

Editor's Corner

Spring is finally here, the season of renewed life and hope after the desolation of winter.

I'm crossing my fingers for a better season and for some rain to fall over your dams.

Julie Dart
Editor
Tumut District Office
PO Box 3, Tumut NSW 2720
Phone: (02) 6947 4188
e-mail: julie.dart@agric.nsw.gov.au

NSW DPI Extension Horticulturists

Commercial fruit growers who require horticultural production or pest and disease advice should contact their nearest extension horticulturist

Alstonville	Philip Wilk	6626 2450
Camden	Lawrence Ullio	4640 6408
Gosford	Sandra Hardy	4348 1916
Orange	Jeremy Bright	6391 3822
Tumut	Julie Dart	6947 4188
Windsor	Peter Malcolm	4577 0637
Young	Sue Marte	6382 1077

Fruitwise is a NSW DPI newsletter produced quarterly for commercial temperate fruit growers of the tablelands and inland districts of New South Wales. Companies wishing to advertise products or services should contact the editor for advertising rates and publication deadlines.

Suggestions on stories or feedback on the format and content of this newsletter are also welcome.



Fruit Drops

NSW DPI new lab services

Did you know that NSW DPI also offers commercial (fee for service) testing services for growers? Our lab at Wollongbar now has test kits available for water, soil and plant testing. All you have to do is collect the sample and send it away. The lab is accredited with the National Association of Testing Authorities. Call your local NSW DPI office for a price list.

ID service for Western Flower Thrips

This year the Plant Health Diagnostic Service at Orange Agricultural Institute will run a fee for service WFT identification program. Kits include trap, freight (via TNT couriers), professional assessment and results within 24 hours after arriving at the lab.

Prices:

Yellow Cardboard Sticky trap kit: \$71.15 Petri-dish trap kit \$30.85
Phone Merydyn Davidson at the scientific collections unit on 1800 675 821 to order kits.

Sticker Free Labelling

From Good Fruit Grower (USA) - June 2004

An American company has come up with a new way of labelling fruit- without labels. The patented machine uses a laser to remove the pigment from the surface of the produce to reveal a contrasting sub-layer, without touching or damaging the product.

The system can print virtually any information such as a Product Look Up code (PLU), country of origin and traceability data.

It eliminates the cost of labels, reduces consumer complaints about labels and is environmentally friendly. It can also label produce that is traditionally hard to label. The machine can label 14 fruit per second. Follow the link below for more information and to see pictures.

www.durand-wayland.com

On-farm food safety guide to get a rewrite

Reprinted with permission from HALs "What's Happening" 17 August

A group of industry food safety specialists gathered in the HAL Sydney office on the 4th of August to edit the "Guidelines for On-farm Food Safety for Fresh Produce". Known as the AFFA Guidelines after the Department sponsored their initial development, the guide is now referenced widely, including retailer product specifications and the Freshcare training materials.

8, 000 copies have been printed and distributed to growers, packers and trainers, retail, processor, food service and processor QC staff, auditors, system owners and many others since 2001.

The review has become necessary due to new information becoming available on a number of food safety aspects that now need to be incorporated. Additional aspects such as allergens, recycled water and GMOs also need to be incorporated. Improvements will also be made to improve layout and use. Almost all of the original authors are involved plus additional expertise. The group is chaired by HAL QA specialist Richard Bennett and senior editor is former Moraitis Group quality manager Helen Lipton.

Comments from interested users of the guide are welcome. Please contact Richard Bennett at HAL on (02) 8295 2300.

New season's orchard guide out now

The 2004-05 season Orchard Plant Protection Guide is now available to NSW growers through your local temperate fruits horticulturist. Additional copies can be purchased through the NSW DPI bookshop for \$20 each.



Have your say!

John Tracey
Research Officer- Vertebrate Pest Research Officer
NSW DPI Orange

You have an opportunity to direct research and development into bird damage in horticulture and viticulture by completing a one-page survey. Surveys will be distributed by post via your local horticulturist.

The information you provide will enable government and industry organisations to more effectively allocate research resources to crops and regions most affected by birds. It will also allow targeted development on the aspects of pest bird management that you believe are most relevant.

