



Richard Bawden (left) replaces Ken Jeffery as Fruitfed Supplies' technical manager when Ken retires at the end of June after 48 valuable and productive years with the company.

Fond farewell for Ken Jeffery

Fruitfed Supplies technical manager Ken Jeffery retires this month after 48 years with the company, and things simply won't be the same without him.

Ken Jeffery is known to numerous people in the New Zealand horticultural industry. Just one example of the esteem in which Ken is held was seen last year when the Hawke's Bay Fruitgrowers Association awarded him the Joe Bell trophy in recognition of his efforts to advance our industry.

Typically, Ken wasn't thinking about his final few weeks at Fruitfed Supplies when *Facts* talked to him in early May.

"We've had one of the biggest research programmes this year for some time and with most of the multinational ag-chem companies with quite full pipelines of new discovery chemistry, we've been busy with numerous trials across the key crop sectors. I'd love to see some of these products come to market!"

Ken will finish officially on 30 June and, with his Auckland home sold, is heading to Nelson with wife Pam. From there, Ken will consult to Fruitfed Supplies when required.

"We have many friends in Nelson, having been based there years ago, and Pam's brother and his wife are also moving back there, so that will be great," says Ken. "I am looking forward to developing a new garden and dusting off the golf clubs to get out for a few more rounds than I've had time for in recent years!"

The future of the Fruitfed technical team is in good hands, says Ken. "One thing I am happy about is the current technical team. Tim [Herman], Paul [Hassan] and Richard [Bawden] have formed a really strong team, which has been together just on a decade.

"Richard has been appointed to take over the technical manager's role and I'm very happy with this decision. I'm confident Richard has the right abilities to continue to lead the team with innovative research and data sharing for our suppliers, staff and growers.

"Richard travelled with me last year on the Northern Hemisphere trip that I took most winters. He had the opportunity to meet many of the people I have worked with at universities, research institutes and ag-chem companies over the years. We had the opportunity to see many key crops and new experimental compounds in action during the Northern Hemisphere summer, which all aids our local strategic research direction.

"The sound knowledge and technical skills of Tim and Paul have also clearly been demonstrated during their own research trials and they are all playing an important role in helping bring new discovery chemistry to market for New Zealand growers.

"The technical team is a huge resource for Fruitfed Supplies and I have always been grateful to the company's directors and management for their ongoing support – financially and logistically – to enable the development of this team.

"I am also fortunate to have a very supportive family; Tania, Matt and, in particular, my wife Pam, as my role has involved significant periods of time away from home, locally and overseas. I've also enjoyed a great deal of support and friendship of growers throughout the country, which I've really appreciated.

"The suppliers I have worked with over the years also deserve special thanks. I've built long-term friendships with scientists all over the world. The dedication and passion these people have to bring new products to market is sometimes underestimated. There is a huge commitment on a global basis that involves our team here in New Zealand and it's been a joy to be involved and to continue to be inspired every day for 48 years."

Ken has been a core member of the Fruitfed Supplies team and his contributions have been extremely significant in numerous

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ways over a long period of time, says general manager Stephen Guerin. "Ken's dedication and scientific abilities have helped shape not only Fruitfed Supplies, but many aspects of New Zealand commercial horticulture," says Stephen. "I'm sure many people will join with me

to express our appreciation to Ken for the generous sharing of his knowledge and his enthusiasm and commitment for so many aspects of this ever-changing business. Ken, we wish you and Pam all the very best. Quite simply, thank you." 🍷

New boron product available soon

With its critical role in the primary structure of cell walls, boron levels affect virtually every aspect of a plant. The slow release action of OrganiBOR offers growers an environmentally-friendly, plant-friendly source of boron.

OrganiBOR®, or hydroboracite, has been used in New Zealand for over ten years in the forestry industry where it now holds around 90% of the forestry boron market.

An incredible amount of information has now been gathered about the effects of boron in forestry plantations, says Rick Jamieson of Napier-based Jabez Trading Ltd who imports OrganiBOR.

"When we begun to look into boron deficiency in the horticultural market, we found many similarities between forestry and commercial horticulture," says Rick.

Boron is critical for all vascular plants with many possible roles that aren't all understood at present. "However we do know boron plays a critical role in the primary cell wall structure, and a lack of boron will exhibit itself as a weakness in these cell walls."

Boron's cell wall role and its effect on the plant's structural strength are clearly demonstrated in pine trees. An extreme boron deficiency results in a tree measuring 30 cm in diameter at chest height simply bending to the ground under a heavy snow loading, says Rick.

