Facts
Fruitfed Supplies
HORTICULTURE
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Simple decision to buy Orchard-Rite

The high value of gold kiwifruit made the purchase of Orchard-Rite wind machines for frost fighting a simple decision for a Nuhaka block.

One of the Orchard-Rite wind machines in the Nuhaka gold kiwifruit orchard

Michael Montgomery of Zest 2000 Ltd, a kiwifruit orchard management company, says it was a straightforward decision to manage the potential risk of losing some or all of a gold kiwifruit crop to frost damage in the East Coast region of Nuhaka by installing Orchard-Rite wind machines.

"This block has 23ha of gold and part of it was covered with a water frost fighting system, but the cost and access to sufficient volume of water to cover the whole block made that option not feasible," says Michael.

"When we made the decision to look at an Orchard-Rite wind machine last season, the team at Fruitfed Supplies responded quickly. Two units were available ex-stock and they got on with the installation to have the units running very close to when we wanted them."

The Orchard-rite machines haven't had any frosts to respond to at this stage, but as Michael says, they're all ready to do their job this season.

"We are also likely to install a third Orchard-Rite this season and believe that the wind machines offer the most cost effective frost fighting solution for our situation.

"I believe that all gold grown in the central North Island are prone to frost risk – it comes with this variety due to its earlier bud break. The high value of the crop means that frost protection is justified."

Mike also notes that the high rainfall and soggy ground conditions at the Nuhaka site, and the short notice of the required installation date provided some challenges with this project. "Fruitfed personnel dealt with the situation promptly and well, without any great increase in the overall costs."

Zest 2000 Ltd, based in Te Puke, manages the orchards owned by its shareholders, Michael Montgomery and Grant Eynon. These are the 23ha Nuhaka gold block and 17ha of gold in Te Puke. Zest also runs a large Te Puke-based kiwifruit harvesting operation.

Michael says his and Grant's involvement in the Nuhaka block started with a 50% shareholding of the block back in 2000. "It had only 3ha of green kiwifruit planted then. We bought the remaining 50% in 2005 and, over the last five years, have developed the current 23ha of vines with potential for more. We have learnt a lot about growing kiwifruit away from the Te Puke region – it's certainly not as straight forward as in Te Puke. We expect the block to produce 150,000 trays in 2012, up from 55,000 trays in 2011, to add to the 330,000 trays our Te Puke block produced in 2011. Obviously we are all hugely concerned about the threat of the PSA disease in Te Puke, and maybe Nuhaka will give us some form of risk split in our growing operation." F

Young Viticulturist competition has Orchard-Rite support

Via Fruitfed Supplies, the Orchard-Rite name is on the sponsors' list for this year's Markhams Young Viticulturist Competition.

Since its inception in 2006, the competition has attracted a high calibre of entrants from throughout New Zealand and is now recognised within the industry as being a leading accomplishment for young viticulturists to aspire to and achieve.

The regional competitions in Hawke's Bay, Marlborough and Central Otago see competitors completing set tasks at a number of work stations, Horty Sport – where the contestant completes diverse activities, a general knowledge quiz and presenting a speech on a given topic.

The winner of each regional competition heads to the finals in Auckland, held as part of the annual Romeo Bragato Conference, on Saturday 27 August 2011, to compete in similar events with the final speeches being made during the formal Bragato dinner. F

Lynwood Avocado Nursery carves a specialised niche

One of just two nurseries in New Zealand successfully producing commercial quantities of clonal rootstock avocado trees, Whangarei's Lynwood Avocado Nursery has a unique status in the sector.

Micro-clones being hardened before re-potting

Lynwood's manager Stephen Wade says, as a New Zealand Avocado Nursery Association-accredited facility, the primary goal is to produce healthy, vigorous, pest-free and disease-free avocado trees.

"We produce both seedling and clonal rootstock trees, which require very different propagating techniques," says Stephen who has 22 years of avocado propagation experience. "Clonal propagating has been described as the Everest of plant propagation. We've been doing it for about ten years now and it took us six years to be sure we could do it to a suitable commercial standard."

There are several reasons for selecting clonally-propagated avocados. "Primarily it's because we know the genetics of the rootstock tree which is selected for its tolerance to Phytophthora root rot. We then look at the tree's other characteristics and disease status to determine its suitability for cloning.

