application still under assessment |
| Cyprodinil + fludioxonil / strawberry / Stem end rot and Leaf blotch - emergency permit issued |
| Glyphosate / grapevines / removal of unwanted and abandoned vines to minimise the risk of Phylloxera – emergency permit issued |
| Indoxacarb / celery / Heliothis, Lightbrown apple moth, Lucerne leaf roller and Vegetable weevil - urgent permit issued |
| Indoxacarb / cherries / European Earwig - urgent permit issued |
| Iprodione / pistachio / Botrytis rot & Alternaria leaf spot - urgent permit issued |
| Maldison / strawberries / Rutherglen bug - urgent permit issued |

| |
|--|
| Metalaxyl + mancozeb / Strawberries (runner production - non-fruiting) / Phytophthora cactorum root and crown rot – emergency permit issued |
| Methamidophos / lettuce (head, field) / Western flower thrips - urgent permit issued |
| Methomyl / lettuce (field) / Western flower thrips - urgent permit issued for Vic only |
| Methomyl /eggplant / Heliothis & Western flower thrips - urgent permit issued for Vic only |
| Methomyl /capsicum / Western flower thrips - urgent permit issued for Vic only |
| Methomyl /spring onions & shallots / Western flower thrips - urgent permit issued for Vic only |
| Methomyl / Nursery seedling production – cucurbits, eggplants, lettuce, ornamentals, peppers, strawberries, tomatoes / Western flower thrips - urgent permit issued |
| Oxamyl / sweet potato / Root knot nematode - urgent permit issued |
| Phenmedipham / lettuce / broadleaf weeds – urgent permit issued |
| Phenmedipham / chicory, endive, radicchio, silverbeet, spinach / broadleaf weeds – urgent permit issued |
| Phosphorous acid / tomato (processing) / Phytophthora root rot – urgent permit issued |
| Pirimicarb / sweet corn / aphids – urgent permit issued |
| Prochloraz / Imperial mandarins / Anthracnose - emergency permit issued |
| Procymidone / multiple vegetables / Sclerotinia – emergency permit application still under assessment |
| Pyraclostrobin / papaya / Anthracnose, Black spot and Brown spot – urgent permit issued |
| Pyraclostrobin / custard apple / Pseudocercospora leaf spot – urgent permit issued |
| Pyraclostrobin / macadamia / Husk spot – emergency permit rejected |
| Pyraclostrobin / strawberry runners (non-fruiting) in tissue culture (TC) nursery and foundation nurseries only / Colletotrichum crown or petiole rots – emergency permit issued |
| Tebuconazole / onion / White root rot – urgent permit issued |
| Sodium metabisulphite / table grapes / Phylloxera – urgent permit issued |
| Spirotetramat / sweet corn / aphids – urgent permit still under assessment |
| Tebuconazole / carrots / Powdery mildew – emergency permit issued |
| Thiamethoxam / various crops / Western Flower Thrips – urgent application still under assessment, awaiting information from Syngenta |
| Triadimenol, triforine, mancozeb, azoxystrobin, copper oxychloride, oxycarboxin, propiconazole / Nursery Stock (non-food), ornamentals and Cut Flower/Foliage Crops / Guava/Eucalyptus and Myrtle rust - emergency permit application still under assessment |
| Trifloxystrobin / peppers (protected crops) / Powdery mildew – urgent permit issued |
| Trifluralin / almonds / prevent root intrusion in subterranean dripper systems – urgent permit issued |
| Zinc phosphine / sweet potato / rats & mice – urgent permit issued |

Minor-use permit process – renewals and consolidation

Project MT07029 continued the process initiated in project AH04009 to consolidate permits by active. Therefore most permits now have one active, with multiple crops and plant pests. This process makes it easier for APVMA to review permits and use patterns as in many cases all permits are combined in to one.

Other advantages of the permit consolidation process are;

- Sharing of the permit application fee (\$320+GST) with all crops involved.
- Easier to approach manufacturers to add the uses to their labels.
- Easier to manage any issues that arise with the use of any pesticide, especially resistance management issues.

All consolidated permit applications by active ingredient are listed in Table 2.

Table 2 - Permit consolidation applications submitted to APVMA during project MT07029:

| Active ingredient | Crop (previously a single permit or a proposed project) | Target |
|--------------------------------------|---|---|
| Azoxystrobin | Radish Leeks Carrots | Powdery mildew Downy mildew White blister |
| Boscalid, iprodione & chlorothalonil | Onion seed Onions | Neck rot |
| Bupirimate | Cucurbits Peppers | Powdery mildew |
| Captan | Almond & pistachio Blueberry, Rubus & Ribes Pitaya | Anthracoise Cane spot, Spur blight & Botrytis |
| Chlorothalonil | Beetroot, parsnip, spring onions & tamarillo Celeriac Papaya Rubus & Ribes | Downy mildew Anthracoise Botrytis Cercospora Leaf & fruit spots |
| Chlorthal-dimethyl | Spring onions & shallots Parsley | Weeds |
| Clethodim | Carrots Parsnips | Grass weeds |
| Dimethomorph | Spring onions Shallots | Downy mildew Purple blotch |
| Diquat + paraquat | Pistachio Chestnuts | Grass and broadleaf weeds |
| Fluazifop | Sweet potato Leeks, shallots & spring onions Garlic Parsnip | Grass weeds |
| Endosulfan | Strawberry Cucumber, eggplant, peppers & tomato Ornamentals | Western flower thrips |
| Imidacloprid | Lettuce, chicory, endive & radicchio Tropical fruits Celery Asian root vegetables, cucumber, potatoes & Cape gooseberry Peppers | Lettuce aphid Silverleaf whitefly Citrus mealy bug Aphids Thrips Greenhouse whitefly |
| Mancozeb | Leeks Shallots | Downy mildew Purple Blotch |
| Metalaxyl-M + copper hydroxide | Leeks Cucumber Radish, swede & turnip | Downy mildew Purple Blotch White blister |
| Metalaxyl-M + mancozeb | Celery Silverbeet & spinach | Late blight Septoria leaf blight Downy mildew |
| Methomyl | Asian cucurbits & sweet potato Fruiting vegetables Legume vegetables | Heliothis Cucumber moth Cluster caterpillar |
| Metolachlor | Spinach & silverbeet Spring onions & shallots Green beans & navy beans Celeriac & celery | Grass and broadleaf weeds |
| Pendimethalin | Spring onions & shallots Radish | Weeds |

| | | |
|-----------------------|--|---|
| Petroleum oil | Peppers, eggplant, tomato, okra and cucurbits Alliums, leafy vegetables, celery, parsley, snow peas & sugar snap peas | Greenhouse whitefly and <i>Bemisia tabaci</i> species (Sweet potato whitefly, Silverleaf whitefly B biotype and whitefly Q biotype) |
| Pirimicarb | Sweet potato Brassica leafy vegetables & chicory | Aphids |
| Phosphorous acid | Spinach & silverbeet Endive, chicory & radicchio | Downy mildew |
| Potassium bicarbonate | Brassica leafy veges, silverbeet & lettuce Cucumber, peppers & tomatoes Herbs | Powdery mildew |
| Propiconazole | Almonds Celery | Blossom blight Anthracnose Leaf blight Septoria spot |
| Pymetrozine | Cucurbits, eggplant, tomato, lettuce & broccoli & pistachio Chicory, endive & radicchio | Silverleaf whitefly Lettuce aphid Green peach aphid |
| Pyrimethanil | Snow peas & sugar snap peas Tomatoes (protected crops) Capsicums | Botrytis cinerea |

There were also situation, particularly with small crops where the permits were consolidated by crop rather than by active. This allowed many uses to be included on one permit, saving the industry significant amounts of money.

All consolidated permit applications by crop are listed in Table 3.

Table 3 - Permit consolidation applications submitted to APVMA during project MT07029:

| Crop | Active ingredients | Target |
|--------------------------------|---|--|
| All cut flowers in IPM systems | Boscalid Fenhexamid Quinoxifen | Botrytis Sclerotinia Septoria Anthracnose |
| All cut flowers in IPM systems | Dimethomorph Phosphorous acid Captan Trifloxystrobin Triforine Myclobutanil Cyprodinil + fludioxonil Bupirimate Propamocarb Metalaxyl + copper | Various diseases |
| All cut flowers in IPM systems | Pirimicarb Tebufenozide Fenoxycarb Pymetrozine Buprofezin Indoxacarb | Various insects |
| Impatiens | Dimethomorph Azoxystrobin Fosetyl Mancozeb | Downy mildew |

| | | |
|--|--|---------------------------------------|
| Leeks & garlic | Simazine Cyanazine Propachlor Ioxynil Ethofumesate Oxyfluorfen Pendimethalin | Various weeds |
| Nursery stock | Bifenthrin Imidacloprid Mancozeb | Quarantine pests |
| Nursery Stock (non-food), ornamentals and Cut Flower / Foliage Crops | Triadimenol Triforine Mancozeb Azoxystrobin Copper oxychloride Oxycarboxin Propiconazole | Guava/Eucalyptus rust and Myrtle rust |
| Papaya | Fenbutatin oxide Abamectin | Two-spotted or Spider mites |
| Rubus spp., Ribes spp. and blueberries | Fenarimol Pyrimethanil Captan Metalaxyl Mancozeb Triadimenol Phosphorous acid | Various diseases |

Under the current Victorian Control-of-Use legislation, pesticides can be used off-label in any crop as long as there are no detectable residues at harvest. This legislation applies to all pesticides other than Schedule 7 poisons or restricted products, where growers can only use these products according to the label. The Victorian legislation allows for a special S25A2b permit to use Schedule 7 poisons off-label for use by Victorian growers.

All S25 permits were applied for are listed in Table 4.