"This is known as 'rubber wood' and is solely due to a lack of boron. This lack of strength in the plant's structure has implications in its ability to resist disease and insect attack, not to mention frost and drought," explains Rick.

"Boron starts working right down at the roots by increasing root mass

and hence the plant's ability to take up nutrients, especially calcium, magnesium and potassium.

"Leaf development, flowering and fruit-set are all well-known to be affected by boron levels, as is the strength and quality of the fruit itself. Higher boron levels translate to higher calcium levels in the fruit, which increases the strength of the skin, the size and form of the fruit and the storage life. These same parameters apply regardless of whether it is an apple tree, a grape vine, a pine tree, or a head of broccoli."

Traditional boron fertilisers work by supplying boron directly to the plant in a form that is readily taken up and assimilated which, on the face of it, makes perfect sense, says Rick.

"However, as most growers know, there is a narrow band between deficiency and toxicity. Also highly soluble and very plant-available boron fertilisers tend to leach away very quickly."

OrganiBOR works in a very different way – it's simply boron-rich sedimentary rock that slowly breaks down and releases boron into the soil in a form that is not readily taken up by the plant and also not readily leached out of the soil.

"OrganiBOR itself is only about 5% water soluble whereas most boron fertilisers are around 90-100% water soluble, so instead of supplying boron directly to the plant, we simply create boron rich soil which then supplies all the boron the plant needs as the plant needs it."

"This is totally counter-culture," acknowledges Rick. "But that fact remains that it works and works extremely well. Highly-soluble boron fertilisers are only available to the plant while they remain in the soil, which may be only a short period. In contrast, OrganiBOR stays in the soil for a long period of time, years in fact, and slowly, continuously converts to boric acid which the plants can then take up and assimilate.

Rather than the plant having a high dose of boron once or twice a year for a short time, Rick suggests using OrganiBOR to give the plant a small dose of boron every minute of every day of every month every year. Trial results show the advantages of this approach.

"An avocado trial had a control treatment of a standard soluble boron application every six months. After seven months, i.e. two sodium borate applications, there was a 10% increase in foliage boron levels. One application of OrganiBOR at the recommended rate resulted in a 30% increase in foliage boron levels over the same time period," says Rick.

In an effort to try and induce toxicity in the avocado trial plots, OrganiBOR



The results of a severe lack of boron on a pear crop



was applied at triple the standard rate. "There was a 60% increase in foliage boron levels, but no toxicity whatsoever."

A grape trial resulted in a 450% increase in soil boron levels and a corresponding 51% increase in boron foliage levels. In the fruit, boron levels increased 14% along with a 17% increase in calcium and a 21% increase in magnesium levels.

"These boron increases were achieved in just seven months, which was quite a surprise because OrganiBOR is a very slow release product. In grapes, particularly, we hadn't expected to see any change in fruit levels in the first 12 months, although this trial was on extremely light soils and at a slightly higher application rate than normal."

Rick says these results are mirrored in other crop trials. In apples, a 28% increase in foliage levels were noted, with small corresponding increases in boron, calcium and magnesium levels in the fruit.

"An interesting point on this apple trial is that while trying to induce toxicity, we increased the soil boron levels by 900%, pushing the level to in excess of 13ppm. But there's no sign of toxicity after seven months, proving that the boron is in the soil but not leaching out and only slowly releasing to the plant."

Rick says the other benefit of OrganiBOR is that applications can be made every two to five years depending on soil type and conditions, making it very cost effective over the long term.

Over the last six weeks Rick has started talking to horticultural consultants about OrganiBOR and, so far, has received an extremely positive response from this sector of the industry.

"One consultant has gone as far as saying OrganiBOR could be considered the perfect borate because of its low water solubility but high citric solubility," says Rick. "While OrganiBOR can be applied at any time of year, late winter or very early spring can be considered the best time for application. OrganiBOR is available exclusively from Fruitfed Supplies and should be seriously considered for your nutritional programme this year." ⇨



Increased awareness for bees

Bee Week, which ran from 4 to 8 May this year, successfully raised awareness of a number of issues about bees in New Zealand.

Bees are often the unacknowledged workers in the horticultural sector, says Jim Edwards, CEO of the National Beekeepers Association, which initiated the awareness week.

