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In this issue

With little information available on chemical thinning programs for European pears, or on the effect of chemical thinning agents on pear fruit **quality, it is difficult for growers to put** together effective thinning programs for their crops.

Reliance on hand-thinning for crop load management is expensive and often affects fruit size and quality as during early fruit development the tree puts its resources into fruit that is removed several weeks after bloom.

However, a targeted chemical thinning program allows removal of excess fruit early in the season—thus optimising fruit quality.

Unless properly understood, the use of chemical thinners can involve a large commercial risk.

Although all available chemical thinners have some limitations, a chemical thinning program produces markedly superior results to hand thinning both economically and in terms of tree physiology.

The most effective chemical thinning programs combine blossom and post-bloom thinners. A sequential spray program allows lower quantities of chemical to be used at each timing, thus reducing the risk of over thinning.

Developing thinning programs for pears

Dr. Sally Bound, Senior Research Fellow, Tasmanian Institute of Agriculture (TIA), University of Tasmania

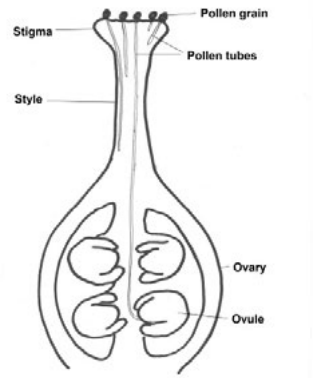


Figure 1: Pollination and fertilisation

If the chemical thinners have been effective then all that should be required is a subsequent light hand thin to remove damaged fruit or break up any remaining bunches.

Work described in this article

The work described in this article was undertaken with the aim of providing reliable recommendations for chemical thinning of pear cultivars.

Trial work was undertaken on the cultivar Packham's Triumph (Packham) over a period of three years in both the Goulburn Valley, Victoria and at Nubeena, Tasmania.

Results from the two regions have proved to be very similar, demonstrating that results and recommendations arising from trial work undertaken in the cooler Tasmanian conditions are applicable to other growing areas in Australia.

Chemicals examined included the desiccating agents ammonium thiosulphate (ATS) and potassium thiosulphate (KTS) and the hormonal thinner ethephon applied during the flowering period and 6-benzyladenine (BA) applied as a post-bloom thinner.

Desiccants for thinning

Desiccating chemicals have a different mode of action to the hormonal type chemical thinning agents such as ethephon or NAA that have been used for many years in Australia.

Desiccants act by burning the pistil (which consists of the style and stigma) of the flower, thus preventing pollination and fertilisation from occurring.

Pollination occurs when pollen lands on the stigma and germinates. Germinated pollen tubes grow down the style to reach the ovary and fertilise the ovules. (Figure 1).

Hence desiccants need to be applied after the flower has opened so that the desiccant can reach the pistil, but before any pollen tubes from germinated pollen grains are able to reach and fertilise the ovules. Once this has occurred desiccants will have no effect on crop load.

Time of application

When using desiccants, time of application is critical in achieving a satisfactory level of thinning.

Desiccants need to be applied when sufficient flowers have already been fertilised to give a good crop load. These earlier setting fruit are also normally larger and better quality than later setting fruit.

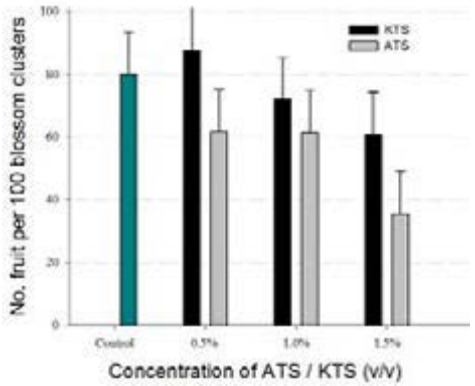


Figure 2: Comparison of the efficacy of ammonium thiosulphate (ATS) and potassium thiosulphate (KTS) for reducing crop load of Packhams's Triumph pear.

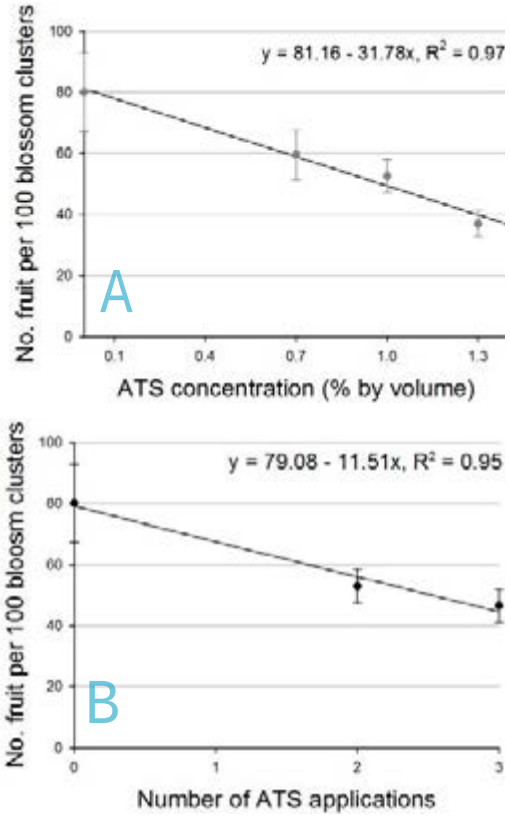


Figure 3: The effect of (A) concentration of ammonium thiosulphate (ATS) and (B) number of ATS applications on crop load of Packhams's Triumph pear.