Table 4 - S25 permits were applied for submitted to APVMA during project MT07029:

| Crop | Active ingredients | Target |
|--------------------------------|---------------------------|-----------------------------------|
| Peppers | Methomyl | Heliothis & Western flower thrips |
| Eggplant | Methomyl | Heliothis & Western flower thrips |
| Lettuce (head & leafy – field) | Methomyl | Western flower thrips |
| Spring onions & shallots | Methomyl | Western flower thrips |

Currently there are still 87 studies at various stages of progress:

- 26 studies are currently undergoing residue trials generation to support the permit application by contractors;
- 24 studies with completed residue data and permit applications have been submitted to APVMA and awaiting assessment;
- 15 studies for new desktop permit application have been submitted to APVMA and awaiting assessment;
- 22 studies for permit renewals have been submitted to APVMA and waiting assessment.

Assessment timeframes for minor-use permits by APVMA have been delayed in recent months due to the increased workload and external issues confronting APVMA. It is expected that the permit approval process will return to statutory timeframes in the second half of 2010.

Project MT07029 was also responsible for the renewal of all expiring permits for which it was the permit holder. The process for renewing permits was to:

- Communicate with industry to determine if the permit was still required.
- Prepare and submit the minor-use permit renewal prior to the permit expiring.
- Monitor progress of all permit renewals and keep each industry informed.
- Provide APVMA with any additional information in relation to any permit renewal.
- Notify all horticultural industries by email and handouts that permits had been issued.
- Maintain the HAL database on each study. See Figure 2.

The following studies were commissioned during project MT07029 to external contractors:
2007:

- Vegetable data generation – 26 studies (includes multiple crops)
- Vegetable desktops – 32 studies (includes multiple crops)

2008:

- Almond data generation – 1 study
- Almond desktops – 4 studies
- Nursery desktops – 4 studies
- Onion desktops – 4 studies
- Table grapes desktops – 2 studies
- Vegetable data generation – 26 studies (includes multiple crops)
- Vegetable desktops – 10 studies (includes multiple crops)

2009:

- Banana desktop – 1 study
- Custard apple desktops – 6 studies
- Nursery desktops – 6 studies
- Onion desktops – 4 studies
- Papaya desktops – 3 studies
- Vegetable data generation – 23 studies (includes multiple crops)
- Vegetable desktops – 35 studies (includes multiple crops)

Plans are in place for the allocation of new desktop and data generation permit projects in 2010/11 and beyond.

Key permit outcomes

1. Project MT07029 submitted the following permit applications during the 3 years:
 - Emergency and urgent permits - 41
 - Consolidated applications by active (renewal by multiple crops) – 25
 - Consolidated applications by crop – 9
 - Data generation (new) applications – 32
 - Data generation (renewal) applications – 44
 - Desktop applications – 36
 - Renewal applications (single crops) – 82

In total 269 applications for permits were submitted to APVMA or Vic DPI during the 3 years of the project MT07029.

Not all applications had been approved by APVMA at the time of writing this report. As a comparison, 189 applications (new, renewals and consolidations) for permits were submitted to APVMA during the 3 years of the project AH04009.

2. Project MT07029 and its associated desktop and data generation permits process submitted 42% of all minor-use uses made to the APVMA in 2008/09 and 44% in 2009/10 (APVMA data). Project MT07029 is working with APVMA to extend the life of each permit from 2 – 5 years to 5 – 10 years duration.
3. Project MT07029 is working with APVMA to convert most of the major horticulture crops to a minor crops classifications therefore making access to permit access easier for these crops.
4. Project MT07029 and its associated desktop and data generation permits contractors are working to replace broad spectrum pesticides with reduced or low-risk pesticides.
5. Project MT07029 is aiming to spend more of industries resources in collaborative projects between different horticultural industries in Australia and in collaborative projects with overseas minor-crops agencies with the purpose of maximising the benefits to Australian horticultural industries.

Permit holder role

The issue of the correct name on permits as the permit holder for all HAL managed permits has been on-going during project MT07029. Issues still surround the role of the permit holder, the liability of the permit holder and an appropriate permit holder for multi-crop permits.

The project has worked to bring most horticultural industry permits under the HAL banner, listing the permit holder as ‘AgAware Consulting P/L on behalf of Horticulture Aust Ltd’, but of the 342 current permits managed via MT07029 on behalf of HAL:

- 69 – have Ausveg c/o AgAware listed as the permit holder
- 37 – AgAware
- 15 – HAL
- 221 – AgAware on behalf of HAL

The reasons for the various permit holders are:

- Ausveg c/o AgAware
 - These are all long-term permits that contain solely vegetables and are a carryover from the CPA days.
 - These are generally older permits which have 4-6 year timeframe.
- AgAware
 - In 2004/05 when permits were being obtained for multiple crops and Ausveg was no longer the appropriate permit holder, HAL did not want to be the permit holder because of a liability concerns.
 - Rather than not having permits, AgAware accepted the permit holder role so that growers could have access to permits.
- HAL
 - In the issuing of new or renewal of permit by contractors, APVMA did not always list the correct permit holder title.
- AgAware on behalf of HAL
 - From 2006/10 all permits applied for and issued have been in the name of ‘AgAware on behalf of HAL’.
 - This occurred with HAL approval at the time.

This permit holder title had never been questioned by any of the industries the project had worked with until recently – Ausveg would now like their name removed.

Recent conversations with HAL suggest that ‘AgAware Consulting P/L on behalf of Horticulture Aust Ltd’ is no longer acceptable and that the permit holder should be listed as: ‘Horticulture Aust Ltd c/- AgAware Consulting P/L’. HAL needs to make sure that this is exactly what is required.

All the various permit holder names will be changed over time with permit renewals and consolidations to an approved term to be confirmed by HAL.

The benefit of having AgAware Consulting P/L as part of the permit holder title is that all correspondence for permits (new, renewals, queries, data requirements, issues management, formulation and pest changes) is sent to and managed by AgAware rather than HAL.

The request to change the permit holder was posed to Alan Norden, Minor-Use Manager, APVMA. His response was:

Basically, APVMA will accept the permit holder changes and these will be recorded in their database, but the new permit holder will only be listed on the permit when the permit is renewed or a new permit is issued.

AgAware will work with HAL regarding the permit holder issues. At the time of writing this report, these negotiations are still taking place. But it appears that most industry associations do not want to hold permits in their name on behalf of their members.

Current permits

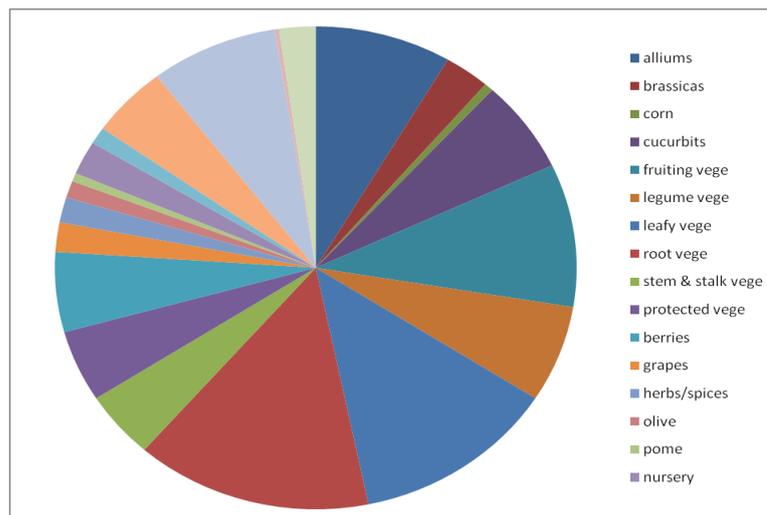
Current permit managed by the project MT07029 and held on behalf of HAL:

- Total – 342 (includes 32 permits to be issued in next 2 months)
- Total number of uses – 511 (281 veges [55%], 232 fruit, nuts & others [45%])
- Total number of crops – 74 (42 vegetables, 32 fruit, nuts & others)

The horticultural crops for which minor-use permits are managed via project MT07029 are:

- | | | | |
|---------------|-------|-------------------|------|
| • Vegetables | 71.5% | • Berries | 7.5% |
| • Fruit crops | 6.6% | • Nursery/flowers | 2.3% |
| • Nuts | 8.0% | • Others | 4.1% |

Figure 3: Split of current project MT07029 managed permit

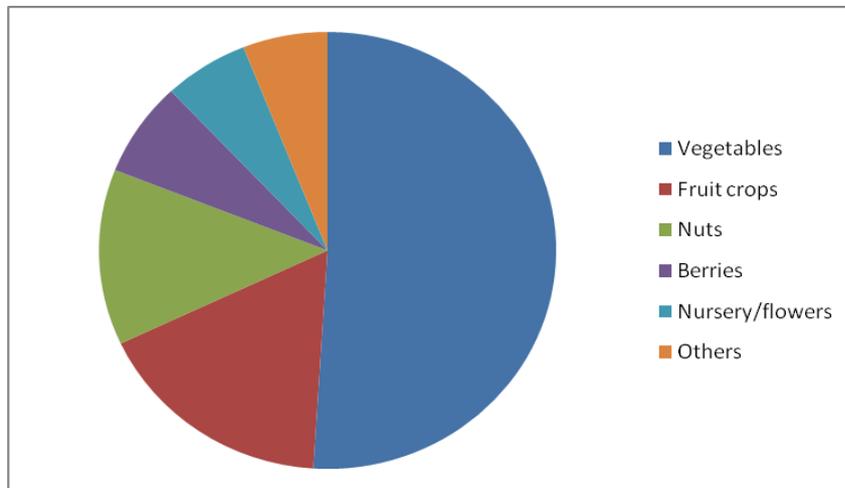


Many of the vegetable permits are a carryover from the initial Crop Protection Approvals (CPA) project from 2000-2003; hence the dominance of vegetable permits.

The spread of horticultural crops for which minor-use permits have been applied for under project MT07029 are:

- Vegetables -51%
- Fruit crops -17%
- Nuts -13%
- Berries - 7%
- Nursery/flowers - 6%
- Others - 6%

Figure 4: Split of minor-use permits submitted during project MT07029



An estimate of the time allocated to manage the permit process was:

- Vegetables (45%) - Although a lot of time is required to set up data generation and desktop studies, once they are allocated to contractors, the majority of work is completed. The vegetable permit process has been operating for many years with competent contractors, therefore it functions very efficiently.
- Fruit, nuts & others (55%) – Data generation and desktop studies took a lot more time to coordinate, collate and prepare as there were less structured and coordinated systems in place.

