www.treefruit.com.au

Tree Fruit

OCTOBER 2012

Building business strength—the SUMMERFRUIT industry

Minimise heat stress & sunburn

Stone fruit growth & management

Codling moth control

Cherry blossom, fruit set & thinning

Products and Services

Nutrients & plant hormones

Harvest aids

Crop protection—environmental stress

Electronic spray diary

Editor
Nick Morenos
B Ag Sc, Grad Dip Ed
Ph 03 9740 7136

Designed & Published by
Fruit Tree Media
Box 2492
Sunbury Delivery Centre
VIC 3429 Australia
Ph 03 9740 7136
Email: ftm@fruittreemedia.com.au

Advertising inquiries
Nick Morenos
Ph 03 9740 7136
Email: info@treefruit.com.au

Subscription/registration
To subscribe/register:
email subs@treefruit.com.au
visit www.treefruit.com.au

Website
Current & past articles can be found at the Tree Fruit website.
www.treefruit.com.au

Frequency
Tree Fruit is published monthly except for two combined issues (10 issues a year)

Editorial
Opinions expressed are not necessarily those of the publisher.

Advertising
The publisher accepts no responsibility for the contents of advertisements. All advertisements are accepted in good faith and the liability of advertising content is the responsibility of the advertiser.

ISSN 1447–5618

CPA

The bu$iness of fruit growing

Building business strength—the SUMMERFRUIT industry

When meeting growers, a common topic that comes up regularly is: how is the industry going?

However, understanding the Big Picture by talking to individual growers is difficult because some will be doing worse than average, some will be average, and some will be very successful.

This article considers industry data sourced mostly from the Australian Bureau of Statistics (ABS)and the Food and Agriculture Organisation (FAO).

Data for the pome fruit industry is not perfect, but it appears to be consistent. My observations of summerfruit industry information are that it can produce quite volatile results. I will therefore discuss trends rather than what is happening from year to year.

In addition, cause and effect may not be clear. Why things happen can be based on a complex mix of reasons. What insights I can deduce below are at least based on objective data.

Please note that ABS changed its collection database in 2005–06. Whilst I am assuming that production data might be consistent over a long period, monetary data needs to be treated with caution.

Building business strength—the SUMMERFRUIT industry

Businesses

ABS agricultural data refers to 'establishments'. This term refers to, "the smallest accounting unit of business controlling its productive activities and maintaining a specified range of detailed data enabling value added to be calculated. The majority of establishments operate at one location only".

So the term nearly refers to individual orchard businesses, but not quite—a large business might own more than one establishment.

Drop in the number of establishments

Let's start with the number of establishments in Australia's summerfruit industry.

In 1998 there were 1307 stone fruit growing establishments; by 2011 there were 841, a decrease of 36%, or 36 establishments a year.

These figures equate to an annual decrease of 2.7%, slightly more slowly than for pome fruit establishments.

To put this into context, the consolidation of all other agricultural industries during the same period was 6%. The summerfruit industry, like the pome fruit industry, is consolidating at a much faster rate than agriculture in general.

It appears therefore, that the overall deciduous tree fruit industry is consolidating at a significantly faster rate than agriculture in general.

Where has the consolidation occurred?

If we take the decline of 36% as the national average then: the decline was about 50% in New South Wales and South Australia; Queensland, 42%; Western Australia, 32%; and Victoria, 6%. Tasmania's industry expanded by 338%, albeit from a low base, probably due to cherry plantings.

If we consider establishment size, between 1998 and 2011 summerfruit growing establishments declined across each size range. However, the proportion of establishments in each size range remained the same between those years—which suggests that consolidation is occurring equally across the industry, regardless of business size.

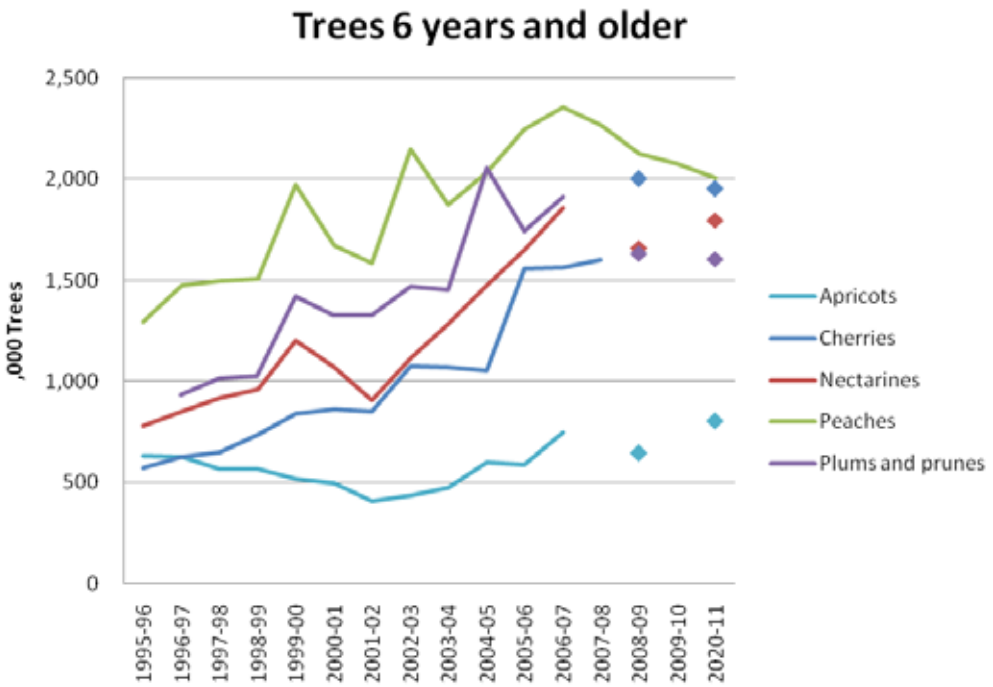

Figure 1. Production base trend over the past 15 years. No tree data are available for some fruit types in 2008 and 2010. Tree numbers for 2009 and 2011 are shown as diamonds.