"In New Zealand clonally-propagated trees are used a lot in replant situations as it would be hit and miss to replant with a regular seedling rootstock tree where the genetics are highly variable.

"With the same genes and given the same inputs and situation, clonally-propagated trees should give the same tree response, making key management decisions much easier. For example, flowering of the clonally-propagated trees will be more even, meaning spray applications can be more effectively timed, and the lower disease status also means improved productivity."

The micro-cloning technique developed by Andre Ernst in South Africa underpins the technique Stephen uses. "We've adapted it for New Zealand conditions – the hard part is manipulating environmental conditions to facilitate the cloning process."

Stephen describes clonal propagation as a terrific challenge. "You go on learning and learning and there are always problems to overcome, but it's great to do something so technically challenging."

Lynwood has intensive and robust hygiene procedures and pest and disease control standards to maximise the quality of the seedlings for sale.

"Hygiene is vital to keeping disease out – we pasteurise or sterilise every input, removing the pathogens and keeping the beneficial organisms. We have zero threshold for disease and a very low threshold for pest insects – if we find an insect, we determine the scale of the infestation then control it. Simply, a quality tree is a disease and pest-free tree."

Lynwood uses four main sources for clonal rootstock – Duke 7 from the University of California and Dusa, Bounty and Latas from South African 'escapee trees'. "You see it time and time again – an avocado orchard riddled with Phytophthora, yet a few trees remain unaffected. As well as the South African genetic material, we're working with an escapee tree from the Whangarei region. We suspect the best rootstock for New Zealand conditions may already be here. We encourage growers to contact us if they think they have a tree that outperforms its neighbours for no apparent reason, that doesn't suffer from Phytophthora, or perhaps has dwarfing characteristics. When we find these trees, it could take us five years to find a reasonable answer about the trees' genetics and better answers would come after ten years' work."

A needle in a haystack is one way to describe the search for the ideal genetic material, but it's clearly a challenge that Stephen and his team at Lynwood relish. In the meantime, they continue adding to the thousands of quality seedlings they have propagated, gaining recognition such as their 2008 Ballance Farm Environmental Horticulture award and looking for that one tree in 100,000 with the right genetic material to become the next world-wide clone.

The Wade family also has their own productive avocado orchard thriving on the property's rich volcanic soils. **F**

Freshly germinated nurse seeds

Etiolated shoots grown in the dark

Newly grafted nurse seeds

Using a shielded sprayer, viticulturists can disbud vines and maintain a weed-free strip with Shark herbicide

Mechanisation in vineyards reduces labour, costs and staffing issues

The success and cost effectiveness of using Shark® herbicide with a shielded sprayer to remove grapevine suckers is appealing to many grape growers.

Grape growers are looking at any options to reduce production costs in vineyards. Bud rubbing by hand is an arduous annual job which costs approximately five cents per vine.

Pete de Jong, territory manager for Etec Crop Solutions, has numerous examples of growers being able to reduce costs of disbudding by 13 to 27% by switching to the shielded application of Shark.

"Shark has been used in an increasing number of New Zealand vineyards over the past three seasons with many reports of an effective disbudding job from satisfied growers," says Pete. "Once bitten by Shark, they never go back to manual bud rubbing."

Actual examples - Shark disbudding compared to manual bud rubbing

Row x vine spacing (m)	Total cost / ha* (cost / vine)		Bud rubbing cost/ha @ 5 c / vine	Grower savings / ha
2.5 x 1.5	$86	(3.2 c)	$133	$47
3.0 x 1.8	$71	(3.8c)	$93	$22
2.4 x 1.8	$89	(3.9c)	$116	$27

*Total cost: Shark cost @ 0.3 litres per 100 litres + application cost#
#Application cost: two-row shielded sprayer, 6 km/h, 50 litres water per kilometre of row, $100 / hr tractor driver cost.

