EP Prunings

EastPack
WORLD CLASS ORCHARD TO MARKET

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EastPack Update

Operational Update

As can be seen below, the 2013 storage season is drawing to a close. The last European ship departed Tauranga in the last week of September.

The remaining fruit will go to Japan and other Asian countries over the next six weeks.

Operationally, one of the most pleasing aspects of 2013 is that fruitloss continues to reduce onshore, both at EastPack and the industry in general. Fruit loss and associated claims etc in our overseas markets also continue to reduce. This is undoubtedly a major factor in Green growers OGRs improving in the 2012 and 2013 seasons.

Our disappointing G3 storage results this year have been thoroughly reviewed – the reasons why and the necessary remedial plans were presented to the EET/SKSL forum last month.

As the 2013 season winds down, our focus now turns to 2014. Amongst many of the things that are happening, ongoing staff training is a major initiative. One of EastPack's successes over the past four years has been the introduction of our "Growing Excellence" programme. This has enabled EastPack to both reduce costs (> 28%) and waste, whilst at the same time lifting quality, without having to go through the redundancy process that many of our competitors have had to do over the past four years. With the merger of EastPack and Satara, plus the number of new staff members we now have, we are conducting training workshops in the basics of "Growing Excellence" for all those who have not had exposure to this type of thinking. This training is based around the well proven Lean manufacturing principles and is a proven recipe for a number of very successful businesses worldwide.

EET/SKSL

The forum members of these two important entities met on 27 September with the major discussion item being the future structure of EET and SKSL. Briefly the key points agreed and discussed were:

- There will be one structure next year, EET and SKSL will be rolled into one organisation called "EET Forum".
- The new forum will be made up of advisors based on regional representation (as it is now), plus some appointments.
- It is proposed that current combined EET/SKSL membership be reduced from the current 37 to approximately 22 advisors. The current members of EET and SKSL have agreed to indicate in the next few months whether they wish to continue to be representatives on the new combined forum. Elections for the new EET forum would continue to be held at the EastPack AGM usually held in April.
- There was good discussion about the pros and cons of the current EET structure, that being, the Directors of EastPack remain the trustees of EET. It was widely agreed that the current structure has a number of advantages and it will remain the same.
- The Chairmanship of EET has traditionally been held by an EastPack Director, whether this remains the case in the future is still to be discussed.

EET is a very important platform for Growers to be involved in. Policies pertaining to picking and packing, and how Zespri's grower storage incentives are distributed are discussed, debated and agreed. It is also an important forum for company and industry issues to be raised, and discussing ways that grower wealth can be increased.

Tony Hawken
CHIEF EXECUTIVE

Table 1 Coolstorage position as at 1 Ocober, comparing the previous four years

Green	2013	2012	2011	2010	2009
Trays Packed	19.316m	12.847m	12.796m	10.643m	9.964m
Total Out	18.123m	11.523m	10.825m	9.804m	9.3493
% Out	93.8%	90%	84.5%	92.1%	94%
Trays Lost	215,000	237,000	272,000	228,909	379,000
% Lost	1.1%	1.85%	2.12%	2.15%	3.6%
Industry Lost	0.7%	1.35%	2.36%	2.56%	2.9%

IN THIS ISSUE

Managing canopy establishment in Hayward

Grow leaf
Not too much
Stop excessive extension growth

Canopy establishment

The establishment of the leaf canopy in kiwifruit is probably the single most important factor determining the success of the subsequent harvest, apart from pollination in Hayward.

A good harvest is almost always preceded by a warm spring. The effect of a warm spring is to allow the effective, early establishment of the leaf canopy.

Managing some of the factors influencing canopy establishment can reproduce the effect of a good spring.

Key understandings are:

- The four phases of kiwifruit cropping.
- Growing shoots are a carbohydrate deficit for 25-35 days.
- Initial leaf development, shoot extension and flower development are all powered by stored reserves.
- Carbohydrates move both ways in the kiwifruit plant.
- Optimum canopy density is approximately three leaf layers.
- Canopy establishment is a function of leaf numbers and leaf size.
- The size of the initial leaves is influenced by temperature.
- Canopy closure is the end of the canopy establishment phase.
- Different parts of the plant compete for carbohydrate reserves.
- Carbohydrates tend to be allocated to the actively growing parts of the plant.
- To improve dry matter, the dry weight must accumulate faster than the fresh weight.
- The fruits' ability to compete for carbohydrate reserves is proportional to the number of seeds in each individual fruit.

Note: Carbohydrate is synonymous with dry matter.

The four phases of kiwifruit cropping are:

1 Canopy establishment and flower development.
2 Fruit development and growth, preceded by pollination and fruit set.
3 Fruit maturation.
4 Winter dormancy.

The canopy establishment phase runs on stored reserves and sets up what in effect becomes our solar panel, harvesting light and producing carbohydrates, which are then moved around the plant to be used in areas of cell division and cell expansion. Flower, feeder roots and root hair development is also occurring at this time and are also powered by stored reserves.

The fruit development phase starts with pollination and fruit set and continues with a period of rapid cell division. This is then followed by a longer period of cell expansion and an accumulation of carbohydrates which are the substrate for the sugars that signal the ripening process.

The fruit maturation phase is characterised by the beginning of the ripening process and we note the beginning of the change of the stored carbohydrate from insoluble starches to soluble sugars which is measured as brix.

Winter dormancy starts when the kiwifruit plant loses its leaves and is the method by which the frost tender kiwifruit plant survives the winter.

Canopy establishment

The goals over the period of canopy establishment are to:

- Establish an effective solar panel
- Grow strong healthy flowers
- Grow next year's fruiting framework

The solar panel

The solar panel is made up of the first leaves that develop from the winter framework. These are the most valuable leaves and management should be focused on making sure that they last right through the season until the crop has been harvested.

The solar panel should be about 2.5-3.5 leaf layers thick, have no significantly shaded leaves and provide the dappled light on the orchard floor that supports some grass growth.

There are three key factors that considerably affect the establishment of the solar panel:

- Budburst, the greater the percentage budburst the less extension growth is needed to achieve canopy closure.
- Leaf size, the larger the initial leaf size, the fewer leaves are needed to achieve canopy closure. Initial leaf size is strongly influenced by temperature.

Dappled light on the orchard floor.

- Extension, being able to stop the extension growth once canopy closure has been achieved is one of the key skills to achieving a good result in kiwifruit.

Managing these factors

Budburst

The amount (percentage) of budburst is influenced by:

- Winter chill
- Hydrogen cyanamide (HiCane) rates and timing
- Winter bud numbers
- Winter wood quality
- Nutrition
- Autumn girdling.

There is not much that you can do about winter chilling but you can make sure that the dormancy breaker effect of the hydrogen cyanamide acts in conjunction with the natural bud break.

Good budburst and early canopy establishment.

The winter bud numbers tied down can influence the amount of bud break.

Generally high winter bud numbers result in a lower budburst percentage.

By definition, the better the winter wood quality, the better the budburst.

Use as great a proportion of moderate vigour sun ripened self-terminated fruit stalk wood as you can.

Plant nutrition should have been adequate to have given good leaf size the previous season and to have given moderate cane growth without excessive vigour. There is some belief that late season foliar sprays of nitrogen (and magnesium) can improve budburst the following season.

Correctly applied autumn trunk girdling the previous season will increase budburst. This could be an important consideration in Alternate Row Cropping (ARC) management systems.