The production base

Figure 1 indicates the production base trend over the past 15 years. This seems to present an encouraging picture for the industry.

Despite consolidation, growers were expanding their investment in new plantings and this suggests a degree of confidence about the future.

Plantings increased through the last decade, but now seem to be plateauing. Peaches especially, may have been influenced by lower processing intakes in the Goulburn Valley.

I feel that some summerfruit investment is being driven by poor or mature returns from pome fruit; this observation may apply to cherries in particular.

Fresh peach and nectarine plantings were also encouraged by potential trade to Taiwan. It was a shock for the industry when this market was closed, although it has more recently reopened. And whilst the potential for production growth is encouraging it will beg the perpetual questions around the impact on returns.

Although it would be interesting to note the planting density figures for each crop, any derived figures would only be valuable if they could be compared to a major competitor. I currently can't source the data to do that.

Building business strength—the SUMMERFRUIT industry

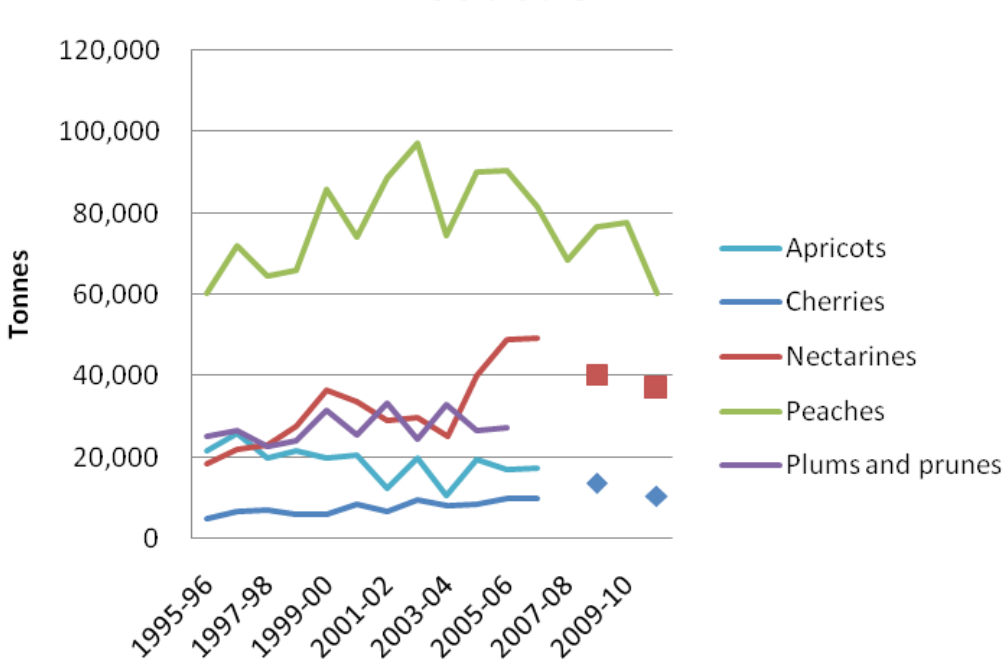

Figure 2. Gross production.

Production

The chart of gross production (Figure 2) is interesting given the foregoing chart about trees. The scale is a little distorted because total peach production is high compared to the other crops.

It would appear that the surge and then fall in peach tree numbers is reflected in peach production, and may largely be driven by changes in the processing market.

Nectarine production also declined to less than 40,000 tonnes by 2011 to reflect a stabilisation in tree numbers.

I would have expected cherry production to be on an upward trend, but this crop can be highly susceptible to seasonal conditions and these may have come into play. That crop's potential production is higher than has been obtained to date.

Building business strength—the SUMMERFRUIT industry

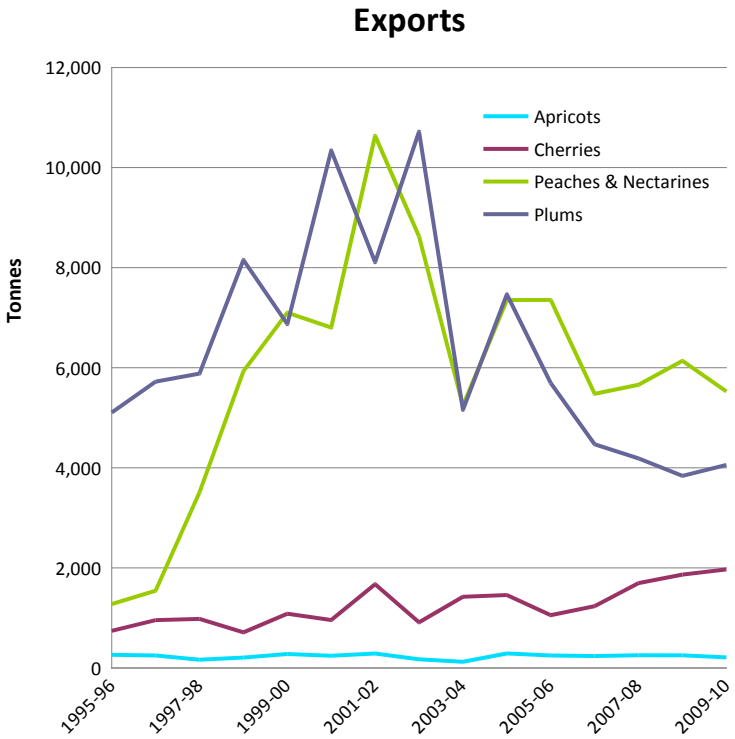

Figure 3. Export trends, based on FAO data.