As well as good cost savings for growers, there are many other favourable attributes to using Shark for disbudding:

- Bonus control of weeds
- Faster than bud rubbing
- Huge labour saving, avoid sore backs
- Reliable and consistent sucker control
- Suckers slower to grow back
- No trunk wounds to initiate next year's suckers

Pete reminds growers considering Shark for their disbudding work that Shark needs to be applied with a shielded sprayer, which avoids any drift going up into the canopy. "After three seasons of use there are now spray contractors offering Shark disbudding services and also many shielded sprayer options available to purchase. These vary from home-built to professionally-designed sprayers by specialist engineering companies. Also some machinery companies are retro-fitting shields onto existing herbicide spray rigs at very moderate costs." **F**

Yara takes new steps in the digital world

Yara has developed and launched a YaraVita Tankmix™ application for iPhones, iPads and iPod Touch which can be used on more than 180 million Apple devices worldwide.

"Yara Tankmix is available from the Apple app store as a free download," says Michael Waites, Yara NZ general manager. "Search the word 'Yara' in the app store search facility to find it. The application provides the same functionality as the website, www.tankmix.com, but with the convenience of using it via your mobile Apple device. We are also working on applications for android and Windows Mobile devices.

The Yara Tankmix application can be used in English, French, German, Italian, Swedish, Spanish and Portuguese, with more languages to follow.

"It is very easy to use; you can search information on the physical mixing characteristics of the YaraVita foliar range with a wide range of crop protection products, including insecticides, fungicides and herbicides, by product name or active ingredient. The database contains thousands of different tank-mix tests," says Michael.

"If a mix has not yet been performed, there is an option to request the test to be carried out. In most cases these tests can be completed by our product development laboratory within a few hours.

"Growers simply want to know: can these products physically be mixed? Tankmix answers this rapidly and accurately, taking into account the many variables of mixing different products together, such as application and water rates."

Other Yara applications under development include a fertiliser option with a product portfolio, product specifications and a rate calculator, and a nutrient removal calculator which helps identify the nutrients removed by a crop depending on yield. Michael notes that these are available in Europe and he expects they'll be available in New Zealand in due course. **F**

Vege Tech Bytes

A monthly technical update from **Tim Herman**, the Fruitfed Supplies regional technical adviser specialising in vegetable crops.

We are now looking towards the new season. Data on newly-registered products from our trials are being prepared for presentation at grower/client meetings. Our crop protection charts are being updated with the new registrations and any other label changes that have occurred since last season.

In the EU the inclusion of carbendazim in Annex 1 has been renewed for another 3.5 years. The normal ten year term was restricted in recognition of many of the EU member states having concerns about the hazard profile of this compound. However, not all markets in the EU will accept produce that has been sprayed with carbendazim.

It is crucial that growers wanting to export product to Europe, check with their exporters what is and isn't allowed to be used on their crops before they start their spray programme. **F**

Downy mildew diseases of brassicas and lettuce

Downy mildew is a disease that can affect a number of different vegetable crops, explains Fruitfed Supplies' technical adviser **Tim Herman**.

Downy mildew is caused by a number of pathogens, depending on what crop is being infected. Two crops that often have downy mildew issues at this time of the year are brassicas and lettuce.

In the brassica crops, downy mildew is caused by *Personospora parasitica.* The first symptoms of this downy mildew are small, light green-yellow lesions on both surfaces of lower leaves. As the lesions expand they develop greyish-black lace-like markings. In damp conditions fluffy white spores will appear on the undersides of the lesions. As lesions spread across a leaf, the tissue can become brown and papery and may die. Infections may spread to stems and florets which can restrict the growth of cauliflower curds or broccoli florets or cause unsightly dark stains inside the florets/curds.

High relative humidity, wet foliage and cool temperatures are most favourable for downy mildew to develop in brassicas. Epidemics can develop in crops very rapidly in favourable conditions. In the absence of susceptible brassica crops the pathogen survives in the soil as thick-walled, resting spores or on alternate hosts, e.g. shepherd's purse weeds or ornamental flowers such as wall flowers or stock.

Disease incidence can be reduced by spacing plants and orienting rows to promote air movement, and rotating crops to reduce levels of resting spores in the ground. Fungicide control of downy mildew relies on a regular protective cover with Bravo WeatherStik, Kocide Opti or Fruitfed Copper Oxychloride.