Strategic Agrichemical Review Process

A process developed during project AH04009 and expanded and enhanced during project MT07029 was the Strategic Agrichemical Review Process (SARP). In total 17 meetings were held around Australia that involved key growers, retailers, consultants, IDO’s and government agencies. See Figure 5 for the flow chart for how the process works.

SARP has a three stage process.

1. The needs identification process involves a workshop with key growers and stakeholders from each industry to critically review and assess:

- Key diseases, insects and weeds that are of major concern to each particular industry;
- Pesticides and use patterns;
- Pesticides at risk, and
- Overall suitability (IPM, residues, efficacy, trade, environment) for the task.
- Any potential new risks to the industry.

This assessment provided a list of key plant pests for each crop that are of major concern to the industry. Against these pests, the pesticides were assessed for effectiveness, resistance

risk, chemical grouping, withholding period, registered/permitted uses and overall suitability (IPM, residues, efficacy, trade and environment). Pesticides unsuitable for the task were recorded. This provided industry with a clear picture of gaps in the existing pest control options, and noted the need for new, effective pesticides to address the gaps.

2. The process involves addressing the identified gaps (where acceptable pesticides were not legally available), by determining new pesticide control options using:

- Identification of pest management ‘gaps’;
- Possible pesticide options to manage the ‘gaps’;
- Domestic and overseas information and resources that provide options and assist decision making;
- Manufacturer support – domestically and overseas;
- Empower each industry to steer the pesticide access process with assistance and expertise of the PMUC;
- Prepare two versions of every SARP report for each industry;
 - Confidential version – containing sensitive information intended for industry IAC/Board only.
 - Public version – suitable for public access.

Wherever possible, the final list of pesticide solutions has the benefit of:

- IPM compatibility,
- Improved scope for resistance management;
- Sound biological profile;
- Residue and trade acceptance for domestic and export markets;
- Data availability and collaboration with manufacturers, and;
- Each report contained confidential information.

Overseas information included efficacy, crop safety and residue information, technical strategies in pesticide use, and strategic fit within crop protection programs that could be transferred and modified to suit Australian conditions and requirements. This comprehensive approach led to substantial financial savings for the Australian industry, with improved availability and technical information for effective, relevant pesticides.

The final report provided the industry with a list of priority plant pests and pesticide options.

3. Each report lists ‘actions’ and ‘new pesticide options’ for all major pests identified for each crop. Priorities are based on:

- Importance to industry;
- National focus;
- Best outcome for investment;
- Funds available.

The industry then determines which priorities have the highest priority for the available funds. The final list of priority pesticide selected for each plant pest has the benefit of:

- IPM compatibility, wherever possible;
- Improved scope for resistance management;
- Sound biological profile;
- Residue and trade acceptance domestically and export.

Priority studies are then contracted to accredited researchers or in collaboration with the industry to fulfil the necessary tasks to access the pesticide(s) via registration or permits.

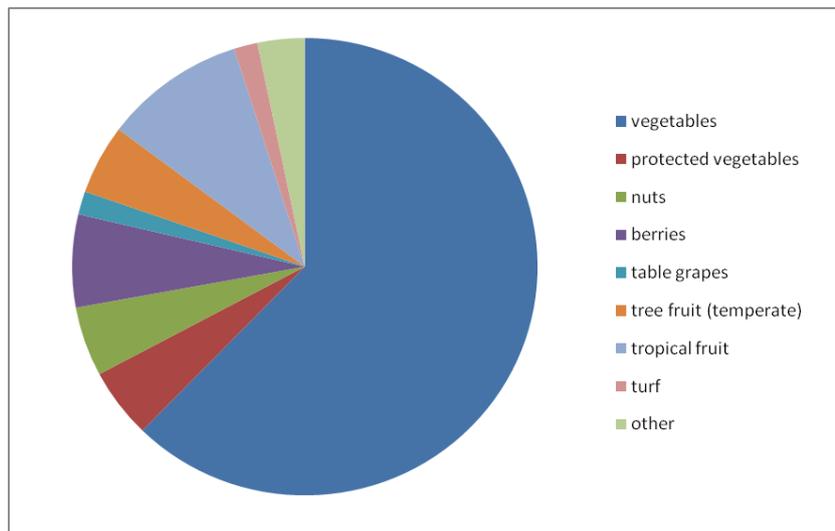
The process of taking the industry priority list, adding more detailed information such as current overseas labels, data requirements and costs; and then asking the industry to re-prioritise the priorities within budget constraints was fine-tuned during 2009/2010. The system allowed each industry to have a planned approach to pesticide access that was rigid enough to allow budgets and milestones to be met, but flexible enough to change priorities if plant pest problems changed unexpectedly.

The key factors affecting the SARP programs were:

- Not all industry has representatives that can review the reports technically;
- Timeliness of responses from industry;
- Lack of commitment by some industries to the program;
- Lack of funds available for industries to undertake any follow-up pesticide work.

SARP have been undertaken in vegetables (41), nuts (3), berries and grapes (5), temperate tree fruit (3), tropical fruit (6), turf (1) and others (2). Each of these crops has had Phase 1 completed, 17 have had Phase 2 completed and 6 industries are working through Phase 3.

Figure 6: SARP programs in progress or completed



All of these industries need to continue to Phase 3 for finalisation.

It is planned to revisit and update SARP reports with each industry every 3 years to:

- Keep abreast of changing biosecurity concerns for each industry.
- Include new pest management strategies and innovations to ensure relevance.
- Negotiate new priorities with industries as appropriate.
- This will be conducted either face-to-face, electronically or by teleconferencing.

Planning is in progress to conduct SARP programs with:

- Bananas, citrus, cut flowers, nursery, some nuts and some exotic tropical fruits.

The SARP meetings were held in each state are listed in Table 5.

Table 5 - The SARP meetings were held in each state during project MT07029:

| State | Crop meetings held |
|------------|----------------------------|
| ACT | Turf |
| Queensland | Macadamia Custard apple |

| | |
|-----------------|---|
| South Australia | Onions |
| Tasmania | Hops |
| Victoria | Blueberries, Rubus & Ribes Table grapes Dried fruits Apple & pears Cherries Stonefruit Almonds Chestnuts Pistachio Olive Onions |

Significant industry linkages have developed from SARP that strengthen the outcomes. Some of the links are:

- Kevin Bodnaruk, consultant – residue compliance and trade
- David Carey, QPIF – vegetable horticulture
- Stephen Goodwin, consultant - greenhouse and hydroponic IPM
- Barbara Hall, SARDI – vegetable diseases and fungicide resistance projects
- Grant Herron, NSW II – insecticide resistance projects
- Paul Horne, IPM Technologies P/L – IPM project
- Don Hutton, DEEDI - disease in tropical fruits
- Ruth Huwer, NSW II – entomology projects
- Sandra McDougall, NSW II – IPM projects
- Liz Minchinton, DPIV – disease projects
- Leigh Pilkington, NSW II – insect management strategies
- Hoong Pung, Peracto - vegetable diseases projects
- Graeme Smith, Hydroponic Design P/L – protected cropping systems
- Lynton Vawdrey, QPIF – disease in tropical fruits
- Phillip Wilk, NSW II - tropical horticulture

Improvements employed during project MT07029

During project MT07029 many improvements have been implemented to add to the efficiency of the information gathering and minor-use permit process. These were:

- Improvement of the communication systems:
 - Face-to-face - meetings, workshops and seminars;
 - Teleconferences – horticultural industries, associations, manufacturers, APVMA;
 - New network notification system by email;
 - More magazine articles – industry based;
 - Newsletters;
 - APVMA links.
- Improved database management leading to targeted project selection.
- Strengthen collaboration between horticultural industries:
 - Consolidation of permit requests;
 - Industry wide approach to pest management;
 - Consistency in permit recommendations between industries;
 - Management of all horticultural permits under the HAL banner.

- International collaboration to the benefit of Australian horticultural industries:
 - Links and collaborative projects with the USA (IR-4) and Canada (PMC);
 - Maximising Australia's horticultural industry's investment in obtaining access to new, reduced risk pesticide. Information in this area is determined in collaboration with Kevin Bodnaruk, (Pesticide Regulation Coordinator - project AH09003) and others.

Benefits to industry of project MT07029

Although it is difficult to directly measure the benefits of the project to each horticulture industry some of the tangible benefits were:

- A thorough understanding of the permit application process that is centralised and coordinated within this project that is more efficient than individual industries applying for permits.
- A standardised procedure for all industries to prioritise minor-use requests.
- By coordinating permit applications, renewals and data generation through the project MT07029, the burden for individual industries was reduced.
- SARP is providing each industry with an understanding of its plant pests / pesticide (including PGR) use and a strategic plan for future pesticide requirements.
- A standardised procedure for permit applications developed in association with APVMA.
- The consolidation of better quality permits applications to improve APVMA efficiency and minimise industry costs.
- Provide industries with their responsibilities of outstanding data requirements for permits, ensuring work are completed by the due date.
- Strong links with the agrichemical manufacturers in obtaining data to:
 - Support permit applications
 - Liaising for the registration of permit uses
- Prompt communications with all stakeholders on permits and pesticide issues.

Horticultural industry involvement

Not all horticultural industries fully participated in project MT07029. The value of project MT07029 was measured by each particular industry driving their particular needs for permits, SARP, etc. Some industry involvement was:

- Almonds - high input, high activities
- Apples & pears – low input, low activities
- Citrus - low input, low activities
- Custard apple - high input, high activities
- Lychee – high input, high activities
- Macadamia - high input, high activities
- Vegetables - high input, high activities

Some industries have low permit needs as they have good access to effective, registered pesticides, or have low pest problems.

Horticultural industries with limited involvement in project MT07029 were:

- Apple & pear – limited
- Asparagus – nil
- Avocado – limited, but expected to increase during 2010/11.