To effectively manage pest birds, information is required on the species involved, the damage they cause, and the costs and effectiveness of control. This survey, funded by the National Feral Animal Control Program (Natural Heritage Trust) and NSW Department of Primary Industries (Agriculture), has been endorsed by industry bodies including; Horticulture Australia, Grape and Wine Research and Development Corporation, Apple and Pear Australia Limited, South Australian Apple and Pear Growers Association and the Australian Nut Industry Council.

Better Cherry Fruit Size – desirable and attainable

Roy Menzies

Research Horticulturist- Bathurst

To sell fruit we need to catch the customer's eye and that means that the fruit needs to be well coloured, big and look fresh. Ironically it only seems yesterday that medium sized cherries could be sold for a reasonable profit margin but the retail world is changing. Small cherries are not wanted (unless there is nothing else around) and there is little, if any, profit margin. It could be argued that there is always an opportunity to create a market for a commodity but in the foreseeable future that will not be the case with cherries.

What can we as cherry growers do to get the best size from our fruit without jeopardising our productivity? In the next couple of months an Agfact will be available on the NSW DPI web site that describes many of the management techniques to improve fruit size AND increase returns. The following points provide an outline and summary of "what we can do".

Get the balance right – the right number of buds, the right number/amount of new growth and the right number of fruit.

Select the right variety/rootstock combination for your climate and soil.

Select a training system that suits your variety/rootstock/climate /soil combination that you are 'happy' with and know how to manage.



A heavy fruit set of Stella cherries on the dwarfing rootstock Gisela 5 will result in small crowded fruit unless early pruning strategies are adopted.

Manage the leaf canopy – this provides the food and energy to maximise fruit growth. Summer pruning, removal of excessively vigorous shoots, accurate nutrition and irrigation at critical times are all part of the package.

Thinning establishes the crop load. Pruning is the critical tool but counting measuring and recording are crucial in determining the amount of pruning.



A light fruit set and greater space between fruit of Stella cherries on the more vigorous rootstock Colt enabled larger fruit to develop.

the fruit at harvest.

A practical start

We are continuing to conduct field studies at Young and Orange during the coming season to fine tune the fruit responses under a range of different conditions. In the meantime, growers can gain more experience in measuring the potential of these trees by using some simple guidelines

Select 6 typical trees in the test block.

Mark and measure the butt circumference (about 10 cm above the graft union).

Count, weigh and size

An Agfact on "Increasing cherry fruit size" is being prepared for the internet and will be available in October.



Technology Update - Liquid Reflective Mulches

Philip Wilk
Alstonville

Many horticultural industries including stone fruit, pome fruit and cherries have used white reflective mulches to improve fruit colour before harvest. The use of white plastic reflective mulch has been used on a number of stone fruit orchards in Southern Queensland and Northern NSW for the last two seasons.

Coastal stone fruit trees are very vigorous and pre harvest pruning of water shoots and suckers is essential to allow light into the tree canopy to colour fruit. Pre harvest pruning is often neglected on many farms where harvesting of early varieties is usually taking place and the labour to employ more pruning labour would be uneconomical.

By applying reflective plastic mulches under trees, light can be reflected up into the canopy. Although this is not a substitute for water shoot removal, it dramatically improves the colouring of fruit low down on the tree.

Plastic mulch is 1.2 metres wide and is usually rolled out after fruit thinning has finished and rolled up just before harvest. It needs to be pegged down to stop being blown by the wind. It can be laid on both sides of the tree or in some cases on the shady side if rows run in an east west direction.

A variation on the plastic mulch is a liquid calcium product that is applied with a boom spray. The calcium based liquid reflective mulch product called *Sunbrite*® is being trialled on a property near Bangalow NSW. The product is applied with a boom spray, is rain fast, and will last from 3-5 weeks under normal rainfall and irrigation conditions.



Sunbrite® is applied using flood jet nozzles in a 1.4m wide strip at a rate of 150mls /m² plus water in a 50/50 mixture (300mls/m²).

The cost of the liquid mulch product equates to \$2000 per hectare to buy and apply or 35-40 cents /m². Reflective mulches, although approximately \$5000 per hectare have the added advantage of being reusable and may last three to five years.

Ground preparation is important when using *Sunbrite*® and all weeds need to be removed before applying the product. The product dulls when wet but on drying brightness increases. The liquid mulch dries quickly on application and so spray tanks will need to be flushed quickly after use.

One added benefit in applying this liquid Calcium mulch may be the increased availability of soil calcium, an important nutrient involved in maintaining fruit quality.