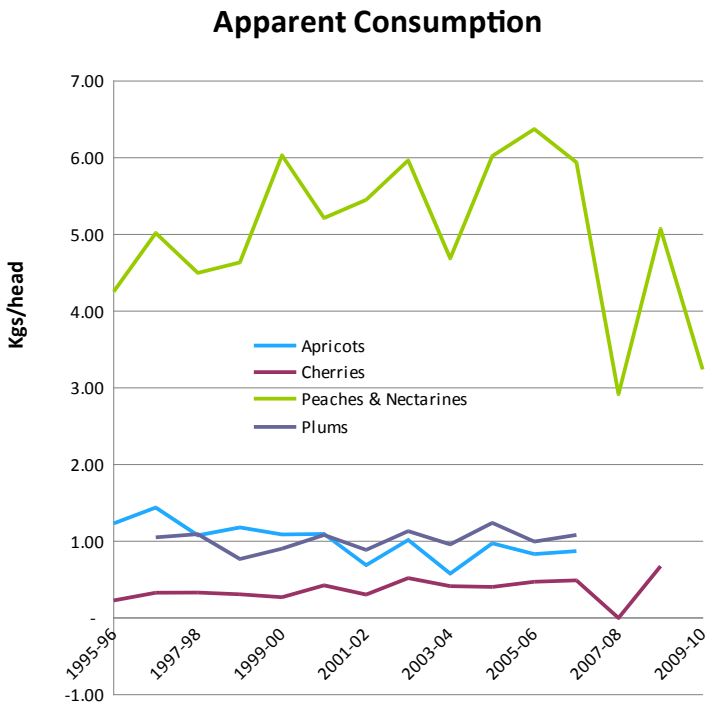

Figure 4. Apparent Australian consumption (includes FAO import information).

Consumption

The elements that comprise national consumption are: production, exports and imports. Production has already been considered.

Export trends

Figure 3 presents export trends based on FAO data.

Export volatility for some crops is clearly apparent. The trends seem to indicate that exports of apricots, and peaches and nectarines (combined figures) have declined since about the start of the drought—this reflects the export history for pome fruit.

The decline in apricots and peaches may also be linked to less production going overseas from SPC Ardmona.

The picture for the developing cherry industry is encouraging. Although coming from a low base, exports are increasing steadily.

Apparent consumption

Figure 4 includes FAO import information to provide a picture of apparent Australian consumption. Again, the chart is distorted by the relatively larger peach and nectarine figures.

Apricot consumption is declining, as is peach and nectarine consumption, although the latter may be influenced by declining production.

Plum consumption is steady. Cherry consumption appears to be increasing, encouraged by higher domestic production and imports during the Australian off-season.

Building business strength—the SUMMERFRUIT industry

Crop	Australia	USA	Italy/Greece
Apricots	2.2	12.3	11.6
Cherries	5.8	8.3	3.9
Peaches & nectarines	5.7	21.1	17.5
Plums	5.1	13.5	12.7

Table 1 A view of summerfruit crop marketable yield based on FAO data. Figures are tonnes/hectare.

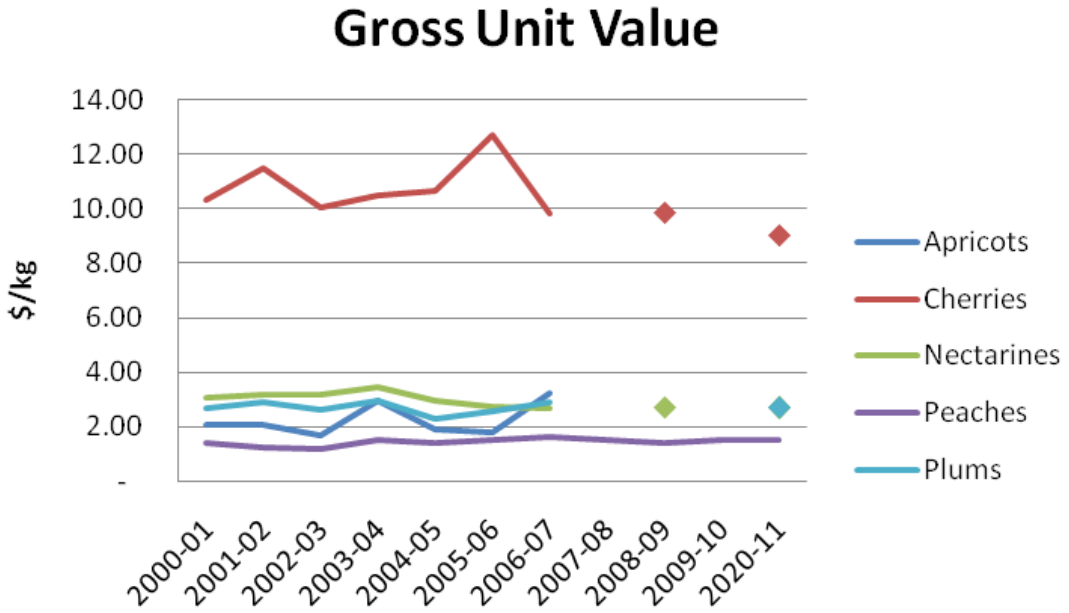

Figure 5. Annual average gross values per kilogram at 2011 values (based on the annual CPI indices for food).

Yield

Australian agriculture has suffered declining terms of trade for at least 20 years (Productivity Commission). That is, crop input costs have risen faster than crop returns.