- Banana – limited, but expected to increase during 2010/11.
- Citrus – limited
- Dried fruit – limited
- Hazelnut – limited, but expected to increase during 2010/11.
- Melon – nil
- Mushroom – nil
- Nashi – nil
- Passionfruit – nil, but expected to increase during 2010/11.
- Pecan – limited, but expected to increase during 2010/11.
- Persimmon – limited, but expected to increase during 2010/11.
- Poppy – nil
- Prune – nil
- Pyrethrum – nil
- Walnut – limited, but expected to increase during 2010/11.

Special issues

Observations from project MT07029 were that there is a growing list of ‘difficult-to-control’ plant pests. The plant pests that are causing the greatest concern to horticulture are:

- | | |
|-----------------------------|-----------------------------------|
| • Anthracnose | • Phytophthora |
| • Ants | • Post harvest rots |
| • Beetles | • Residual weed control options |
| • Downy and Powdery Mildews | • Rutherglen bug |
| • Fruit fly | • Scale |
| • Fruit-spotting bugs | • Sclerotinia |
| • Fusarium | • Silverleaf whitefly |
| • Herbicide resistant weeds | • Weevils |
| • Mites | • Western flower thrips |
| • Pythium | • White blister (<i>Albugo</i>) |

Although there may be many pesticide options to control these plant pests, the project aimed to always select reduced-risk pesticides, wherever possible. The project was in constant contact with agrichemical manufacturers for new or innovative control options.

AgAware staff were involved in many special issues / projects / working groups that were relevant to many horticultural industries. These included:

- APVMA
 - Crop grouping discussion group
 - Major/minor crops discussion group
 - OECD Minor Use Working Group (observer)
- Vegetables
 - Chemical working group (chair)
 - Production advisory group
 - IR-4 (USA) and PMC (Canada) – international data collaboration
 - Dimethoate-fenthion fruit fly working group (chair)
 - Protected crop residue monitoring program
- Other
 - Chemical Security working group (observer)
 - National Control-of-use Reform working group (observer)
 - MRL Harmonization working group (observer)

Data security

All written reports generated through project MT07029 and previous project AH04009, are stored in locked data cupboards at the offices of AgAware Consulting Pty Ltd. These cupboards are only accessible to the staff of AgAware.

All electronic data generated through project MT07029 and previous project AH04009 are copied (back-up) weekly and stored on disks in locked data cupboards at the offices of AgAware Consulting Pty Ltd. These cupboards are only accessible to the staff of AgAware. Monthly back-up copies of electronic data are stored off-site. The HAL minor-use database managed by AgAware is stored on AgAware computers. It is backed-up weekly and copies sent to HAL monthly.

All requested for data from APVMA, manufacturers and others have been directed to AgAware. AgAware makes a copy of the relevant data, then returns the files/data to the data cupboards.

Communication

A key component of the project MT07029 was the communication of:

- All permits issued by APVMA:
- Any issues that arose relating to pesticide use, availability, efficacy and residues.

All industries were notified of all permits issued for all horticultural industries. This was seen as a way of sharing information. Notifications were sent to Business, Communications, Development and/or Extension Managers, Secretaries and Executive Officers for each industry.

The process of communicating this information was predominately by email (example attached – Attachment 1), but also by:

- Articles for industry and HAL publications (examples attached – Attachment 2A-C). Generally 1-4 articles are prepared for each industry per year.
- e-Newsletters (example attached – Attachment 3). Generally 1-2 are prepared per year.
- Presentation at meetings. Meetings are attended if they fit within the strategy of the project. Generally 20-30 meetings are attended per year in all states.
- Teleconferences. AgAware are involved if they fit within the strategy of the project. Generally AgAware participate in 10-20 teleconferences per year.

It was impossible for all potential users of minor-use permits to be notified directly by the projects of all permits issued. The project relied on the multiplier effect by the recipients on the circulation list for the email notification to circulate the information to their clients, as well as the information being presented in magazines and meetings. Permit notifications are currently distributed to 277 email recipients. This list is updated weekly.

Every three months the project prepared a complete list of all horticultural permits (HAL based and others) and circulated to each horticultural industry to distribute.

Agrichemical manufacturers were key participants in project MT07029 by providing information to support our activities. The project developed a close working relationship with many of the key manufacturers. Those that were regularly contacted (every one-three months) were:

- Agrichem
- Animal Control Technologies
- Bayer
- BASF
- Chemtura
- Crop Care
- Dow
- Dupont
- Farmoz
- Jaegar
- Nufarm
- Syngenta
- Sumitomo

These organisations were part of the communication network on minor-use permits.

Agrichemical manufacturers provided information for such things as:

- Domestic and overseas residue data;
- Domestic and overseas efficacy and crop safety data;
- Overseas labels;
- Pesticide management strategies – resistance, IPM, residues;
- Converting permits to labels;
- Market trends, advice and support.

The retail network was an excellent source of information on pesticide issues. Those that were regularly contacted (every one-three months) were:

- EE Muirs & Sons (nationally)
- Elders (nationally)
- IHD Group (nationally)
- Serve-Ag (nationally)
- Wesfarmers (nationally)

These organisations were part of the communication network on minor-use permits. The retail network was the best conduit to provide information on the project activities (especially permits) directly to growers.

Grower and industry organisations were an excellent source of information and support. Those used were:

- Australian Chamber for Fruit and Vegetables
- Australian Herb & Spice Industry Association (nationally)
- Australian Hydroponics and Greenhouse Association (nationally)
- Bundaberg Fruit and Vegetable Growers Assoc (Qld)
- Growcom (Qld)

These organisations were part of the communication network on minor-use permits. Grower and industry organisations were a good resource to provide information on the project activities (especially permits) directly to growers.

Outcomes

The direct value of the project is difficult to measure as the client base is all horticultural growers spread across Australia. Purely from the positive response received from grower industries, growers, consultants, retailers, government agencies and industry associations, the project is highly valued and provides an excellent service to industry.

AgAware believes that it has completed the tasks associated with project MT07029 by:

- Undertaking a coordinated approach to permit acquisition across all horticultural industries in association with stakeholders and APVMA.
- Determining data requirements and costs to obtain registrations/permits for pesticides on behalf of each industry. This was clearly communicated to each relevant industry.
- Setting up cost sharing arrangements/ funding across horticultural industries regarding data generation and permit applications to maximise efficiencies and minimise costs.
- Coordinating registrations/permits with industries, agrichemical manufacturers and APVMA.
- Providing prompt feedback to individual industries on registrations and permits granted pesticide use changes, pesticide efficacy or crop safety issues and residues.
- Review the pesticide use within each horticultural industry and plan for future pesticide needs via the SARP.

Recommendations

Although the project, 'MT07029 – Managing pesticide access in horticulture', is completed the work associated with pesticide access in horticulture continues and is still seen as a major priority by most horticultural industries.

There are many minor-use permit requests that have not been acted on due to a lack of industry funding. There are also many minor-use permit applications submitted to APVMA yet to be finalised. Therefore future activities will be to:

- Work with individual horticultural industries to set pesticide priorities via the SARP tailoring to their needs and using available funds.
- Monitor the permit application process with APVMA until all permits are issued.
- Provide permit information to the horticultural industries as needed.
- Provide pesticide and technical support to the horticultural industries at meetings, field days, seminars and publications.

There is also the requirement to continue the:

- Permit consolidation process for all horticultural permit;
- Renewal of all future permits in a timely manner;
- Transfer of the permit holder role to HAL;
- Negotiations with APVMA on improving the:
 - Permit process
 - Major/minor crops
 - Converting permits to registration
- Work with monitoring agencies to identify all pesticides at risk and provide options.

As more and more industry undertake the Strategic Agrichemical Review Process, reviews should be conducted every three years as the plant pests, pesticides, crops, environment and residues will change over this time.

Given the experience developed by AgAware Consulting P/L in conducting project 'MT07029 – Managing pesticide access in horticulture' it is well place to continue and improve on these tasks with project 'MT10029 - Managing pesticide access in horticulture', recently contracted by HAL.

Acknowledgement

| | |
|--------------------------------|--|
| APVMA: | All staff, especially Alan Norden |
| Consultants: | Kevin Bodnaruk (NSW), Domenic Cavallaro (SA), David Carey (Qld), Paul Horne (Vic) and Lachlan Chilman (WA) |
| Government agencies: | Each state DPIs as excellent sources of information |
| Horticulture Australia: | Brad Wells, Sarah Sullivan and the Industry Services Managers |
| Industry Development Officers: | All, especially the old Vegetable IDO |
| Work colleagues: | Eileen Dal Santo, Georgia Sands and Ross Holding (Classy Solutions) |

Acronyms

| | |
|-------------------|---|
| AgAware | AgAware Consulting Pty Ltd |
| APVMA | Australian Pesticides and Veterinary Medicines Authority |
| AUSVEG | Australian Vegetable and Potato Growers Federation |
| CPA..... | Crop Protection Approvals |
| DEEDI..... | Department of Employment, Economic Development and Innovation |
| DPI | Department of Primary Industries |
| DPIV..... | Department of Primary Industries Victoria |
| HAL | Horticulture Australia Ltd |
| IDO | Industry development officers |
| IHD | Independent Horticultural Distributors |
| IPM | Integrated pest management |
| IR-4 | Interregional Program 4 (USA) |
| Plant pests | Diseases, insects, nematodes, viruses, weeds, etc |
| PMC | Pest Management Centres (Canada) |
| PMUC | Pesticide minor-use coordinator |
| Pesticides | Plant protection products (fungicide, insecticide, herbicide, nematicide, etc). |
| QPIF | Queensland Primary Industries and Fisheries |
| SARDI | South Australian Research & Development Institute |
| SARP | Strategic Agrichemical Review Process |