The inclusion of this article is for technical interest and does not imply endorsement of the product by NSW DPI. It is important when trialling any new product to **always** leave a control area of unsprayed trees of the same variety for comparison and to also calculate its cost benefit.

Further technical information may be sourced from Ultimate Fertilisers 1800 003 244.



Root temperatures and growth of stone fruit

Peter Malcolm
District Horticulturist- Windsor

Most stone fruit growers realise how important air temperatures are in achieving sufficient winter chilling for adequate floral and vegetative bud-break and how damaging the effects of out of season frosts can be. Few orchardists know about the effects of root zone temperatures (RZT) on plant growth and leaf development.

Root zone temperatures strongly influence leaf growth and development in peaches and nectarines. This is particularly important in the spring, when soil temperatures normally lag behind air temperatures.

Low soil temperatures at this time retard new season leaf development and prolong the time the plant is dependant upon stored reserves for fruit development rather than photosynthates produced by the leaves. This is particularly important in the early stages of fruit development and may affect yields and the timing of fruit maturity.

Recent trials with the peach rootstock Green Leaf Nemaguard (GLN) plants found that RZT affected plant growth, independently of air temperatures and light levels. Plants whose RZTs were constantly maintained at 20°C, grew significantly better than plants whose RZT were maintained at constant RZTs of 5 and 15°C (Figure 1).

The growth of plants whose RZT fluctuated between 26°C during the day and 15°C at night, was retarded compared with plants whose RZT were maintained at a constant temperature of 20°C (Figure 1). This was despite average daily RZTs for both, being almost identical.

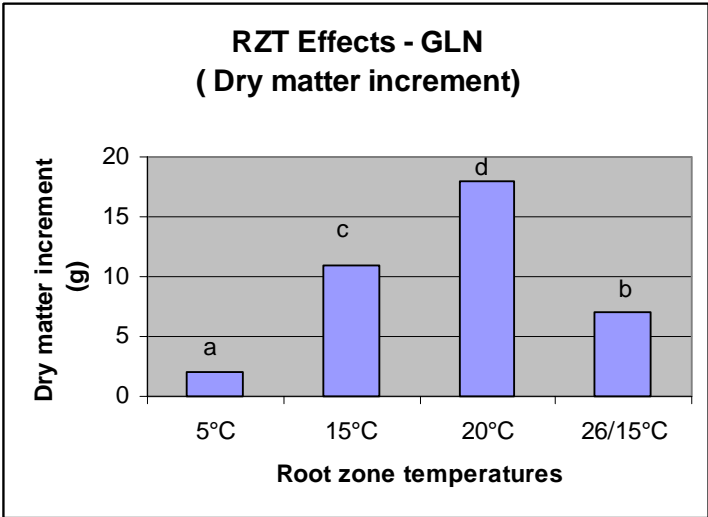


Figure 1. Average (10 plants per treatment) dry mass increment of Green Leaf Nemaguard rootstock seedlings after being subjected to various RZT treatments for six weeks.

The plants were actively growing at the time the treatments were being applied. Means followed by the same letter are not significantly different at the 5% level.

It was also found that the rate of leaf development was particularly sensitive to RZT and this was reflected in there being significant differences between RZT treatments, in both leaf area and leaf numbers. This is shown in the table below.

	5 C RZT	15 C RZT	20 C RZT	26/15 C RZT
Total leaf area (cm²)	206 (a)	633 (b)	873 (c)	533 (b)
Final leaf number	48 (a)	121 (b)	159 (c)	128 (b)

Average leaf area and leaf numbers (10 plants per treatment), of Green Leaf Nemaguard seedlings after being subjected to RZT treatments for six weeks. The plants were actively growing at the time the treatments were applied. (Means with the same letter are not significantly different at the 5% level)

Further trials examining the RZT response of 5 different peach rootstocks demonstrated that higher soil temperatures also reduced tree growth. Figure 2 illustrates the detrimental effects of prolonged exposure to RZTs of 29°C during the day followed by RZTs of 20°C at night, compared with plants whose RZTs were kept constantly at 19°C. This finding may be significant to stone fruit growers in inland parts of Australia where summer soil temperatures, particularly during the day, can be quite warm.

