

Caring for those affected by Christchurch earthquake

Fruitfed Supplies' general manager Stephen Guerin says: "Life as we knew it in Christchurch and Canterbury has changed forever after February's earthquake.

"Fruitfed Supplies and PGG Wrightson personnel around the country were particularly concerned for colleagues in the Pyne Gould Corporation building and our thoughts are with all those who lost loved ones, have suffered injury and losses and now strive to rebuild their lives. We have welcomed PGC personnel to the Blenheim Road PGG Wrightson/Fruitfed Supplies store and Waterloo Road PGW head office and will continue to do all we can to help you through this difficult time.

"We acknowledge the dedication and efforts of all our staff in endeavouring to meet the needs of our clients during this extremely challenging period when they were concerned for their own property and family.

"Our whole community has been impacted by what has happened – there would be few New Zealanders unaffected in some way by the earthquake – and our thoughts and best wishes are with you all."

Fruitfed Supplies and PGG Wrightson stores participated with other rural merchants in collecting donations for the Christchurch relief fund during March. **F**

Electrocoup F3010 now available

Better balanced and lighter, a new model of the fast, powerful and well-proven Electrocoup electric pruners is now available in New Zealand.



The new Electrocoup F3010's light cutting blade option

The Electrocoup F3010 succeeds the previous F3005 model, offering several new features including interchangeable cutting heads with three size options. The overall weight of the F3010 pruning shears is 60g less than the previous model and the diameter of the handle has decreased by 11mm.

Rob Lamb, Fruitfed Supplies, category manager, says the lighter, slightly smaller pruning shears will make the Electrocoup easier for female pruners, in particular, to use while retaining the power, robustness and reliability

Electrocoup is known for.

"It is also the only pruning shear with the advantage of an electrically adjustable half-

aperture setting which saves considerable time on the small and medium cuts which make up 70-80% of all pruning, i.e. spur or cane pruning.

"Electrocoup's two operating modes make it very flexible according to the user's preferences," explains Rob. "The proportional mode opens and closes the blade at the same speed as the trigger is pressed and released. In pulse mode, as soon as you press the trigger the blade closes at maximum speed. Releasing the trigger opens the blade at maximum speed."

Three optional kits mean the F3010 has the versatility of four-tools-in-one. The light kit is 20g lighter than the other models and gives better penetration into the dense canopy of vines. The medium and maxi kits increase the cutting capacity and are particularly suitable for horticulture, forestry and tree work.

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The new Electrocoup F3010 pruner



Dow AgroSciences hosts grower viticulture tour to South Australia

Phil Carter and Richard Rutherford, Fruitfed Supplies area sales managers for Hawke's Bay and Marlborough respectively, outline the key points learned on February's study tour.

With three days in South Australia's famous Barossa Valley wine region, the group comprising growers, Fruitfed and Dow AgroSciences personnel visited several vineyards and talked to numerous industry experts.

Phil says a meeting with Greg Shubert of Farmer John's, a viticultural service retailer, highlighted current issues for South Australian growers. "These included oversupply of grapes by approx 20%; huge corporate growth by the larger brands, such as Fosters and Constellation, which require careful supply chain management; water management and salinity issues; and frost, flood, fire and derelict vineyards spreading problems," says Phil. "This year growers are facing disease pressure from powdery and downy mildew, Botrytis, eutypa and phomopsis, as well as pests like phylloxera, LBAM, mealybug, weevils, snails and fruit fly, so there are several different considerations compared to New Zealand growers."

A highlight of the trip was half a day with Jodie Armstrong from Integrated Viticultural Solutions and Trevor Wicks, a plant pathologist with the South Australia Research and Development Institute (SARDI).

Richard says: "We visited a number of vineyard

sites which Jodie advises on, talking about plant protection programmes, nutritional management, unusual local pests such as snails, heat stress, water management, their sprawl canopy management system and weed control. Climatic effects on the vines are a major difference – in New Zealand sunburn and water conservation are minor issues compared to SA. It was interesting to see their change in cultural practices to match their environmental conditions.

"Trevor took us to Lenswood Research Centre where we saw his downy and powdery mildew trials. He normally has to inoculate for downy, but with wetter spring conditions, untreated vines were nearly defoliated by this pathogen. There was significant shoot dieback and complete loss of crop in places. Generally SA has had huge downy mildew pressure this year, resulting in product shortages, particularly Ridomil. It was interesting to observe infected vines as New Zealand is also experiencing unusually high downy mildew levels this season. Trevor had placed nets around the trial site to keep wild kangaroos out, but they just jumped over the nets! Something we don't have to deal with, thankfully."