Both ATS and KTS proved to be effective thinning agents for Packham, but ATS is a more aggressive thinner than KTS (Figure 2). As only one trial was conducted with KTS, further work is required to develop recommendations for this desiccant.

The trials conducted with ATS have shown that there is an increased thinning effect with increasing concentration, and also with number of applications (Figure 3).

Recommendation

The recommendation arising from this work for use of ATS as a blossom thinner for Packham pear is an initial application of 1.0% ATS at around 25% bloom stage, with a follow up second application from 50% bloom to enhance the thinning effect.

Once full bloom has been reached it is too late to apply desiccants as most flowers will already have been fertilised.

If conditions are unfavourable for pollination, that is,cool wet weather with few active bees; or a netted orchard, then spray application should be delayed to ensure adequate fruit set.

The physical mode of action of desiccants makes them less dependent on weather conditions than hormonal type thinners, however, the degree of desiccation can be influenced by temperature—with higher temperatures resulting in greater desiccation.

While leaf damage does occur with desiccants, the degree of damage that occurs when using the recommended rates does not affect fruit development, size or quality.

Post-bloom thinning

continued next issue

It is possible to increase yields of close-planted **Williams pear trees by changing the way you** manage trees, not by changing the rootstock.

Manage Williams pear trees to boost yields (part 2)

Research report by Bas van den Ende and Mick Conti*

continued from July 2015

High density planting

Pyrus calleryana D6 has been widely adopted in Australia since the 1950s.

It is hardy for arid Australia, compatible with all European pear varieties, easily propagated (from seed), and the scion can be made precocious if well managed.

It was not until Williams trees on *Pyrus calleryana* D6 rootstock were planted closely and trellised, nashi pollinisers were inter-planted, beehives were introduced, RDI, drip irrigation and Ethrel were used to control shoot growth, that precocity improved and trees could be brought into full production by year six (see *Tree Fruit* November 2003, September 2004, May and June/July 2007).

How we achieved the highest ever production efficiency

In this article, we discuss our experiment where we significantly improved fruitfulness of Williams trees on Tatura Trellis which had performed poorly for 11 years and changed the traits of Williams to show the true production potential of this popular variety.

We increased fruit set of Williams trees by improving cross-pollination, using a synthetic stimulant, and control vigour.

We show how we calculated yield from bins of pears harvested and delivered to the cannery.

* Mick is an orchardist from Ardmona, Victoria

Manage Williams pear trees to boost yields

Williams trees are traditionally pruned leaving mostly one-year-old laterals (pencils) with only terminal floral buds. Many of these laterals are upright and do not spur-up in the second year. A high percentage of skin marks contributes to poor fruit quality and pack-out. One-in-three floral buds will set fruit that makes it to harvest.

The application of a growth regulator, a compatible polliniser, bee hives, low-flow irrigation, RDI and delay-heading the tops have completely changed the fruiting habit of these Williams trees on Tatura Trellis—from predominantly lateral-bearing to spur-bearing. The treatments have calmed the trees which are on seedling rootstock and made them very productive.

Experiment at Ardmona, Victoria

We focussed on tree management—not on waiting and hoping for the right size-controlling rootstock to turn up.

In 2003, a 0.37 ha block of Williams on *Pyrus calleryana* D6 was planted on Tatura Trellis (4.50 x 1.00 m = 2222 trees per hectare) at an orchard near Ardmona, Australia.

Initially, Packham trees were interplanted (7 per cent of trees) as pollinisers and two beehives were introduced during flowering.

When eight years old, the trees had only produced a total of 37 tonnes per hectare, so we decided to re-graft the Packham trees to Nijisseiki.

It the eleventh year, when the Nijisseiki trees had sufficient flowers and beehives were introduced, the Williams trees were sprayed with 15 ppm ProGibb SG (active constituent 400 g/kg Gibberellic acid) at 70 percent full bloom; RDI was applied; and the tops were delay-headed six weeks after full bloom to maintain canopy height at 2.70 m, measured vertically, which is 60 per cent of the width of the row.

Yield increased four-fold (19 to 81 t/ha), vigour slowed down and floral buds developed mainly on spurs, not laterals as before.

