



# COASTAL FRUITGROWERS' NEWSLETTER

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## INSIDE

WFT monitoring in Stone Fruit	3
Auscitrus News	4
News in Brief	7
New Training Regulation for using Pesticides	11
1st Coastal Citigroup Field Day Report - Part 1	14
Off-Label Permit for WFT control in Stone Fruit	20
Highlights from the Citrus Levy Program	21
What's On	22
What's New in Publications	23



NSW Agriculture

Fruitgrowers' Newsletter  
Edited by Sandra Hardy  
Design & Layout -  
Cathryn McMaster

## No.51 Summer 2003/2004

Dear Growers

Welcome to the last edition of the Coastal Fruitgrowers' Newsletter for the year.

This issue is filled with a lot of information for citrus growers. Included is Part 1 of the Field Day report from our 1st Coastal Citigroup activity. The report summarises two of the four presentations including up-to-date information on using copper and petroleum spray oils to effectively control pests and diseases in citrus.



There's also plenty of information in the "News in Brief" section.

I'd like to take this opportunity to wish all our readers and sponsors a very Happy Christmas and all the best for the New Year.

Happy holiday reading, see you in 2003.

**Sandra Hardy**

*The information contained in this publication is based on knowledge and understanding at the time of writing. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Agriculture or the user's independent adviser. Inclusion of an advertisement or sponsor's symbol in this publication does not necessarily imply endorsement of the product or sponsor by NSW Agriculture.*

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# Update: Western flower thrips monitoring program in NSW Stone Fruit

**Graham Thwaite, Special Entomologist,  
NSW Agriculture**

Western flower thrips (WFT) has already been confirmed from stone fruit orchards around Sydney as part of NSW Agriculture's state-wide WFT surveillance program in stone fruit.

Through the program, stone fruit growers are being encouraged to trap for WFT in their orchards. Details about the pest appear in an article on pages 114-117 of the 2003/04 *Orchard Plant Protection Guide*. Yellow sticky traps, as illustrated in the article, are distributed to growers through District Horticulturists. Instructions on their use in this program are in NSW Agriculture Agnote DPI/471: *Is western flower thrips in my stone fruit orchard*. This is also available through your District Horticulturist.

The sticky traps, which should be replaced in the field every two weeks, are returned to the District Horticulturist who will dispatch them to Orange. WFT, as well as any other thrips on the traps, will be recorded. Any likely thrips predators amongst the other insects on the traps are also being noted to add to our pool of information.

By mid November, just on 150 traps had arrived at Orange from six NSW stone fruit growing districts, the north and central coast as well as some inland stone fruit growing areas. About one third of these have been completed. So far, WFT has been confirmed from two orchards in different parts of the outer Sydney area.

It will take some time to check all of the traps and advise growers of the results. It's worth reminding readers that this surveillance program is not a spray warning service – don't wait for the results to make your spray decisions.

Any grower interested in taking part should contact their District Horticulturist immediately. Lots of orchards trapped with a few traps each and changed every two weeks until fruit harvest is the best survey method. This will give the industry information about the whereabouts and infestation potential of WFT in stone fruit in New South Wales.

A few helpful hints:

- Read the instructions for location and density of traps in the Agnote.

- A few traps changed regularly (2 weeks) are the most useful.
- Fruit within 2-3 weeks of harvest is most vulnerable to WFT attack.
- Stop trapping in a block once the fruit is off the trees.
- Label the outside of the traps with a permanent marker before opening.
- When removed, close the traps (sticky surfaces together) and write the removal date.
- Put the traps in a plastic bag before mailing to stop the adhesive leaking into the envelope.



***A bamboo rod (cheap from nurseries or hardware stores) and two clothes pegs glued together, one pair for the top and another for the bottom, are useful for supporting WFT sticky traps above the ground cover.***



**Paul Florissen, Auscitrus Horticulturist and  
Graeme Sanderson, Research Horticulturist,  
NSW Agriculture.**

## Rootstock seed for sale

Auscitrus still has high quality, germination tested rootstock seed available for purchase. Varieties include *Poncirus trifoliata*, Swingle citrumelo, Cox mandarin hybrid, Cleopatra mandarin, Rough lemon and Sweet Orange. Contact the Auscitrus secretary for prices and order forms 02 4325 0247

## Summer 2004 budwood orders

A number of new citrus varieties will be released in limited quantities by Auscitrus from January 2004, including Allen Eureka lemon, the most popular Eureka lemon grown in California and Nam Roi pummelo, a low seeded white fleshed pummelo variety from Vietnam.

Growers and nurseries ordering budwood for the summer/autumn 2004 budwood season should note that the closing date for orders is 30<sup>th</sup> December 2003. Order forms were sent to regular Auscitrus customers in early December, but if you require budwood order forms please contact the Auscitrus secretary for prices and order forms 02 4325 0247

## Avana Tardivo mandarin shows potential

Avana Tardivo is a new mandarin variety with mid-late season potential. Avana Tardivo was imported from Corsica and released to Australian nurseries and growers in 2001. It is grown and marketed commercially in Italy.



*Avana tardivo fruit*

Fruit is similar to Imperial mandarin in appearance and has an extended harvest period of up to eight weeks from July to late August/early September in the Sunraysia region. Fruit evaluated at Dareton in 2003 had a brix:acid ratio of 10:1 in early July and 13:1 during the last week of August.

Fruit on display at the Riverland field days in mid September attracted favourable consumer comment, with the only negative comments about the seed content of 12-15 seeds per fruit. Fruit is medium size and maintains good condition on the tree for an extended period, particularly on *Poncirus trifoliata* rootstock. It showed no sign of the 'waterspot' problem seen on late season Imperial mandarins at Dareton this year and therefore may be suitable for long distance shipping.

Early cropping on trees at Dareton has been particularly heavy on *Poncirus trifoliata* rootstock and trees are upright, vigorous and easy to manage. Budwood demand from Auscitrus has been low but may increase with growing commercial interest.

## 'Delite' mandarin

Mulholland Citrus is one of the leading citrus nurseries in California and pioneered the use of heated polyhouses and drip fertigation to produce trees in 12-18 months from seed. More recently they have developed the brand name 'Delite' for marketing of Afourer mandarin. Proprietor Tom Mulholland visited Mildura in September 2003 and spoke to a group of growers and nurserymen, outlining his plans for development of the Delite brand and also discussed his experience with growing Afourer mandarin in California. Listed below are some of the key points from his presentation:

- Mulholland Citrus has the oldest commercial production of Afourer outside Morocco, with trees 10 years old and now reaching full production.
- Seedless fruit are required for marketing Afourer mandarin as 'Delite'.
- Production of seedless fruit requires isolation from other strong pollinators such as Valencias and mandarins. Seedless fruit are smaller than seeded fruit.
- Each block is checked and sampled prior to harvest to ensure that fruit are seedless. A second brand known as W. Murcott is used for marketing seedy and lower grade fruit.

- Trees are easy to establish, vigorous and highly productive but some bud union problems are being encountered with older trees on *Poncirus trifoliata*. Original choice of *Poncirus trifoliata* was for soil type, size control and productivity. New orchards are being established on C35 citrange which gives good tree size control with navel oranges, but is untested commercially with mandarins.
- Fruit require clipping to prevent rind damage around the button.
- Fruit are volume packed into a range of packaging 25lb box, 5lb box, 3lb carry bag and a plastic 'clamshell' similar to containers used for cherry tomatoes in Australia.
- Afourer is a patented variety in European Union countries and any propagation, growing or sale of fruit in the EU requires agreement with the Moroccan patent holders.
- Counter-seasonal supply from southern Australia into the United States may be possible provided requirements for seedless high quality fruit are met.

For further detailed information visit the Mulholland Citrus/Delite website: [www.delite.com](http://www.delite.com) Mandarin production practices fine tuned

Further mandarin research at Dareton has focused on refining production practices for potential commercial mandarin varieties identified in previous years. A range of cultural practices including fertigation, improved irrigation practices, foliar sprays and earlier thinning have improved productivity and fruit quality of Daisy, Nova and Topaz mandarins.