Garth Davis, Fruitfed Supplies, and Trevor Wicks, SARDI, looking at Trevor's downy mildew trial

The group also visited Australia's Riesling capital, Clare Valley, where they met John Barry of Jim Barry Wines to enjoy a glass of Riesling and fresh pasties at 10am. "We had a great spot on top of a hill surrounded by vineyards where we talked with John. He was a rather colourful character, but very passionate about what he did and by the taste of the wines, certainly knew what he was doing."

Phil notes there are 75,500 ha of grapes in South Australia, compared to New Zealand's entire productive vine area of 34,000 ha. "The top three varieties are: Shiraz (25%), Chardonnay (18%) and Cabernet Sauvignon (16%). We were fortunate to have the chance to try well-known wines such as the 2004 d'Arenberg The Dead Arm Shiraz, 2007 Turkey Flat Butchers Block White (82% Marsanne/18% Viognier), 2005 Turkey Flat Grenache from 100 year old vines, and Jim Barry Chardonnay and Shiraz. The reds were generally superb and full bodied, and interestingly SA winemakers are trying to emulate our Sauvignon Blanc by un-oaking Chardonnay and harvesting at a lower brix. Time will tell if this is successful."

Richard concludes: "Our thanks to the team from Dow AgroSciences for organising and controlling the study tour so well."

The South Australian study tour group comprised: Nick Winter from Giesen's; Ian Buck from Awatere Vineyard Estates; Ollie Powrie from Villa Maria; Andrew Stove from Matua; from Dow AgroSciences – technical specialist Bernard Harris, national sales manager Peter Holden and SA territory manager Chris Brown; and from Fruitfed Supplies - Richard Rutherford, Phil Carter, ag-chem product manager Garth Davis, Hawke's Bay representative Andy Davis and Marlborough representative Tyrone Yianakis. **F**



Jodie Armstrong, Integrated Viticultural Solutions, shows off 100yo producing vines

Du-Wett Stainless means easier stain removal

Save time and money when applying stain removers in kiwifruit with Du-Wett Stainless®.

Introduced last season Du-Wett Stainless is an acid-stable super-spreader from the well-proven Du-Wett range. It's designed to be used with stain removers in low water volume application for kiwifruit.

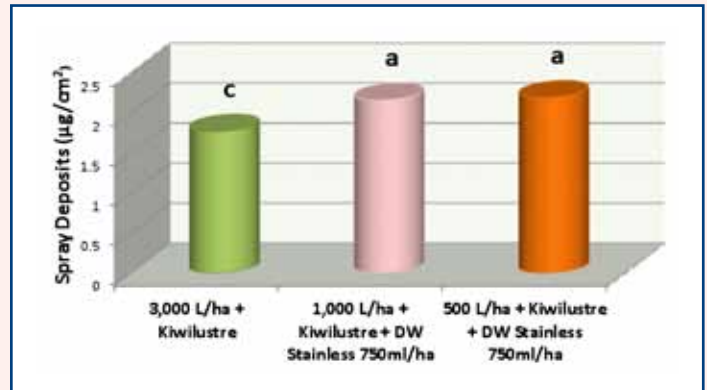
"Du-Wett Stainless can safely be tank-mixed with products like KiwiLustre® and Lift-off™, because, unlike other spreaders/adjuncts, Du-Wett Stainless is not degraded by the acidic stain remover," says Darren Faire, regional manager for Etec Crop Solutions.

"With the correct sprayer set-up and application process, Du-Wett Stainless delivers significant gains in efficiency. Traditionally 3,000 litres of water per hectare is used as single or split passes with the stain remover, making the whole process very time consuming and therefore expensive.

"Using just 500 to 1,000 l/ha of water with your preferred stain remover and Du-Wett Stainless, it's possible to cover an area three to six times larger than usual with a single tank. Field trials plus a laboratory trial by Plant Protection Chemistry show the product is also spread more evenly and thoroughly, with improved deposition of the product, increasing its effectiveness."