Leaf size

Leaf size and numbers are influenced by:

- Temperature
- Nutrition
- Amount and rate of extension growth

Initial leaf size is important because the larger they are, the fewer of them that you need to achieve canopy closure. This uses up less stored reserves leaving more available for flower development, which will occur more quickly, and for root growth.

The key factor influencing the size of the first leaves is the temperature of the microclimate in the orchard. Quite simply the warmer it is the larger they will be.

Fertiliser levels need to be adequate but not excessive.

Consider methods of warming the orchard microclimate in the spring.

Extension

The amount and rate of extension growth is influenced by:

- Budburst
- Temperature
- Flower/crop load
- Winter wood quality
- Nutrition

A low budburst leaves a lot of buds unbroken in the initial budburst. These buds stimulated by the increase in temperatures later in the spring and early summer, subsequently burst as vegetative shoots. This surge of vegetative growth or summer flush can be responsible for the bulk of the need to summer prune canopies. Remove this vegetative growth as soon as it can be identified.

The rate of extension growth will increase with an increase in temperature.

Some extension growth is needed to hang fruit and leaves on and to be next year's fruiting wood, but that is all.

The rest of it is just a waste and management of the canopy must focus must be on ways to minimise this.

One of the most difficult skills is to establish the solar panel over as short a period as possible, using the minimum of stored reserves but then be able to stabilise it and stop the excess extension growth once there is enough wood to provide next year's fruiting framework.

A high crop load will help to hold back vegetative extension. Crop load must be appropriate to the vines ability to size the fruit.

Poor winter wood quality, particularly the use of relatively vigorous wood tied down in the winter, will ensure that the wood grown over the spring is vigorous and it will be difficult to control the excess extension growth.

Avoid excessive extension growth.

Avoid excessive fertiliser applications.

The Tool Box

There are several tools commonly used to stabilise the canopy and stop excessive extension growth. They include:

- Crush tipping or squeeze tipping
- Zero leaf pruning
- Shoot removal
- Gel tipping

The aim of all of these methods is to remove the unwanted growing points from the canopy without stimulating the production of more vegetative growing tips.

All of these tools require the ability to anticipate where the shoot will stabilise after the method has been applied. To achieve optimum results they are all best used earlier in the growth cycle rather than later.

Waiting until the canopy development has overshot canopy closure and then doing a rescue prune or a traditional summer prune is expensive in terms of both the cost of carbohydrate produced by the plant and pruned out of the system, and the cash cost of doing that pruning.

Remember that everything that ends up on the ground is a waste – a loss to the system of carbon fixed, carbohydrate produced and dry matter lost.

These losses, including the cash cost, (cash and carbon cost) can be minimised by acting early.

Timing is critical and generally as soon as you can see on the shoot where the tool needs to be applied, is the time to do it even though the remaining leaves and internodes will continue to expand to their full size.

Crush tipping or squeeze tipping

This is a method of persuading the plant to terminate an actively growing shoot.

Gently squeezed.

The growing tip of an actively growing shoot is gently squeezed between the thumb and forefinger until the cells in the growing tip collapse. This is felt as a gentle popping.

The collapse of the tissue where the cells are actively subdividing releases a growth hormone that effectively turns the shoot into a self-terminator.

The cells in the growing tip collapse.

Crush tipping should be done when you can see that the number of leaves that you want on a shoot are present, and even though some of these will be very small they will continue to expand and reach their full size.

A shoot squeeze tipped when it is 30cm long will continue to extend until all of the leaves and internodes present have grown to full size and the shoot may be 90 or 100cm long at that point.

Continued over

Technically Speaking continued

Managing canopy establishment in Hayward – continued

Crush tipping must be applied in anticipation of where that shoot will end up.

Crush tipping is a particularly useful tool to manage the establishment of fruit stalk shoots to form next year's fruiting framework.

More extension.

Crush tipped sooner.

Shoots at the end of a cane are generally crush tipped sooner than shoots near the leader as more extension growth is often required near the leader. Shoots at the ends of canes are often slightly more advanced than other shoots.

Crush tipping is often done as two, three or four quick rounds through the orchard as not all shoots are ready to be done at the same time.

Timing is critical.

Zero leaf pruning

This is a method of removing growing tips from shoots where there is sufficient leaf area present and where the shoot is not required to be part of next years fruiting canopy.

The shoot is cut with secateurs in the internodal space immediately past the last flower or fruit stalk. This removes the

The shoot is cut immediately past the last fruit.

growing tip and the presence of fruit inhibits the formation of vegetative shoots in the subtending leaf axil.

Zero leaf pruning is best applied early. Use it as soon as you can see what needs to be done. Early application will ensure minimum wastage and will help maintain the remaining leaves in the best possible condition to last right through till after harvest.

If zero leaf pruning is done later it is more expensive in both cash and carbon cost and there is a real risk that the leaves remaining, having developed in the relative shade, will not be as robust and efficient as if they were allowed to develop in the sunlight.

Shoot removal

This is simply the removal of any shoots not required as part of the solar panel or the fruiting framework.

Shoot growth from the basal ring.

The shoots are simply broken out by hand as soon as they can be identified and like crush tipping it is likely that several quick rounds of the orchard are required as there will be a continuation of shoot initiation from spring right through the early part of the summer.

Shoot removal on or close to the leader can be modified to preserve growing points. This is achieved by cutting the shoot close to the basal ring and promotes the development of moderate shoot or spur growth close in to the leader. It is best done early in the season, preferably before the beginning of November.

Gel tipping

Gel tipping is a method of treating a shoot after it has been cut with a growth inhibiting gel. It has fallen out of favour as it has been implicated in some low Dry Matter outcomes. It is likely that these negative outcomes are a direct result of the amount and proximity to the fruit, that the gel has been applied.

Gel tipping is a potentially useful tool where crush tipping has not worked and zero leaf pruning is not appropriate.

The shoot should be cut and the gel applied several leaves past the fruit. This will ensure that there is some distance between the gel application and the subtending fruit and the amount of gel absorbed by the plant will be proportional to the size of the stem where it is cut.

The smaller the cut stem, the smaller the amount of gel will be absorbed.

Gel tipping should be used in strict moderation as the risks will be proportional to the number and size of gel treated cuts on each individual plant.

Flower growth

Flower development occurs over the same period of time as canopy establishment. Flower growth is also fuelled by reserves stored in the kiwifruit plant over winter.

A fast and efficient canopy establishment will mean that

Bigger flowers with longer stalks.

there are more reserves available to be allocated to flower development and this will occur over a shorter time period.

Flowers are also likely to be bigger with longer stalks if there has been plenty of reserves available over the period of their development.

Next year's fruiting framework

By the time that canopy closure has been achieved, most of the wood that you will want to tie down next winter should already be in place. Once this has been achieved, canopy management can be focused on removing any surplus growth as it is initiated.

This can be easily achieved by several quick rounds through the orchard breaking out late growing vegetative shoots as soon as they can be seen. The smaller these shoots are when they are removed, the smaller the cash and carbon cost.

Next year's fruiting framework.

Summary

The goals over the period of canopy establishment are to:

- Establish an effective solar panel
- Grow strong healthy flowers
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There are three key factors that considerably affect the establishment of the solar panel:

- Budburst, the greater the percentage budburst the less extension growth is needed to achieve canopy closure.
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- Extension, being able to stop the extension growth once canopy closure has been achieved is one of the key skills to achieving a good result in kiwifruit.