Leaf analysis of Daisy mandarin suggests that it has a high demand for calcium, which may explain the high incidence of albedo breakdown in previous years. Application of calcium nitrate foliar sprays has helped to reduce the incidence of albedo breakdown in Daisy. Daisy mandarin showed improved fruit size due to earlier thinning (late December instead of January).

Splitting problems observed previously in Nova mandarin were reduced in 2003 with better irrigation management. Improved irrigation practices were implemented through the use of Enviroscan soil moisture sensors that confirmed anecdotal evidence

# Want Wax?

## New LENZ Wash, Wax & Dry Systems

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indicating mandarin trees have a higher water requirement than orange trees. An increase of 20-30% in total water application, to wet the whole root zone, has raised the irrigation volume on 16 year old reworked trees to 12ML/ha/yr.

There has also been interest in Topaz mandarin from juice processors as an alternative to Murcott mandarin for blending with early Valencias for fresh juice in September/October. Topaz has high juice content (60%) and is highly productive. Minor plantings of Topaz have been established in the Sunraysia region as result of the Dareton trial. Samples of Topaz were supplied to Berri Limited for further evaluation of its fresh juice potential in September 2003.

### **New varieties for future evaluation**

Display of Taylor Lee mandarin at the Citrus Varieties Day held at Renmark on 19<sup>th</sup> June 2003 generated substantial grower interest in southern Australia. Whilst this variety has been evaluated and available to Queensland growers for a number of years, it has not been evaluated or distributed commercially in southern Australia. Trees reworked to Taylor Lee at Dareton are expected to produce fruit for evaluation in 2004. Taylor Lee mandarin is currently being multiplied by Auscitrus and will be commercially distributed by Golden Grove nursery 07 4129 4147.

Cara Cara red fleshed navel has been released commercially by Auscitrus in spring 2003 and trees at Dareton have been reworked for rapid evaluation, but initial cropping from field trees is not expected until 2005. Some initial fruit samples from glasshouse potted trees are expected at Dareton in 2004.

Caffin clementine produced a poor initial crop on grafted field trees at Dareton in 2003. Commercial cropping of Caffin is expected to commence in 2004.

### **Hockney navel disease elimination success**


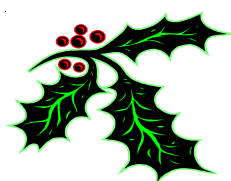
Hockney navel is a mid season navel that originated in South Australia and performed well in the navel evaluation trial established at Dareton in 1992. Hockney navel showed large fruit size and good yields but could not be distributed commercially as it was carrying a number of viroids.

Following the promising early results from the Dareton trial, Hockney navel underwent disease elimination by NSW Agriculture plant pathologists at the Elizabeth Macarthur Agricultural Institute (EMAI), Camden.

A number of successful shoot tip grafts at EMAI have resulted in plantlets of Hockney navel. These plantlets have been tested for viroids with no pathogens detected to date. Further viroid testing will be undertaken before the plants are added to the virus-free repository at EMAI and multiplied by Auscitrus for future commercial release.


### **Variety information sheets**

Citrus variety information sheets have been updated to include comprehensive new sheets on the common citrus rootstocks used in Australia including *Poncirus trifoliata*, Swingle citrumelo, Carrizo citrange, Troyer citrange, Rough lemon and Cleopatra mandarin. The sheets will be updated in 2004 to include information on new rootstocks and varieties under evaluation in trials funded by Horticulture Australia. The variety information sheets can be viewed at the Australian Citrus Growers website: [www.austcitrus.org.au/varieties](http://www.austcitrus.org.au/varieties).



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## ◆ All NSW Citrus trees offered for sale must now be labelled

The NSW Minister for Agriculture and Fisheries, Ian MacDonald MLC has issued an order, under the Plant Diseases Act section 5A (1924), requiring the labelling of citrus and fortunella plants for sale in New South Wales. This Order (OR72) has been issued for the purpose of reducing the risk of the disease Orange Stem Pitting strain of Tristeza virus.

The appropriate person must identify or ensure that all plants of the genera *Citrus* and *Fortunella* (all species) for sale in New South Wales, or introduced into New South Wales, are identified by a label made of durable waterproof material that states in clearly legible indelible printed letters:

- (a) the name, address and postcode of the nursery or place where the plant was propagated;
- (b) the name of the rootstock and scion of the plant by their variety, common or botanical names.

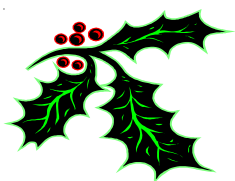
The label must be attached to each plant for sale, and where plants of the same scion and rootstock are sold in a package, the label must be firmly attached to the package and state the number of plants in the package.

Definitions:

“appropriate person” means:

- (a) an owner or occupier of land or premises on which there are plants of the genera *Citrus* and *Fortunella* (all species) that are for sale in New South Wales, and a person in possession of or who introduces into New South Wales plants of the genera *Citrus* and *Fortunella* (all species) that are for sale in New South Wales.
- (b) “sell” includes offering or attempting to sell, exposing for sale, and sending, forwarding, or delivering for sale.

Published in the NSW Government Gazette No. 178, 7 November 2003 on page 10405. 



## ◆ APVMA suspends benomyl

The Australian Pesticides and Veterinary Medicines Authority (APVMA) has suspended benomyl from 20 October 2003 until 20 April 2004. The reason for the suspension is concern that exposure by women of child bearing age to benomyl may result in birth defects.

There is only one product on the market at the moment, Farnoz Marvel Fungicide, but there are a number of horticultural permits.

During the suspension, the APVMA will re-evaluate the existing toxicological data in relation to the reproductive risk, together with other OH&S risks, and the adequacy of label Safety Directions.

**While benomyl is suspended, it is still legal to use existing stocks. Suppliers such as resellers are required to provide to users a copy of the MSDS, and the following warning statement:**


**‘Contains benomyl which cause birth defects in laboratory animals. Women of child bearing age should avoid contact with benomyl.’**

Growers should be reminded that the OH&S Regulation 2001 of the OH&S Act 2000 requires them to have in their workplaces an MSDS for hazardous substances such as benomyl. And to make the MSDS available to anyone likely to be exposed to benomyl in the workplace.

Growers should also be advised to communicate to any female staff, or other females in their workplace of child bearing age likely to be exposed to benomyl, the warning statement quoted above.

To avoid potential liability, it would be advisable that females of child bearing age not apply benomyl, not enter crops where benomyl has been applied, not harvest crops where benomyl has been applied, not handle produce where benomyl has been applied as a post-harvest dip, not work with mushroom casing material to which benomyl has been applied.

Dupont, the parent company, withdrew benomyl from the market as a result of expensive litigation in the US. Most of the damages awarded derived from phytotoxicity claims.

Whether or not high dose rodent data are relevant to female reproductive exposures is a controversial point. But a least one high profile law suit is being fought in the US courts on this basis. 



## ◆ **Citrus Fruit Size Management Guide — Parts 1 and 2**

The new Fruit Size Management Guide is now available to Australian citrus growers. This two part publication outlines the key monitoring and management tools citrus growers can use to manipulate crop load and improve fruit size.

The information in the guide is based on research work undertaken in the recently completed industry funded project "Optimisation of Citrus Production and Fruit Size: An Interactive Management Model". The project was led by Dr Ken Bevington (NSW Agriculture, Dareton). The research was conducted between 1999-2002 and focused on navel and valencia oranges in the Sunraysia region.

Fruit size is the single most important factor in determining market returns. Most domestic and export markets have a preference for large fruit (>72mm) and smaller fruit (<65mm) are often hard to sell. Achieving good sized fruit is a complex process and can be affected by a wide range of variables.


### **Part 1 of the Guide was inserted into the October edition of the Australian Citrus News (ACN) magazine and covers:**

- Citrus Growth Stages, the Citrus Phenological Cycle and Key Management Actions (1-4);
- Crop Manipulation Strategies for Improving Fruit Size;
- Key Elements of Nutrition (summary) and Tree Nutrition for Improving Fruit Size.