In lettuces, downy mildew is caused by *Bremia lactucae.* It is first seen on older leaves as pale green or yellow spots on the upper leaf surfaces. They are often angular in shape as the lesions are delineated by larger leaf veins. In about a week white spores may be found in these lesions, but on the underside of the leaf. All stages of lettuce can be infected and infections early in the growth of a plant can kill it. Older lettuces are rarely killed by downy mildew, but the quality and quantity of lettuces harvested can be affected.

Cool temperatures and a damp, moist environment are favourable for the development and spread of downy mildew in a lettuce crop. In high relative humidity, the dispersal of spores usually starts at sunrise and peaks around mid-morning to noon. Infection can occur in as little as three hours when free water is present. Symptoms will appear 1-3 weeks after infection, depending on temperature.

Downy mildew can be introduced into a lettuce crop through infected seed (though this is hard to document), from nearby crops, wild lettuce weeds (acrid and prickly lettuce), or from resting spores in the soil. Good crop management – weed control, removal of crop debris, irrigation management and using resistant varieties – will help to reduce disease pressure in a crop. Fungicide control of downy mildew in lettuces relies on a regular protectant programme of Dithane® Rainshield or Kocide® Opti or Fruitfed Copper Oxychloride with strategic applications of the systemic-acting Acrobat® MZ 690 in front of weather favourable for downy mildew infection. **F**

Kumulus – the premier sulphur fungicide

Use of the iconic BASF fungicide, Kumulus® DF, continues to go from strength to strength as more growers come to realise its potential for improving the profitability of their business.

ABOVE: Image highlighting the rapid dispersion of Kumulus DF in water

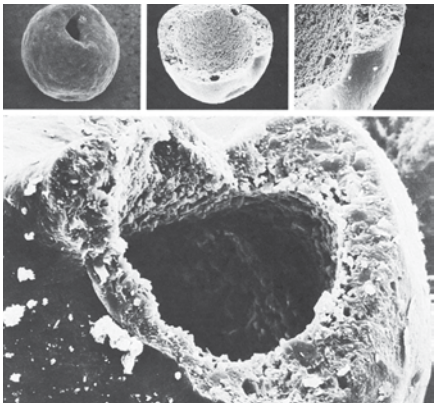
Kumulus continues to offer outstanding protection against powdery mildew in grapes, apples and a number of other crops.

BASF's field services technical manager Grant Hagerty says Kumulus also has the added advantage of being active against some mite species, notably Erinose on grapevines, and acts as a plant nutrient booster by supplying sulphur to the sprayed crop.

"The key to the effectiveness of the product lies in its physical properties," says Grant. "The optimum range of particle sizes in the Kumulus DF micro-granular formulation is unique, providing excellent plant coverage, rapid vapour action, crop safety and a persistent preventative effect. Kumulus is a dry flowable (DF) micro-granular fungicide, which means it flows like a liquid for easy measuring and handling while the granules are still coarse enough to provide dust-free mixing. As can be seen in the image, the moment Kumulus is added to water it rapidly disperses to forms a homogenous solution that will not settle inside the spray tank.

"To get to the heart of what is going on, you really need to look inside an individual Kumulus sulphur granule where you will be surprised to find…nothing at all. Each DF granule is completely hollow with a porous outer shell, so the moment water encloses the granule it explodes to be dispersed widely into the surrounding liquid. Multiply this effect by the hundreds of thousands of granules in each bag and you soon see why Kumulus mixes so readily and sprays with such consistent coverage."

BELOW: High powered electron microscope image of a Kumulus sulphur granule



Kumulus has Biogro™ certification in New Zealand which is great news to organic growers and those involved in the Apple Futures programme who can use Kumulus with complete confidence that it will meet their specific requirements. For more information on the benefits of using Kumulus this season, contact your local Fruitfed representative. **F**

TECH-KNOW TIPS

AVOCADO

Reminders for August:

- ✔ Continue to maintain a **fungicide cover** with copper products such as Kocide Opti. Research by Kerry Everett, HortResearch, clearly shows some avocado fruit rot pathogens may infect under cold conditions during winter and industry best practice recommends eight fungicide applications per year for optimum fruit quality.
- ✔ **Foliar nitrogen**, e.g. Yara Safe-N or low-biuret (max 0.4%) urea, may need to be applied to remedy nitrogen deficiencies that often show as yellowing foliage through winter. This issue is more common on trees that have been fertilised inadequately through late summer and/or are carrying a heavy crop. Add magnesium sulphate to improve leaf-greening as required.
- ✔ Following soil and leaf testing, if **base fertiliser** applications – including lime or gypsum – have not yet been made, these may be made this month. Recommended spring boron, nitrogen or Fruitfed Avocado Mix applications continue, particularly for trees carrying large crops.