Yield has been the vital factor that has allowed Australian farmers to maintain or increase their income, and horticulture is no exception to this need.

Alarming figures

Table 1 presents a view of summerfruit crop marketable yield. Figures for apricots, peaches and nectarines, are alarming for Australia.

There may well be reasons behind this that are connected with processing tonnages, but our indicative marketable yields seem well behind our competitors.

I tend to think that hectare data held by FAO is not correct, however, their other summerfruit data is consistent with ABS information.

Cherries positive

As for other benchmarks noted above, cherry growers appear to be making positive strides.

Competitive with Europe and within touch of the USA, the industry's investment in higher-density, covered plantings, looks promising for the future.

Returns

Figure 5 presents annual average gross values per kilogram (at 2011 values—based on the annual CPI indices for food).

As previously noted, the data prior to 2005–06 is taken from a different database to that used from that year on. My impression is that prices for all summerfruit crops have declined slightly during the last few seasons. Coupled with plateauing production, this aspect of business would not be welcome.

Supermarket influences

The increase in market control by Coles and Woolworths will continue to influence industry development.

Their strategies will drive: fewer suppliers, greater control of the supply chain to gain economic efficiencies, and a strong push for market growth driven by price discounting on key consumer products.

The outcomes from these are already being felt by horticulture farms that supply food processors —processed fruit being a prime example.

Despite the general angst felt by the farming community in this environment, there will be fruit businesses which will benefit from new alliances.

Building business strength—the SUMMERFRUIT industry

The drivers of income

The Income Equation

Gross farm income is derived from a simple equation:

Gross Income = Area (hectares) x yield (tonnes per hectare) x return (dollars per hectare)

For a grower to increase gross income, they must increase any one, or a combination of these elements. Alternatively, if a grower cannot increase any of these elements, then their net income (gross income less costs) must decline, given rising costs.

My previous analysis indicates that:

- The number of summerfruit businesses is declining at a little less than 3% per year. Consolidation is taking place amongst all sizes of business;
- There are promising signs that the cherry industry could be internationally competitive and that marketable yields are heading in the right direction. However, Australian yields of other summerfruit crops seem to be below competitive levels. The capacity to continuously increase yield is fundamental to long-term sustainability;
- The situation for gross value is that prices for all summerfruit crops may have plateaued during the past few seasons.

Overall view

At this stage the data shows an industry that might be maintaining its rate of gross income, but may not be increasing it.

Given that annual costs will be increasing, my overall view is that summerfruit growers would be working hard to increase their income each season, and numbers of establishments are regularly closing down.

Profitability

The grains, dairy and livestock industries are made up of businesses that sell common products into common markets. Although there are certainly differences between individual businesses there is a lot of published data about farm profitability.

That is not the case for horticulture. Individual marketing skills make all the difference between a good return and a poor one and there are different supply chains that growers may use.

As a result, horticultural growers have traditionally been protective about their financial results and there is little published data.

Although canning peaches were included in a six-year benchmarking study I undertook in the Goulburn Valley, I am not aware of any longitudinal studies that provide an insight into summerfruit crop profitability.

Debt

In a difficult business environment it is vital that debt is managed well.

However, profits are the biggest contributor to managing debt and, if profitability is declining, debt must increase.

It also becomes harder to invest in new plantings and technologies, and takes individual businesses to the point where they may not be able to survive a poor year. Banks have tightened their lending protocols and once-ready credit is not there anymore.

An ABARES report identified that, between 2009 and 2010, the debt of the sample horticultural farms in the Goulburn-Broken catchment increased from $338,000 to $679,000.

The ABARES sample may not be representative of general business, but it is one recorded viewpoint. Its finding also tends to confirm what many in the industry seem to feel—these are challenging times.

Building business strength—the SUMMERFRUIT industry

Conclusions

The summerfruit industry has been subject to a number of dynamics, including the following:

- Peach production is being adversely affected by the reduction in Goulburn Valley processing intake. Further decline is expected
- Fresh market nectarine and peach plantings increased strongly on SE Asian opportunities but growers were badly affected by the closure of the Taiwan market
- Cherry production has increased as pome fruit growers experienced some stagnation. Exports are performing well
- Cherry yields have developed well and are looking competitive, however, yields of other summerfruit crops seem low by international standards
- Average gross value for all summerfruit crops has declined during the past two seasons.

Despite some setbacks, my impression is that summerfruit growers have invested as opportunities arose, and that demonstrates confidence in their crops.

Cherry growers in particular have produced some very positive outcomes.

As SE Asian trade opens up again, part of the industry's future will be aligned with its ability to increase exports, thereby giving domestic sales the chance of higher returns.

mobile 0438 576 769
email: shanec@eem.com.au

Horticultural Agronomist

Codling moth control

Poor returns for apples over the last six months have put pressure on orchardists to reduce costs.

Cost reduction often involves reviewing some of the major input costs such as fertiliser, codling moth control, labour, chemical thinning and protective netting.

Codling moth damage to fruit.

Codling moth control options

Growers today are fortunate to have many options available for codling moth control.

Options include various types of mating disruption (Isomates and Puffers); insecticides (e.g. Altacor, Insegar); and a new class of biological insecticide based on the naturally occurring *Cydia Pomonella* Granulosis virus (Madex or Cyd-X).

With so many options available, a codling moth program can be tailored to meet the requirements of individual orchardists.

Mating disruption is still seen as the premium method for codling moth control. The only down side to this option is the labour costs for application.

If growers prefer spraying, then there are many insecticides available to develop a program.

Two common reasons for growers preferring to spray insecticides as opposed to using mating disruption are: the cost associated with mating disruption products; and/or the issue of secondary pests in the orchard.