A number of key messages came out of Bee Week, including:

- Education is the key to protecting bees from exposure to agrichemicals. "Horticulture needs bees for pollination. Horticulture also needs to protect its crops from unwanted pests. Our industries will continue to work together to keep pesticides away from bees, and bees out of harm's way," said Graeme Peters, chief executive of Agcarm, the industry association for crop protection manufacturers and distributors.
- Even self-pollinating crops perform better if pollinated by bees. Good agricultural and horticultural practice therefore relies on the correct use of agrichemicals, especially insecticides. The use of agrichemicals toxic to bees is controlled by the HSNO Act 1996 and the ACVM Act 1997, making it an offence to use agrichemicals contrary to any bee toxicity warning on the label.
- In recent years the National Beekeepers Association's research has had to focus on Varroa mite which was detected in New Zealand in 2000. The Varroa incursion highlights New Zealand's vulnerability to biosecurity threats.



Photo Courtesy of Agcarm



NBA President Frans Laas explains bee behaviour to David Carter, Minister of Agriculture; Ruud Kleinpaste, MC and guest speaker; and Maureen Maxwell, Northern Ward representative.

- The threat to our primary sector from pest and disease incursions is only going to increase, says HortNZ CEO Peter Silcock. "The bee industry's experience of the spread of the Varroa mite in the past decade is just one example. The primary sector has its fingers collectively crossed, every day, all year round, that nothing new comes through our border."
- Bees make an NZ\$3 billion annual contribution to our economy as pollinators of plants and grasses. Major crops such kiwifruit, avocado, apples and the less known crops of small seeds industry grown in Canterbury all rely on the intensive pollination provided by the honey bee. Bumble bees are important pollinators in some crops and are used intensively in glasshouses.
- The sting in the tail of Bee Week is a serious message – in other parts of the world, bees are dying. "We can stop that happening here," HortNZ's Peter Silcock says. "The value of pollination to New Zealand is almost beyond calculation. Cautious estimates say at least a third of the food we eat is the direct result of pollination. Then there are the multi-billion dollars in export earnings derived from pollinated crops..." ⇨

Nebijin: the club root solution

Nebijin® 5SC, based on the active ingredient Flusulfamide, offers growers a proven highly effective, clubroot control option with a single application.

Clubroot, caused by *Plasmodiophora brassicae*, is the most serious disease in vegetable brassica growing areas throughout New Zealand, reducing marketable yields and sometimes totally destroying crops, says Darren Faire, northern regional manager for Elliott Technologies.

"*P. brassicae* requires a brassica host to complete its lifecycle. With spores able to remain viable in the soil for at least 20 years, even in the absence of a susceptible host, clubroot is an ever-present, ongoing concern for brassica growers, particularly under cool, wet conditions.

"With excellent efficacy against this tough disease, Nebijin inhibits the germination of dormant spores, breaking the disease lifecycle through its powerful activity to help to ensure maximum yields and productivity for the grower."

Darren has good news for growers. "The price of Nebijin has dropped in recent years and the most cost-effective treatment is to use Nebijin by band drenching immediately after transplanting or with spot treatments using special equipment on a planter. It is highly recommended to apply Nebijin to transplant trays at seeding as an additional control measure to promote clubroot-free cells prior to planting out."

To ensure maximum performance from Nebijin, always apply with Du-Wett® adjuvant to help improve penetration into the soil profile. Rainfall or irrigation soon after application will also be beneficial. Nebijin is available in one and five litre containers.

Features and use guidelines

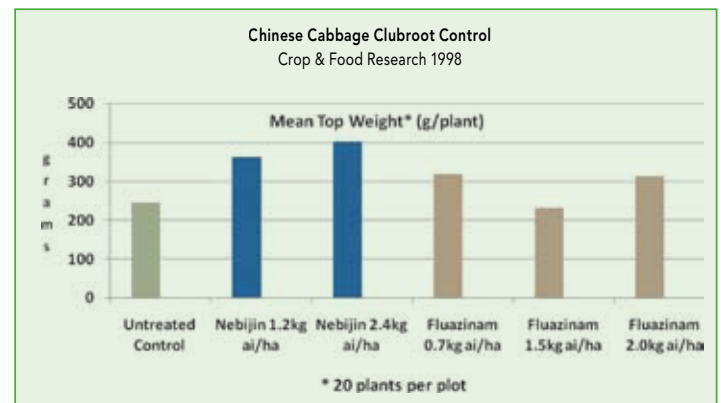
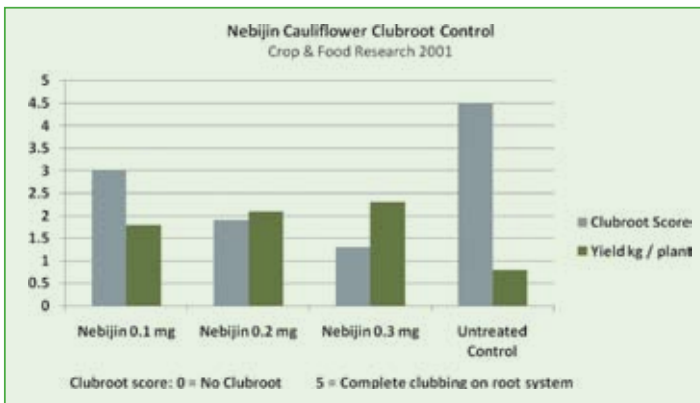
- Excellent efficacy with low use rates
- Good residual activity
- Stable efficacy under various soil types and temperature conditions
- Compatible with systemic fungicides and insecticides
- Use rates: Banding 12ml/100l; spot drench 16ml/100l; seeding use 1ml/5l, or refer to label. ➡