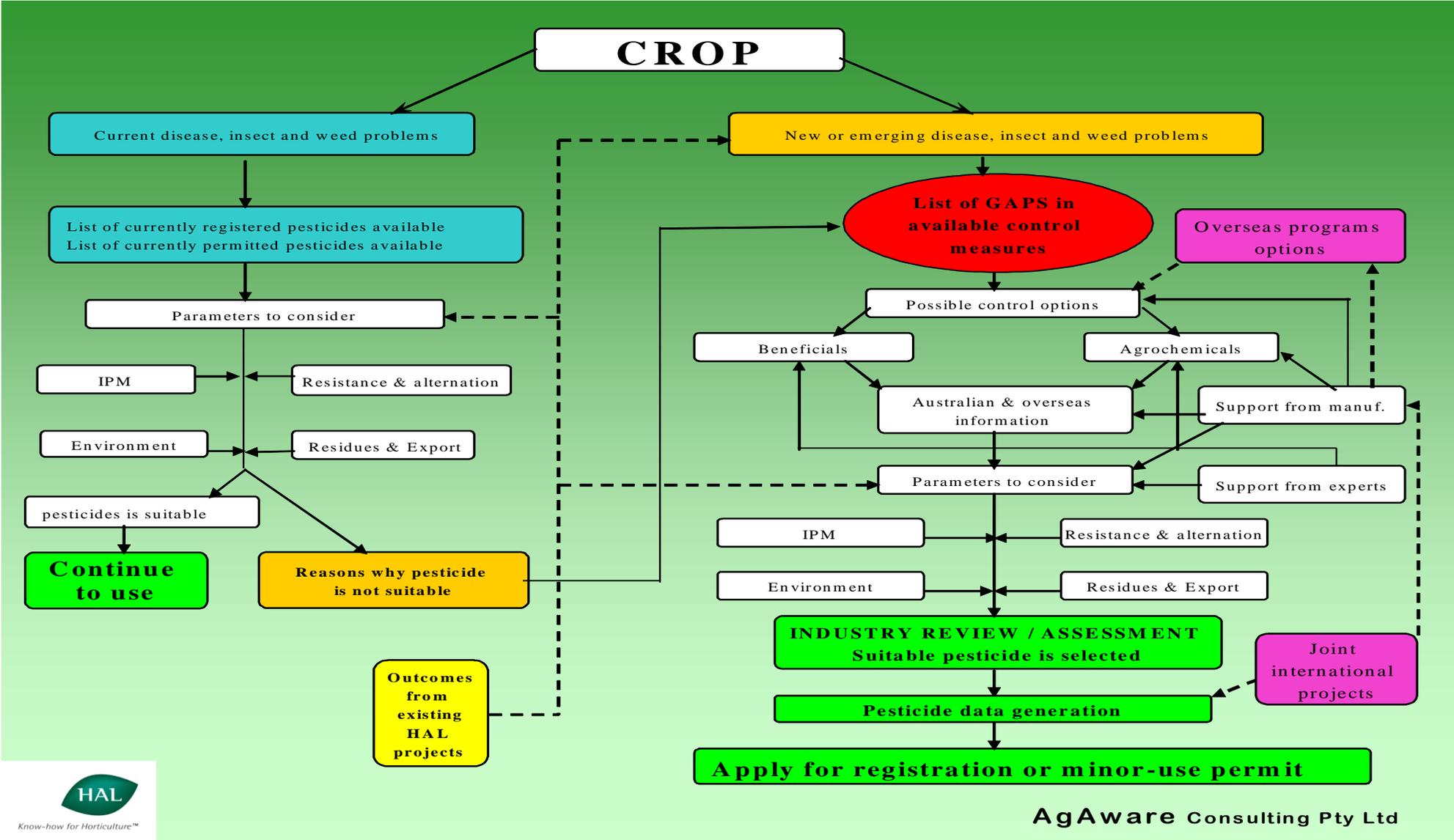
This project has been facilitated by Horticulture Australia Ltd in partnership with industry and has been funded as part of the across industry program.

The Australian Government provides matched funding for all HAL's R&D activities.



Attachments

FIGURE 5: The Strategic Agrichemical Review Process flow chart



ATTACHMENT 1: Example of the email communication on newly issued permits

From: Peter Dal Santo (Agaware) [mailto:pds@agaware.com.au]

Sent: Tue 22/06/2010 8:49 AM

To: Aaron (Landmark) Chapman; Alison (NSW Farmers) Anderson; Alison (DAF WA) Beattie; Alison (Nuts) Saunders; Allan (WA Ag) McKay; Andrew (AFFCO) Dick; Andrew (AgNova MD) Watson; 'andrewheap@iprimus.com.au'; Andrew (Dupont Reg Aff) Dyson; Andrew (Elders - Horti Nat Mgr) Meurant; Andrew (Farmoz R&D) Horsfield; Andrew (mac - key Qld grower) Pearce; Andrew (NSW DPI plant path) Watson; Andrew (Nufarm Dev Mgr) Wells; Andrew (Ord Co-op) Cripps; Andrew (WA Ag plant path) Taylor; Andy (Beneficial bugs) Ryland; Anna (Summerfruit) Steinhauer; Anthony (Tech Mgr NGIA) Kachenko; Antony (Avocado CEO) Allen; Astrid (HAL ISM) Hughes; Barbara (SARDI plant path) Hall; Barry (NT Ag plant path) Conde; 'barry.hunt@simplot.com.au'; Ben (ABA IDM) Brown; Ben (HAL Plant Health) Callaghan; Bettina (NSWDPI flowers) Gollnow; Bill (IHD) Dowdle ; Bob (Bananas NSW) Campbell; Brad (HAL ISM) Mills; 'Brad (HAL PM-PH) Wells'; Brendon (Aust Garlic Prod) Goulet; Brian (NT DPI ento) Thistleton; Brian (Syngenta RegAfMg) Cassar; Bronwyn (CropCare - Rego) Vorpapel; Bronwyn (QDPI extension) Walsh; Bruce (HGA-research)Thompson; Charlie (Ace Ohlsson) Horder; Chris (Agronico-Tas) Merry; Chris (Dow) Brown ; Chris (GSF) Burge; Chris (Prospect Ag) Monsour; Chris (WA SCC) Sharpe; Chrys (QDPI&F plant path) Akem; Clare (Peracto SD) Crowther; Craig (QDPIF) Henderson; Dale (Agronico Res Mgr) Griffin; Dale (BCMS) Abbott; Damien (Bayer TSM) Odgers; Darren (NSWDPI - Pesticide Mgt) Waterson; Daryl (Landmark) Higginson; David (ACT SCC) Power; David (Ausveg editor) O'Neill; David (Bayer-Reg Mgr) Gregor; David (Chinese vege grower NSW) Ha; David (CSO Vic DPI) Rumbold; David (Hort consult) Sides; Daryl (Landmark) Higginson; David (ORIA Coop) Cross; David (potatoes) Anderson; David (QDPI&F) Carey; David (Vic DPI - fruit) Williams; Denis (QDPIF virus) Persley; Denise (BDGA IDO) Kreymborg; Dennis (DAF WA) Phillips; Denyse (FlowerAssQld) Corner; Didi (HGA treasurer) Killen; Domenic (SA consultant) Cavallaro; Don (Bayer Tech Mgr) Nicoll; Don (QDPI straw path) Hutton; Doug (Nufarm R&D Hort) Wilson; Doug (RA Bundaberg) Gaham; Doug (ServeAg) Green; Edward Galea; Elizabeth (blueberry IDO) Burns; 'evan.brown@simplot.com.au'; Enver (IKC-horti) Sabri; Eric (QDPI) Coleman; Erin (Ausveg Comm Off) Lyall; Frances (NSW Farmers) Vella; Gary (Caldwells) Pither; Gary (Growcom) Artlett; Gavin (BASF) Heard ; Geoff (Bayer) Robertson; Geoff (Bayer Horti Reg Mgr) Perkins; Gerard (Papaya) Kath; Gordon (Chinese vege grower NSW) Ha; Graeme (AHGA) Smith; Graeme (Serve-Ag) Palmer; Graham (Bayer TSM) Nicol; Graham (Qld consultant) Stirling; Graham (Withcott) Erhart; Grant (NSW DPI - ento) Herron; Greg (Dupont Reg Mgr) Mitchell; Greg (EE Muirs) Linsdell; Greg (Farmer Johns) Schubert; Greg (Mushroom EO) Seymour; Greg (SARDI ento) Baker; Greg (turf IDM) McPhee; Gregg (Dow) Baynon ; Guy (Nufarm Prod Mgr) Perriman; Heather (Blueberry IDO) Field; Hoong (Peracto) Pung; Hugh (Ausveg Comm Mgr) Tobin; Iain (QDPIF ento) Kay; Ian (Ausveg) Young; Ian (Boomaroo) Willert; Ian (DPIV plant path) Porter; Ian (Lenswood Rural) Daynes; Ian (Peracto GM) Macleod; Janine (Peracto) Scott; Jane (AHSA) Parker; Janine (Growcom) Clark; Jason (Vic Strawberry IDO) Hingston; Jason (Field Fresh Tas) Dennis; Jeff (QDPI&F S Johnston) Daniells; Jeff (Simplot) Yost; Jeff (Table grapes CEO) Scott; 'Jeremy (NSW DPI GH crops) Badgery-Parker'; Jessica (Papaya Aust) Hitchings; Jim (EO vegetablesWA) Turley; Jo (ANIC secretary) Ireland; Joanna (Melons IDO) Embry; Joanne (Onions EO) Thomas-Ward; Joe (HAL PAC) Zappala; John (Ace Ohlsson) Tilley; John (ADFA) Hawtin; John (FGV - GM) Wilson; John (HAL ISM) Tyas; John (HAL PAC) Bishop; John (Landmark Wandin) Frisina; John (Leppington Seeds) Vella; John (Nashi Pres) Karl; John (NGIA Q) McDonald; John (QDPI ento) Duff; John (summerfruit CEO) Moore; John (Turf IAC Chair) Lloyd; John (VegeWA Extn Off) Shannon; Jolyon (macadamia CEO) Burnett; Jonathan (Bananas CEO) Eccles; Josh (Chemtura) Mahoney; Judith (Citrus-EO) Damiani; Julian (Agronico-Tas) Shaw; Julian (Grower Supply WA) Baker; Julie (Almonds EO) Harslett; Justin (UPL) van Elsen ; Karl (Muirs) Riedel; Kate (Peracto) Allen ; Kath (Agrisearch) Adams; Keith (Passionfruit Chair) Paxton; Kelly (Serve-Ag) Gardam; Ken (Syngenta-Tech Dev Mgr) McKee; Kendle (HAL Biotech) Wilkinson; Kerrie (Cropcare-Bris) MacKay; 'Kerry (Nuchem) Webb'; Kevin (AKC Cons) Bodnaruk; Kim (macadamia consultant) Jones; Lachlan (WA IPM consult) Chilman; Lanh (Aust Cambodian Growers Ass NSW) Ngo ; Lara (QDPIF ento) Senior; Lawrence (NSW DPI) Ullio; Leigh (NSW DPI Ento) Pilkington; Len (NSW DPI plant path) Tesoriero; Len (Straw Aust EO) O'Connor; Lester (NSW DPI-hazelnut) Snare; Lionel (DPIWE ento) Hill; Liz (APTRC) Mann; Liz (DPIV plant path) Minchinton; Lourens (Straw Qld IDO) Grobler; Luc (Sumitomo RegAfMgr) Streit; Lucia (Agrichem) Grimmer; Luciano (Chestnut R&D) Cester; Lucy (Ausveg) Jarman; Lucy (PIRSA) Day; Lynton (DPI&F Sth Johnstone) Vawdrey; Maree (DPIV Chem Stand) Jekic; Mario (MIA Rural) Pasqualotto ; Mark (Rubus IDM) Hinckman; Mark (Simplot) Heap; Martin (Agrisearch GM) Collett; Max (AHEA) Summers; Michael (Comp Adv) Tichon; Michael (NGIA NSW) Danelon; Michele (Berry DPIWE Tas) Buntain; Michelle (ACT R&D) Smith; Michelle (NSW Farmers) Kelly; Mignonne (Potatoes Aust editor) Rawson; Mike (AHR) Titley; Mike (olives) Baker; Nic (Sipcam Reg & Dev Mgr) Tydens; Nicholas (Elders Windsor) Gray; Nicky (Bananas President) Singh; Nicoletta (Chemtura) Childs; Nigel (VicSPA) Crump; Olivia (Agronico) Viney; Pam (QDPIF - pesticides) Bowles; Patti (Custard apples) Stacey; Paul (Dow Dev Mgr-Ins) Downard; Paul (Dow Reg Mgr) Hughes; Paul (Nufarm) Geister; Paul (ServeAg Prod Mgr) Yeates; Paul (Vic consultant) Horne; Peter (Aust Garlic Prod) Hahn; Peter (BFVG EO) Peterson; Peter (Farmoz) Chalmers; Peter (HAL PAC) Cochrane; Peter (Hort NZ) Ensor; Peter (QDPI project mgr) Deuter; Peter (ServeAg) Aird; Peter (Turf consultant) McMaugh; Phil (ADFA) Chidgzey; Phillip (NSW DPI) Wilk; Phillip (Peracto) Frost; Rachel (WA Ag plant path) Lancaster; Ray (Turf EO) Moir ; Richard (Tech Mgr APAL) Hawkes; Richard (HAL-QA & Safety) Bennett; Richard (Nufarm - herbicides) Warner; Richard (Qld consultant - papaya) Piper; Rob (Qld consultant) Abbas; Rob (Syngenta) Battaglia; Robert (Bayer Develop) Vitelli; Robert (CEO NGIA) Prince; Robyn (Agronico) Bergersen; Rod (Farmoz) East; Roger (TIAR) Orr; Ron (Hort NZ) Gall; Ros (Custard apple Pres) Smerdon; Ross (HAL ISM) Skinner; Ross (Rotam) Runge; Rowena (HAL ISM) Norris; Russ (Nursery consult) Higginbotham; Ruth (Ento NSW I&I) Huwer; Sam