Other benefits include:

- The overall cost is similar to high water volume applications.
- Less stain remover is needed to achieve similar or better results.
- Less time involved for machinery and personnel
- The lower water rate means fruit dries faster, allowing earlier harvesting following application



Trial data: Retention of KiwiLustre with and without Du-Wett Stainless [Plant Protection Chemistry NZ, 2010]

Darren says accurate sprayer calibration is essential. "Every sprayer is different and each block has a different intensity of staining, so spend the necessary time checking the coverage level is right."

Key points for Du-Wett Stainless use:

- Apply stain removal products in 500 to 1,000 l/ha. Not for use in high volume dilute.
- Ensure optimum sprayer set-up prior to application.
- For heavily stained blocks, consider a double pass. **F**

Du-Wett® is a registered trademark of Elliott Chemicals Limited. KiwiLustre® is a registered trademark of Solexin Industries Ltd. Liftoff™ is a trademark of Yara New Zealand Ltd.



Removing kiwifruit water stains

Left untreated, water staining on kiwifruit can significantly reduce export pack-out rates. The application of a proven stain remover is frequently worth the investment.

The main cause of water stain on kiwifruit is from the leaching of minerals and tannins from decaying necrotic leaves dripping down on the fruit in wet conditions. This is one reason for trying to keep the leaf canopy in good condition, if possible, right up to harvest.

Severity of water staining depends on weather conditions, but if left untreated, it can result in fruit being rejected. Rejects from badly-affected blocks can exceed 25%, proving very costly to the grower's returns.

Two well-proven stain removers available from Fruitfed Supplies are KiwiLustre® and Liftoff™.

KiwiLustre

- A phosphate-buffered lactic acid
- Long history of use, showing excellent efficacy in removing stains
- Research shows significantly less re-staining in storage compared to other products
- Not corrosive to most spray equipment
- Available in 15, 200 and 1,000 litre containers

Liftoff

- Liquid phosphorus and calcium formulation with excellent crop safety and performance
- Industry approval for use on export crops
- Recommended rate is 500 ml per 100 litres of water
- Addition of surfactants not necessary
- Very cost effective option
- Available in 210 litre drums

KiwiLustre® is a registered trademark of Solexin Industries Ltd. Liftoff™ is a trademark of Yara New Zealand Ltd.

Valuable information sharing at TPP discussion group

This season Manawatu potato growers are sharing information about the tomato-potato psyllid to gain a greater understanding about this pest and how to control it.



Monthly discussion groups facilitated by Dr Stephen Odgen, manager of the TPP Project for Potatoes New Zealand, have seen Manawatu growers and industry partners such as Fruitfed Supplies get together to discuss TPP monitoring results and their experiences about how to control this pest.

Fruitfed Supplies representatives Anne Snoxell and Donna Daken have collected and collated weekly TPP trap count results from growers in the region and added these to the Plant & Food database. The Fruitfed pair has also helped the discussion group by co-ordinating the meetings' organisation.

At February's meeting, Stephen shared information from the Zebra Chip Conference he recently attended in Texas, USA. Anne says growers were also open to discussing their spray programmes. "There were a number of interesting details shared about what was working

and what was not, along with observations about the effects of individual cultural practices and other points such as the way the psyllid moves into and through the crop," says Anne.

Tim Herman, Fruitfed Supplies regional technical advisor, also attended the February meeting and was able to tell the group that a couple of new compounds are showing good control of TPP in his on-going trial work in potatoes and processing tomatoes. Tim says the trial data will contribute towards the registration of one or more of these compounds.

Anne notes: "The potato crops harvested in this region have a wide range of end uses such as seed production, crisping, French fries, gourmet and local market, as well as export. The end uses may be different but growers are all faced with the same challenges with this pest – producing good quality potatoes. Fruitfed Supplies offers both crop monitoring services and advice on spray

programmes in the region, and the discussion group meetings have certainly provided an important means of communication to help growers achieve the best possible results."

When growers were asked about the value of attending these meetings, Anne says the comments included "It's good to find out what others are doing so we can get the best results," and "What have we got to lose?"

Opiki potato grower Terry Olsen has attended the meetings and comments: "The tomato-potato psyllid has been a significant challenge for the potato industry, but if there can be one upside it would be that it has encouraged better communication, not only between growers, but also with other industry sectors. This is something that needs to continue as we work towards finding the best way of managing this pest and other day-to-day issues that may arise." **F**

Continued from page 1



The maxi kit option for the latest Electrocoup F3010

Other features of the Electrocoup F3010 include:

- A more comfortable battery pack waistcoat – flat, flexible and shapes to the user's back.
- New battery LCD display fitted to the battery waistcoat – shows battery power level, number of cuts, intensity of work and help functions for service diagnostics.
- Battery charger now charges two batteries at the same time.