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®Du-Wett is a registered trademark of Elliott Technologies Ltd, NZ.



Clubroot is NZ's most serious disease in vegetable brassica crops



FRUITFED SPONSORS INDUSTRY CONFERENCES

May's Asparagus Conference



Fruitfed's involvement in the recent Asparagus Conference helps the company's staff meet growers from all over the country, says Kath Lee-Jones, Fruitfed Supplies Ohakune branch manager. "It gives us the opportunity to reaffirm our support for growers, and that we offer up-to-date technical advice and the right products. In turn, we get to learn, alongside the growers, any new research and technical findings, and trends in asparagus production and marketing."

Summerfruit Conference "Adding Value"

3-5 June, Rendezvous Hotel, Auckland

"Fruitfed Supplies provides a service to this industry that stems from many years in partnership with orchards and growers across the country," says Fruitfed Supplies southern region manager, Peter Mortimer. "The expertise provided by our staff through our technical team keeps customers in current and constant supply of up-to-date information, products and processes. It is important for Fruitfed Supplies to be part of the Summerfruit Conference – we all gain and pass on knowledge as a continuation of this partnership."

HortNZ Conference "Powered by People"

21-23 July, Christchurch Convention Centre

"Our association with the horticultural industry goes back to 1916 and through our sponsorship of the HortNZ annual conference we demonstrate our ongoing support for the industry and contribute to advancing the commercial and technical interests of our grower clients," says Fruitfed Supplies general manager Stephen Guerin.

Launching a new product

Tim Loughnane, from BASF New Zealand, concludes the series of articles about how the company develops and researches new crop protection products.

In the last few issues of *Facts*, we've talked about how each year BASF screens hundreds of thousands of brand-new molecules to identify the few that might be suitable for greenhouse testing, and if successful here, onto larger scale field trials. From this point, the one or two new molecules still showing promise are tested in New Zealand to prove themselves in local conditions. The final candidates then progress through the rigorous registration and approval processes. Only once this entire process is complete – often a period of ten or more years – is BASF New Zealand allowed to begin promoting a new product to retailers and growers.

While this final stage may seem pretty straightforward, just because you have a great new product it doesn't mean people will be lining up to buy it from day one. Literally hundreds of millions of dollars may have been invested to get to this stage with a new active ingredient, so you can imagine the pressure on the sales and marketing teams to make sure the features and benefits of a new product are made known as quickly and as clearly as possible. This often involves months of preparation, followed by weeks of launch presentations, distributor training, customer focus groups, and farm visits to ensure word gets out in time for the spraying season.

An example of one of BASF's latest new products is Pristine, the multi-crop dual action fungicide that covers a long list of diseases across a range of different crops. Pristine contains boscalid, a brand-new active ingredient never seen in New Zealand before, combined with F500, a strobilurin not used in horticulture previously. This meant

the sales team had a big task to convey the benefits of the new product to a wide audience across a range of different cropping situations. That's where BASF's group of territory managers come in, making sure that Fruited Supplies staff have all the support and information they need to discuss with growers how a new product or active ingredient will work in the field.

BASF also invests considerable time and money into producing relevant eye-catching support material to help promote a new product. Our team works with advertising agencies to come up with new concepts, source fancy gimmicks to be used as promotional tools, and even find the odd shirt or hat to give away to loyal customers. All of these tools help BASF get the message out into the marketplace whenever a new product is developed.