However, as a result of the long non-productive years, tree vigour of the Williams trees was still a concern.

Since Regalis® was not recommended for pear, we experimented in the twelfth year with foliar sprays of Payback™ (active constituent 250 grams per litre Paclobutrazol — **Important note:** Payback™ is not registered for use on pears in Australia).

The first spray of 2 litres of Payback per hectare was applied 10 days after petal fall when new shoots were about 25 mm long. The second and third sprays of 1 litre per hectare were applied at 10–day intervals after the first spray.

Manage Williams pear trees to boost yields

A change in tree management—not the rootstock—has made these Williams trees on Tatura Trellis very productive at an Ardmona orchard.

How we calculated yield in the twelfth year:

The block of 825 Williams trees on Tatura Trellis represents 0.371 hectare (0.928 acre).
Rows are 4.50 m wide, trees are 1.00 m apart = 2222 trees per hectare.
Harvested 122 plastic bins x 389 kilograms = 47.5 tonnes, which equates to a gross yield of 128 tonnes per hectare with 4 per cent culls = 123 tonnes per hectare (123 bins per acre).

The effects of foliar sprays of Payback, two beehives, RDI and delay-heading:

- Suppressed growth of new shoots and bourse shoots.
- Flowers set fruit in clusters of threes and fours as a result of less competition for nutrients and carbohydrate reserves between flowers in a truss.
- Restricted early shoot growth which allowed more nutrient and carbohydrate reserves to go to early fruit growth.
- Maintained good distribution of sunlight throughout the canopies during summer.
- Resulted in a gross yield of 128 tonnes per hectare and a canning-grade (larger than 65 mm) yield of 123 tonnes per hectare (123 bins per acre).
- The lateral-bearing trait was changed from lateral-bearing to a predominantly spur-bearing, setting the trees up for high sustainable yields and ease of management.

In this simple field experiment, we have shown, that:

- Williams trees on Tatura Trellis can produce exceptionally high yields of fruit of good size and quality, enabling orchardists to become competitively profitable with this pear which is used not only for the fresh fruit market but also for processing
- We did this with tree management—without the use of a size-controlling rootstock.


Peter Gray

CPA

The bu$iness of fruit **growing**

These days there **would be rare instances where** a business did not produce **profit and cash flow budgets—** especially larger businesses that **carry significant** debt.

Putting your budgets into context (part 2)

continued from July 2015

Longer-term vision and profits

Owners should preferably be trying to ensure that they are considering the business and personal needs and expectations of family members some three to five years ahead, and implementing actions that will create the preferred future.

It is from this exercise that business strategies flow for which financial measurement and reporting is required.

It is the business which must deliver the profit flows that will enable personal expectations to be met.

Creating and implementing that long-term vision

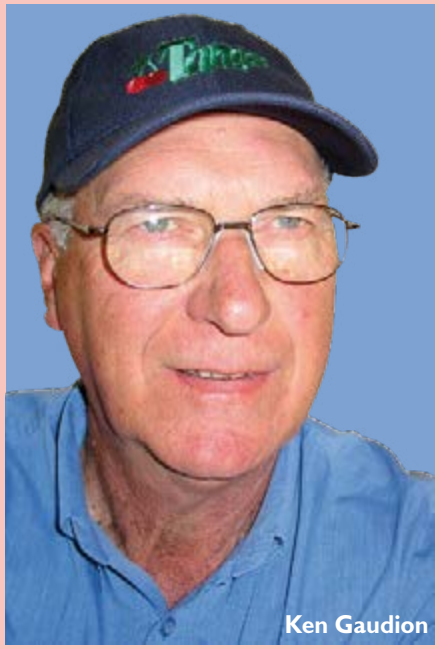
Although past industry training effort has been put into encouraging and training primary producers to produce Business Plans, I have yet to come across a bank manager who has asked for one—be that from the weakest or the strongest businesses I have worked with.

As an accounting professional I am certainly not decrying the benefit to be gained from producing a formal Business Plan, but I suggest that owners need not be afraid of producing a relatively simple plan for fear that it doesn't meet muster as a weighty document.

I suggest that a good plan is one in which:

- All family members have been given the opportunity to articulate their future needs and expectations in a non-confrontational way. These can be listed as dot-points under each member's name, and ongoing discussion will be required where some requirements conflict
- There is a good understanding about the capacity of the business to meet those needs and expectations. Usually this means that a business is generating profits in most years, and is not carrying too much debt

continued next month



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All about CHERRIES

Can you forecast your cherry crop?

Can you forecast **how many tonnes of cherries will** come from your **orchard, or how** many kilograms per tree might be harvested from a block?

Yields vary from year to year. How much they vary depends on the characteristics of the variety or cultivar, for example, whether they are self-fertile or not, or how much chill they require to set a crop. Then we have to add factors such as conditions during pollination, and so on.