The amount (percentage) of budburst is influenced by:

- Winter chill
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- Autumn girdling

Leaf size and numbers are influenced by:

- Temperature
- Nutrition
- Amount and rate of extension growth

The amount and rate of extension growth is influenced by:

- Budburst
- Temperature
- Flower/crop load
- Winter wood quality
- Nutrition

There are several tools commonly used to stabilise the canopy and stop excessive extension growth. They include:

- Crush tipping or squeeze tipping
- Zero leaf pruning
- Shoot removal
- Gel tipping

Consider things that might be done to warm up the orchard microclimate in the spring.

Flower development can be significantly enhanced by a fast and efficient canopy establishment.

In Hayward next year's fruiting framework should be substantially in place by the time canopy closure is achieved.

A fast and efficient canopy establishment will minimise the cash and carbon cost.

The use of coppers for Psa protection – a thumbnail sketch

Why coppers?

- Coppers have been used for bacterial disease control in fruit crops around the world for more than 150 years.
- We are still using coppers today because we have not found anything that works better on bacterial diseases in fruit crops.

How do coppers work?

- Coppers are protectant bactericides, they have to be present on the plant before the pathogen arrives.
- Coppers sit on the outside surface of the plant.
- Coppers work by releasing cupric and cuprous ions on the plant surface when water is present.
- The cupric and cuprous ions cross the cell membrane of the bacterium and physically disrupt its metabolic function (kill it).
- Complete coverage of the plant surface with the copper product is required for complete protection.
- The smaller the particle size of the copper product, the longer the retention on the plant surface.
- The smaller the particle size of the copper product, the more cupric and cuprous ions are released. The more active the product.

Cautions around the use of coppers on kiwifruit.

- Soluble copper may cause phytotoxicity on kiwifruit leaves.
- Copper inside plant tissues can be very destructive. Avoid using systemic coppers or chelated products.
- Coppers can cause minor russeting on kiwifruit.
- Copper protectant sprays must be applied in good drying conditions.
- The pH of the copper spray solution must be near neutral (pH 6.5-7.5).
- Do not use copper products that contain surfactants or solvents. (liquid coppers).
- The protection provided by a copper spray will be only as good as the spray coverage.
- Any gaps in the spray coverage will be gaps in the protection provided.
- Coppers may slow down the rate of extension growth in kiwifruit.
- More applications of copper at lower rates is more effective and less likely to cause phytotoxicity than applying high rates in fewer applications.

Always apply coppers on their own.

Dealing with Psa cankers and associated symptoms in the spring

What are Psa cankers?

Psa cankers occur where Psa has survived inside the kiwifruit plant and conditions have become favourable to support the rapid growth of the Psa bacterium.

Typically Psa is relatively dormant in the plant over winter and until sap movement starts, we see no symptoms. However as soon as there is some moisture, which happens to be loaded with carbohydrate, a rich food source, the Psa starts to grow very rapidly until it bursts out of the plant. These wet exudates are what we see as weeping cankers. The wet ooze is often coloured from being forced through woody tissue and can be coloured a cloudy white, through red to a very rusty orange colour.








Why are Psa Cankers important?

Psa cankers are important because this is how Psa survives the winter in your orchard.

In the spring these cankers are evidence of Psa growing in these plants and this has occurred without a new infection cycle occurring.

Our Psa prevention strategies rely on measures which break the infection cycle.

Currently we have no way of dealing with Psa once it becomes established inside the plant, except to physically remove it.

Cankers can provide a concentrated source of Psa inoculum in your orchard.

How serious are Psa cankers?

Psa behaves differently in different kiwifruit varieties depending on how each variety is able to deal with the infection. Some kiwifruit varieties seem to be very tolerant and others, particularly Hort 16A are very susceptible.

What are the differences?

- Hort16A is very susceptible and the canker can spread freely through the plant with little resistance.
- G3 seems to be quite tolerant and appears to be able to cut off the infection and heal itself to a degree that we don't see in the other Gold varieties.
- G9 seems to be between Hort16A and G3 but probably closer to Hort16A.
- Gold males can be the first to show signs of cankers in the orchard. Probably worse than G3 but not as bad as Hort16A. M91 might be slightly worse than M33. Often the cankers are small and clearly defined.
- Hayward again at the tolerant end of the spectrum and it is relatively uncommon to see weeping cankers in Hayward.
- G14 similar to Hayward
- Chieftain where the canopy is open and spray penetration good, cankers can be rare. Where they do occur the cankers

tend to be small, clearly defined and not spread far.

- Matua and M series males more susceptible than Chieftain.

What do I do if I find Cankers?

If you are in:

- **An exclusion zone or have no Psa in your orchard**

  Immediately remove all infected tissue being careful to disinfect, protect and seal any cut surfaces.

  Contain all infected material in a plastic bag, double bag, seal and remove from the orchard for destruction by burning or burial.

  Mark the plant with coloured paint or flag tape with the date written on it

  Contact your EastPack Grower Services Representative and KVH for further assistance.

- **A containment zone or a recovery zone**

  Remove infected tissue as described below being careful to disinfect, protect and seal any cut surfaces.

  Remove from the orchard for destruction by burning or burial.

Varietal differences when I find Cankers?

In G3 – In exclusion zone remove all infected tissue and contact KVH.

Other zones – G3 often has the ability to slow the Psa infection with healthy growth coming away and growing apparently normally, from very close to where the infection has been stopped. Where this is the case it would appear to be safe to leave the plant alone and allow it to deal with the infection in its own way.

The assumption is that you have an effective Psa protection program in place and the only risk is to the plant that has the infection. If you cut the plant out it is gone anyway, so there is nothing to lose by letting the plant have a chance.

If there is no evidence that the infection is slowing then the diseased tissue should be cut away and destroyed. Allow at least a 40cm margin of clear wood.

In Hort 16A or G9 – In an exclusion zone remove all infected tissue and contact KVH.

Other zones – Cut out the diseased tissue as soon as it is found, taking care with tool hygiene, containing all of the diseased tissue in a plastic bag and cutting back to clear unstained tissue and then at least another 40cm of healthy wood. Be very careful to make the last cut with a freshly disinfected tool, disinfect the cut surface and seal with a pruning paint.

In Hayward and Chieftain – In an exclusion zone remove all infected tissue and contact KVH.

Other zones – The cankers tend to be small and clearly defined. They seem to be sited in the bark tissue and are clearly defined by a dark stain. Cut away this stained tissue, making sure to get it all. Be careful to make the last cuts with a freshly disinfected tool, disinfect the cut surface and seal with a pruning paint.

What do I do if I find Cankers in the rootstock?

If they are just isolated cases, consider trying to cut out the canker especially if it appears to be small and clearly defined. If the diseased tissue is widespread within the trunk, prepare to remove the whole plant. Consult with your EastPack rep or technical advisor.

Where they are more than just a few diseased rootstocks in a block, consider replanting with a more tolerant rootstock.

Chinensis, and Kaimai are more susceptible to Psa than mature Bruno rootstocks. Seek advice from your EastPack grower services rep or technical advisor.

What do the cankers look like?

Cankers are different in some varieties

- **G3** – Often partitions off the Psa infection and the resulting canker has a clearly defined edge to it. If left untouched there is often a growth of healthy callous tissue around the margins and the plant may continue

to function normally unless the cane or leader has been completely ring-barked.