Adult six spotted mite and eggs on avocado leaf

Watch for over-wintering **six-spotted mite** populations (see photo). Even moderate populations of SSM should be controlled at this time of year to reduce risk of population explosions during the coming flowering period. SSM control is very difficult during flowering for several reasons: (1) increased stress on the trees coupled with warming temperatures and humidity appears to encourage mite infestation, (2) the presence of bees in orchards greatly influences choice of insecticide and, (3) the tough winter-hardened leaves resist translaminar or systemic uptake of some products. Effort must therefore be made to ensure SSM populations are controlled prior to the flowering period.

Ensure you have the best information for crop management decisions by using structured crop monitoring. This allows early detection of populations so control decisions can be made as appropriate. As we approach harvest, growers must also be aware of pre-harvest intervals when spraying, especially for fruit destined for US, Asian or European markets. DC Tron Plus is a good option at this time of year, giving control of SSM, greenhouse thrips and scale, particularly when mixed with other agrichemicals, with a very short pre-harvest interval. Soon we expect registration for a new miticide which will further broaden the options available to growers.

CITRUS

Reminders for August:

- ✔ If controlling **lemon tree borer** by pruning out infested material, or re-shaping trees through pruning, August is the last opportunity to do this for the winter. Pruning trees from September onwards, when lemon tree borer adults are flying, may result in infestation as the adults are attracted to the fresh cuts.
- ✔ If fruit have not yet been harvested, remember to keep up a fungicide cover to protect against **brown rot** and other wet-weather diseases, which may infect healthy fruit over winter. Control with Kocide Opti or Dithane Rainshield. Copper hydroxide products such as Kocide also control a broad range of other wet-weather diseases, such as melanose.
- ✔ Consider application of **Perk Supa** to strengthen plants and improve disease resistance. For further information, please contact your Fruitfed Supplies representative.
- ✔ **Greenhouse thrips** may continue to be an issue on some varieties – monitor for presence and control if thresholds are exceeded.

Base fertiliser applications may need to be made, depending on soil and leaf test results from the last season, together with expected cropping information for the coming season. If soil tests have not been taken, it is not too late – your local Fruitfed Supplies store or representative will be able to advise the correct procedure for taking soil samples, as the integrity of the data generated (and therefore used to calculate fertiliser requirement) is strongly dependent on correct sampling procedure. Your Fruitfed Supplies representative also receives ongoing training in making fertiliser recommendations and has several other resources on hand. Please contact your local store if you require assistance planning your fertiliser requirements.

GRAPES

Reminders for August:

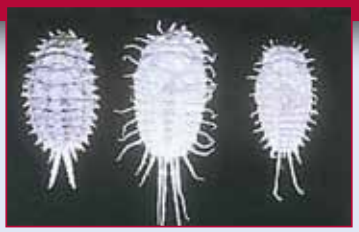
- ✔ To help minimise the spread of **wood-invading diseases**, avoid pruning vines during rain or when rainfall is imminent. Apply a suitable wound dressing such as Greenseal after pruning and mulch or burn prunings to prevent them becoming a source of innoculum in your vineyard.
- ✔ Agitate all drums of spraying oil prior to use to ensure the emulsifier is well mixed with the oil. Also check that the emulsifier is present in the oil before application (adding spraying oil to water in a jar test should instantly result in a well-dispersed, milky solution).
- ✔ When combining oil with insecticides in a spray tank, remember to add the oil last, when the tank is nearly full. Make sure the spray is agitated throughout the mixing process.

Mealybugs are a serious pest in some growing regions. They cause damage to vineyard crops in one of three ways: (1) direct feeding, (2) excretion of honey dew (a growth media for sooty mould), and (3) spreading grapevine leaf-roll virus (GLRV). The transmission of GLRV is the most serious of these. Both mealybug infection and transmission of the virus occurs during feeding. When they insert their stylets (a long, hypodermic needle-like feeding tube) into the phloem stream of healthy vines to suck out the contents the virus is transferred.