Records

Do you have a history of production for each block to assist in knowing the potential for this year; or know how many trees of a variety is in a block?

What is the average number of kilograms harvested per tree at a certain age, and is it likely to increase (increased fruit bud potential) or stay about the same?

Records of harvested cherries can readily be collected from picker tallies, or as they come into the packing shed in buckets, crates or half bins.

The number of cherry blossoms at full bloom in comparison to the number of fruit harvested will give the percentage of fruit set.

Self–fertile cultivars are likely to have a greater percentage of fruit set over say, a ten year period, than non self–fertile varieties if subject to a lack of chilling or poor weather during pollination.

While keeping records might be considered an exercise in history, working out if a crop appears to be greater than last season can be useful when it comes to ordering cartons; booking harvest labour; and organising ladders, picking containers and supervisory labour.

No one knows your cherry block like you do, however, attempts to forecast a crop too early—before shedding—is likely to end in disappointment.

US growers use crop forecasting

The cherry industry in the USA produces figures on the coming crop so they can prepare for the season. They use the information to order sea and air freight, assess market destinations, book advertising space and more.

Aussie growers should be proactive in collecting statistics

In Australia we know how many tonnes of cherries are harvested each year—we find that out about two months after the season has finished. The figures are based on the cherry levy.

Maybe it is time that our industry became proactive in gathering the statistics required to benefit the industry, growers and marketers. What do you think?

Contact Russell
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IPM Practitioner

This is a series of articles about practical IPM—the IPM carried out by orchardists and advisors—those of us who walk the orchard, monitor, and see what is out there; and then advise on pest, disease and weed control.

There is a lot of interest in soil **health and how it** may be improved by introducing **beneficial soil** bugs such as tricoderma and bacteria; or by adding humic acid and composts; or by increasing soil organic matter.

A low-temperature scanning electron microscopy (LT-SEM) image of a zerconid macromite.

Mites in our soils

Yet there is another world of soil dwellers that are never thought of!

We (humans) are told that we need a healthy lifestyle to help prevent disease and give us a long, healthy life. We need to have a balanced diet, an exercise program, and a well-adjusted work–life balance, so we are not over stressed and over worked, thus giving us time to enjoy life, and time to stop and smell the flowers.

We need our soils like this too: healthy and balanced for a long productive life of both the soil and the tree crops planted in them.

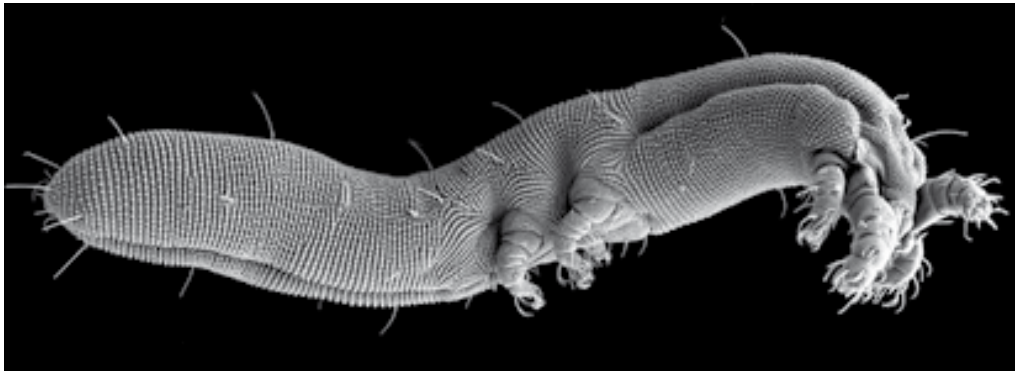
A natural balance

A soil has a natural balance of bugs.

While we modify the natural soil environment with a 'monocrop' of tree roots, we also add nutrients in the form of fertiliser, we recycle nutrients when leaves fall and rot, and we add organic matter in forms like straw or green mulch (mowing the inter-row and throwing this onto the tree line).

We attempt to improve the soil physical attributes and the soil chemistry, but think little of the whole complex environmental system under our feet.

Mites in our soils



The Nematalycidaean is an extremely ancient and basal group of mites that dates back to the Devonian, found in sands and mineral soils.

The food web is the model depicting the many food chains linked together to show the feeding relationships of organisms in an ecosystem.

These soil microbes bacteria, fungi, the macro animals and plants are all part of the food web that affects the health and biodiversity of our soils.

For example, for micro (minute, not just small) arthropods (spiders and mites), the topsoil and mulch layers are a veritable jungle—a wilderness of predators, pathogens, and meals.

In this environment are the macromites. From 0.1 to 0.5 mm in size these tiny critters are part of the complex food web.

Macromites

Many of these macromites are fluid feeders. They simply insert their mouthparts into their prey and draw up the fluid contents.