- **Hort16A** – The cankers spread along the vascular tissue just under the bark and are often not clearly defined. They can be very long indeed, and narrow so that when they are being removed, it is necessary to cut into clear tissue beyond the obvious limits of the canker. Cut all the way round the removed limb to ensure there is no evidence of canker anywhere. Hort16A can be tricky to remove; cut a significant margin (more than 40cm) of clear tissue if attempting to remove these cankers.
- **Hayward and Chieftain** – The cankers are at the other end of the spectrum. They tend to be small and well defined by staining in the tissue just under the bark. They seem to be self-contained and do not exhibit a tendency to spread far.

Technically Speaking continued

Prevention is by far the best strategy and the key messages are still pretty much the same

- Protect your orchard – use an effective spray programme
- Mark, monitor and deal with cankers and other secondary symptoms.
- Enforce strict hygiene protocols

Hygiene protocols for orchards.

Tools

Tools used to cut kiwifruit vines are potentially a high risk because they make direct contact with the vascular tissue of the vine.

The risk is of unclean tool contact vine to vine.

- Only clean tools should be allowed to be used on the orchard.
  - Consider having a set of pruning tools exclusively for use on each orchard. This will eliminate the risk of disease being brought to the orchard from somewhere else.
  - Otherwise all pruning tools must be thoroughly cleaned by soaking in a suitable sanitiser and any plant residues being scrubbed off before pruning starts

  - Alternatively a hot flame from a blow torch or similar can be used to sanitise the cutting surfaces.
- Pruning tools should be sanitised between plants.
  - Spraying with a suitable sanitiser or soaking in a bucket of sanitiser solution.
- Cut surfaces should be treated with a Psa protectant product as soon as practical after cutting.
  - Cuts of more than 10-12mm should be treated with a suitable pruning paint.
  - Pruned blocks should be sprayed with a suitable Psa protectant product (copper) as soon as is practical after pruning or at least before the next high risk weather event.

Vehicles and people

- Vehicles should keep to the formed tracks and not be free to be driven to any area where there is a risk of direct contact with vines.
- People should come to the orchard in a clean set of clothes.
- If they are coming to work on your orchard directly from another orchard, it is a good idea for them to bring and change into a fresh set of clothes.
- No children or pets should be allowed on orchard.

Summary

- Exudates are evidence that Psa is growing inside the kiwifruit plant.
- Exudates are where the Psa has burst out through the plant tissue.
- Psa exudates can be any colour from milky white through bright red to rusty orange.
- Cankers are evidence of Psa surviving the winter inside the Kiwifruit plant.
- We have no way of killing Psa once it becomes established inside the plant.
- Different kiwifruit varieties have different levels of tolerance to Psa cankers.
- Hayward, G14 and G3 are most tolerant and Hort 16A and G9 most susceptible female varieties.
- If you are in an exclusion zone, evidence of cankers or any other Psa symptoms must be reported to KVH and should be removed immediately.
- Cankers in Hort 16A and G9 can spread rapidly and should be removed with a buffer zone of clean tissue.
- Cankers in G3 can sometimes be left to heal themselves.
- Cankers in Hayward and Chieftain are often small, discreet and can be successfully removed if all stained tissue is taken out.
- When removing cankers make the last cut with a freshly disinfected tool, disinfect the cut surface and seal with a pruning paint.
- Some rootstocks are very susceptible and total replacement with a more tolerant variety should be considered.

Prevention is by far the best strategy

- Protect your orchard. Use copper, KeyStrepto and Actigard sprays.
- Mark, monitor and deal with cankers and other secondary symptoms.
- Enforce strict hygiene protocols.

EastPack surplus orchard equipment

EastPack is selling off some surplus orchard equipment. Approximately two items will be sold per week through our trademe account. Seller name: eastpackltd.

To ensure everyone has the ability to bid on items we will not accept any early offers.

We will describe all the items as accurately as possibly. However we recommend viewing them and equipment is sold as is where is.

Sale items include but are not limited to:

- 2 trailed sprayers
- David Brown 885 Holder A50, International
- 3 point PTO link spray tanks
- Bin for ks
- 3 tractors
- Bin trailers
- Quad spray tanks
- Grader blade

Search eastpackltd on trademe a couple of times a week to see what has been listed. If you want to register your interest in a specific item contact Nicky Bird 07-573 0943 and we will call you when it is listed.

Supplementary pollination

Pollination – the process

Pollination and the setting of seed is a key process in the production of kiwifruit. It determines the potential size of individual fruit pieces, can influence the shape of the fruit and is implicated in the accumulation of dry matter in the fruit.

So what is Pollination?

What we think of as pollination is the process of combining pollen from male kiwifruit flowers with female kiwifruit flowers to form seeds and set fruit.

This is really two processes, pollination and then fertilisation.

Pollination is simply the transfer of pollen from the anther of a stamen in the male flower, to the stigma of the pistil in the female flower.

Fertilisation is the combining of male cells from the pollen with the female cells in the ovary of the female flower to produce seeds.

When the pollen grain is deposited on the stigma it starts to germinate and the pollen tube grows up through the pistil of the female flower until it reaches the ovary and fertilisation occurs. There is a delay between the pollen grain arriving on the stigma and the fertilisation process of 24-48 hours.

Recent research shows that these processes are influenced by temperature.

Table 1 plots the daily temperature in a kiwifruit orchard where there were no male plants present and pollination was achieved by manually applying pollen to the female flowers each day.

Table 2 shows the average weight of the fruit pollinated on each day. What is apparent from this data is that the fruit pollinated on the very cold day, 6 October is relatively large and fruit pollinated on the 8th, a warm day is smaller. This is not what we would have expected. However if we look at the temperatures 48 hours after pollination, about when the fertilisation process is occurring, we

Table 1

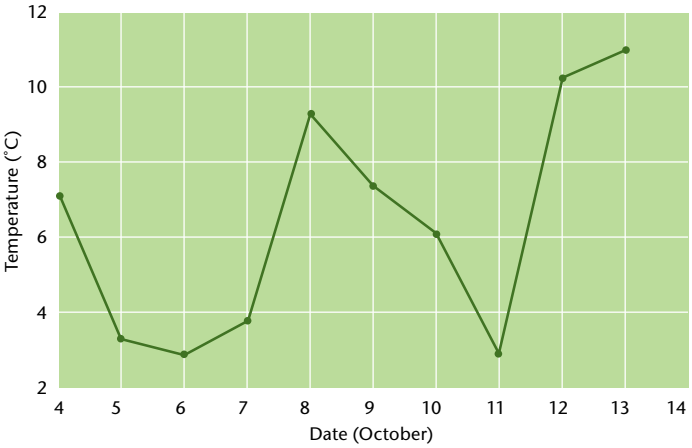
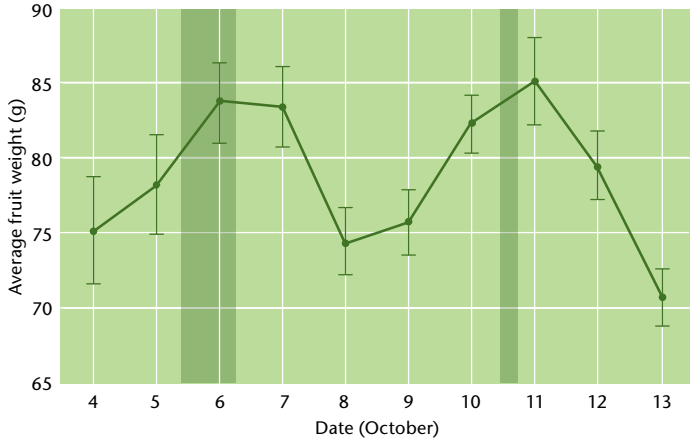


Table 2



see that the fruit pollinated on a cold day, the 6th, is achieving fertilisation in the warmth of the 8th. Similarly the fruit pollinated on the 8th, in the warm achieved fertilisation in the cool of the 10th and is subsequently smaller.