It's important to use the previous harvest assessment from last season's crop monitoring to determine if insecticide applications are warranted. If GLRV is an issue, then an insecticide should be applied if any mealybugs were recorded. In the absence of GLRV, a threshold of 3% infested bunches applies.

There are some important cultural control strategies that can be implemented to reduce the mealybug population within a vineyard, namely:

- Removing alternate hosts from the under-storey (a list of mealybug host plants can be found at www.hortnet.co.nz);
- Providing pollen and nectar food sources for natural enemies in the under-storey;
- Maintaining a relatively open canopy (mealybugs don't like low humidity);
- Mulching prunings as soon as possible to minimise movement back on to the vines or other hosts.



L-R: Citrophilus, long-tailed and obscure mealybugs. (ARC Infruitec-Nietvoorbij, Stellenbosch, South Africa)

Mealybugs are reasonably difficult to control because of their high fecundity, cryptic habits and water-repelling wax coatings, so a purpose-designed spray programme must be followed carefully in order to achieve the desired level of control. Late dormant to bud burst is a key spray window to control populations, as mealybugs are becoming active and starting to move out of their overwintering shelters to more exposed positions. Also, the lack of leaf cover helps insecticide penetration into the niches that mealybugs inhabit at this time. An application of Tokuthion, combined with oil, between late dormant and bud burst is essential if your block is infested. This should be applied as a high-volume, dilute spray, which is required to drive the insecticide into the hard-to-reach places of the vine.

The next important spray opportunity for mealybugs is leading into bloom. At this time, a significant proportion of the mealybug population is likely to be in the susceptible immature growth stage. Applaud® and Ovation® are insect growth regulator insecticides and their active ingredient (buprofezin) has good activity only on these younger life stages. Buprofezin is also a contact insecticide, so good coverage is important to achieving good results. Ensure your sprayers have been properly calibrated and water rates are high enough to achieve this. Applaud or Ovation should be applied in combination with oil or an appropriate wetter-spreader adjuvant to aid coverage and help get the product to the target. If you choose to use only one Applaud or Ovation rather than Tokuthion, then target immediately pre-bloom when the maximum number of mealybugs have moved out of overwintering shelters. These are residual products so do not to apply going into flowering as a residue-exceeding market MRLs may result.

A second application is warranted in high pressure blocks, this one should be sprayed approximately two weeks before the pre-bloom application. A number of New Zealand research studies demonstrate the clear benefit in using two or more buprofezin sprays compared to a single application for effective mealybug control.

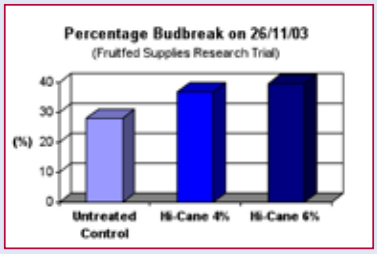
KIWIFRUIT

Reminders for August:

- ✔ If applying copper fungicides, such as **Champ, Cuprofix,** etc., remember to leave four weeks between copper application and Hi-Cane, and do not apply copper products for at least seven days after Hi-Cane. There is a theoretical risk that copper residues around Hi-Cane application may reduce efficacy, resulting in poorer bud-break. Fruitfed Supplies Technical are completing trial work this winter to determine what, if any, risk exists in applying copper products too close to Hi-Cane.
- ✔ To reduce lichen and over-wintering bacterial populations on vines, consider the application of **Graphic Biocide.** This product contains copper and also a powerful sanitiser compound, benzylkonium chloride. If applying Graphic Biocide, apply at least seven days after any Hi-Cane application but before any green tissue is present on vines.
- ✔ Remember to target **pruning** for dry days and apply a suitable wound protectant to large cuts immediately after they have been made. Suitable wound dressings include Greenseal Ultra, which contains fungicides and bactericides in a latex paint formulation.

- ✔ **Base fertiliser** applications may be made this month. These fertiliser applications should be based on leaf and soil tests taken over the last 12 months, along with historical data for each block. Your Fruitfed Supplies representative receives ongoing training in making fertiliser recommendations. If you require assistance planning your fertiliser requirements, please contact your local store.