Codling moth control

Codling moth larva in fruit.

Secondary pests

Codling moth is seen as a primary pest.

While using mating disruption for codling moth control, secondary pests such as woolly apple aphid, lightbrown apple moth, Heliothis, looper and Harlequin bug can cause significant crop losses and become a major pest requiring multiple insecticide applications.

When a mating disruption block requires insecticide sprays for increasing secondary pest issues, then the economics of mating disruption diminishes.

Codling moth control

Insecticide program

Codling moth programs have undergone changes due to the removal of some older insecticides from the market, and the introduction of newer more selective insecticides.

The following codling moth program incorporates two of the relatively new insecticides: Altacor and MADEX/Cyd-X; along with one of the old insecticides, Insegar.

Even though Insegar is one of the older insecticides it has a good IPM profile (unlike many other older insecticides). This makes it worth considering when formulating a spray program.

Possible codling moth insecticide program

1st Generation—Altacor
2nd generation—Insegar
3rd generation—Madex or Cyd-X

This program could be suitable for an orchard favouring an IPM–friendly approach and where codling moth pressure is moderate to high.

All three insecticides—Altacor, Insegar and Madex/Cyd-X—have very good IPM profiles. It is important to rotate the chemical groups of the insecticides used for resistance management.

Altacor and Insegar applications may also help with some secondary (caterpillar) pest issues.

The biological insecticides Madex/Cyd-X are positioned towards the end of the season for two key reasons: they have no withholding period—so provide more flexibility for harvest—and, because they are specific to codling month and do not affect any other insects, and since there are generally fewer secondary pest issues by the time the third generation emerges, this may be the best position for these products in the program.

Russell Fox

Contact Russell
email: russell@insense.com.au

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.

Abiotic stress is the leading causes of significant loss in fruit yields worldwide. Water stress and heat are considered the most relevant abiotic stress.

Suncrops applied to apples (left) and untreated (right).

Minimise heat stress & sunburn

Suncrops **sunscreen is a third-generation product that forms a translucent mineral film that reflects heat, damaging UV light, visible and infrared radiation.**

High temperatures, UV light and solar radiation results in abiotic stress.

A day with high temperatures, especially when there is a shortage of available soil water for plant cooling, results in fluctuating degrees of heat and water stress. This stress leads to sun scald and sunburn seen on fruit.

Abiotic water stress also affects photosynthesis as plants *shut down* from heat and water stress. Significant economic losses result from crop damage, reduced yield and abiotic stress.

Minimise heat stress & sunburn

Suncrops (left) vs traditional kaolin application (right) in pears.

Technically advanced product

Suncrops is a technically advanced product made from kaolin which is processed, refined and hydrolysed. It's a unique product in the international market, developed and produced by Nutriprove SA.

Suncrops is specially formulated to protect crops during periods of high incident radiation and helps to protect crops from heat and sun damage. The result is increased yields and improved fruit quality. It's regarded as a basic input for the production of high quality fruit and vegetables.

Advantage of Suncrops

The raw materials in Suncrops undergo a unique formulation process where the kaolin is hydrolysed.

This gives the product a unique white colour and prevents streaking of fruits and build-up of residues. It also allows the safe use of lower application rates to reduce costs.

This unique formulation has an effective protection for up to 21 days.

Sunburn results from the interaction of high temperature, light, wind, water and plant health. Suncrops effectively reduces the harmful radiation damage to crops and improves the dynamic soil–plant–water relationship.

Start early

It is recommended to start treatment early in the season—when high temperature are about to begin, and before any damage is visible.

Review our data sheets at www.suncrops.cl and www.insense.com.au

Minimise heat stress & sunburn

Application of postharvest Suncrops in cherry.

Suncrops is used extensively through the United States, Mexico, Chile, Argentina, Peru, South Africa, and now Australia and New Zealand.
It is sold by exclusive distributors (see www.suncrops.cl).
In Australia Suncrops and other Nutriprove products are marketed by Russell Fox, InSense Pty Ltd.
Nutriprove and InSense have over 30 years experience in the exploration, production, and processing kaolin for different industrial and agricultural markets.
We have agronomic support for a wide range of fruit and vegetable crops. We have established a permanent line of research to generate synergies with major international agrochemical developments for new solutions for different types of abiotic stress.
Contact Russell Fox mobile 0428 570 394 e-mail russell@insense.com.au

Recommended treatment program

Apply in intervals of 21 days.
Application rate of Suncrops 1.25 kg/100L (applied at 1000L of water).

Apples: Start when fruit size is 30 mm. Apply Suncrops at 12.5 kg in 1000L of water. Six applications are required (total dose 75 kg/ha).

Granny Smith: In November/December, rate required is 25 kg/1000L water, then reduce rate to 12.5kg/1000L for a total dose of 100 kg/ha.

Pink Lady: 1.25 kg/100L (applied at 1000L of water). May require eight applications, total dose 100 kg/ha for hot conditions or extended summer.

Cherry: Postharvest 1.25 kg/100L (applied at 1000L of water). Two or three applications at 14 to 21 days may be required depending on rainfall and wear.

Ongoing R&D

Each season Nutriprove performs important research with universities, farmers and leading advisers in different fruit trees and crops.

We also have a permanent training facility, international monitoring, and free advisory services email: contacto@suncrops.cl

Suncrops can be used in organic agriculture.

National & international experience

Suncrops has been applied to a range of crops in many countries under different climatic zones.

More traditional uses are in pome fruit (apples pears), stone fruit, grapevines, citrus, hazelnut, olive, processing tomatoes and vegetables.