Temperature affects the rate of growth of the pollen tube; it is faster when it is warm and slower when the temperature is cooler.

Cooler temperatures appear to interfere with the process of fertilisation and the subsequent setting of seeds.

Other key findings showed:

- There is no negative influence on fruit size from over pollination.
- Hayward flowers are receptive to pollen for up to eight days.
- That kiwifruit flowers are receptive to pollen right through the length of the day.
- When dry pollen is applied in the orchard there can be significant transfer of pollen between flowers.
- When dry pollen is applied in the orchard there can be significant transfer of pollen within flowers.

Supplementary Pollination

Pollination success is a key element in the production of kiwifruit. We rely heavily on bees to perform the pollen transfer process in

Technically Speaking continued

the orchard, which is essentially a process that we have little direct control of. Supplementing the bee transfer manually has now become widely accepted.

Some key understandings are:

- Pollen landing directly on the stigma of a flower will result in pollination and subsequent fertilisation.
- Bees will transfer dry pollen within flowers.
- Bees will transfer dry pollen between flowers.
- The presence of pollen will excite bees and stimulate their activity.
- A bee needs to visit both male and then female flowers to successfully transfer pollen unless there is viable pollen available on the female flowers.

- Bee activity is reduced in cold weather.
- Bees will collect pollen from other sources outside the orchard.
- Bees could pollinate your whole orchard in one day under hypothetical perfect conditions.
- Hayward flowers are receptive to pollen for 6-8 days.
- Pollen transfer occurring at any time of the day (or night?) can lead to successful fertilisation.
- Dry pollen applied to flowers can stay viable for 24-36 hours.
- It takes only 75g of pollen to pollinate 10,000 trays of Hayward if this could be done without waste.

Supplementary pollination is a powerful tool to help us manage our bee activity and to provide for some direct pollen transfer independently of bee activity.

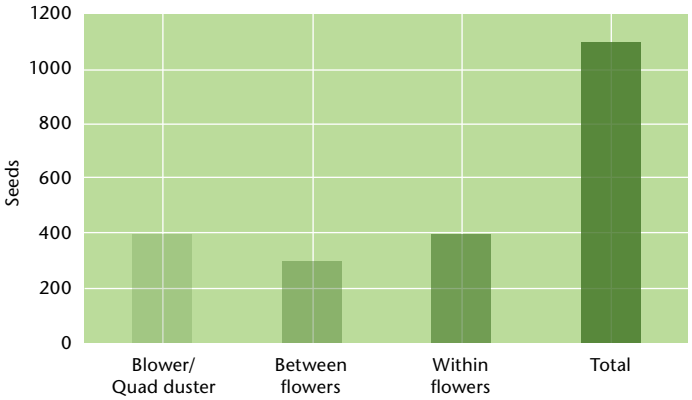
Wet pollen application is particularly useful if there are no bees active in the orchard. It provides direct transfer of pollen to the stigma. The pollen grains have already started the germination process and so are not available for successful transfer by bees.

Application of wet pollen is best targeted directly at the female flower.

Wet pollen is a good fit where there are no male flowers or bees in the orchard. It can be very useful if there are prolonged periods of wet and cold weather severely limiting bee activity.

Dry pollen application is a useful tool to help manage the bees in your orchard. It can provide some transfer of pollen directly to the stigma.

Dry pollen applied in the orchard is available for bees to redistribute within and between female flowers and doesn't require the bee to have visited a male flower before visiting female flowers.



The general presence of pollen will excite the bees and stimulate their level of activity. They will stay where they are finding the pollen and will be less likely to rove widely looking for sources of pollen outside your orchard. Applying dry pollen will encourage bees into your orchard from outside sources as well.

Results of research recently published in the Kiwifruit Journal shows that the number of seeds in fruit from orchards dusted with dry pollen is greater than the sum of the combined effects of either bees or applied pollen alone so there is some real synergy able to be gained.

Timing of application of dry pollen

Hayward kiwifruit flowers are receptive throughout the day but in order to maximise the positive effects of bees redistributing the pollen, and the stimulus effect on bees themselves the best time of the day to apply dry pollen is before midday.

Dry pollen should be applied as two applications of 250-350 g/ha at 80-85% and again at 90-100% flowers open. Alternatively if flowering is very compact, one application of 400-500 g/ha at 90-100% of flowers open.

Gold kiwifruit flowers are only receptive for 2 to 3 days so several pollen applications should be timed at 2 or 3 days apart and at a rate of 100 g/ha.

Temperature

Dry pollen is best applied in warm dry conditions. Cool temperatures affect bee activity, pollen tube growth rates and the actual fertilisation process. Timing of pollen applications to coincide with warm temperatures, especially lasting at least 24 hours will help to maximise the benefits.

Dry pollen can be applied with a hand held modified leaf blower or a specialist quad bike-mounted applicator. Both of these services are available commercially.

Summary

- Pollination and fertilisation are two separate processes. Both are necessary to form seed.
- Fertilisation can be stopped by cold weather.
- Pollen tube growth is faster when it is warm.
- Bees will transfer dry pollen within flowers.
- Bees will transfer dry pollen between flowers.

- Bee activity is reduced in cold weather.
- Bees will collect pollen from other sources outside the orchard.
- Bees could pollinate your whole orchard in one day under hypothetical perfect conditions.
- Gold flowers are receptive to pollen for 2-3 days.
- Hayward flowers are receptive to pollen for 6-8 days.
- It takes only 75g of pollen to pollinate 10,000 trays of Hayward
- Dry pollen applied to flowers can stay viable for 24-36 hours.

Supplementary pollination can be used to help manage your bees, dry pollen will:

- Excite and stimulate your bees
- Encourage them to work in your orchard.
- Provide male pollen without them having to visit male flowers.

Applying pollen to flowers in your orchard will encourage bee activity, pollinate flowers directly and provide more pollen for bees to spread around your female flowers. Supplementary pollination can be a powerful tool to ensure the best possible pollination result.

Thanks to Tim Torr for his technical contribution this month.

Orchard Operations Reminder – October 2013

October

- Continue canopy control of Gold, paying attention to trying to reduce vigour and make early decisions about what growths to keep for winter.
- Remember little and often. Get through the orchard every week doing all the obvious stuff.
- Revisit your winter pruning in Hayward and open up any tight spacings as required. Remove any spurs less than pencil thickness.
- Pollination in Gold. Remember, the more seeds in the fruit, the more successful that fruit will be competing for dry matter.

MORE POLLINATION = MORE DRY MATTER

- Flower counts.
- Start canopy control of Hayward (squeeze tipping) as required.