This is easy enough when you have a large enough prey item into which to sink your mouthparts.

However, in a desert-like environment such as deep soil or sand, prey items aren't often in the big-and-easy size category. Instead, much of the biomass of these habitats is composed of bacteria and yeasts, which are far smaller than any mite.

New mite species

Samuel Bolton and collaborators at Ohio State University recently described a new species and genus of mite that appears to have come up with an ingenious solution to this problem.

continued next issue


Richard Emery

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Stoller

Crop Nutrition

Nutrition advice from Stoller specialists

Stoller recently held a national technical meeting in Adelaide where growers, resellers, consultants and staff congregated to hear presentations from the Stoller international and Australian technical teams, and to celebrate Stoller Australia's 20th birthday.

The international speakers were specialist managers from Stoller USA, Argentina, Turkey and Canada.

Australian General Manager, Richard Emery opened the meeting with an overview of Stoller Australia's activities and progress over the past 20 years.

Stoller is an international agricultural company that has been operating for more than 45 years.

Key messages

The key message from the meeting was that it is important to minimise the loss of yield potential by supplying all needed inputs early in the crop's life. Also:

- Stoller's Action 5 was shown to be a very efficient starter treatment which can ensure strong root development and a robust plant
- Stoller's Bio-Forge can reduce the losses caused by environmental stresses
- The use of products such as Sugar Mover can ensure that bulking is enhanced by making sure the food moves to the areas of need in the plant.

Using Action 5 to get things started

The speakers discussed Action 5 which is a specialty calcium treatment (with co-factors) that is usually applied to the soil.


At the Stoller technical meeting (left to right): Guillermo de la Borda (USA), Geoff Bedard (Canada), Shane Wager (Australia), Canan Yilmaz (Turkey), Ignacio Moyano (Argentina), Rodrigo Oliveria (Brazil).

The result is a more active root system and better root development even when soil temperatures are low. This also applies to the tree at pollination time.

Dr Yilmaz from Stoller Turkey showed that various specialty calcium–containing products from Stoller, applied prior to flowering can help the activity and viability of flowers to enhance pollination—even when temperatures were not ideal.

It was also demonstrated that higher calcium levels are required for cell strength and pollen tube development.

Products like Action 5 are best applied early in the season when the trees will gain the most from improved root activity.

Bio-Forge to manage stress

Bio-Forge came up in most presentations and the speakers explained how it works as a stress release product.

When trees undergo stress, a hormone called ethylene builds up in the plant and needs to be controlled in order for fast restoration of normal growth.

This is where Bio-Forge comes in and purges the excess ethylene from the plant cells.

It can assist after frost, after herbicide damage or at any time when the tree is stressed.

Use of zinc in combination with Bio-Forge is always recommended. Treatments should be made soon after the stress and a low rate of 1.2 litres per hectare is sufficient.

Sugar Mover ensures proper transfer of carbohydrates

Sugar Mover is a nutrient product from Stoller that helps ensure that sugars move from the growing tip to the areas of need (often the developing fruit).

A treatment of Sugar Mover helps prevent all the energy from going into vegetation.

Trials with gene testing showed that:

- use of Sugar Mover increased sugar production in the plant
- movement of sugar in the plant was enhanced and the strength of the sink (e.g. the pull from developing fruit) is enhanced.

Sugar Mover is applied at times when sugar transfer to fruit is desirable (during sizing). It is also applied on biennial trees in summer to reduce the chance of season highs and lows in fruit production in subsequent seasons (this is done by enhancing the strength of next year's buds).

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Horticultural Adviser

RIMpro
service provider

Marcel Veens Horticultural Adviser Pty. Ltd.
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Blackspot is the most important disease in apple production.

Each rain event has to be judged for its consequences throughout the growing season. Exact timing and the right choice of fungicide and dose are necessary to be effective and economical, and to avoid fungicide resistance and unnecessary residues on fruit.

RIMpro is an internet based decision support system (DSS) for pest and disease management in fruit and grape production.

The platform is used worldwide by producers and their consultants. Besides blackspot, it includes models for codling moth, fireblight and apple canker.

More pest and disease models for apple and other crops will soon be added to the platform. These models are developed in cooperation with experts and working groups, and validated under different climatic conditions. The continuous development of the platform is driven by feedback from users and new scientific information.

Inputs

The system inputs are weather data from an on-farm weather station, and high-resolution weather forecast data for your location.

Simulation models process these climate data and output clear graphics that show the development of pests and diseases in your crop.

Marc Trapman, RIMpro B.V. The Netherlands
Marcel Veens Horticultural Adviser Pty.Ltd.