(Strawb Aust presid) Violi; Sandi (Nuchem - reg aff) Howarth; Sandra (NSWDPI-citrus) Hardy; Sandra (NSWDPI ento) McDougall; Saskia (AHGA) Blanch; Scott (Agronico) Hill; Scott (BASF) Lane; Scott (Bayer Hort Mgr) Ward; Sean (Syngenta Portfolio Vege Mgr) Richardson; Shane (QDPI) Holborn; Simon (BerryExchange) Boettiger; Sonya (WA Ag ento) Broughton; Stephen (Biocontrol Solu) Goodwin; Stephen (NSW DPI vege) Wade; Stephen (NSW veges) Ng; Stephen (Persimmons Pres) Jeffers; Steve (Agspray) Ansermino; Steven (Agronico-Tas) Ives; Steve (Agspray) Ansermino; Stewart (Syngenta-horti market) Kerr; Stewart (WA Ag ento) Learmonth; Stuart (APAL Comm Mgr) Gray; Stuart (HAL ISM) Burgess; Subra (QPI ento) ; Susanne (QDPIF Bowen) Heisswolf; Sylvia (NSWDPI IPM) Jelinek; Tanya (Chestnuts Aust) Edwards; Terry (Aust Chinese Growers Ass NSW) Ha; Tim (Dupont R&D) Hammond; Tony (Bananas EO) Heidrich; Tony (APAL BM) Russell; Tony (SARDI extension) Burfield; Tony (VGA EO) Imerson; Trevor (Cherry CEO) Ranford; Trevor (Mango IDM) Dunmall; Trevor (Onion IAC chair) Twigden; Trevor (Pistachio EO) Ranford; Trevor (SARDI plant path) Wicks ; Vanessa (Hazelnut- VP) Cox (hazelnuts@hwy.com.au); Vic (SA vege consultant) Szabo; Vlad (NT SSC) Kawaljenko; Wayne (Barmac GM) Sear; Wayne (Qld SCC) Thompson; Will (HAL ISM) Gordon; Yan (DPI-tropical fruits) Diczbalis

Cc: 'Brad Wells'

Subject: New permits

Hello all

The following permits have been issued by APVMA:

PER11940 – Dimethomorph, azoxystrobin, fosetyl & mancozeb / Impatiens / Downy mildew
Valid 10/06/10 to 30/09/15.
Valid for all states (except Vic)

PER10679 – Mancozeb / specific fruiting and legume vegetables (Asian) / Downy mildew, Anthracnose & Alternaria
Valid 10/06/10 to 1/01/12.
Valid for all states (except Vic)
APVMA requires 2 residue trials in hairy melon or luffa for renewal of the permit.

PER11937 – Dimethomorph & mancozeb / spring onions & shallots / Downy mildew, Purple blotch and Botrytis rots
Valid 10/06/10 to 1/01/12.
Valid for all states (except Vic)
APVMA requires 2 residue trials in spring onions and shallots for renewal of the permit.

Full details of all permits are available on the APVMA website,
<http://www.apvma.gov.au/permits/permits.shtml>

Please circulate to all interested and relevant parties.

Users are advised that while the pesticide can be applied legally under the APVMA minor use permit, there can be a significant delay until the MRL gazetted by the APVMA is adopted in the Australia New Zealand Food Standards Code.

Until this occurs the MRL may not be recognised and a zero tolerance may be imposed for residues of the pesticide resulting from its use according to the APVMA permit.

Please be aware that in the absence of an MRL in the Food Standards Code, the use of the pesticide according to the permit, may result in the suspension of the produce in the marketplace. Please check the FSANZ website at:

<http://www.foodstandards.gov.au/thecode/foodstandardscode/standard142maximumre4244.cfm> to confirm if there are MRL established by the Australia New Zealand Food Standards Code.

This project has been facilitated by Horticulture Australia Ltd in partnership with industry and has been funded as part of the across industry program.

The Australian Government provides matched funding for all HAL's R&D activities.

Peter Dal Santo

AgAware Consulting Pty Ltd

ATTACHMENT 2A: Example of an industry media article

HAL Annual Industry Report, 2008

Managing pesticide access in horticulture

A project to manage and facilitate industry's access to appropriate pesticides (Project MT07029) is now entering its second year.

Over recent months the project has provided vegetable strategic agrichemical review processes information to industry including:

- brassica, carrot, onion, pea, bean and potato herbicides information to the Tasmanian vegetable industry.
- Western flower thrips control information to vegetable IDOs.
- Silverleaf whitefly control information and new use strategies to Queensland DPI&F.
- current pesticide uses in multiple vegetable crops to chemical manufacturers

In addition:

- 16 urgent or renewal permit applications (for use in various vegetables) plus four consolidated permit renewal applications have been submitted to APVMA
- 32 permits have been issued recently for various vegetables.
- Two permits were not renewed as use was either already registered or not required by industry.

Issues raised by APVMA in regard to permit submissions were addressed to ensure speedy approval of permits.

All permit information is distributed to all relevant vegetable industry participants as soon as the permit is issued. A complete list of all horticultural permits was prepared and circulated to all relevant industry participants in May; another is due soon.

A new list of data generation and desk study projects in vegetable were prepared and contracted. Twenty five data generation projects (147 trials) were contracted out with completion expected by late 2009. Ten desktop projects, which included South Australian pesticide exemptions, were contracted and submitted to APVMA by late June 2008.

Additional data generation and desktop projects in various vegetables are proposed for later this year.

Meetings and planning sessions were conducted on pest management issues, current permits, future permits and possible registrations. These were conducted with government departments, chemical manufacturers, horticultural industries and growers.

Key activities over the next four months of the project will be:

- Preparation of emergency and urgent vegetable permit applications as required.
- Consolidation of current, expiring and new permits across vegetables.
- Preparation of the necessary trial information for the next round of vegetable data generation and desktop project.
- Communication with all stakeholders on permit information.

Project MT07029

For more information contact

Peter Dal Santo, AgAware Consulting Pty Ltd

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E: pds@agaware.com.au

ATTACHMENT 2B: Example of an industry media article

Summerfruit Australia magazine, 2009

Pesticide minor use permits for summerfruit

Growers of horticultural crops frequently suffer from a lack of legal access to crop protection products. The problem is that whilst their crops are valuable, they are too small individually for agrochemical companies to bear the high cost of registering products for use on them. It is also a problem in larger crops where the problem is only localised.