November

- Flower thinning in Hayward, remove misshapen flowers.
- More canopy work in Gold, going through the canopy lots of times and just taking out the obvious stuff each time.
- Continuing the canopy work in Hayward, working at stabilising the canopy and minimising the amount of vegetative growth in the canopy
- Little and often with the canopy work. Remember try to do it without needing to use secateurs.
- Pollination in Hayward.

MORE POLLINATION = MORE DRY MATTER

- Fill in and return your pest monitoring contract.
- Finish male pruning in Gold.

December

- Trunk girdle Gold, 21 days after fruit set.
- Finish male pruning in Hayward.
- Trunk girdle in Hayward 21 days after fruit set.
- Fruit thinning.
- Fruit counts.
- Start pest monitoring for scale.
- Finish last round of early canopy control before mid-December in Gold.
- Stop the growing points at the appropriate length of your replacement canes.
- Take leaf samples for analysis.

New Varieties Update

New Varieties after-graft care by Tim Torr

Graft failure can put your development programme behind schedule and re-grafting is an unnecessary expense.

Once your grafter has finished the actual grafting the rest is up to you. The new grafts will need some special care and attention. There are several areas that will need to be managed closely to ensure, not only survival of the grafts but that they grow vigorously and establish quickly.

- Protect from Psa
- Sap pressure
- Support the grafts
- Slugs (and snails?)
- Protect from frost
- Fertiliser
- Weed control

Protect from Psa

Gold-fleshed varieties and young growth are both risk factors making plants vulnerable to Psa. New grafts and the young rapidly growing tissue from grafts must be protected from Psa infections at all times.

Consult with the latest version of the Zespri Psa Crop Protection Programme for the best products.

Be aware of the correct concentration rates when mixing up small quantities of spray mix. Copper product rates will be approx. 5g-15g in 20L of water (this is approx. 0.5-1.5 teaspoons of product!).

Sap Pressure

Excessive sap pressure is the most common cause of graft failure. This can be quite easily reduced by providing for the excessive sap to drain away before reaching the graft.

However any new wound provides a potential entry point for Psa. There is a fine a balance then, between saving the grafts from excessive sap pressure and the need to minimise the Psa risk. Any open wound should be protected from Psa as much as practical. It is difficult to protect a weeping wound because if the sap can get out then Psa can get in.

The most common methods used to relieve sap pressure are to use either holes drilled into the trunk below the graft, or in the case of stump grafting, one or two small cuts with a chainsaw.

It is important to keep these holes open so that the sap is continuing to drain until the grafts are well established or the sap pressure eases off, usually in early November for Bruno rootstocks.

These holes will heal quite rapidly and they will be substantially healed by the middle of next season.

Where the risk from Psa is high, it maybe wiser to accept some graft losses and not make any cuts or holes that cannot be protected from Psa.

Support the Graft

The successful graft will grow and elongate quite quickly. This growth is very tender and the callus tissue growing around the graft itself is soft so the new shoot will need to be supported as soon as it starts to grow.

A string can be tied to the stump below the graft and secured to the leader wire or a bamboo used instead. The growing shoot can then be wrapped loosely around or taped loosely to it.

Slugs (and snails)

Slugs just love new grafts and will completely devour the emerging new shoots given half a chance. Clean away all the trash around the base of the trunk for at least half a meter in each direction. Depressions where trunk sluicing for *armilleria* control has been done should be cleared of any old leaves or rubbish. Allow the ground around the base of the trunk to dry out whenever possible.

Apply a generous amount of slug and snail bait to the ground around the base of the trunk.

Frost

The new graft will need to be protected from frost. If you are using an automated frost protection system it will pay to make sure the temperature sensor is lowered to the level of the grafts as it will be colder down there than at the level of the canopy.

Fertiliser

Feed the young growing grafts with a nitrogen fertiliser at least every four weeks. This will only need to be a small quantity but needs to be applied at relatively close intervals, not more than four weeks apart. It can be applied by hand or banded on with a spreader.

Weeds

Keep the area around the new grafts clean and free of weeds. This will minimise any competition for nutrients and water and it will also help with the control of slugs and snails.

Summary, after grafting

- Protect all cuts, holes and young growth from the threat of Psa
- Drill holes or chainsaw cuts below the graft to relieve sap pressure.
- Keep these holes open and draining.
- Support the grafts from the rootstock to the leader wire.
- Use a generous amount of slug bait and keep the ground around the trunk clear.
- Protect the young graft from frost.
- Keep free from weeds, keep watered and use nitrogen fertiliser little and often.

Financial Update

EET Forecast Average Class 1 payments for October 2013 are as follows:

	Zespri Progress	Taste	Base Charges and Port & Transport	Estimated October Average Payment
Green	$0.20	$0.26	-$0.16	$0.30
Gold	$0.83	-	-	$0.83
Organic	$0.26	$0.24	-$0.13	$0.37
GA	$1.06	$0.02	-	$1.08
GL	$1.59	-	-	$1.59
HE	$0.33	-	-	$0.33

The average fruit value rates per Class 1 tray are shown in the table below.
These payments will be direct credited into your account on 15 October 2013

PLEASE NOTE that Zespri are clawing back $0.15/green 42 count size tray and $2.99/HE 18 & 22 count size tray this payment.

Payments by size are shown below.

	Zespri Fruit Payment To 13/09/2013	Zespri Progress 15/10/2013	Total Zespri Receipts	EP Base Coolstorage YTD	EP Port & Transport YTD	EET Advance (Base CS and P&T)	EET Total Paid YTD
Green							
18/22	4.20	0.70	4.90	-0.70	-0.14	0.16	4.22
25/27	4.20	0.50	4.70	-0.70	-0.14	0.16	4.02
30/33	4.20	0.30	4.50	-0.70	-0.14	0.16	3.82
36/39	4.20	0.15	4.35	-0.70	-0.14	0.16	3.67
42	4.20	-0.15	4.05	-0.70	-0.14	0.16	3.37
Gold							
16/18/22	4.60	0.60	5.20	-0.75	-0.15		4.30
25/27	5.20	0.80	6.00	-0.75	-0.15		5.10
30/33	6.00	0.90	6.90	-0.75	-0.15		6.00
36/39	5.40	0.80	6.20	-0.75	-0.15		5.30
Organic							
18/22	2.58	0.00	2.58	-0.71	-0.15		1.72
25/27	3.21	0.70	3.91	-0.71	-0.15		3.05
30/33	3.29	0.35	3.64	-0.71	-0.15		2.78
36/39	3.44	0.20	3.64	-0.71	-0.15		2.78
42	2.25	0.00	2.25	-0.71	-0.15		1.39
GA							
16/18/22	4.35	0.00	4.35	-0.72	-0.15		3.48
25/27	4.75	0.70	5.45	-0.72	-0.15		4.58
30/33	5.30	1.40	6.70	-0.72	-0.15		5.83
36/39	4.60	1.40	6.00	-0.72	-0.15		5.13
GL							
16/18/22	3.60	0.70	4.30	-0.60	-0.12		3.57
25/27	4.00	1.25	5.25	-0.60	-0.12		4.52
30/33	4.90	1.75	6.65	-0.60	-0.12		5.92
36/39	4.40	1.60	6.00	-0.60	-0.12		5.27
HE							
18/22	2.80	-2.99	-0.19	-0.75	-0.15		-1.09
25/27	2.80	0.30	3.10	-0.75	-0.15		2.20
30/33	4.55	0.50	5.05	-0.75	-0.15		4.15
36/39	6.75	0.40	7.15	-0.75	-0.15		6.25
42	5.20	0.10	5.30	-0.75	-0.15		4.40

Staff Profiles

DEBBIE MEYER – EDI/EMPLOYMENT MANAGER, GLENBERVIE

Debbie has been with EastPack since the merger six months ago and prior to that was with Satara for 12 years. She has had a variety of roles over that time from packer, EAN Operator, Orchard Worker, Line Manager, EDI and Employment.