### **Part 2 of the Guide is included in the December edition of the ACN magazine and covers:**

- Estimating Crop Load;
- The Predictive Fruit Size Model;
- Measuring Fruit size.

Production of the Guide was a team effort involving key Australian citrus industry research and extension officers and is a valuable tool for all citrus growers.

The guide is also available on the ACG website at [www.austcitrus.org.au](http://www.austcitrus.org.au) or contact your local Citigroup co-ordinator or advisory officer. 

## ◆ **National Citrus Levy Increase goes to Poll**

Citrus growers throughout Australia will soon decide on the proposed increases (*see details below*) to the national research and development levy (which is matched by the Commonwealth Government) and the marketing levy.

Growers will vote on the increase through a postal ballot that will be independently conducted by the Victorian Electoral Commission. The ballot packs will be sent out on the 18 November and polling closes on the 10 December 2003.

Australian Citrus Growers Inc (ACG) Vice President, Mr Mark Chown said the proposed increase is to make up an investment shortfall of \$5.8 million. This amount is required to achieve specific outcomes and growth planned in the national levy's 5 year investment plan.

The proposal to increase the national citrus R&D and marketing levy:

(note: levy refers to both the levy and export charge)

- *To increase the R&D levy on all citrus to \$3.00 per tonne (6c per carton) (The current \$2.00 per tonne levy consists of R&D levy at \$1.97 per tonne and Plant Health Australia levy - which will remain unchanged - at 3c per tonne)*
- *To increase the marketing levy on mandarins from zero to \$5.00 per tonne (10c per carton)*
- *To increase the marketing levy on oranges from \$0.75 to \$1.50 per tonne (3c per carton)*
- *To increase the marketing levy on all other citrus from zero to \$1.50 per tonne (3c per carton)*

For further information contact Judith Damiani, ACG Executive Director 03 5023 6333.

### **\*\* STOP PRESS\*\***

**Citrus growers have voted against the proposed increases. Of the 658 ballots received (about 30% of growers), only 44% voted in favour of the R & D levy increase and around 38% in favour of the marketing levy increase.**



Horticulture Australia


## ◆ Horticulture Australia Projects Update

### **Project: Postharvest treatments for improving eating quality and delaying stonefruit mealiness (SF02012)**

*Project Leader, John Golding, Gosford Horticulture Institute.*

This is a two-year project. The first year's results of the trial were promising. "Ripe and Ready-to-Eat" fruit was successfully supplied to ten Woolworths supermarkets in Adelaide and Sydney. Consumer and market responses of the conditioned fruit in the final weeks of the survey were positive. The effectiveness of adding ethylene into the ripening environment did delay the development of mealiness during storage but its effects were minimal.

The second phase of this project will commence in January 2004, but planning is well underway with collaborators and industry partners.

See the article 'Ripe and Ready to Eat' in Summerfruit Australia Quarterly 2003. 

## ◆ National Citrus Plantings Database Project - NSW Update

*Sandra Hardy (Coastal NSW Project Co-ordinator)*

Australian citrus growers through their industry levy have funded a project to collect planting statistics for all the major citrus growing regions across Australia. The project began in October 2002 and is being co-ordinated by Andrew Thompson of Australian Citrus Growers Inc. (ACG).

The mapping of citrus properties on the Central Coast, North Coast, Narromine and Bourke regions of NSW is now complete. On farm grower surveys were undertaken by Wayne Pitt (Technical Officer, NSW Agriculture) between July and November 2003. All the completed maps and survey forms have now been sent to the ACG for entry into the computer database.


The next step is the generation of individual property maps overlaid with all your block details.

In mid-December growers from the Central coast region of NSW will receive their completed property plans. Please check all your details carefully and if there are any errors or changes simply mark them on the plan and return it to the ACG for reprocessing and production of a new property plan.

The next region to be processed by the ACG will be the North Coast of NSW, followed by Narromine and Bourke. Growers in these areas should expect a copy of their property plan in February-March 2004.

All individual property information will be kept confidential and remain the property of the individual growers. Only aggregated regional information will be used by the ACG to predict production statistics and future crop production and planting trends.

This project has the added benefit of also allowing us to update our NSW citrus growers mailing list. This mailing list is used to inform growers of important events such as field days.

Lastly, I would like to take this opportunity to thank all NSW citrus growers for their time and participation in this project and hope you find your property plans useful. 

## ◆ Crop Protection Approvals Ltd (CPA) Closes it's Doors

Crop Protection Approvals Ltd (CPA) was established four years ago to solve problems of minor use chemical permits in horticulture.

The company was established in 1999, with support from Horticulture Australia, on the premise that it would become self-funding within four years. However, the rate of new business development was inadequate to do this. As a result, the company faced increasing financial difficulties and was placed into voluntary administration on the 12th November 2003.

Horticulture Australia is working on capturing the benefits of existing projects which were contracted to the CPA, and is presently involved in meetings with interested parties.

Horticulture Australia will make a more detailed statement once this process is completed. 



## ◆ **Growth and production of young peach trees irrigated by furrow, microjet, surface drip, or subsurface drip systems.**

*Bryla DR. Trout TJ. Ayars JE. Johnson RS.*

*Source: Hortscience. 38(6):1112-1116, Oct 2003.*

### **Abstract**

A 3-year study was conducted in central California to compare the effects of furrow, microjet, surface drip, and subsurface drip irrigation on vegetative growth and early production of newly planted 'Crimson Lady' peach trees. Furrow treatments were irrigated every 7, 14, or 21 days; microjet treatments were irrigated every 2-3, 7, or 14 days; and surface and subsurface drip (with one, two, or three buried laterals per row) treatments were irrigated when accumulated crop evapotranspiration reached 2.5 mm.

The overall performance showed that trees irrigated by surface and subsurface drip were significantly larger, produced higher yields, and had higher water use efficiency than trees irrigated by microjets. In fact, more than twice as much water had to be applied to trees with microjets than to trees with drip systems in order to achieve the same amount of vegetative growth and yield. Yield and water use efficiency were also higher under surface and subsurface drip irrigation than under furrow irrigation, although tree size was similar among the treatments. Little difference was found between trees irrigated by surface and subsurface drip, except that trees irrigated with only one subsurface drip lateral were less vigorous, but not less productive, than trees irrigated by one surface drip lateral, or by two or three subsurface drip laterals. Within furrow and microjet treatments, irrigation frequency had little effect on tree development and performance with the exception that furrow irrigation every 3 weeks produced smaller trees than furrow irrigation every 1 or 2 weeks. 🌳

## ◆ **Have you got something to say about Flying Foxes?**

If you do, Guy Ballard, a Ph.D student from the University of New England would like to hear about your experiences with, and attitudes toward, these animals. As part of a project that will play an important role in

directing the upcoming review of NSW Flying Fox management policy, Guy is running a series of meetings for commercial fruit growers in NSW. The project is being conducted for the NSW Flying Fox Consultative Committee (FFCC).

One meeting has already been held in Coffs Harbour but there are two more occurring in coming weeks – one in Lismore and another in Castle Hill.

Any NSW commercial fruit grower from east of the Great Dividing Range (or those who live on it) who would like to attend these meetings is welcome to come along.

Meetings will be held as follows:

- At the Lismore RSL Club (1 Market St Lismore) on Friday the 12<sup>th</sup> of December, 2003, at 7.30pm
- At the Castle Hill RSL Club (Castle Hill) on Monday the 15<sup>th</sup> of December at 7.30pm

Meetings will run for approximately one hour and the aim is to give growers the opportunity to comment on their experiences with flying foxes and to discuss any ideas they have for flying fox management, including ways of assisting growers who suffer financial loss as a result of flying fox damage.

If any growers would like more information or be involved in this project and provide information through a survey please contact Guy on (02) 6773 5217 or email him at [wildlife@metz.une.edu.au](mailto:wildlife@metz.une.edu.au) 🌳

## ◆ **The AFVC goes public**

The Australian Fruit & Vegetable Coalition (AFVC) has launched its call for a significant national social marketing campaign to promote fruit and vegetable consumption in Australia.