Suncrops is a brand recognized worldwide. It has had outstanding results in pome fruit. The protective qualities of Suncrops are recognized by leading producers, agribusinesses and exporters.

For more information contact InSense Pty Ltd
mobile 0407 366 526 e-mail russell@insense.com.au
www.suncrops.cl

Ken Gaudion

For information and professional advice,
contact Ken phone 03 5765 2254
mobile 0400 652 258
e-mail k.gaudion@bigpond.com

All about
CHERRIES

**Want more on cherries?
see the Tree Fruit web site**

Cherry blossom, fruit set & thinning

Cherry blossoms are bursting from their buds, full of promise as the days get longer and warmer.

Some regions have experienced cooler than average weather conditions, delaying the start of flowering by several days.

This may or may not lead to a later start for the season. The start of harvest depends on the total number of growing degree days from full bloom to harvest—therefore warmer conditions during that time could cause the original delay in flowering to alter or even disappear.

Improving fruit set

Given that bee hives have been strategically placed in and around the orchard, those varieties that seem difficult to crop profitably might have been given inducements such as:

- timed use of a dormancy breaker to harmonize the flowering time of a late flowering variety
- buckets of extra flowers pruned off from an extra variety to assist with pollination
- care taken to not spray insecticides in the orchard during flowering (or at least not while bees are actively foraging)
- raising the temperature with the use of reflective plastic sheeting when it is too cold for bees to work the blossom
- spraying blossom with a registered attractant and other tricks that can be useful.

In the end, fruit set on the tree is what remains after shedding, and very little can be done to modify that position.

Cherry blossom, fruit set & thinning

Effects of fruit set

A low fruit set is likely to result in larger fruit (unless the variety is genetically opposed to that taking place).

That said, a smaller crop is also at higher risk of rain damage from splitting.

A heavy fruit set may result in too much small fruit which then slows picking time and lowers the market price, but it is less likely to be at high risk from rain splitting—unless under extreme conditions such as continual rain falling over several days.

At least with a heavy crop set, action can be taken to modify the crop by removing a percentage from the tree while the cherries are still green.

Benefit from thinning fruit

Putting small cherries through a cherry grader can be very expensive as a percentage of the smaller fruit may not be large enough for the fresh market and will drop out of the grading system.

So, even if the size of the cherries that remain on the tree only increase slightly, the main benefit gained from removing the smaller ones in the orchard, is the saving from not picking, packing and disposing of them from the packing shed.

Think ahead

One can only hope for a balanced crop of cherries on the tree that produce fruit of high quality, good size and firmness. And for weather conditions that complement the hard work and input carried out during the year. All this while you think about:

- the destination (export or domestic)
- adapting the spray program to the destination
- the quality assurance system
- protocols for fruit movement between states
- the level and movement of the A$
- water use and availability
- size carton or pack to order and use.

Is it any wonder that, as Australia moves toward doubling food production in the future, there is a call for more graduates of agricultural science and agricultural management!

Bas van den Ende

Consultant
fruit production
(retired)

Stone fruit growth & management

Fruit of peach, nectarine, plum, cherry and apricot follow a predictable growth pattern.

The three parts of the fruit: the seed, the stone and the flesh, develop separately over time, and fit in with other growth patterns of the tree, such as growth of new shoots.

An understanding of the development of these parts of the fruit will help you to schedule your irrigation, to time your thinning, and to maximise size of fruit at harvest.

RDI

Many orchardists have heard of RDI (Regulated Deficit Irrigation). RDI can save water and money by reducing irrigation and pruning. Although under RDI trees are purposely stressed for water, the words Regulated Deficit Irrigation imply, that RDI is not a haphazard neglect of irrigation, but a carefully planned irrigation strategy.

RDI aims to manipulate the seasonal growth pattern of the trees and channel more tree resources into fruit rather than into shoot growth.

RDI only for selected crops

With some fruit crops, such as canning peaches, and late maturing market peaches, nectarines and plums; fruit and shoot grow out of phase, that is, they grow at different times.

RDI can be applied to these fruit crops because the growth of new shoots can be controlled without affecting the growth of fruit.

With peaches, nectarines and plums that mature early in the season, and also cherries and apricots—fruit and shoots grow at the same time, and RDI is not recommended.

Stone fruit growth & management

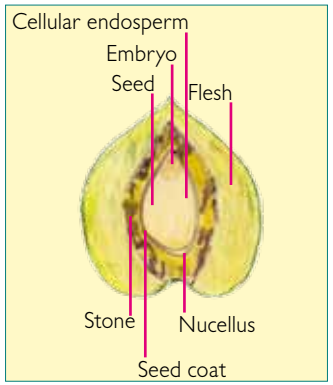

Figure 1. Different parts of a stone fruit, for example the peach.

Fruit growth stages

Cell division

After flowering and fruit set, there is a period of several weeks when cells are formed in the flesh and stone. This is called the period of cell division.

Stone hardening

Following the period of cell division, the tree will look after the reproductive part of its fruit, namely the seed.

A hard shell around the seed, called the stone, protects the seed from getting damaged.

As the seed grows to its full size, the stone hardens (lignifies) around the seed. This is called the period of stone hardening.

Cell expansion

When the stone has lignified and the seed is fully developed, the trees will fill the cells of the flesh with sugar and water (Figure 1).

This is a period of cell expansion and is usually much longer than the period of cell division.

Final swell

Cells expand rapidly, especially towards the end of the growth cycle when time of harvest approaches.

This is called the final swell, and the demand for water by the tree is high.