RIMpro supports effective blackspot management

RIMpro supports effective blackspot management

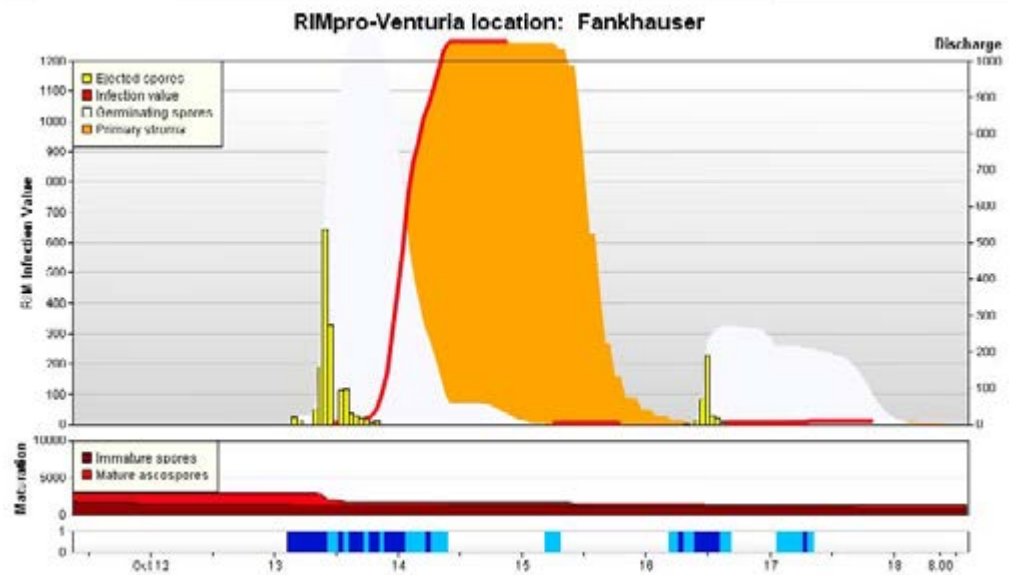

Figure 1. Example of an infection event in spring 2014.

Brad Fankhauser, Fankhauser Apples, Drouin Victoria, has been using RIMpro from the very start of the service in 2012.

"The combination of RIMpro apple scab prediction modelling and a high quality weather station, would be one of the most amazing tools that we have on the farm," said Brad.

"Being able to see primary and secondary infection forecasts more than five days in advance gives the grower every chance possible to get cover sprays on to prevent infections.

"Since using RIMpro we have in fact used more cover sprays earlier in the season than our traditional weekly method, but our control of scab has improved enormously enabling us to reduce our reliance on curatives for secondary infections later on the season.

"Another very powerful part of the program is the ability to calculate the amount of cover left for upcoming infections, thus giving the grower confidence in their decision making when questioning whether to spray again or not.

"Codling moth prediction is also remarkably accurate, we have caught moths each season on the same day as forecast by RIMpro.

"We are now spending less time trapping moths, leaving more time scouting the orchard for other beneficials."

The infection process

Figure 1 shows an example of an infection event spring 2014.

Rain started during the night of October 13 (dark blue in the lower graph). As long as it is dark, ascospores discharge is low (yellow bars). When the sun comes out and rain continues, ascospore discharge peaks and continues for several hours.

The pool of germinating ascospores on the leafs is show as a white cloud. This 'germination window' is the only moment where contact fungicides such as Captan and Delan can interrupt the infection.

The red line marks the stage where the spores infect the leaves and are no longer depending on free water on the leaf surface.

After the red infection line, contact fungicides are no longer effective.

The orange area is the time frame where fungicides with limited curative efficacy still can be used. These are Dodine for integrated production, and lime sulfur or potassium bicarbonate in organic apple production. Modern systemic fungicides can be applied for a longer time after infection in orchards, were resistance against these fungicides has not been found.

Rain on October 16 again triggered discharge of some ascospores. As the leaf wetness duration (light blue in the lower graph) was not sufficient, these spores died without causing infection.

Evaluating your fungicide schedule

continued next month

Graeme Sait

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Nutrition Farming®

Imagine a hardy, inexpensive, user-friendly tool **that will predict** your crop's pest pressure, yield potential, quality, shelf-life, calcium **status and weed** problems.

The beauty of Brix (part 4)

It will even detect boron deficiency, foliar spray suitability and the likelihood of frost damage. It seems a big ask for a single device, but the refractometer offers all of this and more.

The ability to monitor your progress is integral to the Nutrition Farming® approach.

Brix tips

You are measuring the light refracting through the dissolved solids on the screen of this sawn-off little telescope.

Continued from July 2015

Brix and boron levels

Finally, the refractometer can provide an indication of boron levels in your crop.

If the brix levels of your crop do not drop overnight, then you may have uncovered a serious boron deficiency.

Early each evening, a trapdoor opens, which allows the transfer of glucose in the chloroplasts down to the roots. 60% of this sugar-load is then exuded from the roots to feed the army of organisms in the rhizosphere (root zone).