The Parliamentary Secretary for Horticulture, the Hon Senator Judith Troeth, officially launched the Coalition's Business Case which outlines the broad ranging benefits of increasing fruit and vegetable consumption.

If you would like to find out about, and support, the activities of the AFVC, then go to the Horticulture Australia website [www.horticulture.com.au](http://www.horticulture.com.au), click on the AFVC logo and subscribe to the Coalition's newsletter. 🌳

# Regulation for training in pesticide use

Extracted from the EPA website [www.epa.nsw.gov.au](http://www.epa.nsw.gov.au)



## New law for training people who use pesticides in their work

From 1 September 2003 there are new rules under the Pesticides Act 1999 that make training compulsory for commercial users of pesticides.

This Regulation requires all people who use pesticides in their job or business to achieve a specific level of competency in pesticide use. This includes farmers, market gardeners, flower growers, ground rig operators, parkland and green keepers, landscape gardeners, nursery operators, marina operators, wood preservation operators, landlords, local councils and government agencies. There is a two year phase-in period for people to get trained.

Special training for pesticide users who do not understand or read English will soon be available. The details will be announced in community language media outlets and with the assistance of grower groups representing Arabic, Chinese, Vietnamese and Cambodian market gardeners and farmers. In the meantime, if you have further questions or would like to register your interest for training later this year, information in English is available by contacting EPA pesticides staff on (02) 9995 5799 or by calling the EPA's Pollution Line 131 555.

Pesticides can be dangerous if incorrectly applied or managed, especially to those people who work with pesticides or are regularly exposed to them. Training in their correct use will minimise mistakes being made when using pesticides. It is one of the most effective ways of protecting workers who use pesticides regularly, their families, the community, trade and the environment.

This information explains what you must do to comply with these new rules. If you apply pesticides as part of your job or business, or use other people to apply pesticides, then you need to follow these rules.

### What does the new law say?

- People who use pesticides in their business or as part of their job must be trained in how to use those pesticides.
- You must not employ or engage a person to use pesticides unless that person is trained.

- A person who is 'trained' has a qualification that shows that they have achieved a specific level of competency in pesticide use.
- Someone who has already done Farmcare, ChemCert or SMARTtrain training is already qualified. This qualification remains valid for five years from the date it was completed.
- People who do not have the required qualification have two years to get trained or have their current skills recognised.
- People who are qualified have to be re-assessed every five years.

### Who must be trained?

You must be trained if you use pesticides as part of your job or business. For example, if you apply pesticides:

- as a landlord or on behalf of a landlord
- for a local council, government agency or statutory authority
- to a golf course, sporting field or bowling green
- as part of aquaculture and forestry operations
- as part of any commercial agricultural and farming operation, including broadacre farming, horticulture, livestock, market gardening, flower growing, plant nurseries or activities such as fumigating silos or laying baits
- as part of a business, (e.g. a marina, landscape gardening or wood preservation).

### What sort of training is needed?

Training is required in the use of all types of pesticides, including herbicides, insecticides, fungicides, bactericides, baits, lures and rodenticides (rat poison).

There is a range of training available to suit all types of pesticide users. In most cases the training involves a two-day course, based on the National Agriculture and Horticulture Training Packages. You can also become qualified by demonstrating to a registered training organisation that you know how to use pesticides in your job or business.

If you are working as a pest management technician under WorkCover NSW legislation or as an aerial applicator under the Pesticides Act 1999 this new law does not apply to you. There are separate training requirements necessary for this work.



## **How soon will I need to be trained?**

A two-year phase-in period has been provided to give all pesticide users enough time to obtain training or assessment. **This means you or your employees will need to be trained by 1 September 2005.**

## **What are an employer's responsibilities?**

After 1 September 2005, you must not employ or engage a person to use pesticides unless that person is correctly trained. An exemption may apply in some agricultural situations for people who use pesticides on an occasional basis. A separate information sheet explaining this exemption is available from the EPA.

## **Where can I find out about training?**

Information on training courses, providers and assessors is available on the EPA's website at [www.epa.nsw.gov.au/pesticides/trainers.htm](http://www.epa.nsw.gov.au/pesticides/trainers.htm) or by calling the EPA's Pollution Line on 131 555. General information on training is available from the National Training Information Service at [www.ntis.gov.au](http://www.ntis.gov.au).

## **Will I need to be retrained in the future?**

Every five years you will need to demonstrate that you understand how to use pesticides correctly as part of your job.

## **What if I have already done some training?**

If you already have:

- a certificate under the Farmcare Australia Farm Chemical User Training program, ChemCert Farm Chemical User Training program, or
- a Statement of Attainment under the SMARTtrain Chemical Safety course, SMARTtrain Chemical Application course, SMARTtrain Managing Chemical Use course or the SMARTtrain Chemical Risk Management course,

you do not need to be trained again until five years after that certificate or statement was issued.

## **I only use small quantities of pesticides in my work – do I have to be trained?**

You do not need to be trained if you only use small quantities of household pesticides as part of your business or work, provided that you do all of the following:

- you only apply pesticides that are ordinarily used for domestic purposes (e.g. in the home or garden), and

- are widely available to the general public at retail outlets such as supermarkets, and
- you apply the pesticide by hand or by using hand-held equipment, and
- if you use the pesticides outdoors, you use no more than 5 litres/5 kilograms of concentrate or 20 litres/20 kilograms of ready-to-use product, or
- if you use the pesticides indoors you use no more than 1 litre/1kilogram of concentrate or 5 litres/5 kilograms of ready-to-use product.

## **What happens if I do not comply?**

EPA officers may, at any reasonable time, ask for evidence of training. Strict penalties may apply if you are unable to show evidence that you hold a training qualification under the Pesticide Regulation 1995. Penalties may also apply if you misuse a training qualification.

## **For more information**

Fact sheets on a range of the activities mentioned in this guidance sheet are available on the EPA's website at [www.epa.nsw.gov.au/pesticides/](http://www.epa.nsw.gov.au/pesticides/) or can be obtained by calling the EPA's Pollution Line on 131 555 for the cost of a local call from anywhere in NSW.

If you are not sure whether you should be trained, or if you have further questions about compulsory training, you can contact the EPA pesticides staff on (02) 9995 5799, or call the EPA's Pollution Line on 131 555.

## **Registered training providers**

From 1 September 2003 there are new rules that make training compulsory for people who use pesticides in their work.

There is a range of training available to suit all types of pesticide users. In most cases, the training involves a two-day course, based on the National Agriculture and Horticulture Training Packages.

You can also become qualified by demonstrating to a registered training provider that you know how to use pesticides in your job or business.

Information on training courses, providers and assessors is available from:

- ChemCert (NSW) Ltd  
Phone: (02) 9387 4714  
Website: [www.chemcert.com.au](http://www.chemcert.com.au)
- NSW Agriculture  
Phone: (02) 6391 3317
- TAFE NSW  
Phone: (02) 6393 5900  
Website: [www.lg.tafensw.edu.au/smarttrain](http://www.lg.tafensw.edu.au/smarttrain)



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<b>Analysis (w/v)</b>	42.5% Nitrogen Total { 21.5% Nitrogen as Urea 10.5% Nitrogen as Ammonium 10.5% Nitrogen as Nitrate }	30% Potassium as thiosulfate 25% Sulfur as thiosulfate	16% Nitrogen as ammonium 34% Sulfur as thiosulfate	12.6% Nitrogen as nitrate 18.1% Calcium as nitrate	1% Nitrogen as ammonium 12 % Phosphorus as water soluble 24% Potassium as phosphate
<b>Specific Gravity</b>	1.32 kg/L (1000L weighs 1320kg)	1.48 kg/L (1000L weighs 1480kg)	1.325 kg/L (1000L weighs 1325kg)	1.5 kg/L (1000L weighs 1500kg)	1.4 kg/L (1000L weighs 1400kg)

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# 1st Coastal Cittgroup Field Day Report Part 1

Sandra Hardy, Coastal NSW Cittgroup Coordinator.