The Electrocoup F3010 was awarded a bronze medal at the 2010 Vinitech/Siffel innovation awards. The pruning system has a two-season guarantee on all components, provided that the recommended services are carried out between pruning seasons and is available from Fruitfed Supplies stores nationwide. **F**

ERRATUM

In the March edition of **Facts**, the article entitled "High level of rot control with minimal copper loading" contained copper fungicide rates taken from product labels on the ACVM register. The register contained an old label for Nordox 75WG. The correct label rates are 55-70 g / 100 L and the additional elemental copper applied/hectare/application vs. Kocide® Opti™ is 0.5 kg.



Soil testing essential tool for vegetable nutrition

Ensuring adequate and balanced plant nutrition begins with soil testing for assessing the nutrient status of fields for upcoming crops.



Manganese-deficient beans

Plant nutrition plays a vital role in determining a crop's potential yield. It also has a major influence on plant health, and the crop's quality and shelf life.

For soil tests to provide an accurate indication of soil properties and fertility levels, samples should be taken separately from each distinct soil type in the field. Samples should then be analysed for macronutrients and micronutrients appropriate to the crop type. It is also useful to test for basic soil properties, such as organic matter, to assess the physical status of the soil at that time and also to track changes over time that may influence soil management decisions.

Richard Bawden, Fruitfed Supplies' NZ technical manager, recommends the following soil tests be conducted annually to provide the best information on which to base fertiliser decisions in field vegetables any New Zealand region:

- Basic soil test
- Sulphate sulphur
- Organic soil profile
- EDTA trace elements
- Phosphate retention (only required in initial testing)

"These tests provide information not only on the available nutrient status of the soil, but also about physical properties that affect nutrient

availability and retention. These factors influence both the amount and frequency of fertiliser applications," says Richard. "Changes to the soil's organic properties over time may indicate the need for cover crops or spelling, and your field representative can assist by explaining the options."

Richard notes that it is important to allow sufficient time prior to planting for the tests and analysis to be completed. "You also need to factor in any corrections to nutrients needed, particularly if liming is required."

Tests should be conducted at a similar time each year to provide the best picture of annual trends and changes. Autumn is when soil tests are commonly done as not only is this a time when nutrient levels are least variable, it is well timed for planning for the new season.

"Testing plant nutrient status during the growing season is highly recommended. There are often interactions between soil nutrients, and other factors such as rainfall, that limit uptake of certain nutrients. If detected in time, any resulting deficiencies may be remedied with side dressings or foliar applications.

"Our field representatives receive training in correct soil sampling procedures, interpretation of results and formulation of fertiliser recommendations. Please contact your field representative to begin testing and planning for a successful growing season ahead." **F**

Vege Tech Bytes

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



Some of the trials we conduct with new compounds, particularly those that are close to being released for sale, are tests with adjuvants. These include surfactants for spreading, penetrants to get systemic products into plants, stickers to help product adhere to plant surfaces, or UV protectants to help products last longer when exposed to the sun. We are often able to improve the activity of compounds by conducting these trials.

On the flipside, adjuvants can cause phytotoxicity, either alone or in combination with other products, in certain situations. We have had a lot of enquiry about the safe use of oils for control of TPP

on potatoes, and we are trialling oils at varying rates and with a number of compounds so that we can give greater certainty about safe combinations and rate ranges. Our findings will be communicated to you during grower meetings as soon as the data analysis is complete.

When trialling adjuvants, we not only test for interactions with products in the tank mix, but must also consider products that have been applied to the crop previously as some are persistent or interfere with the plant's cuticle barrier, resulting in phytotoxic reactions with sprays applied a week or more later. **F**



AVOCADO



Reminders for April:

- ✓ **Leafroller** larvae cause rapid and extensive damage, so once thresholds have been exceeded an insecticide, e.g. Success Naturalyte or Proclaim, should be applied immediately.
- ✓ **Greenhouse thrips** can often be an issue through April and into May. As populations increase very quickly, monitor crops carefully to minimise damage. Calypso is the preferred option for GHT control in avocados as it is 'softer' chemistry with less effect on beneficial species such as *Thripobius semiluteus*, a parasitic wasp which targets GHT (see photo). As with other soft compounds, effective control with Calypso relies on good application practices and complete coverage of the target.
- ✓ Monitor **six-spotted mite** carefully now to ensure early detection. Where needed, implement a control programme to reduce over-wintering populations as these have the potential to cause major issues during spring. For details on (Fruitfed Supplies Crop Monitoring Service, contact Sue O'Malley (Whangarei and Far North) on 0274 988 174 or Alastair Reed (Bay of Plenty) on 0274 347 971.
- ✓ **Du-Wett** super-spreader has been widely used in the kiwifruit, apple, grape and vegetable industries over several seasons. Recent work shows its ability to greatly assist spray coverage when combined with low water rate applications in avocados. For further information on how this technology can assist your pest and disease control programme, please contact your Fruitfed Supplies store.
- ✓ April/May is the correct timing for **leaf and soil sampling** in avocado blocks. The resulting analysis provides an accurate indication of plant and soil nutrient status and is necessary to design the coming year's fertiliser programme. Accurate monitoring of soil and plant nutrient status allows the plants' nutritional needs to be met with reduced risk of fruit quality issues or economic/environmental impact from excessive fertiliser use.
- ✓ Apply **Fruitfed Supplies Avocado Mix** to feed developing fruit, as per your fertiliser programme. Time regular applications to coincide with rain or irrigation. Fertigation options are also available. Renewing mulch beneath the trees at this point also helps conserve moisture and promote healthy root growth.



Thripobius semiluteus adult, a parasitic wasp of greenhouse thrips

- ✓ **Brown rot** may infect healthy fruit pre-harvest, especially if conditions are wet (see photo). Control with Kocide Opti or Dithane Rainshield Neotec.
- ✓ Consider application of **Perk Supa** in autumn to strengthen the plant and improve disease resistance.

GRAPES



Reminders for April:

- ✓ Bunches become increasingly susceptible to **Botrytis bunch rot** as they ripen. Monitor weather forecasts closely and make sure fungicide covers are applied in anticipation of wet weather. This should be the policy through until pre-harvest (strictly observe pre-harvest intervals of each product).
- ✓ If **bird damage** can be a perennial problem and may exacerbate both Botrytis and sour rot infections. Netting should be the mainstay of any strategy for growers with high pressure blocks, as they physically exclude feeding activity. Various scaring devices play an important supplementary role and these should be moved frequently within the block to inhibit birds becoming desensitised to them.

The pre-harvest period represents a useful opportunity to gather information pertinent to next season's pest and disease management decisions. This is particularly true for two commercially-important invertebrate pests: **leafroller and mealybug**. Sustainable Winegrowing New Zealand (SWNZ) advocates a systematic approach to pest monitoring be implemented. A good method is to survey



Leafroller webbing in grape bunch

10 bunches from 20 bays across the vineyard block (i.e. 200 bunches). A destructive assessment of bunches (i.e. removing berries) is best practice as these pests endeavour to escape their natural enemies by hiding inside the bunch and therefore the external appearance of the bunch does not always reliably indicate their presence. Assessment results will determine what course of action should be taken next season. For mealybug, the presence of grapevine leafroll virus should also be noted as this will have a bearing on the approach to take. Fruitfed has a professional monitoring service that can assist you with all your late season monitoring requirements. For details on this service, contact Jimmy Bowden on 027 443 9063.

CITRUS



Reminders for April:

- ✓ Through autumn and approaching harvest, **greenhouse thrips** levels may rise very rapidly, causing typical silvery scarring damage. Control options are limited, particularly for export crops.
- ✓ **Scale crawler release** continues through April and May. If careful monitoring is carried out, control options such as Applaud 40SC or D-C-Tron Plus mineral oil may be applied most effectively as the crawlers and first settled stages are detected.



Fruit infected with brown rot (photo courtesy K. Pyle)

Reminders for April:

- ✓ Late season control of **scale** in Hayward is now limited to mineral oil (D-C-Tron Plus). Continue to monitor and if thresholds are exceeded, apply as per label instructions.
- ✓ Continue to monitor also for **leafroller** as late season infestations (particularly of the black lyre leafroller) may cause extensive damage in some blocks. If thresholds are exceeded, control with Delfin WG as required (2-day PHI).

KIWIFRUIT



- ✓ As we head into April, remember to visit Fruitfed Supplies for all your **harvest requirements**.

Assess crops prior to harvest to determine whether **stain removal** is required. A relatively small gain in packed trays is all that is required for economic justification of stain remover application.