Currently Debbie oversees the EDI team and looks after the employment of seasonal staff for both avocados and kiwifruit.

Debbie is married with two grown up daughters and three awesome grandkids.

During her spare time (when she gets any!) Debbie enjoys spending time with her daughters and grandchildren, beaching it when the weather is good and club rides with the local motorbike club.

IAN RAEBURN – LABORATORY MANAGER, WASHER ROAD

Ian has been with EastPack since the merger and for four years prior to that was the Laboratory Manager for Satara. With his Higher National Diploma in Analytical Chemistry Ian has had almost 40 years laboratory experience, holding senior laboratory positions in the cement industry in Scotland and in the aluminium and steel industries in South Africa.

At EastPack Ian assists and manages areas of fruit quality and optimisation such as maturity management, maturity monitoring, pest monitoring, crop estimations and storage assessments. He is also responsible for ethylene testing as an industry-wide service.

Ian is married to Marie and they have two children. Oldest son Craig lives in Papamoa and is married to Karlene with three daughters – Mia 8, Sienna 6 and Lola 2. Youngest son Andrew lives near Seattle and is married to MaryBeth and they have two daughters – Willow 14 and Arwen 12.

In his spare time Ian enjoys family time, playing golf, walking, going to movies, eating out, watching sport and growing his DVD collection (currently over 500!)

Ian's main personal achievement is being a proud husband, father and granddad.

He was also a pretty decent footballer in days gone by. Ian was an apprentice professional with Dunfermline Athletic in Scotland as a teenager and played at provincial amateur level in South Africa for a number of years.

Ian says he and Marie must have some gypsy blood having lived in Scotland, South Africa, Scotland again and now New Zealand. His desire is to live long enough to see Scotland beat the All Blacks but he doesn't think that will happen as his average family member's life span is only 150!!

EastPack Grower Survey

Lucky winners of the draw for completing the EastPack grower survey, Graeme and Lis McCarroll of Te Puke.

Recommended Eyewear Selection

EastPack
WORLD CLASS ORCHARD TO MARKET

Work Process	Hazard	Recommended Eye Protection as per AS/NZS 1336	Product To Suit Work Areas/Processes	
Kiwifruit orchards - Pruning • Winter and male pruning of kiwifruit vines using manual/ mechanical pruning shears • Pruning and male pruning of kiwifruit vines	• Wires under tension being accidentally cut and damaging eyes • Plant material striking the eyes	• Medium Impact Eye Protection		
			406779 Superfit Variomatic	408591 Super OTG Glasses
Both options feature an active tinting to reduce light entering the eyes, while looking upwards, when dealing with overhead trellis systems. The Super OTG Glasses are an option for someone who wears prescription glasses.				
Maintenance • Structure work (manual and mechanical)	• Wire, nails or splinters striking the eyes	• Medium Impact Eye Protection		
			407116 Pheos	408925 Pheos Dust Guard
Pheos offers high peripheral vision, as well as high scratch resistance and an anti-fog coating. The Pheos Dust Guard is to prevent secondary hazards/particle ingress.				
Accessories				
			252043	1085
				
			252077	403611
				
			1007 complete 252018	
Care and maintenance extends the function and the life of the eyewear. Replace eyewear when damaged!				

0800 NZSAFETY (0800 697 233) | www.nzsafety.co.nz

NZ Safety
Specialists in Safety & Protection

Back in July we discussed eyewear safety. Below is a guideline from NZ Safety on the types of safety glasses that would be suitable for typical tasks undertaken on an orchard. You can contact NZ Safety on 0800 NZ SAFETY (0800 697 233) or visit their website at www.nzsafety.co.nz.

Learnings from last season - managing variability in G9 and G3

With Zespri expecting 12m te of G3 to be harvested this season, it is an exciting time for the industry. To ensure a smooth transition with this variety, now is a good time to reflect on and learn from the 2012/13 harvest in preparation for the next.

What is fruit variability?

In a perfect world all fruit within a maturity area would be identical in their colour, brix, pressure and size at harvest. Unfortunately, variability is natural within fruit crops, with fruit to fruit variation occurring both within and between vines.

In G9 and G3 varieties, colour is the most important factor for variability. Colour is our current harvest criteria and therefore directly determines the maturity level (brix and pressure) that fruit is harvested at.

Colour is not a good indicator of maturity. We are interested in colour from a market acceptance perspective. If harvested too early (too green) gold varieties will not degreen sufficiently and the consumer will not be able to recognise the fruit as a gold fruit and in some cases fruit may not mature to an acceptable eating quality.

Brix and pressure levels are a far better indicator of maturity and storage potential.

Why is fruit variability important?

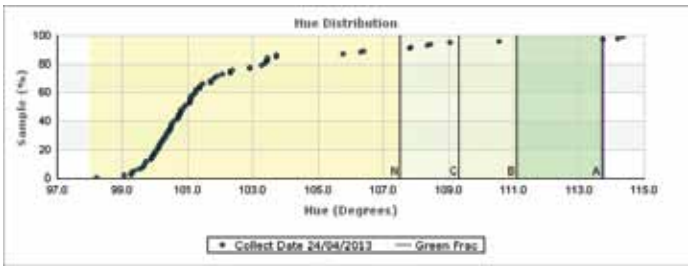
A large variation in colour within a maturity area will see a small proportion of fruit responsible for delaying clearance. During this delay the majority of fruit continue to increase in their maturity, often to an "over mature" state… compromising storability *(as per Graph Series)*.

This issue is accentuated in G9, where there is a very high level of inherent variability, but is also very applicable to G3, where we have a lot of orchards in the establishment phase. Naturally these orchards present a higher level of fruit variability due to variability in canopy cover.

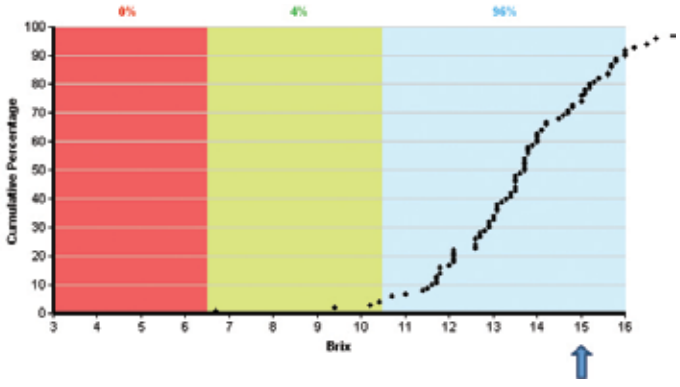
The **Graph Series** that follows compares fruit populations of two maturity areas, one that exhibits a high level of variability and another that has a more normal level of variability.