Growers are increasingly trapped in a situation where they face severe losses from diseases, pests and weeds if they do nothing to protect their crops, or face penalties if they use a product that is not registered.

The aims of the project are to assist all horticulture industries, including summerfruit to protect their crops from diseases, insects or weeds by providing access to pesticides that they currently do not have legally available to them by obtaining minor-use permits on their behalf. The project will undertake the assessment of chemical suitability, resistance, IPM, residues and exports in its evaluations. The project is coordinated and managed by AgAware Consulting Pty Ltd.

The aims of the project are to assist growers to:

- *Protect their crops from pests, weeds and diseases*
- *Solve crop protection problems*
- *Manage chemical resistance*
- *Meet legal requirements regarding chemical use*
- *Ensure produce does not contain unacceptable chemical residues*
- *Meet the requirements of quality assurance systems and export markets*

The project will do this by:

- *Undertaking a coordinated approach to permit acquisition across all horticultural industries in association with stakeholder and regulatory authorities*
- *Determining data requirements and costs to obtain registrations/permits for pesticides*
- *Setting up cost sharing arrangements/ funding across horticultural industries regarding data generation*
- *Coordinating registrations/permits with the regulatory authorities (APVMA)*
- *Providing feedback to individual industries on registrations and permits granted.*

There are many examples where this approach to permits has helped the various summerfruit crops. The following are a few examples.

| Permit number | Permit holder | Active | Problem | Expiry date | States applicable |
|---------------|----------------------|---|---|-------------|----------------------------|
| PER9532 | Landmark | Indoxocarb | Apple weevil, Fuller's rose weevil, Garden Weevil | 31/12/10 | NSW, Qld, Tas & WA only |
| PER10309 | QDPI | Dimethoate | Queensland Fruit Fly | 30/9/10 | Qld only |
| PER10555 | DPIR SA | Fenthion, maldison, chlorpyrifos, dimethoate | Fruit fly | 30/6/15 | SA only |
| PER11821 | Fruit Growers Tas | Tau-fluvalinate | Thrips | 31/12/12 | Tas only |

If you, as a summerfruit grower, manager or consultant have any pesticides requests for the control of diseases, insects or weeds, please provide your requirements in the table below and return it to your industry representative. The information will then be forwarded to AgAware for actioning. Or you can send the information directly to AgAware.

| Crop eg. Apricots | Product eg. Confidor Guard | Active eg. imidacloprid | Problem eg. Black Peach Aphid | Rate required eg. 14 mL/100 m row | Any current control methods | Damage eg. fruit blemish | Impact eg. loss of value |
|-------------------------|----------------------------------|-------------------------------|-------------------------------------|---|-----------------------------------|--------------------------------|--------------------------------|
| | | | | | | | |
| | | | | | | | |

Please note that all information provided will be treated with strict confidence.

The summerfruit industry is very aware of the possible consequences that can occur from the use of unregistered or non-permitted pesticides. These can include;

- Produce with unauthorised chemical residues present
- Rejection of produce from local markets
- Temporary exclusion from market access
- Rejection of produce from export markets
- Jeopardising of export trading arrangements
- Fines and penalties

It is not worth the risk to your crop and income to use unregistered or non-permitted pesticides on your fruit. Your involvement in this project will assist you access the pesticides you require and address the chemical residue issues.

There is also an opportunity for growers to highlight any pesticides they are currently using that are causing or may cause concern in export markets. Also are there any diseases, insects or weeds that you believe will be a problem to your crop in the future? If there are any such pesticides problems or new pests, please list them in the table.

Although the 'Coordination of minor use permits for horticulture' project has only been operating for a few months it has been significant involved from a range of horticultural industries including; apples & pears, bananas, blueberries, mangos, papaya, potatoes, Rubus, tropical fruits and vegetables.

If you have any queries or require any assistance, please contact Peter Dal Santo on Ph: 03 5439 5916 Fax: 03 5439 3391 or email: pds@agaware.com.au

This project has been facilitated by Horticulture Australia Ltd in partnership with industry and has been funded as part of the across industry program.
The Australian Government provides matched funding for all HAL's R&D activities.

ATTACHMENT 2C: Example of an industry media article

Macadamia magazine, 2010

MACADAMIAS - PEST MANAGEMENT ISSUES

A Strategic Agrichemical Review Process (SARP) assesses the importance of the disease, insects, weeds and rodents (plant pests) that can affect a horticultural industry; evaluates the availability and effectiveness of fungicides, insecticides and herbicides (pesticides) to control the plant pests and determines any 'gaps' in the pest control strategy.

SARP was conducted in November 2009, in Brisbane, Queensland as part of a macadamia meeting with key growers, researchers and consultants. The results of the process will provide the macadamia industry with sound pesticide review.

DISEASES

The major diseases of macadamias recorded are:

- Macadamia husk spot (*Pseudocercospora macadamiae*)

Fungicides listed for Macadamia husk spot control are:

- Carbendazim – Group 1 protectant/curative fungicide. Carbendazim is under review by APVMA for all its uses.
- Copper (various formulations) – Group M1 protectant fungicide. Copper is always used with carbendazim. Growers are concerned with overuse, efficacy and being washed off tree by rain. Trials have shown that there are no differences between copper types.
- Difenconazole – Group C protectant/curative fungicide. Efficacy is considered equal to carbendazim. Sometimes used with copper.

- Phytophthora root rot (*Phytophthora cinnamomi*) and Trunk (Stem) canker (*Phytophthora* sp.)

Fungicides listed for Phytophthora root rot and Trunk (Stem) canker control are:

- Copper (various formulations) – Group M1 protectant fungicide. used as a paint to base and trunk of new and established trees.
- Metalaxyl and Metalaxyl-M – Group 4 protectant/curative fungicide. Only used by growers in orchard when needed. Granules are spread around the base of trees when replanting or new/young trees.

INSECTS

The major insects of macadamias recorded are:

- Banana-spotting bug (*Amblypelta lutescens ssp lutescens*)
- Fruitspotting bug (*Amblypelta nitida*)
- Green vegetable bug (*Nezara viridula*)

Insecticides listed for bug control are:

- Acephate – Group 1B systemic and contact insecticide
- Azinphos-methyl – Group 1B systemic and contact insecticide
- Beta-cyfluthrin – Group 3A systemic and contact insecticide. Poor IPM but short knockdown. Interferes with scale and coccid IPM.
- Endosulfan – Group 2A systemic and contact insecticide. Compatible with some IPM beneficials. Moderate IPM with short knockdown.
- Methidathion – Group 1B systemic and contact insecticide
- Trichlorfon – Group 1B systemic and contact insecticide. Used by some growers as an alternative to endosulfan. IPM compatible.

- Macadamia felted coccid (*Eriococcus ironsidei*)

Insecticides listed for coccid control are:

- Diazinon – Group 1B systemic and contact insecticide. Considered poor IPM product.
- Methidathion – Group 1B systemic and contact insecticide. Considered poor IPM product.

- Macadamia flower caterpillar (*Cryptoblabes hemigypsa*)
Insecticides listed for caterpillar control are:
 - Acephate – Group 1B systemic and contact insecticide
 - Endosulfan – Group 2A systemic and contact insecticide. Sprayed at green flower stage.
 - Methoxyfenozide – Group 16A Insect growth regulator. Sprayed at a later stage than endosulfan. Considered very IPM compatible.
 - Trichlorfon – Group 1B systemic and contact insecticide. Sprayed at green flower stage.

- Macadamia nutborer (*Cryptophlebia ombrodelta*)
Insecticides listed for nutborer control are:
 - Acephate – Group 1B systemic and contact insecticide
 - Azinphos-methyl – Group 1B systemic and contact insecticide
 - Beta-cyfluthrin – Group 3A systemic and contact insecticide. Poor IPM but short knockdown. Interferes with scale and coccid IPM.
 - Carbaryl – Group 1A systemic and contact insecticide
 - Methidathion – Group 1B systemic and contact insecticide
 - Methoxyfenozide – Group 16A Insect growth regulator. Growers will use late if wasps not controlling all MNB by end January. Considered very IPM compatible.

- Flower thrips (*Scirtothrips* sp.)
- Thrips (*Thysanoptera*)
Insecticides listed for thrips control are:
 - Acephate – Group 1B systemic and contact insecticide
 - Fatty acids - K salt – biological contact insecticide

- Whiteflies (*Aleyrodidae*)
Insecticides listed for thrips control are:
 - Acephate – Group 1B systemic and contact insecticide
 - Fatty acids - K salt – biological contact insecticide

PLANT GROWTH REGULATOR

One plant growth regulator is used in macadamia crops:

- Ethrel (ethephon) - current permit – PER11462 – expires 30 June 2015. Promote nutfall after maturity reached - 3 weeks after application will get 95% nutfall (minimise disease exposure on ground).

RODENTICIDES

Rodents include:

- Roof or Black rat (*Rattus rattus*)
- Brown rat (*Rattus norvegicus*)
- Australian native ground rat (*Rattus sordidus*)

Rodenticides listed for rodent control are:

- Coumatetralyl - No secondary impact issues or bait shyness. Caution - not all Racumin products are registered in macadamia.
- Zinc Phosphide - PER10616 issued for rat control, expires 30 June 2010.

HERBICIDE

The majority of growers spray treelines only. Some mow or mulch treelines.

Registered herbicides are:

- ROUNDUP (glyphosate) - Group M general knockdown herbicide.
- SURFLAN (oryzalin) - Group D pre-emergent herbicide.
- GOAL (oxyfluorfen) - Group G general knockdown or spike herbicide.
- STOMP (pendimethalin) - Group D pre-emergent herbicide.
- HAMMER (carfentrazone-ethyl) - Group G general knockdown or spike herbicide

- SPRAYSEED (paraquat + diquat) - Group L general knockdown herbicide.
- BASTA (glufosinate) - Group N general knockdown herbicide.
- HALOXYFOP (haloxyfop) - Group A post-emergent grass herbicide.
- GALLERY (isoxaben) - Group K pre-emergent herbicide.