In mid-November the 1st Cittgroup field days were held on the North Coast and the Central Coast. The Cittgroup program is funded through Australian citrus grower levies and are

matched by Federal funding through Horticulture Australia. NSW coastal citrus growers were included in the National Cittgroup program in 2003. The main purpose of Cittgroups is to provide and extend the latest citrus information (from Australian and overseas research) to growers.

The field day program focused on four topics including:

- **"An update on the control of melanose, lemon scab and pink disease"** provided by Nerida Donovan, Citrus Plant Pathologist, NSW Agriculture;
- **"The use of copper sprays to control citrus diseases"** by Pat Barkley, National Citrus Improvement Manager, Auscitrus;
- **"What you need to know about using horticultural mineral oils"** by Andrew Beattie, Associate Professor, University of Western Sydney, and
- **"General postharvest handling principles of citrus"** by Peter Taverner, Postharvest Entomologist, SARDI.

**Part 1 of this report is a summary of the presentations by Pat Barkley and Andrew Beattie. Part 2 will be included in the Autumn edition of the Newsletter.**

## Using Copper Sprays to Control Diseases in Citrus

The warm humid conditions on the coast favour a range of fungal diseases which affect citrus. These include melanose, black spot, greasy spot, lemon scab, brown spot and pink disease (north coast mostly).

Most NSW citrus disease control programs rely on copper sprays to protect the trees and fruit from infection. These control programs were developed largely in the 1960's and 70's by Dr Temple Kiely using trial data carried out on the Central Coast region of NSW. Table 1 outlines a summary of these programs.

**Table 1: Coastal disease control programs**

Disease	Chemical
Melanose	Cu at petal fall + 6-8 weeks later
Black spot	Cu at petal fall & Benlate 12-16 weeks later
Greasy spot	Cu &/or citrus spray oil
Scab	Cu at $\frac{1}{4}$ - $\frac{1}{2}$ petal fall (+ 6 weeks later)
Brown spot	Cu at petal fall, early Dec and early March. Zineb in late Jan.
Brown rot	Cu before rain when fruit is maturing.
Pink disease	Cu

### How copper works

Copper sprays are protectant fungicides that must be present on the plant or fruit surface before infection by the pathogen. Copper is not a systemic chemical and cannot be carried internally through the plant to kill the pathogen. Plant exudates in the presence of moisture form weak acids which dissolve the copper products on the plant surface releasing copper ions. Any fungal spores that come into contact with these copper ions pick them up and they interfere with their enzyme system.

Once the copper is applied it sticks only where it hits and does not spread across the fruit or leaf surface. The coverage of copper over the plant or fruit surface deteriorates over time due to both fruit growth and weathering by rain and wind. Depending on conditions copper fungicides only offer about 4-8 weeks protection. Therefore reapplication of the protective copper layer may need to be made if infection is likely over longer periods.

The key to using copper fungicides effectively is to achieve the most even distribution on the plant/fruit surface as you can.

### The differences between different copper formulations

There are basically three types of copper compounds: copper oxychloride and copper hydroxide (green and blue coppers) and cuprous oxide products (red copper).

Today's copper fungicides are generally more effective than older products per unit area of metallic copper and can therefore be used at lower rates.

From work done on copper products by Professor Pete Timmer in Florida he found that:

- Whether it is a liquid, flowable or dry product there is very little difference in the level of control per unit of metallic copper;
- There is also little difference in the effectiveness of the different formulations;
- The most important factor affecting product effectiveness is the particle size of the formulation and how well it sticks (rainfast) to the plant surface.
- Products with a smaller particle size tend to have better coverage, rainfastness and longevity on the crop.

### **Use copper sprays on their own**

In Florida they recommend that no other products be mixed with copper sprays. This includes other fungicides, insecticides or nutrient sprays. The use of low rates of petroleum spray oils (<0.5%) as a spreader is okay.

All good quality copper products may contain small amounts of other impurities (eg cadmium and lead), however some cheaper products may contain higher levels.

### **Damage from copper sprays**

Copper sprays can cause necrotic (dead) spots between the oil glands giving the fruit rind or leaves a speckled appearance. These spots appear similar to the disease melanose, however, the spots are almost black and are often on the exposed (outward facing) surface of the fruit.

Copper sprays also darken existing blemishes (ie wind blemish on the fruit).

On some soils copper levels can also increase and become toxic to citrus roots and also interfere with nutrient uptake.

### **The phytotoxic effects of copper are more common when:**

- copper is applied with other products (especially acidic ones) in the one tank mix;
- applied at high temperatures (especially when fruit and plant surface temperatures are above the high twenties);

- humidity is low and cloud cover is close to zero;
- liquid formulations are used.

### **Reducing copper damage**

Copper damage to fruit and leaves can be reduced by:

- applying lower rates;
- not mixing copper with other products;
- applying them when fruit/leaf temperatures are lower than 25°C.

### **Alternatives to copper**

In Australia there are very few alternative fungicide products registered for use on citrus. In the past ten years research overseas has focused on assessing the new strobilurin fungicide group. These fungicides have the advantage of being both broad spectrum and systemic. However, resistance problems are already occurring overseas from misuse and overuse.

Researchers in Queensland have recently completed a three year project ("Screening new products for citrus disease control" Project No. CT00021) assessing this new fungicide group for the control of black spot (oranges) and brown spot (mandarins) in citrus.

The trials showed that Azoxystrobin was as effective as copper and mancozeb sprays for controlling black and brown spot. There was also less rind damage with strobilurin in these trials. They also found that there were no significant differences in disease control between the different formulations of copper trialed. (The trial assessed copper ammonium acetate, copper hydroxide, copper oxychloride and cuprous oxide).

A full copy of the report is available from Horticulture Australia.

### **Best Practice Tips**

- ☑ Copper sprays are protectant fungicides and need to be applied prior to infection.
- ☑ A good even coverage of copper to plant and fruit surfaces is essential.
- ☑ The protective layer of copper diminishes over time (as a result of fruit/plant growth and rain and wind) and therefore only offers short term protection (4-8 weeks) depending on conditions. If infection is likely over long periods then reapplication may be necessary.
- ☑ Don't apply copper when fruit/leaf temperatures are high and humidity is low.



- ☑ Particle size (smaller the better) and rainfastness are one of the most important aspects of any copper product.
- ☑ Apply copper sprays on their own.
- ☑ Use good quality products with low levels of impurities.

## Using Petroleum based Oil Sprays in Citrus

### Oil Sprays have a Name change

Following an international conference on Spray Oils in Sydney in 1999, new names were recommended to replace such terms as summer oils, superior oils, petroleum spray oils and narrow-range and broad-range oils. This new classification is based on the degree of refinement of the oil and recommends three new categories:

- Mineral oil (MO)
- Agricultural mineral oil (AMO)
- Horticultural mineral oil (HMO)

HMOs and AMOs come from the lubricating fraction of petroleum oils. These high quality oils should be refined from virgin distillates and not from recycled products.

Only HMOs and AMOs are applied to plants. They are used to suffocate (drown) or alter the behaviour of susceptible pests and pathogens.

### A long history of use

Oil sprays have been used for over a century to control insect pests. During this time there have been significant changes in the way oils are formulated, in their quality and in the emulsifiers used. It wasn't until the 1960s that "narrow range" oils were developed to reduce the risk of phytotoxicity (damage) to plants.

### Benefits of HMOs and AMOs

- They are as effective or more effective than broad spectrum synthetic pesticides for a wide range of pests and diseases.
- Many pests can be controlled simultaneously.
- They have less harmful effects on the natural enemies of citrus pests.
- They do not stimulate other pest outbreaks.
- Pests are not known to develop resistance to them.

- The oil deposits are broken down within weeks to form simple, harmless molecules.
- When using oils only minimum protective clothing needs to be worn.
- They are suitable (depending on the emulsifiers and additives used to formulate products) for use in organic farming.
- They are not toxic to humans or other animals.

### Standards for HMOs and AMOs

There are a number of standards recommended for spray oils. Unfortunately this type of information is not usually on the registered label. You need to contact the manufacturer for these details.