This point brings us to the end of our series of articles. Hopefully over the past few months you have enjoyed learning about how a giant company like BASF goes about bringing new chemistry to growers in order to solve the crop protection problems of today and into the future. The story doesn't stop here...as you read this, the scientists in Germany are working to find the next big thing, and you can rely on BASF to make sure it gets to you in time to help protect your valuable investment well into the future.

For more information on BASF or any of our products contact our horticultural specialist Weston Hazelwood on 021 423 240, our vegetable specialist John Haliday 021 423 240, or visit our website www.agro.basf.co.nz

TECH-KNOW TIPS

AVOCADOS



Reminders for June:

- ✓ Pest populations should generally be low in June, but keep an eye out for low populations of **greenhouse thrips** and **leaf roller**, which can continue to cause damage through early-winter months. Flare-ups of six-spotted mite are often noted in April and May; this pest is often a problem in winter and early spring months, particularly in the north. Control SSM with Mit é mec and DC Tron Plus as required.
- ✓ Continue to maintain a **fungicide cover** with copper products such as Kocide 2000LF or the new 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 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.
- ✓ Avocados are susceptible to **frost** (see photo), so ensure adequate frost protection is in place, particularly on young trees and/or higher altitude or colder areas. Methods include options such as

overhead watering, wind machine, frost covers on young trees or application of low-biuret urea. For details on the best frost protection system to suit your situation, please contact your local Fruited Supplies representative.



Frost-damaged leaves and fruit on a mature Hass avocado tree, Tauranga 2004

BRASSICAS



Reminders for June:

- ✓ **Ringspot** can be prevalent in cool moist weather. Daytime rain is needed for spore release and wet leaves or high humidity for infection. Start applying protectant fungicides, e.g. copper oxychloride or chlorothalonil, within two weeks of the first true leaf expanding. Apply systemic fungicides, e.g. Score®, in periods of favourable weather. Rotate between fungicide classes to avoid resistance.
- ✓ Monitor crops for **grey cabbage aphid** (white-grey wax coating, tight colonies) and **green peach aphid** (pale yellow, green or pink colour). Selective insecticides, Chess or pirimicarb, can be used to control aphids if populations reach damaging levels.

- ✓ Strategic applications of Metarex® slug bait will limit **slug and snail infestations** as they move in from crop margins.

CARROTS



Reminders for June:

- ✓ **Soil test** fields to determine nutrient levels. Calculate the amount of fertiliser required to supply sufficient nutrients for the crop. Apply and incorporate before planting.
- ✓ For growers concerned about **root knot nematode**, a soil test can be conducted to determine presence and intensity. It takes a month to get results, so plan ahead to allow plenty of time before planting.
- ✓ **Carrot variety and seed dressing** requirements should be planned ahead of time.
- ✓ If **weevils, wireworms or other beetles** are considered to be a potential problem, sample the field and, if necessary, apply an appropriate insecticide around planting.
- ✓ Apply **pre-emergence herbicides**, such as Stomp® Xtra, after planting but before the crop has emerged.

CITRUS



Reminders for June:

- ✓ Keep an eye out for **greenhouse thrips** as these pests will still be evident throughout autumn and early winter, especially in warmer northern regions and on late-harvest varieties. **Kelly's citrus thrips** and **citrus red mite** may also still be present, particularly if the weather remains warm. Please contact your Fruitfed Supplies representative for control options if these pests are present.
- ✓ If fruit have not yet been harvested, remember to keep up a fungicide cover to protect against **brown rot**, which may infect healthy fruit if conditions are wet (see photo). Control with Kocide 2000 LF or new Kocide Opti, Blue Shield or Dithane Rainshield.
- ✓ Consider application of **Perk Supa** in autumn to strengthen the plant and improve disease resistance. For further information, please contact your Fruitfed Supplies representative.
- ✓ June and July are also the optimum months to take **soil tests**. Use these to determine fertiliser programmes for the coming season, please contact your Fruitfed Supplies representative for details.



Brown rot on fruit (photo courtesy Keith Pyle)

GRAPES



Reminders for June:

- ✓ If possible, **avoid pruning** vines during rain or when rainfall is imminent. Apply a suitable wound dressing, such as Greenseal, after vines have been pruned and burn prunings as they may later become a source of inoculum for diseases like Eutypa in your vineyard.
- ✓ Endeavour to prune blocks that exhibit **symptoms of wood-invading disease first**, as spore production is often lower in early winter.
- ✓ Fruitfed Supplies representatives will be taking **soil tests** during the month of June. These tests are an important step to ensure vines achieve optimal nutrient status. Be mindful of excessive nitrogen readings as this can lead to an increase in the susceptibility of leaves to powdery mildew infections.