Weed escapes and registered herbicides

There are a number of weeds identified by the macadamia industry as not being adequately control by currently used herbicides. These are listed below with the herbicides currently registered for proposed for use in macadamias:

| Common name | Scientific name | Active ingredient |
|-----------------------|-------------------------------|---------------------|
| Blackberry nightshade | <i>Solanum nigrum</i> | carfentrazone-ethyl |
| | | isoxaben |
| | | oryzalin |
| | | oxyfluorfen |
| | | diquat + paraquat |
| | pendimethalin | |
| Camphor laurel | <i>Cinnamomum camphora</i> | glyphosate |
| Fleabane | <i>Conyza spp.</i> | glyphosate |
| | | diquat + paraquat |
| Native cucurbit | | diquat + paraquat |
| Thistles | | carfentrazone-ethyl |
| | | glufosinate |
| | | glyphosate |
| | | oxyfluorfen |
| | diquat + paraquat | |
| Wandering jew | <i>Tradescantia albiflora</i> | diquat + paraquat |
| Willow herb | <i>Epilobium spp.</i> | glufosinate |

Project MT07029

For more information contact

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ATTACHMENT 3: Example of newsletter**HORTICULTURAL PESTICIDES MINOR USE UPDATE
- SUMMER 2008 -**

This is the fourth edition of the Horticulture Minor-Use Update prepared by AgAware Consulting Pty Ltd. The aim of the Update is to provide each horticultural industry, government agencies, reseller network, horticulture consultants and agchem manufacturers with the latest information on the Horticulture Australia (HAL) funded project, 'MT07029 – Managing the access to pesticides in horticulture'.

PROJECT AIMS

The project aims to assist all horticulture industries to protect their crops from diseases, insects or weeds by coordinating and consolidating the minor-use permit application process and providing new, reduced-risk pesticide option on their behalf. The project will undertake the assessment of chemical suitability, resistance, IPM, residues and exports in its evaluations. The project is also conducting 'Strategic Agrichemical Review Process' (SARP) with participating industries to critically evaluate current pesticide options and future pesticide needs.

EMERGENCY PERMITS

Several industries have had emergency or urgent permits issued over the past six months. These are:

| Permit number | Permit holder | Crop | Pest | Product | Expiry date |
|---------------|--------------------------|---|---|---|-------------|
| 9710 | AgAware on behalf of HAL | Impatiens | Downy mildew | Azoxystrobin Dimethomorph Fosetyl Mancozeb | 31/12/09 |
| 9932 | AgAware on behalf of HAL | Lettuce (field grown head & leafy) | Helicoverpa sp., Cluster caterpillar, Western flower thrips | Methomyl | 29/02/09 |
| 9951 | AgAware on behalf of HAL | Post-harvest treatment of apples – Crisps Red & Crisps Pink | Grey mould Blue mould Fruit rot | thiabendazole | 30/06/09 |
| 10197 | AgAware on behalf of HAL | Carrots | Powdery mildew | Azoxystrobin | 30/09/09 |
| 10198 | AgAware on behalf of HAL | Carrots | Powdery mildew | Tebuconazole | 30/09/09 |
| 10506 | AgAware on behalf of HAL | Strawberry runners (non-bearing) | Colletotrichum gloeosporiodes | Pyraclostrobin | 31/12/09 |
| 18-S25a2B | AgAware on behalf of HAL | Lettuce (Vic only) | Western flower thrips | Methomyl | 29/02/09 |

Emergency and urgent permits still under APVMA evaluation:

| Permit holder | Crop | Pest | Product | Expected issue date |
|--------------------------|---|----------------------------------|--------------|---------------------|
| AgAware on behalf of HAL | Production nurseries (GH) – cucurbits, eggplant, lettuce, ornamentals, peppers, strawberries, tomatoes | Western flower thrips | Methomyl | Early 2008 |
| AgAware on behalf of HAL | Alliums, berry fruit, brassica vegetables, cucurbit vegetables, eggplant, herbs, leafy vegetables, legume vegetables, okra, ornamental, peppers, pome fruit, stonefruit, strawberry, tomato | Western flower thrips | Thiamethoxam | Early 2008 |
| AgAware on behalf of HAL | Asian fruiting vegetables, Berry fruit, Brassicas, Bulb vegetables, Celery, Cucurbits, Leafy vegetables, Legume vegetables, Ornamentals, Peppers, Root vegetables, Tomatoes | Botrytis rot and Sclerotinia rot | Procymidone | Mid 2008 |

CURRENT PERMITS

A list of all APVMA permits is available on the APVMA website at:

<http://www.apvma.gov.au/permits/permits.shtml>

AgAware has prepared a list of all current horticultural permits by crop group. These lists are updated every 3 months. The list (current to 31 December 2007) was constructed and circulated in January 2008 to all horticultural industries.

If you would like a copy of these lists please email AgAware with your request.

MINOR-USE PERMIT PROCESS – RENEWALS AND CONSOLIDATION

The process to consolidate as many horticultural permits into larger single permits with multiple crops is continuing. This process was developed in association with APVMA for efficiency benefits for all concerned.

The consolidated permits have several advantages;

- Makes it easier for APVMA to assess one active ingredient once, rather than multiple times
- Sharing of the permit application fee (\$320) with all crops involved
- Easier to approach manufacturers to add the uses to their labels
- Easier to manage any issues that arise with the use of any pesticide, especially resistance management issues
- Any future data generation required will be coordinated and managed by the project
- Permits will be renewed automatically after approval by each industry

The project actively works with most horticultural industries to transfer their permits to AgAware Consulting P/L on behalf of Horticulture Australia for the consolidation process.

APVMA structure

The APVMA has created a stand-alone Minor-Use Unit headed by Alan Norden. In this group are Paul Thomas, Jenny Dunn and Vasanthe Vithanage; all very experienced on minor-use issues and permit. It is expected that the MUU will significantly improve the permit process after some expected initial teething problems.

STRATEGIC PESTICIDE GAP ANALYSIS

The Strategic Agrichemical Review Process (SARP) conducted as part of MT07029 is a continuation of the process initiated in the previous project, AH04009. But the process has been improved by including additional information on IPM, trade and export MRL. SARP is a proactive approach to pesticide uses, issues and management in horticulture. With time, SARP will supersede the 'wishlist' approach of the past for the request of permits.

SARP meetings have been conducted with various industries during the last 6 months:

- Mango SARP final report (confidential version) - sent to AMIA for final approval
- Turf SARP report (confidential version) - sent to turf industry for review
- Processing tomato SARP report (confidential version) - sent to APTRC for review
- Strawberry SARP report (confidential version) - sent to SA for review
- Papaya final report (confidential version) – to be sent to industry for review
- Onion IAC – conducted SARP
- Mangoes (NT) – review results of SARP conducted with mango industry
- Rambutan and other tropical fruits (NT) – conducted SARP
- Okra (NT) – conducted SARP
- Melons (NT) – conducted SARP
- Rubus, Ribes and blueberries – conducted SARP
- Fresh & processing potatoes – conducted SARP
- Vegetable SARP worksheets (37) – consolidated information from all states on to a single form per crop. Circulated to all IDO for circulation to industry for comment.

Discussion with other industries has indicated that they are interested to undertake SARP and will occur during 2008-2009. These industries are:

- Almond (planned for early 2008)
- Apple & pear (Mar/Apr 2008)
- Bananas (planned for mid 2008)
- Cherries (?? 2008)
- Macadamias (?? 2008)
- Pistachio (planned for early 2008)
- Summer fruit (planned for early 2008)
- Custard apples (planned for early 2008)
- Passionfruit (?? 2008)
- Citrus (?? 2008)
- Table grapes (?? 2008)

Outcomes from SARP will be used in discussions with APVMA to determine data requirements and the permit application process in a strategic and focused way.

IR-4 COLLABORATION

IR-4 is the minor-use program of the USA. It has a wealth of data and information from its 40 years of operation. Ausveg has expressed an interest in undertaking collaborative projects with IR-4 for the purpose of joint registration of new pesticides/uses in Australia. IR-4 in 2007 expressed a willingness to collaborate with HAL/Ausveg and APVMA on this issue.

Issues encountered/addressed:

- Preparation of collaborative projects – study plans, manufacturer discussions and support, APVMA requirements, timelines, approximate costs, responsibilities,
- Proposed projects (2007/2008)
- Dimethenamid-P / brassicas / weeds
- Buprofezin / cucurbits (GH) / whiteflies
- Chlorantraniliprole / sweet corn / lepidoptera
- A proposed list of Proposed projects for 2008/2009 has been discussed with IR-4

PROPOSED PROJECTS

All horticultural industries have received a list of all proposed minor-use pesticide requests with associated costs to prioritise and fund appropriately.

The total proposed projects total 212 entries. These are made up of:

- Apples & pears – 4
- Berries fruits – 28
- Citrus – 4
- Miscellaneous – 5
- Nuts – 14
- Vegetables (Ausveg) -102 with 50 undergoing prioritisation for early 2008 trials
- Ornamentals & Nursery - 6
- Summerfruits – 8
- Table grapes - 6
- Tropical fruits – 26
- Vegetables (non-Ausveg) - 27

Many of the trials under assessment need data to be generated in the next 6 months to support existing permits. The possible consequence of not providing this data to the APVMA by the due date is that the permits may not be renewed.

INDUSTRY MEETINGS

Over the past six months, meetings have been held with various horticultural industries, consultants, government agencies and agrochemical manufacturers to discuss their pesticide minor-use requirements, pesticide management issues and registration and the Strategic Agrichemical Review Process. The meeting aims are to explore the needs of industries, understand the issues associated with pesticide use, good agricultural practice, pesticide data availability and registration.

CONTACT

If you have any queries or require any assistance regarding pesticide minor-use in horticulture, please contact Peter Dal Santo on Ph: 03 5439 5916 Fax: 03 5439 3391 or Email: pds@agaware.com.au

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