- **They must be virgin paraffinic oils (Cp ≥ 60%).** This means that they must not be recycled oils and that more than 60% of the carbon-hydrogen molecules must be in chains rather than rings.
- **The concentration of unsaturated molecules must be 8% or less.** The unsaturated molecules are the ones that oxidise and produce acids which can burn plant tissue.
- **The unsulfonated residue (UR) should be 92% or higher.** The higher the UR the lower the risk of phytotoxicity (damage).
- **The *n*-paraffin carbon number (*n*C<sub>y</sub>) of HMOs are mostly *n*C<sub>21</sub> and *n*C<sub>23</sub> as well as *n*C<sub>24</sub>. The *n*-paraffin carbon number of AMOs are mostly *n*C<sub>24</sub> or *n*C<sub>25</sub>.** This number relates to the weight of the oil, the lower the carbon number the lighter the oil. For example an *n*C<sub>21</sub> oil is lighter than a *n*C<sub>24</sub> oil.

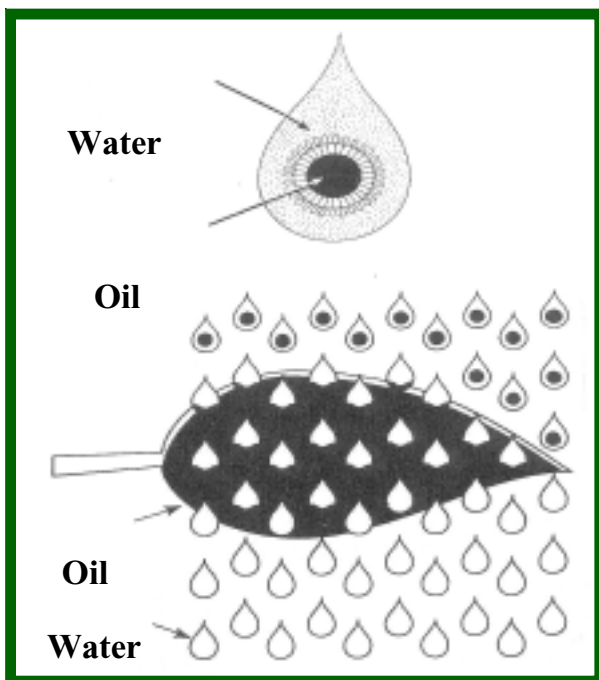
### Controlling pests using oil sprays

Oil sprays control pests either by suffocation (drowning) or by altering their behaviour (eg. reduced egg laying). Diagram 1 shows what happens to the oil droplet when it is applied to the plant. Diagram 2 shows how insect pests are suffocated by oils.

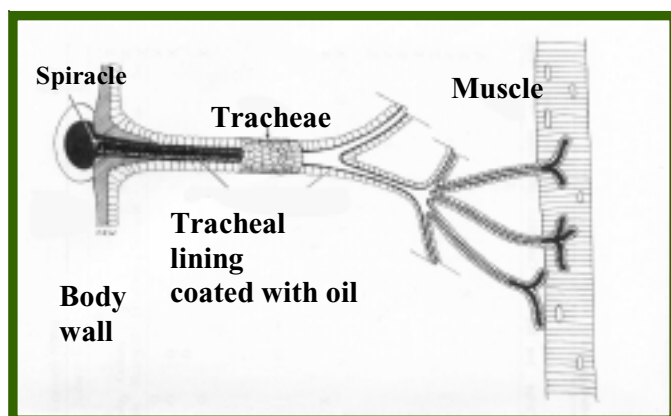
#### ◆ Soft Scales and Mealybugs

These can be more difficult to control than hard scales. White wax, pink wax and hard (Chinese) wax scales are the easiest soft scales to control. They have one annual generation in southern states and two generations in northern NSW and QLD.

Control should be achieved with a 1% oil as long as you apply the spray thoroughly to all infested plant surfaces. Timing of the oil spray is critical and needs to



**Diagram 1: Oil remains on the leaf surface or moves into the leaf and most water and emulsifier run off.**



**Diagram 2: Anoxia (suffocation) results from oil movement into the tracheae (breathing tube) of the pest. Based on Johnson (1994)**

coincide with the presence of the young recently hatched stages (crawlers) which generally occur on the upper leaf surfaces.

The other soft scales such as black and soft brown scales are more difficult to control because they have many overlapping generations.

Time your oil spray to coincide with the greatest number of young stages. Spot spraying heavily infested trees rather than whole blocks is also an option for these scales.

**\*NB. Ants promote soft scale infestations and must also be controlled. Controlling soft scale infestations is pointless if you do not also control the ants.**

#### ◆ **Armoured (Hard) Scales**

Light infestations of armoured scales such as red and purple scale are easily controlled using oil sprays. Moderate to heavy infestations of these scales are more difficult to control largely as a result of the very large numbers of scale insects present.

A 1% oil spray applied at high volumes should be used. Good coverage of all the above ground parts of the tree is necessary. Manipulate your sprayer to direct more spray into the tops of trees so that the spray drips down inside the canopy. Good coverage of the inside of trees is essential and high volume sprays are necessary.

#### ◆ **Mites**

Mite infestations can be controlled using multiple low concentration (0.25-0.5%) oil sprays. The oils suffocate the mobile stages and the oil deposits on the plant surface can reduce feeding and egg laying behaviour. Citrus red mite (only present in the Gosford and Sydney areas) appears to be more susceptible to oil sprays than two-spotted mite.

#### ◆ **Citrus Leafminer (CLM)**

In most of southern and eastern Australia CLM infestations occur from mid-summer until mid-autumn. Adult moths lay eggs on immature leaves when they are less than 4cm long. The peak egg laying period occurs between mid-February and mid-March.

The oil sprays don't kill CLM but instead affect the behaviour of the female moth. The moth tends to lay fewer eggs on the oil sprayed leaves and the oil deposits also affect the movement of moths between and within trees. This then results in reduced populations of CLM.

Control of CLM is usually only necessary in nursery situations and in young trees. Multiple (every 5-14 days) low concentration (0.25%) oil sprays are applied to the susceptible new growth as soon as the summer flush commences in mid to late January. Good coverage of leaf surfaces is essential and trees should be sprayed to the point where the spray just starts to drip off the leaves.

It is difficult for the moth to establish large populations if you commence spraying early in the summer flush cycle when flush is first observed.

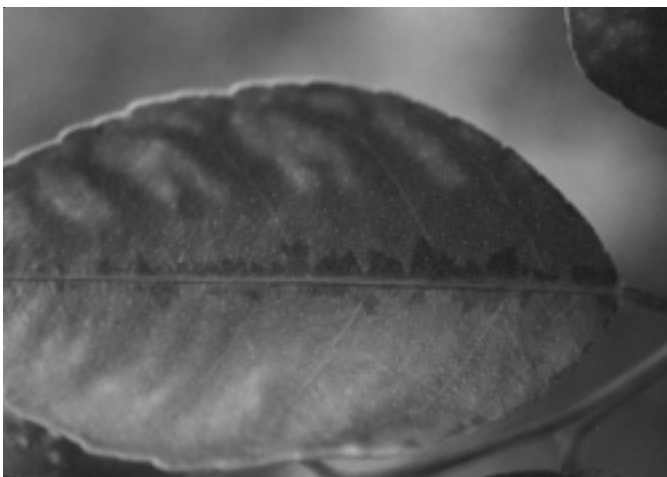
#### **Plant Damage from Oil Sprays**

Oil sprays can sometimes damage plants - this is referred to as phytotoxicity. Instances of phytotoxicity are less common these days than in the past, largely

due to the availability of better quality high grade products.

Damage to plants can occur if the oil sprays are not applied correctly or under the right conditions. Damage can include leaf burning and oil soaking (of leaves and fruit), and in severe cases leaf drop and reduced yields.

Oil soaking may be evident on fruit surfaces and on leaves (typically along the leaf midrib) up to a few weeks after application (this is common). See Photo 1.



**Photo 1. Oil soaking on leaves is common**

The extent of soaking depends on the concentration of oil applied, the frequency of application, the citrus variety (Meyer lemon fruit appear more sensitive than Eureka lemon), and the climatic conditions. The oil soaking disappears over time, as the oil evaporates from the plant, and moves within the plant. The loss of oil from the plant is more rapid in tropical and subtropical climates than in temperate regions. This is largely related to daily temperatures, the higher the temperature the more rapidly the oil disappears.