Extensive research by Fruitfed Supplies Technical team and growers' own experience has demonstrated the effectiveness of Kiwilustre for the removal of kiwifruit stains. Kiwilustre is very effective when used correctly and treated fruit do not re-stain in storage. Kiwilustre also gives increased protection against re-staining in the field if rain occurs after application and before fruit are picked.

Du-Wett® Stainless is an acid-tolerant super-spreader that is specifically designed for use with stain removers. Du-Wett Stainless allows application of stain removal products such as Kiwilustre at reduced water rates, ensuring blocks are covered faster, more efficiently and more economically. Treated fruit dry rapidly, an important consideration leading into harvest.

The Fruitfed Supplies Technical team are continuing to conduct a range of trials to help growers control *Pseudomonas syringae* pv. *actinidiae* (Psa). We are liaising with Zespri so that the products we test in efficacy, residue and compatibility trials have the utmost relevance for growers controlling this disease in their blocks. We will continue to disseminate information to the industry as we are able to.



Fruit exhibiting water-staining prior to harvest

inadequate to date. Fruit damage is more common on those apple cultivars that have a tendency for clusters, as these provide a protected feeding niche. Leafroller caterpillars have a grazing feeding habit, as opposed to codling moths which tend to burrow into the centre of fruit. Damage caused by leafrollers is characterised by irregularly-shaped grazing wounds, which usually have the presence of webbing. Good spray coverage and correct product choice are important to achieve commercially-acceptable control of this pest.

It is vital to maintain leafroller control during the harvest period, which is often extended due to the need for selective picks. The insecticide Proclaim, derived from the naturally-occurring soil bacteria *Streptomyces avermitilis*, provides control of larvae via ingestion and some contact activity with wet spray residues. This combined with its rapid photo-degradation of residues on fruit surfaces provides an effective close-to-harvest management tool. Remember the addition of a non-ionic surfactant, e.g. Latron B-1956, is required to optimise its performance.

SUMMERRUIT



Reminders for April:

- ✓ Apply copper fungicide covers over the leaf fall period to limit **bacterial blast** and **bacterial spot** infection of leaf scars. Repeat applications may be necessary if there are several rain fall events.
- ✓ When pruning be sure to protect pruning cuts from wood invading diseases with a suitable wound dressing.

PIPFruit



Reminders for April:

- ✓ Late harvested varieties are still at risk of **black spot** and **summer rot** infection in April. If warm temperatures and wet weather are anticipated, ensure a protectant fungicide cover is applied.
- ✓ Remember to assess 1,000 fruit per sampling area for **scale** and **mealybug** to determine appropriate control measures for next season.
- ✓ Continue monitoring for **codling moth** and **leafroller**. The recording of trapping activity and trap maintenance is essential for audit purposes. Apply an insecticide if thresholds are exceeded. Your choice will depend on variety, pre-harvest interval and market destination.

The third **leafroller** generation is now present in most growing districts. The feeding behaviour of the late generations changes to a preference for fruit rather than leaves and damage may be found prominently on fruit where control strategies have been



Leaf roller larva and feeding damage on apple



Silver leaf infection on peach tree branch

Silver leaf, caused by the fungal pathogen *Condrosterium purpureum* can be a serious disease of summerfruit trees, particularly in the warmer growing regions. Well developed infections may result in twig dieback as well as negatively impacting yield with smaller and fewer fruit produced on infected limbs. Its characteristic symptom is produced on leaves which have a metallic, pale green/grey appearance.

Silver leaf is a wound parasite that often gains entry into its host during the autumn months. Pruning renders the tree temporarily vulnerable to infection as this fungus readily colonises cuts. Once spores germinate the fungus moves through the architecture of the tree via the xylem stream.

Good orchard hygiene practices are important to limit the spread of silver leaf within an orchard. Infected wood should be taken from the block or preferably burnt. It's also important not to prune infected blocks during periods of rain and use a pruning paint (e.g. Bacseal Super) to protect cut as soon as possible after the cut has been made. Infected branches should be cut back past the staining and into healthy wood before a uniform coat of paint is applied over and beyond the edge of the cut surface.