The opening of that important doorway is governed by boron. The absence of the 'door opener' means that sugar is trapped in the leaves and the workforce beneath the roots is effectively starved of energy.

The wheels begin to fall off shortly after that. Regular monitoring with your refractometer can prevent this boron-based problem and the resilience of your crop and soils will improve.

Remember that the universal law, "give and you will receive" is at work at the nexus of photosynthesis—the most important process on the planet.

Brix monitoring can identify when and why the 'giving' has ceased and you will be empowered to fast-track your response (i.e. foliar spray 1 kg of Solubor with 1 kg of pre-mixed NTS Soluble Humate Granules™).

There's more...

You have just discovered ten ways in which your refractometer can be immensely valuable, but there are others.

Brix levels can offer an indication of likely weed pressure. The brix of the weed should always be substantially lower than the brix of the crop. Otherwise you have created conditions for the weed rather than the crop.

High brix crop plants are often produced in soils with less weed pressure. This is because calcium and phosphate are the chief brix-building minerals and many weeds (particularly broadleaf weeds) grow in soils that are lacking calcium and phosphorus.

Dormex for managing budbreak in plums & prunes


Glen Tucker

Plum and prune growers in areas with insufficient chilling for satisfactory budbreak and flowering can now use the plant growth regulator Dormex to advance or schedule and concentrate blossoming, and to advance foliation.

Already registered in Australia for regulating budbreak in apples, kiwi fruit and grapevines, plums and prune trees were added to the Dormex label late last year.

Crop Care technical consultant Glen Tucker said Dormex would also be useful on plums and prunes in areas with chilling less than the required level of 400 to 1000 hours (depending on the variety), where delayed foliation reduced budbreak, prolonged flowering, lowered fruit set and produced uneven fruit size.

"Prolonged flowering also creates inefficiency in blossom-blight control," Glen said.

Glen added that there were other potential advantages for Australian prune growers in manipulating flowering date and duration.

"High temperatures (more than 28C) can lead to poor fruit set in prunes. Advancing flowering to a lower-temperature period could improve prune yields, particularly in the Murrumbidgee Irrigation Area (MIA).

"Manipulating flowering and maturity could also lead to better scheduling of prune harvesting for dehydration."

Dormex trials

Glen said that from 2005–06 to 2012–13 there had been many Australian trials and demonstrations to examine the use of Dormex for regulating budburst in plums and prunes.

The trials were conducted in the Riverland in South Australia, the MIA in southern NSW and in the Murray Valley in northern Victoria—representing Australia's plum and prune moderate-chill (800–1000 hours) production areas.

"Trials were conducted with one common variety of plum and four common prune varieties: Autumn Giant, GF 698, GF 707, D'Agen and Moyer.

"Time of application in relation to budburst (defined as blossom start in untreated trees) varied from trial to trial, based on historical data for each area."

Bud growth and flowering were monitored in all trials from the commencement of budburst to petal fall. Fruit set and weight-of-fruit per tree were assessed in some trials, and in one trial, return blossom assessment was conducted in the year following the trial.

In all trials, natural budburst in untreated trees occurred during September: early September in plum trials in the Riverland; and mid-to-late September in prune trials in the MIA and Cobram, depending on the season and the variety.

Trial results using Dormex

- Applied 35 to 60 days before blossom budburst (DBBB), Dormex advanced budburst by 2 to 10 days across a range of plum and prune varieties and climatic conditions.


Prunes

- The extent of advancement varied from site to site, with applications between 35 and 45 DBBB generally providing a more consistent and (in most cases) greater advancement.
- When applied at less than 35 DBBB, there was less or no effect on date of budburst.
- Dormex applied at a low rate of 1L/100L from 29 to 39 DBBB produced satisfactory results on both plums and prunes, significantly advancing leaf budburst (foliation) of prunes compared with untreated trees.
- Dormex applied at 35 to 45 DBBB reduced duration of flowering most consistently compared with untreated plum and prune trees.
- In most cases, Dormex did not significantly affect fruit set and yield of plums and prunes.
- However, in two prune trials conducted in 2007–08 at Cobram and Yenda in the northern MIA, fruit set and yield were increased when Dormex was applied 44 to 46 DBBB.


Prune blossom

- There was no detectable effect on return blossom or shoot growth in the year following Dormex application.

Summary of recommended use

Glen summarised the recommended use of Dormex in Australian plums and prunes:

- Apply 35–45 days before expected budburst.
- Apply 1L/100L as a fine spray to the point of runoff for complete coverage of buds
- Apply no later than 30 days before expected natural budburst, as budburst will not be advanced and buds may be damaged
- Warmer weather 3–5 days after application will improve the response; cold weather following application will reduce the response
- Be aware that early blossoming may increase the risk of frost damage
- Advancing and shortening the flowering period may also affect cross pollination, so ensure pollinators are also treated.