Stone fruit growth & management

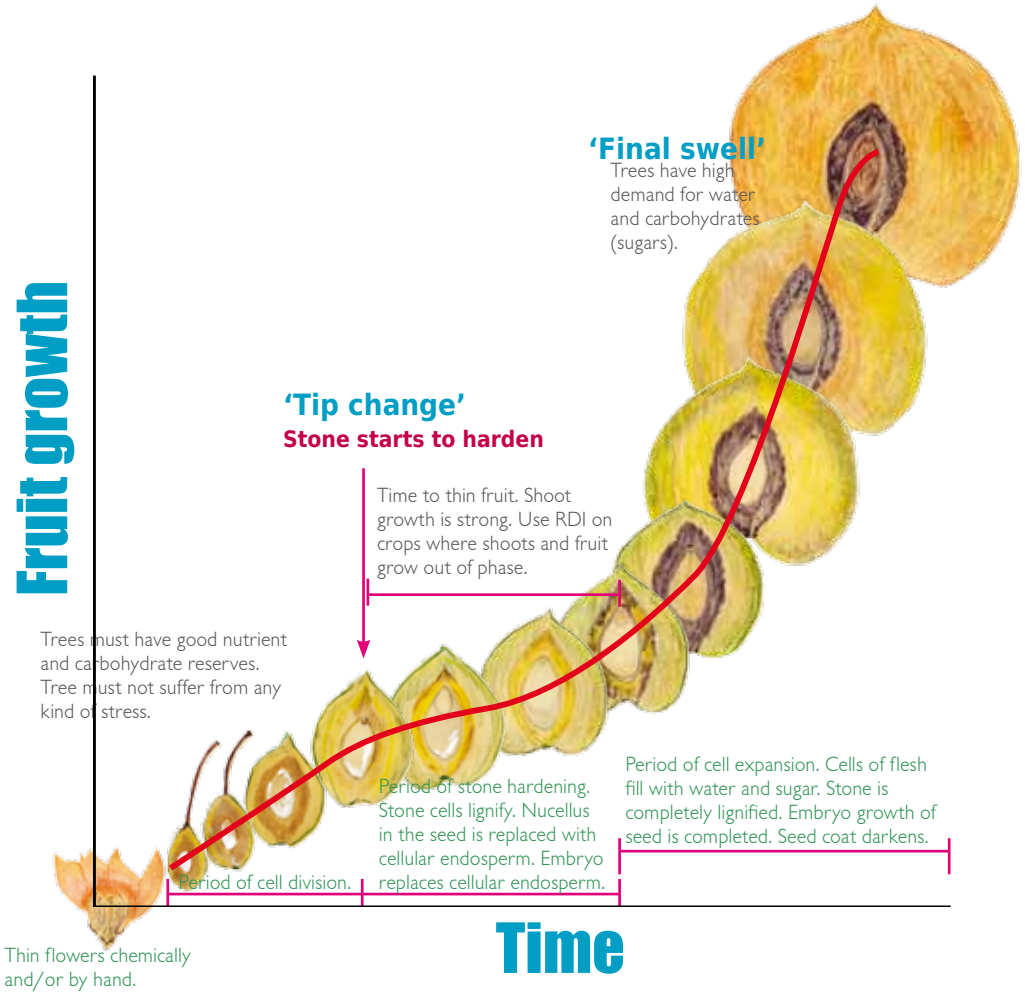

Figure 2. The growth curve and development of stone fruit during the season. For cherries and apricots, the growth curve and development of the fruit are contracted into about 90 to 100 days. In other stone fruit, such as the peach, showing here, the growth curve and development of the fruit can extend to as much as 200 days

Leaves

The leaves have to work hard to produce the carbohydrates that form sugar. The leaves can only work hard if the tree can capture plenty of sunlight and this sunlight can penetrate through the canopy.

Follow the growth cycle

By cutting several fruit through the suture line with an anvil-type pair of secateurs, you can follow the growth cycle of your fruit and determine when you should apply RDI, where applicable, and also when you should start and finish thinning.

You can also determine when the fruit reaches 'final swell' (see Figure 2).

Thinning fruitlets or flowers

Thinning fruitlets is one of the most expensive and labour-intensive exercises.

Thinning fruitlets also exacerbates the incidence of split stone.

More and more stone fruit growers are starting to realise that size of fruit at harvest can be greatly improved by thinning flowers by hand, chemically or both; and if necessary by following this up with a quick thin of fruitlets.

Varieties that mature early and/or are hard to size, benefit from flower thinning.

To thin flowers and fruitlets to obtain the sizes of fruit that the markets demand, you must know how the fruit of different varieties behave.

Fruit set, premature fruit drop and 'doubling' are factors you must put in the equation when you try to regulate your crop.

By periodically examining your stone fruit, you take the guesswork out of managing your orchard.

Lance Beem inspecting roots during field visit.

Nutrients, hormones & plant growth

Stoller Australia recently hosted a number of information sessions with US plant specialist, Lance Beem.

Meetings were held in Griffith, Robinvale, Mildura and Renmark with excellent attendance.

The theme of the meetings was how to optimise production while maintaining quality.

Lance talked about what drives a tree and how nutrients and hormones determine the mode of growth for the various components such as roots, fruiting buds, leaves and extension growth.

For a number of years, Stoller has used nutrients and cofactors to manipulate how a plant grows and to restore balance in crops that might have been set off-course by stress and environmental factors.

Critical elements

In the early part of the season, elements such as zinc and boron are particularly critical.

It is the ratio of two natural plant hormones (auxin and cytokinin) that determine if the plant moves ahead in the spring. Often in the early stages of growth the plant struggles to keep the auxin levels high enough for proper cell initiation and cell division.

For trees that are sensitive to foliar sprays at critical times, care should be taken and a viable alternative is to fertigate these elements.

Nutrients, hormones & plant growth

Lance Beem is a veteran of the California horticulture and viticulture scene with many years' experience in extension and research roles in the industry.