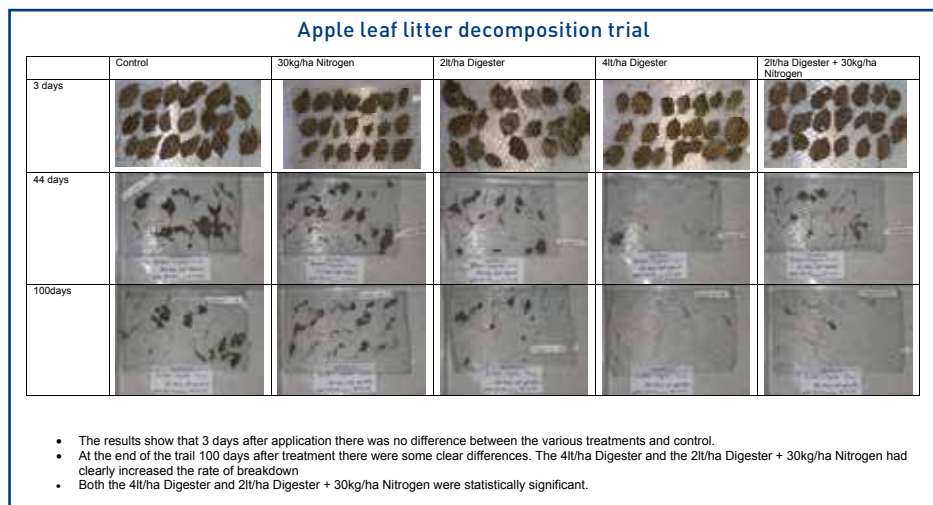
Reduce next season's disease pressure with Digester

By ensuring the complete decomposition of leaf litter, disease pressure the following season can be reduced.

Numerous diseases, such as black spot, can over-winter as spores in leaf litter. One way to assist breaking a disease's lifecycle is to ensure that leaf and pruning litter decomposes completely during winter with the application of a decomposition promoter such as Digester.

"Digester initiates a rapid rise in the population of the primary indigenous composting microbes," says BioStart's horticultural territory manager Ross MacDiarmid.

"Digester contains extracts from the fermentation of Pseudomonas bacteria. These include enzymes, bacteriocins, signal molecules and secondary metabolites. The enzymes help break down cellulose and lignin, and the bacteriocins and secondary metabolites have antimicrobial



properties and aid in suppressing pathogens.

"The result is that leaf litter is broken down much more quickly. Not only do you have no or very little leaf litter in which pathogens can overwinter, you have the added benefit of returning nutrients and organic matter to the soil to build humus and aid soil structure."

The BioStart team, with assistance from Fruitfed Supplies technical adviser Tim Herman, conducted a trial with Fuji apple trees in Hawke's Bay. Fallen leaves were collected and spread between wire mesh cages which were put back on and pegged to the orchard floor. The idea was to test the application of nitrogen and Digester at different rates against a control to see if there were any differences in the rate the leaves decomposed.

At the end of the trial, 100 days after treatment, there were some clear differences. The application of Digester at a rate of 4 l/ha and an application of Digester (2 l/ha) plus nitrogen (30 kg/ha) had clearly increased the rate of breakdown and the results were statistically significant. NB: Nitrogen is applied to try to address the issue of crop residues being high in carbon and short on nitrogen.

Ross says: "A number of customers mix Digester with their leaf-fall promotion sprays of copper or urea. Digester is easy to use and can be applied with standard spray gear." **F**



Post-harvest nutrition aids early spring growth

The post-harvest application of foliar nutrients to fruit trees, in conjunction with NPK soil fertilisers, can make a big difference to next season's crop.

After a crop is harvested, the plant puts its energy into building carbohydrates for next season. The carbohydrates encourage root growth and nutrient uptake is increased. Leaf nutrients are drawn back into the buds to be stored in reserve for next season.

Where heavy crops have placed a great demand on the tree up until harvest and nutrient levels within the tree are low, post-harvest application of certain nutrients enables the tree to build its stores for next season. This is important because there is little or no uptake of nutrients from soil early in the season and nutrient supply from roots only starts once extension growth has commenced.

Post-harvest application of magnesium can delay leaf senescence and maximise nutrient remobilisation. Zinc and boron are particularly important early in the season to aid flowering and fruit-set, the movement of sugars, and the function of many enzymes.

Bud Builder from Yara has been specifically formulated for a one-shot post-harvest spray providing magnesium, boron and zinc plus phosphorus in a wettable powder formulation. Alternatively Zintrac 700, Bortrac 150 or Hydromag can be used where there is a need for only one or two of the nutrients. **F**