Contact Glen Tucker, Technical consultant, Crop Care Australasia phone 0427 004 435 Glenville.tucker@cropcare.com.au

Local company innovates for success

It seems everywhere you look these days, corporatisation and the power of the big-end of town is drowning out the voice of the little guy.

Some would argue it is good for consumers because corporatisation brings about economies of scale and global access to cheaper raw materials. However, the downside is that small companies which are historically the breeding ground for innovation, struggle for market share and the profits needed to bring innovations to market.

So it is nice to see companies like Sydney based Organic Crop Protectants Pty Ltd (OCP) still around after 24 years of doing business in an environment dominated by corporates.

Low risk pesticides

Over the past couple of decades OCP have been developing, and APVMA registering, a range of low risk pesticides that meet the needs of both IPDM focused conventional and organic growers.

OCP now has a stable of over thirteen APVMA registered adjuvants, fungicide and insecticide labels including products like Eco-oil® HIPPO miticide/insecticide formulated with a special beneficial insect attractant, and Eco-carb®, the only food grade active fungicide on the Australian market.

OCP are also very active in the development of biological products for the management of pests and disease.

They have been working closely with Tasmanian Plant Pathologist Dr Dean Metcalf to isolate and develop a range of beneficial fungi called *Trichoderma* that are natural predators of common plant diseases.

Some of the products developed to date include Antagonizer® and Colonizer® for *Botrytis* and brown rot, Phytoguard® for *Phytophthora* in soils, and Gauntlet® for *Sclerotinia*.

More recently Dean has isolated *Trichoderma* from strawberry plants to control rots in the fruit and a fungi that protects macadamia husk from a disease called Husk spot (*Pseudocercospora macadamiae*).

Insect virus and biological fungicides

OCP have also teamed up with a small innovative biological company out of Switzerland called Andermatt Biocontrol to research and develop insect virus products and biological fungicides based on *Bacillus* bacteria.

Australian growers who suffer from the veracious attack of Heliothis grubs, Codling moth and Oriental fruit moth can now breathe a sigh of relief with Helicovex® and Grandex® (pending registered for 2015 season) virus insecticides now being available in Australia through OCP.

Andermatt's part ownership of *Bacillus* bacteria experts in Germany, Abitep GmbH is paying great dividends with the launch of RhizoVital® FBz42 *Bacillus amyloliquefacians* and a range of other *Bacillus* based bio-fungicides they are working on.

RhizoVital® FBZ42 has been very well accepted in Australia as a soil drench to assist with better seed germination rates, seedling survival and growth rates.

RhizoVital FBZ42 super-charges the rhizosphere (area around the roots) and works symbiotically with the root system to enhance nutrient availability. And like fluoride guards against tooth decay, RhizoVital FBZ42 guards plant roots against soil pathogens.

Innovating in IPDM

OCP continues to innovate in the area of IPDM (Integrated Pest and Disease Management) through its alliance with Purdue University start-up, Spensa Tech.

Spensa Tech have developed smart trap technology (Z-TRAP®) that allows growers to monitor for pests in real-time using their iPad, iPhone or desktop computer.

The technology is supported by very powerful software called MyTraps® and OpenScout®.

MyTraps and OpenScout allow growers to log catch-data from traps automatically, or manually if they do not have Z-Traps in the field.

OpenScout tracks the movement of crop scouts and allows them to log information about pests and disease observations and severity ratings which are geo-tagged and time-stamped.

The whole system streamlines IPDM monitoring, providing very powerful information about pest and disease pressure over time across production areas.

Insect pheromones

And finally to complete the package of innovative crop protection, OCP are working with ISCA Technologies who are innovators in the area of insect pheromones.

ISCA have a range of insect lures for monitoring and trapping of pests, but also very effective insect mating disruption products based on SPLAT® (Specialised Pheromone & Lure Application Technology). SPLAT® is an inert toothpaste like material in which insect food attractants, sex pheromones and the like are added.

In the case of SPLAT® Bloom Pollination Enhancer, they have added a pheromone attractant for worker bees that improves bee attraction, activity and pollination outcomes in crops.

SPLAT can also be used for other purposes through the addition of low risk insecticides.

SPLAT is applied to the crop in small dollops to posts, pots, branches or leaves.

The SPLAT dollop sits in the crop for weeks/months to either confuse the mating of insects, or attracts them and when they attempt to ingest its contents—or they make contact with it—they are killed.

This method of insect control reduces pesticide use by 10 to 100 fold in terms of amount of active per hectare and reduces pesticide waste to almost zero with no risk of off target drift.

Support local innovators

It would seem that a 100% locally owned company like OCP is doing everything in its power to be an innovator.

Innovators need your support to continue innovating in order to improve how we do things and to be more successful in business.

For information call your nearest OCP representative Freecall 1800 634 204
visit www.ocp.com.au
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