Leaf burn is largely caused by the acids, which are formed when the unsaturated oil molecules in the product are exposed to air and sunlight. This is why it is recommended that HMOs and AMOs have less than 8% unsaturated molecules, because it is these molecules which are responsible for the burning. Burning is more likely to occur in slow drying conditions, when trees are moisture stressed, in high temperatures, with high concentrations of oil, and with heavier oil products (oil with carbon values of  $nC_{24}$  and  $nC_{25}$ ).

### **Things to Know when Using HMOs and AMOs**

- You need to apply oils so that you achieve a thin even coating of oil over the plant or fruit surface.
- It is better to apply a higher volume of spray mix than to use a higher concentration of oil in the mix.
- In situations (tropical and subtropical regions) where you are using multiple low concentration (<0.5%) oil sprays annually, apply sprays just to the point of runoff (spray on leaves just starts to drip).
- In situations (subtropical and temperate regions) where only one or two applications of a higher concentration (1%) oil spray are used annually, apply at volumes which exceed the point of runoff (spray on leaves is continuously dripping).
- Timing of oil sprays is critical, apply them when the target pest numbers are highest and they are at their most susceptible stage.
- For most pests you need to thoroughly coat all plant surfaces - the upper and lower leaf surfaces, fruit, twigs, branches, insides and outsides of trees.
- The residual activity (how long they last) of oils is less under hotter tropical conditions than in the cooler temperate climates. This is largely because the oil molecules evaporate and move within the plant more quickly in warmer climates.

### **Application tips and Precautions when using HMOs and AMOs**

- ☑ To prepare an oil spray, fill the spray tank with two-thirds of the water, then add the oil whilst agitating the tank, then top up with the remaining water.
- ☑ Spray the oil mix immediately after preparation.
- ☑ Oil spray mixtures need to be continuously agitated. Never leave the spray mix to stand for longer than ten minutes. If you do, then vigorously agitate or stir before recommencing application.
- ☑ Aim to have the oil spray dry on the plant within 1-2 hours of application.
- ☑ In slow drying conditions, use oil products with UR values > 99.8%.
- ☑ The effectiveness of some synthetic chemicals is enhanced when mixed with low concentrations of oil.
- ☑ Don't apply oil sprays in temperatures higher than 35°C (if high temperatures are forecast, spray in the early morning or late afternoon).
- ☑ Don't apply oil sprays to moisture stressed trees.
- ☑ Do not add additional emulsifiers or surfactants to the oil spray.

- ☒ Do not mix oils with incompatible chemicals such as sulfur, captan, carbaryl, propargite, dimethoate, and foliar fertilisers with high amounts of sulfur. If oils are mixed with incompatible chemicals, the risk of phytotoxicity (damage) is increased.
- ☒ Do not apply an oil spray within one month of a sulfur spray.
- ☒ Do not use more than a 0.5% concentration of oil with a copper spray.
- ☒ To reduce the likelihood of oil “soaking” on fruit, do not apply an oil spray within four weeks of harvest.
- ☒ Excessive use of oil sprays (high doses) can reduce yields by clogging up the water and food transport systems in the plant.
- ☒ Do not use more than an annual total of 3.0% in tropical/subtropical climates, and 2.0% in temperate climates.

! Take care when applying oil sprays when the ambient shade temperature is more than 32°C.

### Best Practice Tips

- ☑ In most situations, the concentration of oils should not need to exceed 1%. Focus on increasing spray volumes rather than increasing the concentration of the oil.
- ☑ Oils need to be applied so that you get a good even coverage of all plant surfaces on which the target pest is located.
- ☑ Carefully follow all the application recommendations and precautions to avoid problems with phytotoxicity.
- ☑ Aim to apply oil sprays so that they dry within one to two hours after application.



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# Off-Label Permit for Control of WFT on Stonefruit

**Permit number - PER6623**

**This permit is in force 1 October 2003 to 30 June 2004.**

**Reason for issue of permit:**

Stone fruit growers have experienced considerable economic losses due to Western Flower Thrip (WFT). There is significant resistance in populations of WFT to organophosphate, carbamate and various pyrethroids. For resistance management purposes it is important to alternate the use of products from different chemical groups.

This permit is issued to allow growers to use the product Success® Naturalyte Insect Control to control Western Flower Thrips (WFT), in stone fruit.

**Products:**

Success® Naturalyte Insect Control  
Containing: 120 g/L Spinosad as the only active constituent.

**Directions for Use:**

80mL/100L water.

**Critical Use Comments: \* See note below**

Apply 3 consecutive sprays only at 6-12 day intervals if temperature is less than 20°C or 3-5 day intervals if temperature is greater than 20°C.

**Withholding Period:**

DO NOT harvest for 14 days after application.

**States:** NSW, QLD

(Note: Victoria is not included in this permit because their 'control-of-use' legislation means that a permit is not required to legalise this off-label use in VIC).

**\* Most WFT damage to stone fruit in NSW has been occurring 2-3 weeks out from harvest. Growers have achieved good control with only one application of spinosad if it is applied 2-3 weeks from harvest.**

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**WHEREVER WE GO, WE MAKE IT GROW**

# Highlights from the 2002/03 levy program for citrus

Gerard McEvilly, Program Manager, Horticulture Australia

## Market Development

- **Fifteen AUSTRALIAfresh promotions conducted in 8 markets**

An industry responsive and commercially enhanced AUSTRALIAfresh marketing and promotional program, focused on driving orange sales in all chosen export markets, was implemented in 2002. The aim of this program is to work together with registered export members and implement large programs to complement supply chain efforts at both a trade and consumer level.

- **Positive evaluation of first coordinated domestic promotion**

After several years of orange promotion being carried out by each separate production area, it was agreed to pool resources and also to use funds from the HAL Marketing Levy to undertake a domestic promotion campaign. Although the funding was fairly limited, an evaluation of the campaign proved positive.

- **Consumer usage, attitude & sensory information obtained**

The first part of this multi-phase study was completed, with a thousand interviews with consumers on their use of and attitude to citrus and other fruit. Food service users were also studied. The work is on track to report to industry in early 2004.

## Quality & Safety

- **Sanitation surveys undertaken and recommendations provided to packers to assist food safety**

As part of the postharvest R&D program, washing water and dips from several packing sheds was sampled. A number of areas for improved practices have been identified and communicated to packers. However, these related to avoiding spread of mould spores, to prevent fruit rots, rather than food safety issues.

- **Fruit size model available and adopted**

Due to the record light crop of large fruit for 2003, the focus was shifted to the future 2004 crop. This was predicted to swing to a large crop of small fruit and therefore a fruit size 2004 campaign was launched at the April Conference, with a group of research and extension specialists led by NSW Agriculture charged with packaging appropriate information on managing fruit size. The breakthrough was carried over to 2003/04

- **Alternative time x temperature cold disinfestation protocol submitted**

A major CMDG and levy-funded program over several years resulted in a new, more flexible protocol which will assist in-transit shipments where fruit fly quarantine is an issue. The protocol was presented to the Japanese authorities for consideration in early 2003.

## Proposed Treatment Schedule for fruit fly disinfestation:

Crop	Days at 1°C	Days at 2°C	Days at 3°C
Lemons	14	16	18
Oranges and Mandarins	16	18	20

## Production

- **Breeding program reviewed**

Spanish expert Prof Luis Navarro visited Australia in February to undertake a very detailed technical review of the breeding program. Dr Navarro praised many aspects of the program and recommended that it be maintained, given the likely release of new varieties from 2005 onwards. Prof Navarro was also able to suggest some areas for improvement and these will be incorporated into any ongoing work if possible.

- **Citrus jassid project completed with good result for industry**

Several years of research came to fruition with the adoption of new control measures for the jassid or leafhopper, a serious citrus pest in Queensland. The pest can now be controlled by careful pesticide use, with some help from natural predators. This maintains the well-established Integrated Pest Management approach and has resulted in major cost savings for the industry.