High fruit variability

Graph 1. Hue Distribution (colour) Standard Deviation = 3.3



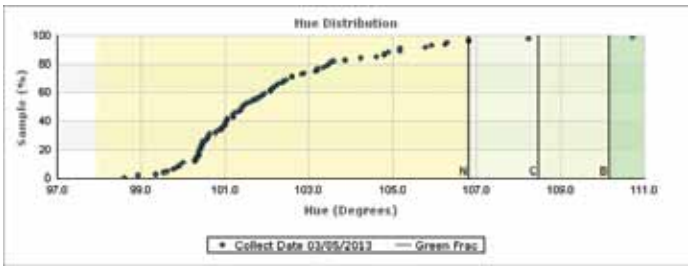
Graph 2. Brix Distribution



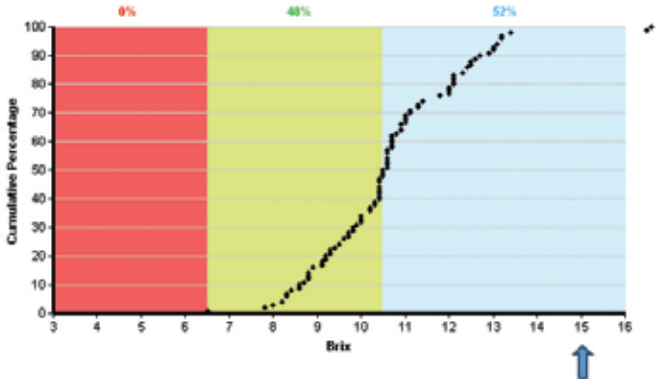
This maturity area is highly variable in colour. The majority of fruit are fully-coloured (Protocol N) however a sub-group is still very green. This has meant that brix levels have become high for the majority of fruit with approximately 30% of fruit having a brix level of 15 or greater.

Low fruit variability

Graph 3. Hue Distribution (colour) Standard Deviation = 2.3



Graph 4. Brix Distribution



This maturity area is less variable in colour. It has achieved a clearance without compromising brix levels. Only 2 fruit within the sample have a brix of 15 or greater. Its colour (hue distribution) is more characteristic of fruit from a mature canopy.

Where does variability come from?

Along with orchard and management related variance (e.g. soil type, aspect, vine age, trunk girdling). In establishing orchards, variability is amplified by fruit exposed to the sun in patchy or open/light canopies and compounded by variable winter wood types giving rise to an extended flowering.

1) **Patchy canopies**

   This can come about due to graft failure, less than desirable lateral development due to stress, PSA infection or late dropping of leaders (post 1 December).

2) **Open/light canopies**

   This is generally a symptom of stress, a sign that the scion might not being in balance with its root system. It can occur when the plant is asked to work very hard (e.g. over cropping). This leads to small leaves and a low leaf area index, also described as a low leaf to fruit ratio.

3) **Extended flowering**

   In the establishment phase, the goal is to fill the canopy as quickly as possible. This generally means a compromise in wood quality, with a proportion of thin late grown cane tied in. Ultimately this leads to an extended flowering period with thin cane leading to late flowers that translate into variability in maturity.

Why are sun exposed fruit slow to degreen?

The green colour of gold fruit is chlorophyll. Chlorophyll is responsible for all life on earth, as it facilitates photosynthesis within plants. The level of chlorophyll in Gold fruit naturally declines as fruit matures, eventually giving its characteristic gold flesh colour. However, if exposed to the sun the chlorophyll is stimulated and levels may decline at a slower rate.

Suggestions for how we can manage fruit variability to ensure best grower outcomes?

Managing variability will help ensure timely harvest clearance.

- **Flower counts to help set appropriate crop loads (October and November)**

  Avoid stressed canopies through setting the appropriate crop load (not over cropping)

  Patchy canopies – remove flowers / fruit from canes exposed to sun (on edge of canopy)

- **Removal of late flowers (October and November)**

  At a particular stage of flowering a decision should be made to thin off late flowers.

- **Maturity Area (MA) and Pack-run Area (PRA) management (February/March)**

  Set Maturity Areas so blocks of "like fruit" are combined and variability minimised. In extreme cases, each block might represent a different MA or PRA.

Upcoming Events

DATE	REGION	EVENT	LOCATION	TIME
Mon 14 Oct	Gisborne	Zespri FON Spring Field Day	Green's Orchard 799 Matawai Road, Gisborne	9.00am-12.00pm
Mon 14 Oct	Edgecumbe	Zespri FON Spring Field Day	Harcourt Orchard 30 Orchard Road, Edgecumbe	9.00am-12.00pm
Tues 15 Oct	Pyes Pa (organic)	Zespri FON Spring Field Day	KMS Organic Orchard 388 Joyce Road, Pyes Pa	9.00am-12.00pm
Tues 15 Oct	Tauranga	Zespri FON Spring Field Day	Puketiro Orchard 345 Joyce Road, Pyes Pa	2.00pm-5.00pm
Wed 16 Oct	Kerikeri	Zespri FON Spring Field Day	Kew Orchard 108 Inlet Road, Kerikeri	9.00am-12.00pm
Wed 16 Oct	Te Puke	Zespri FON Spring Field Day	Fruit Force Orchard 117 Gulliver Road, Te Puke	9.00am-12.00pm
Wed 16 Oct	Whangarei	Zespri FON Spring Field Day	Barge Park Events Centre Maunu Road, Whangarei	2.00pm-5.00pm
Thur 17 Oct	Katikati	Zespri FON Spring Field Day	Stewart Orchard 71 Wright Road, Katikati	9.00am-12.00pm
Thur 17 Oct	Auckland	Zespri FON Spring Field Day	Mardi Gras Orchard 381 Glenbrook Beach Road	9.00am-12.00pm

Classified

Situations Vacant

Experienced Tractor/Machinery/ Sprayer Operator

Full or part time position wanted for 14ha Hayward orchard in the Tauriko area. Prefer someone with Growsafe/Approved Handler certificate. Remuneration by negotiation.

Phone David Stephenson on 027-258 9820

Wanted to Buy

Orchardised Tractor

In working condition – under $4K

Phone Faye 07-549 5944

Fencing Posts

Suitable for fencing 1.8m

Phone Faye 07-549 5944

0.1 ha G3 licence

Phone Graham 021-935 879

---

300 Steel String Poles – 5m

Phone Kevin on 027-480 0506

Used AgBeam

Standard and heavy.

Phone John 027-216 9345

Hort 16A Gold Licence

Phone Andrew 027-222 1903

Courses

First Aid Courses

OSH, GAP, NZQA. Held monthly in Te Puke.

Phone Doug 021-108 1515

Email: dougallan@slingshot.co.nz

For Hire

Machinery for Hire

- D31 bulldozer 6 way blade/winch
- 10 tonne digger
- 8 wheeler flat deck with hydraulic ramp and 9.5m deck
- 5 tonne 4x4 tip truck

Ph Barry Moys 07-929 7272

For Sale

Cropliner Orchard Sprayer – 1500Litre

Good order. $3000.00 ONO

Phone John on 07-533 1262 or 027-499 9179

Tearce 2000 Crop Sprayer

Good condition. $7000

Phone 027-672 2044

Stringing Poles

3.4m and 3.6m. 50c per metre

Ph Graeme on 07-573 8611

Top Quality Wormacompost™ Envirofert Ltd – Tuakau.

- The best compost for kiwifruit at the best price.
- Made from greenwaste to give highly available nutrients and high levels of organic, microbial activity.
- Cleared by KVH for unrestricted delivery for kiwifruit.

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