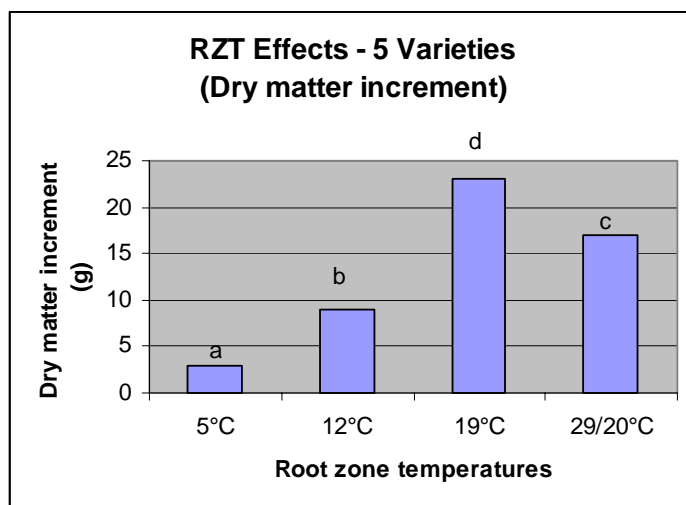


Figure 2. Mean ($n = 20$) dry mass increment of 5 different varieties of peach rootstock seedlings after being subjected to various RZT treatments for six weeks. The plants were actively growing at the time the treatments were being applied. Means followed by the same letter are not significantly different at the 5% level

Key points:

- An even root zone temperature of 20 C was the optimum for leaf development and growth
- A large difference in the day and night temperatures retarded leaf development
- High root zone temperatures (29 C), during the day can retard leaf development, even when the night temperature drops to optimum 20 C.

These results suggest that for growers of stone fruit (particularly those growing early maturing varieties with a short fruit development period), orchard cultural practices such as the use of plastic film mulches which raise soil temperatures in the spring or which reduce day/night fluctuations in RZT, may be beneficial.

In inland areas where high soil temperatures may be a problem, organic mulches may play a useful role in maintaining soil temperatures at optimum levels. These results also suggest that the beneficial effects of thick layers of organic mulches on plant growth, may in part, be due to their mediating effect on RZT and not solely their effect on reducing water evaporation losses from the soil.



Composted Mulch Products Project

This year the Recycled Organics Unit (ROU) of the University of New South Wales is undertaking research into composted mulch products. The recycled organic unit is a joint partnership between the Department of Environment and Conservation (NSW) and UNSW, to provide a NSW training centre for organic resource recovery, management, research and development, demonstration and training.

The project aims to develop specific product standards for composted mulch products for use in orchards that meet the needs of fruit growers in the various regions in NSW. NSW DPI horticulturists have been asked to assist the project by introducing the researchers to fruit growers in NSW at grower meetings and providing information on horticulture in their regions.

The researchers Dr Girja Sharma and Mr Angus Campbell will visit fruit production areas and are seeking information from growers in the form of a confidential survey. The results from the survey will be used to determine how composted products are most likely to be used and which benefits growers require from the products. Later in the project on farm trials will be conducted.

Compost is an organic product that has undergone controlled aerobic and thermophilic (hot) biological transformation to achieve pasteurisation and a specified level of maturity, as specified in the Australian standards for *composts soil conditioners and mulches*. Pasteurisation is the destruction of pests, diseases and weeds by heat treatment. Composts are commonly produced from clean separately collected plant materials (garden clippings, sawdust and bark from forestry). Some compost products may be produced by adding other raw materials such as food scraps, crop residues and bio-solids to the mix before it is composted. Depending on the physical, chemical and biological characteristics, different composts are suitable for use as soil conditioner (mixed with soil) or for surface application as mulch.

What is composted mulch and what are its benefits?

Mulch refers to composted products that are used as a surface application around plants and are not incorporated into the soil. Some benefits from using mulches are:

Reduction in weed growth, reducing the need for herbicide

Reduces fluctuations in soil temperature, retains soil moisture and reduces plant stress
Reduces water evaporation from the soil surface
Supply nutrients
Reduce erosion
Improve soil health

For more information on this project contact
Dr Girja Sharma on 9385 5708

The information contained in this publication is based on knowledge and understanding at the time of writing (September 2004). 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 NSW DPI or the user's independent advisor.

Inclusion of an advertisement or sponsor's symbol in this publication does not necessarily imply endorsement of the product or sponsor by NSW DPI.

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