Hi-Cane applications should be made on Hayward during August. Please read the label carefully and take note of all relevant safety precautions. In years or regions with relatively poor winter chill accumulation, higher rates of Hi-Cane (6%) and later applications tend to give best effects (see graph).



Following a successful launch of air-inclusion (AI) nozzles and DriftStop during 2007, most kiwifruit nationwide have been treated with this technology since. Detailed research funded by Zespri has shown this combination to greatly reduce spray drift during application without compromising efficacy. It is important to keep groundspeed down and fan speed up when using AI nozzles, as this ensures adequate coverage and efficacy without undue spray drift. Please note that the efficacy work was carried out with DriftStop only and does not apply to other surfactants. Your Fruitfed Supplies representative has experience and several resources to assist with correct Hi-Cane application rates, se of DriftStop, application method and timing. Please contact them for further assistance.

PIPFRUIT

Reminders for August:

- ✔ Copper sprays assist with the control of several **pipfruit diseases.** If using Bordeaux, apply at least 14 days after lime sulphur. Ensure copper is applied no later than late dormant stage on apples to minimise the risk of russet.
- ✔ All drums of spraying oil, especially if carried over from last season, should be well agitated prior to use to mix emulsifiers with the oil. Test first with a small amount to ensure the oil goes into solution well, forming a cloudy-white emulsion.
- ✔ Combine oils with insecticides by adding the oil last when the spray tank is nearly full with the agitator going, or while circulating through the pump bypass.
- ✔ If **mealybug** and **scale** are present or if monitoring thresholds were exceeded at last harvest, the application of Applaud plus oil at green tip is highly recommended. But omit oil when spraying sensitive varieties such as Cox. The oil also assists control of **woolly apple aphid**. High volume application and/or use of specialist adjuvants, as well as using a double-pass in opposite directions, greatly assists control of these pests.
- ✔ Host shelter trees are a major source of wind-blown scale crawlers in New Zealand orchards so best practice is to top and spray these where there is a history of scale in the block.
- ✔ Winter pruning allows the opportunity to observe **European red mite** (ERM) levels via the number of eggs laid by the late summer generation and to determine if further monitoring is required. If monitoring results are over threshold, apply Gemini plus oil to infested trees.
- ✔ If base fertiliser applications have not been made, make those this month. If soil test results indicate pH was too low, lime applications should be made.

Black spot is a highly aggressive fungal disease, potentially infecting pipfruit trees at any time between bud-break and harvest. When rain is forecast, the black spot fungicide programme should begin from the first sign of green tip for each variety. New, emerging leaves are very susceptible to the pathogen and may become a source for new infections later in the season. Early season best practice is to spray preventatively, i.e. in anticipation of rain, every 5-7 days; keep to the recommended product label rates and ensure good coverage is achieved. Cool temperatures may mean repeat applications are required during a protracted bud-burst to ensure newly opening buds are protected. Fruit may become infected at any stage of crop development, even as early as the green tip. Apical portions of sepals and leaves are the first susceptible parts exposed as fruit buds open. Remember that tissue growth is rapid at this time of the season so spray intervals should be adjusted to weather conditions.

Very early in the growing season, when conditions are often cool and there is rapid tissue growth, the systemic, cool-weather specialist black spot fungicides, such as Syllit Plus® and Chorus®, have a particularly good fit.

Syllit Plus is a good option at green tip due to its translaminar movement, which assists spray coverage and improve rainfastness. Although it has both curative and protectant activity, applying Syllit Plus before infection periods, rather than after, gives best results. Active ingredient uptake is not significantly influenced by temperature. Allow a minimum of three hours drying time. NB: Maximum of three applications per season for dodine products.

Chorus, an anilinopyrimidine fungicide, has the advantage of being systemic within the xylem stream, meaning the active ingredient is taken into plant's leaf tissue and is able to move acropetally (upwards and outwards) from the point of contact. Like dodine, its uptake is not limited by cold weather and its systemic action makes it rain-fast. Chorus may be applied up to four times and has a 90% petal fall PHI. Remember to check the 2011-12 PHI for both Syllit Plus and Chorus on the Pipfruit New Zealand wall chart or their website when it is released.