## Communication

- **New ACG website launched**

An increasing number of growers are relying on the Internet for communication, from ordering water to receiving returns from packhouses. The ACG website [www.austcitrus.com.au](http://www.austcitrus.com.au) was designed to be easy to navigate, even with the poorer connections in some rural areas. A website is ideal for rapidly changing information, such as statistics or market data and the Export Market Intelligence System is now housed on the website, with access to Australian growers via a password from ACG



# What's on

## ◆ 14-16 April 2004 Pre-conference Citrus Industry Study Tour.

Draft Program.

### Wednesday 14 April

Travel north from Mildura to the citrus producing region of Ellerslie. Visit Allan Whyte's orchard after the drought. Overnight at Mungo National Park.

### Thursday 15 April

Travel from Mungo to Robinvale to visit citrus & olive orchards. Overnight at Robinvale.

### Friday 16 April

Travel through Hattah National Park to Colignan. Visit packing sheds, covered citrus, processing plants. Return Mildura.

### Expressions of interest

\*\*\* This tour will only go ahead if there is sufficient interest \*\*\*

Please direct enquires and expressions of interest to Kevin Cock, phone 0418 502 293 or Peter Morrish phone 50 211 890.



## ◆ 18-22 April 2004 2004 Australian Citrus Growers (ACG) Conference, Mildura.

The Sunraysia Citrus Growers invites the Australian citrus industry to Mildura for the 56th Annual ACG Conference.

With a theme of "Size up your profit\$", the conference organising committee is developing a stimulating program covering production, research and marketing. A draft program will be available soon.

## New Publications

### ◆ Is western flower thrips in my stone fruit orchard

Agnote DPI/471, September 2003

### ◆ How much does it cost to pump?

Agfact E5.10

## ◆ 1-3 September 2004 Australian & New Zealand Horticulture Conference, Sunshine Coast, Queensland.

### Harnessing the Potential of Horticulture in the Asian-Pacific Region

- Achieving Commercial Potential
- Harvesting the Genetic Potential
- Reaching the Potential for Sustainable Horticulture
- Building Bridges
- Education and Training
- Enhancing Economic Potential by Innovative Production Systems
- Harnessing the Potential of Sensory and Postharvest Technologies

For further details go to [www.aushs.org.au/conference/index.htm](http://www.aushs.org.au/conference/index.htm) or contact Professor Richard Williams, phone (07) 54 601 305.

## ◆ The Good, the Bug and the Ugly Citrus Pests and their Natural Enemies - Now on CD-ROM

The CD contains information on over 100 citrus pests and their control using Integrated Pest Management. More than 400 colour photos and searchable databases help you to identify pests, the damage they cause and their natural enemies.

A comprehensive section on pesticide application and monitoring includes Excel spreadsheets that you can download and use to record your own orchard data.

Minimum system requirements: Intel 486 or Pentium PC, MS Windows version 95 or later, 10 Mb RAM.

For order form contact: IPM CD-Rom, Maroochy Research Station, phone (07) 5441 2211, fax (07) 5441 2235.

# What's new on the Web in Publications

## ◆ **CRC Weed Management Website**



### **Finding weed information on the web gets easier**

As part of a third stage of work on the Weeds CRC website, the Weed Management page now includes over 700 links to information on more than 80 different weed species.

We know that searching the web for weed information can be a bit of a drag, so to make things easier we've put together the "Individual Species" page.

This page is to become a one-stop-shop for weed links. We've done the surfing for you and filtered out the rubbish! We hope to keep adding new links and species to this page on a periodic basis, so please contact us with your suggestions.

Go to [www.weeds.crc.org.au/weed\\_management/individ\\_species\\_a.html](http://www.weeds.crc.org.au/weed_management/individ_species_a.html)

Contact: Sally Vidler Phone (08) 8303 7209  
[sally.vidler@adelaide.edu.au](mailto:sally.vidler@adelaide.edu.au)

## ◆ **Weed Fact sheets**

These easy to read fact sheets highlight weed management case studies and are available from the Weeds CRC website:

[www.weeds.crc.org.au/education\\_training/vet\\_resources.html](http://www.weeds.crc.org.au/education_training/vet_resources.html)

## ◆ **RIRDC online - New Reports**

- **Successful Land Leasing in Australia. A Guide for Farmers and their Advisers**  
[www.rirdc.gov.au/reports/Ras/03-080.pdf](http://www.rirdc.gov.au/reports/Ras/03-080.pdf)
- **Delaying Postharvest Senescence of Cut Flowers using Nitric Oxide.**  
[www.rirdc.gov.au/reports/WNP/03-051.pdf](http://www.rirdc.gov.au/reports/WNP/03-051.pdf)
- **Australian Cut Flower Best Bets Program.**  
[www.rirdc.gov.au/reports/WNP/03-055.pdf](http://www.rirdc.gov.au/reports/WNP/03-055.pdf)

## ◆ **The Organic Advantage**

A free monthly bulletin available on line. To subscribe go to the Biological Farmers of Australia Co-op at [www.bfa.com.au](http://www.bfa.com.au) and join the mailing list.

## ◆ **Organic Federation of Australia: Organic Industry Update**

A monthly newsletter. To subscribe go to [www.ofa.org.au](http://www.ofa.org.au)

## ◆ **Information on Farm Water Quality**

A range of information leaflets including water quality guidelines, monitoring, testing, quality and treatment. Go to the NSW Agriculture website at [www.agric.nsw.gov.au/reader/3823](http://www.agric.nsw.gov.au/reader/3823)

## ◆ **Updated Citrus Budgets for NSW**

The new 2003 edition of gross margins for the major citrus varieties grown in NSW has just been released by NSW Agriculture. This new edition also contains interactive spreadsheets for which growers can insert their own information. The booklet is currently only available on the web.

Go to the Australian Citrus Growers website at [www.austcitrus.org.au](http://www.austcitrus.org.au) and click on "Season Update" then "Fact Sheet Page" then "Economics".

## ◆ **Farm Forestry Information**

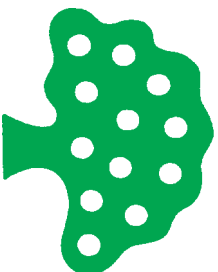
If you need information on selecting tree species for your farm there is now a new section on "Tree species for farm forestry". This section allows growers to determine the right tree species for their property on the basis of their site conditions, climate and objectives.

You can use this new database in a number of ways:

- Search on the species or the common name.
- Via our farm forestry species and common name list.
- Via the FarmForestLine choosing the right tree list. This listing returns a range of information resources that can assist you in selecting the right species according to your site requirements and desired outcomes. There are thousands of species to choose from and almost as many criteria that may be used for selecting the most appropriate type of tree.
- Go to [www.farmforestline.com.au/pages/10\\_species.html](http://www.farmforestline.com.au/pages/10_species.html)



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# COASTAL FRUITGROWERS' NEWSLETTER



SURFACE  
MAIL



The Coastal Fruitgrowers' Newsletter is a quarterly publication distributed in Spring, Summer, Autumn & Winter. It is available free to all commercial fruit growers in the Sydney Basin, Central Coast, Hunter Valley, South Coast & North Coast areas.

**NSW Agriculture Staff**  
- Who to Contact  
For Commercial Fruit Enquiries



**Alstonville 02 6628 0604**  
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**Maitland - Tocal 02 4939 8888**  
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Norm Cross - Irrigation Officer  
Alan Richards - Irrigation Officer  
Michael Cashen - WaterWise Officer  
Genevieve Lennard - Agricultural Inspector

**Windsor 02 4577 0600**  
Peter Malcolm - District Horticulturist  
Bill Yiasoumi - Irrigation Officer  
John Gillett - Irrigation Officer  
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(Sydney & South Coast) 04111 39579

ALWAYS READ THE LABEL  
Users of agricultural chemical products must always read the label and any Permit, before using the product, and strictly comply with the directions on the label and the conditions of any Permit.  
Users are not absolved from compliance with the directions on the label or the conditions of the Permit by reason of any statement made or omitted to be made in this publication.

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