At the end of the growing season, there can be a tendency to relax with disease management programmes. However wood-invading diseases can infect vines during the winter months.

Black dead arm and dying arm diseases of grape vines are caused by wood-infecting fungi such as *Botryosphaeria stevensii* and *Eutypa lata*. These both have the ability to invade healthy vines through the unprotected wounds left by pruning activities. Rainfall releases spores, which are carried by wind and washed onto cuts to then germinate on the cut surface and grow into the healthy wood.

The most obvious symptoms are visible in the early spring. Leaves are yellow, small cupped, often tattered with scorched margins followed by progressive cane dieback and canopy decline. Significant losses in production can occur when vines are affected.

As with all diseases of grapevines, preventative control is the key to successfully managing the problem. Symptoms are often expressed years after initial infection so it pays to implement a preventative control strategy before symptoms appear. If practicable, prune vines during spells of dry weather and apply suitable wound dressing, e.g. Greenseal, to significant cuts soon after they are made particularly if rain is imminent.

If your vines display symptoms of this disease, infected parts wood should be removed and burnt, particularly all wood older than one year. Your local Fruitfed Supplies representative is available to discuss all aspects of the management of wood-invading diseases.

KIWIFRUIT



Reminders for June:

- ✓ If harvesting late in the season, **water stain** on fruit is likely to become a major issue as the canopy breaks down and weather deteriorates. A relatively small gain in packed trays is all that is required to economically justify a stain removal application. Research by Fruitfed Supplies Technical team, combined with growers' field experience over close to 20 years, 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 (an issue with older formulations containing citric acid). The Kiwilustre formulation also gives increased protection against re-staining in the field if rain occurs after application but before fruit are picked. How the product is applied is very important to get the best from any stain-removal product – for further information, please contact your Fruitfed Supplies representative.
- ✓ **Soil tests** will be carried out by Fruitfed Supplies representatives in June and July, a critical first step to assist in planning the coming season's fertiliser programme.
- ✓ Following harvest, in preparation for winter pruning, many growers use products to **promote leaf drop** in their vines. Copper-based products such as Bordeaux mixture have historically been used for this purpose, although copper sulphate is more commonly used now. For further details, please contact your local Fruitfed Supplies representative.
- ✓ Several winter jobs should also be underway, such as servicing/ replacing **pruning gear** ready for the pruning season, checking **kiwifruit structures** and carrying out repairs, and preparing for any block conversions/new plantings. We are able to provide all your needs – please contact your local Fruitfed Supplies branch for details.

LETTUCE



Reminders for June:

- ✓ Strategic applications of Metarex® slug bait will limit **slug and snail infestations** as they move in from crop margins.
- ✓ **Downy mildew** spores can infect a plant in 5-7 hours of high humidity or wetness. Maintain a protective cover with Dithane Rainshield NeoTec, Kocide® Opti® or Fruitfed Supplies copper oxychloride. Target applications of Acrobat® to spells of cool moist weather.

- ✓ **Monitor** crops for the presence of downy mildew, sclerotinia and other pests and diseases.

ONIONS



Reminders for June:

- ✓ **Soil test** fields to determine nutrient levels. Calculate the amount of fertiliser required to supply sufficient nutrients for the crop. Apply and incorporate before planting.
- ✓ Have **onion seed pelleted** with fertilisers and/or fungicides to maximise seed germination and crop establishment.
- ✓ Apply Stomp® Xtra within 3-4 days of the seeds being planted for **residual weed control**.
- ✓ Apply Roundup® Renew Xtra or Preeglone® to **burn off weed seedlings** before the onions emerge.
- ✓ Monitor seedlings for **onion fly** and other pests and diseases that may be present at this time.

PIPFRUIT



Reminders for June:

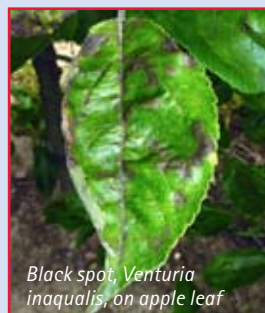
- ✓ If monitoring has identified **European canker** in your orchard, the correctly timed application(s) of a suitable protectant fungicide, e.g. Euparen Multi, during the leaf fall period is vital.
- ✓ A post-harvest pre-leaf fall application of urea and/or Digester applied to leaf litter on the orchard floor is the most effective first step to reduce **black spot inoculum**. For rates and optimum timing, contact your Fruitfed Supplies representative.
- ✓ June and July are also the optimum months to take soil tests to determine fertiliser programmes for the coming season. Correct soil pH is vital in apple production; if your pH is low apply lime now. Your Fruitfed Supplies rep receives ongoing training in making fertiliser recommendations – please contact them for assistance.
- ✓ With winter pruning now underway it is important to ensure protection of the wound with a suitable **wound dressing**, e.g. Greenseal or Bacseal, as soon as possible, at least on the same day.