STONEFRUIT

Reminders for August:

- ✔ All drums of spraying oil should be agitated or rolled prior to use to ensure that the emulsifier is well mixed with the oil. Test first to ensure the emulsifier is active. When combining oil spray with insecticides, add the oil last when the spray tank is nearly full, with the agitator going, or while circulating through the pump bypass.
- ✔ When using copper to control **bacteria canker** ensure full rates of the product are used and apply during the late dormant to early bud swell period.
- ✔ Control **green peach aphid** with oil plus insecticide at late bud movement, timed for egg hatch. Applying insecticides early in the season is less likely to have an adverse impact on natural enemies.

Peach leaf curl, caused by the pathogenic fungus *Taphrina deformans*, can seriously compromise tree health and consequently productivity of susceptible varieties (peach, nectarine and apricot). The key symptom is thickened, distorted and discoloured leaves that develop not long after infection. Leaves turn from green to red and eventually become blackened before falling off the tree. Whole shoots can become infected, severely debilitating the tree.

The fungus overwinters as ascospores or thick-walled conidia on the tree. These are extremely hardy and research demonstrates they can survive several months of hot, dry weather. Primary infection can occur as soon as buds have broken, requiring a leaf wetness period of 10-12 hours. Infections are usually more severe in cool, wet events - when conditions are warm, the rate of tissue growth can outpace the establishment of infection. Because infection can occur very soon after bud-burst,focus on preventative strategies at this phenological stage to achieve good control. If left until after bud-burst has commenced it may be too late to effectively control the disease.

Ensure fungicide covers are made in anticipation of cool, wet weather. The protectant fungicide Mizar Granuflo® has good activity and is a good choice for the bud swell timing, but note it is not compatible with copper. Thiram and copper-based fungicides also have activity on the disease but it's important to know the copper-resistance status of your block before using these products. Secondary infection potential can also be reduced by pruning out and destroying diseased leaves and shoots. This is only a valid option if the level of primary infection is very light.

Being a **'small grower'** has its benefits

What started out as a modest greenhouse growing operation near Richmond, Nelson, now produces a huge variety of produce for a thriving farm shop.

Strawberries are grown on raised platforms in Cocopeat slabs with a Fruitfed fertigation programme for maximum yield and quality

A steady stream of customers to the 'Farm Shop @ 185' every Friday during winter highlights the consistent level of business that Gavin Williams and wife Angela have developed over recent years.

"When we first started on this property, we had greenhouses and sold produce through the traditional market system," says Gavin. "We sold some produce – in a small way – through markets and the property had a pick-your-own operation as well. Over the years, the commission rates crept up and over the past three to five years, we've pulled completely out of the market system to sell direct to customers through the farm shop and the ever-growing farmers' markets."

Now the range of crops grown across the year is extensive. In winter, heated hothouses produce tomatoes. "We opt for cocktail and cherry tomatoes that deliver the best dollar per metre returns." Around the 10ha property, numerous brassicas, bok choy, spinach and herb crops are grown through winter along with blocks on rotation being planted with green manure crops that are ploughed in before spring planting commences.

"In summer we change tack. We're open seven days from early December to the end of April and move from three to five staff to around 20," says Gavin. "Everything that we grow we sell in the farm shop or Saturday market or via pick-your-own. We grow a huge range – more and more each year now we're selling direct."

Tomatoes, capsicums, eggplants, onions, pumpkins grow alongside staggered plantings of sweetcorn. Around 30,000 strawberry plants are grown on raised platforms.

"They're grown in Cocopeat blocks and managed intensively with a fertigation programme from Jonny Richards and the team at Fruitfed to get better returns. Our team is happier to pick them from the raised platforms, they're cleaner and great to eat. Melons are grown on polythene with fertigation through T-tapes.

"Basically we see a crop through from seeding to sale. We have that direct connection with our customers who enjoy a middle of the road price for fresh produce. Customers like to see you, to talk to the grower and, for us, this approach is working well."

Gavin says that five years ago it looked like the writing was on the wall for smaller growers. "But with the growth in farmers' markets and similar outlets, there is room for smaller growers to get back into production. It isn't all about the big growers." **F**

Cocktail and cherry tomatoes are grown in hothouses

The farm shop is particularly busy in summer months

Fruitfed Supplies

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