If crop monitoring or harvest assessments have identified **black spot** levels over thresholds, early June is your last opportunity to make a pre-leaf fall urea application to assist in reducing your black spot inoculum potential for next season.

Correct timing of the urea application is vital to ensure effective coverage of leaves; just prior to leaf fall, uptake into the leaf is rapid. Technical grade (low biuret) urea is a standard nitrogen source for foliar applications, while field grade urea (containing higher levels of biuret) is likely to cause leaf damage, resulting in poor uptake, so should never be used for foliar application.

The use of Bio-Start Digester offers growers a useful tool to assist with leaf litter breakdown. Digester is a balanced formulation of biologically-produced enzymes, metabolites and organic acids designed to accelerate the breakdown of crop residue. Studies conducted at the Research Station of Gorse in Belgium with Bio-Start Digester alone, or in combination with urea, showed clearly accelerated leaf litter decomposition. Local research has also confirmed these results.

Remember, excessive nitrogen levels may induce stem-end splitting in Royal Gala and may depress colour development in Fuji, so consider your overall nitrogen programme. For further information on the correct urea source, rates and optimum timing, contact your Fruitfed Supplies representative.



Black spot, *Venturia inaequalis*, on apple leaf

POTATOES



Reminders for June:

- ✓ **Soil test** fields to determine nutrient levels. Calculate the amount of fertiliser required to supply sufficient nutrients for the crop. Apply and incorporate before planting early crop potatoes.
- ✓ Either seed dressing fungicides, such as Monceren®, should be used or Amistar® applied in-furrow at planting to protect against **Rhizoctonia and other soil-borne diseases**. The choice of product is partly determined by the disease spectrum present in the field.
- ✓ Strategic applications of Metarex® slug bait will limit **slug and snail infestations** as they move in from crop margins.
- ✓ Monitor crops for **late blight**. This pathogen can be active at a wide range of temperatures and may appear in crops during periods of favourable conditions.
- ✓ **Tomato/potato psyllid** is not very active through winter. It spends this time mainly as an adult on weeds waiting for warmer temperatures and the re-sowing of its usual Solanum hosts. In warmer, sheltered areas nymphs may be found on cape gooseberry and other Solanum plants. Where possible, remove all potential hosts of this pest to reduce populations going into next season.

STONEFRUIT



Reminders for June:

- ✓ Apply coppers during the post-harvest (pre-leaf fall) and leaf fall to complete leaf fall periods protect **leaf scars** from infection.
- ✓ June and July are the optimum months to take **soil tests** to determine fertiliser programmes for the coming season. Correct soil pH is vital in stone fruit production; if your pH is low apply lime now. Your Fruitfed Supplies representative receives ongoing training to make fertiliser recommendations – please contact them for assistance.
- ✓ With winter pruning now underway it is important to ensure protection of the wound with a **suitable wound dressing**, e.g. Greenseal or Bacseal, as soon as possible, at least on the same day.

The silver leaf pathogen *Chondrostereum purpureum* continues to cause significant tree losses in stone fruit production every year. We are not alone in this; US researchers claim 10% of trees are infected each year in severely affected areas.

Silver leaf is spread by air-borne basidiospores which are released from fruiting bodies often visible on infected host trees. Rainfall and relative humidity are key factors governing spore release. Therefore the first step is to aim to prune on fine days when no rain has fallen for 24 hours.

Basidiospores are minute and, when deposited on an unprotected pruning wound during moist weather, may germinate in place or be drawn up into xylem vessels. It is vital to apply a dressing such Greenseal or Bacseal to pruning wounds as soon as possible, at least on the same day. Note that spore trapping studies have shown low spore numbers present in the air even during dry periods, having come from fruit-bodies in damp shady locations. So cover that wound!

Now is the right time to correct soil pH. Liming materials, such as agricultural lime and/or dolomite, should be applied during winter if **soil pH** is low. A good pH level is important, as this influences the availability of plant nutrients in the soil, so monitor and correct pH on a regular basis.

Ground limestone consists of calcium carbonate and variable proportions of impurities. Calcium, like nitrogen, phosphate, potash, sulphur and magnesium, is an essential plant element, necessary for growing tissue in roots and shoots. Calcium-related disorders like bitter pit in apples and blossom end rot in tomatoes are well-known.

The actual quantity of lime applied will also depend on the base soil level of calcium and the percentage of calcium saturation. The situation can arise on some soils where pH is relatively high (6.5 or more), but soil calcium is low. In this case, Gypsum, an alternative calcium-containing fertiliser, which has no effect on pH, is an ideal substitute. Gypsum has the added benefit of improving soil structure, especially heavier soil types. If you would like a soil test taken, and fertiliser strategies discussed, contact your local Fruitfed representative.

Driftstop – advanced adjuvant technology to improve deposition and reduce spray drift



In 2002, in a lab study funded by Nufarm, PPCNZ scientist Robyn Gaskin identified an adjuvant which could improve retention and coverage of Hi-Cane® sprays on kiwifruit.

Subsequent field trials confirmed its promise, but Driftstop™ languished on the shelf...until 2005, when ERMA advised it would reassess the use of hydrogen cyanamide sprays. The kiwifruit industry initiative to minimise off-target impacts from hydrogen cyanamide sprays became a priority! It relied primarily on the use of air inclusion (AI) nozzles to reduce spray drift. These nozzles produce fewer and larger droplets than standard cone nozzles, which certainly reduced drift, but also decreased spray deposit efficiency on dormant canes, and potentially, Hi-Cane efficacy. And so Driftstop came down off the shelf...

Driftstop adjuvant is formulated to combine the wetting, spreading and deposition benefits of a super-spreader with sticker polymer technology. While it was developed to improve spray retention and coverage at low use rates, it has also proven a good drift reduction adjuvant at higher rates. When added to Hi-Cane sprays at 50 ml/100 L, Driftstop reduces the bounce of large droplets and improves droplet coverage on canes. At higher rates of 100-250 ml/100 L, Driftstop imparts significant drift reducing properties to the sprays produced by AI nozzles, especially when spraying in higher wind speeds. The combination of Driftstop adjuvant

with AI nozzles can result in a decrease in off-target drift, by as much as 86% compared to current industry standard application methods^{1,2}.

Driftstop has no effect on Hi-Cane phytotoxicity; it has been proven safe to buds and canes. In short, it ensures Hi-Cane efficacy is maintained when AI nozzles are used and assists in markedly reducing off-target spray drift. Driftstop is also likely to impart significant rainfastness to Hi-Cane sprays, but studies are still required to confirm this.

Prescriptions for use of Driftstop and AI nozzles have been included in the Zespri Best Practice Spraying Guidelines. Industry uptake was more than 80% by spraying contractors in the 2008 season and NZKGI received no complaints relating to spray drift in that year. The AI nozzle and adjuvant technology are powerful tools to ensure the continued, safe use of Hi-Cane on kiwifruit crops. ➡



| | | |
|---|-------------------------|-------------------------|
| Wind speed | 3.5 m/sec | 2.9 m/sec |
| Nozzles | Spraying Systems | Air inclusion |
| Adjuvant | Latron B | Driftstop |
| Drift deposits* | 0.89 µg/cm ² | 0.19 µg/cm ² |
| *mean deposit 25 m downwind, measured over 0-5 m above ground | | |

1. Gaskin, Manktelow & Steele 2006. Adjuvant and application technologies to minimise off-target drift from kiwifruit sprays. NZ Plant Protection 59, 217-222.
2. Gaskin, Manktelow, May & Max 2008. Development of Best Practice to minimise off-target drift from hydrogen cyanamide sprays in kiwifruit orchards. NZ Plant Protection 61, 153-158

Driftstop™ is a trademark of Nufarm Limited.
Hi-Cane® is a registered trademark of Degussa AG. Hi-Cane is registered pursuant to the ACVM Act 1996, No P3566

Fruitfed Supplies

Facts is a monthly publication of Fruitfed Supplies, the horticultural division of PGG Wrightson Ltd. Feedback to the editor, Kate Gordon, is welcome (email kate@relishcomm.co.nz or mobile 021 587 227). For address updates, please advise your local Fruitfed Supplies branch (refer to Branch Location page on www.fruitfed.co.nz) or contact the Fruitfed Supplies national office (phone 09 448 0510 or email jayne.bosher@fruitfedsupplies.co.nz).

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