He was also involved with the development of a number of plant growth regulators including Dormex and Retain.

He now heads up the western USA research and technical activities for Stoller USA.

Lance explains that it is the new root tissue that manufacture key plant hormones that regulate how the tree grows.

Elements tied to hormones

Here is the fascinating bit: common nutrient elements such as zinc and boron are critically tied to auxin production.

If either element is in short supply, plant growth is restricted. So in the early growth stages, these two elements are key.

"This is just one example of how hormone ratios work," says Lance Beem.

Another plant function that is critically affected by nutrients and hormones is the delivery of sugar to the fruit.

"There is a gene that when up-regulated, accelerates sugar movement," explains Lance.

"It is called the Rubisco gene. Stoller funded some research that shows that this gene is upregulated when a product called Sugar Mover is applied to plants.

"The product contains boron and other elements and cofactors, and can be applied to trees at fruit sizing time to help maturity."

Ethylene & hormones

Another hormone that influences the plant is ethylene. If stress related ethylene increases in the tree, then fruit loss can be increased.

Lance explained that there are a number of approaches to control ethylene, and ran through some field work that showed that Stoller treatments such as Bio-Forge (nutrient with anti-oxidant properties) and CoMo (formulated molybdenum product with cobalt) can help with the management and control of stress ethylene.

Understanding crop physiology

While some of these concepts take some exposure and understanding to master, Stoller has done the work and is constantly updating the knowledge-bank with new findings concerning plant physiology.

Stoller relates the nutrients and interactions with hormones, that drive the plant.

If you talk to the Stoller agronomy team, they can share some of the rules of thumb as they apply to tree fruit production.

Here are some things to think about, inspired by Lance Beem's presentation.

- Use a component of amine nitrogen with nitrates to achieve a balance in the tree
- Ensure zinc and boron are in place early to allow growth and bud development
- Take action if the tree becomes too vegetative and avoid excessive nitrate inputs
- Work on strategies to move carbohydrates to the fruit earlier without upsetting quality
- The roots are the most important thing to look after, maintain consistent root hair growth to keep the tree in balance.

David Cavallaro (Stoller Australia Technical Officer) at the meeting explained what chelated nutrients are and how they can work to your advantage. He also spelt out how to measure the performance of nutrient inputs to get the most out of orchard production.

Nutrition programs and treatments

Stoller Australia has been a key supplier to Australian growers for more than 16 years and has programs and treatments to address many issues faced by farmers.

The following list was posted at the beginning of the Lance Beem meetings to pinpoint the purpose for treatments and to encourage audience participation and discussion.

- Slow emergence
- Poor spring growth
- Stress and frost recovery
- Nutrient deficiency
- Poor pollination
- Improper fruit formation
- Maintaining continuous root growth
- Early Dying – yield loss and fruit drop
- Biennial bearing
- Sodium damage
- Nitrogen management.

These are some of the areas where Stoller's nutrient and cofactor treatments can be used to correct issues that are faced by growers.

Most of the farmers in attendance were familiar with key Stoller products such as Foli-Zyme (to help plant growth in stress conditions) and Canopy Master (a complete nutrient mix).

The discussion continues and Stoller Australia has incorporated the current solutions into the programs and suggestions that the agronomy team brings to Australian farmers.

Information regarding Stoller offerings can be provided by the local Stoller field staff member or by calling Stoller on 1-800 Fertiliser and visiting www.stoller.com.au

Australia's leading orchard management software company has just announced a major breakthrough in the way orchardists will manage their spray diary compliance obligations in the future.

GrowData Developments
phone 03 58311711 mobile 0409 121 146
brian@growdata.com.au
www.growdata.com.au www.spraydiary.com

GrowData Developments have taken the spray diary—which is the centrepiece of their famous orchard management software—and are making it available to growers for about the same as you would pay for one cup of coffee per week.

For over twelve years GrowData have been selling the full version of their Orchard Management System and many hundreds of Australia's and New Zealand's leading growers are now dedicated users.

However, there are also a large number of growers looking for a low cost, easy way to manage their quality assurance and food safety obligations, without having to purchase the full cost tracking system.

Cloud based spray diary

The spray diary is cloud based which will provide a huge number of benefits to growers over traditional spread sheets and programs built into their desktop computers.

GrowData have recently moved all their existing clients onto the cloud and the positive reaction from these clients (who are using the full cost tracking version) has been overwhelming.

Cloud benefits

What is the Cloud and why is it better then installing software into your computer in the office?

This is not like some web based programs which tend to be slow and clunky. The cloud is really a very large very powerful server which you connect to remotely. This means that the software being used on the cloud server is exactly the same as the software previously installed into the growers computer and the speed will be as fast as if it was installed on your computer.

Being on the cloud means that you no longer have to deal with technical issues. When you change computers or want to install on multiple computers all you have to do is paste the remote application (app) onto the desktop.

The cloud also means that you can log in from anywhere in the world. Smart phones, iPads and other mobile devices with internet connectivity can also be used. Version upgrades are also done automatically.

GrowData's Spray Diary

GrowData's Spray Diary meets all the requirements of international compliance as well as Australian Q.A. and food safety systems including Global Gap and Tesco's.

There are also a vast number of reports which you can view on screen or download into your computer in PDF format ready for e-mailing if required:

- Fully compliant spray diary reports
- Separate fertiliser and herbicide application reports
- Total cost of spraying—labour, materials and machinery. (Expressed in total dollars and on a per hectare basis).
- The total cost of chemicals broken down into categories—herbicides, fungicides, pesticides
- Chemical inventory reports
- Applications Report detailing the chemicals applied to each block. In detailed format it will show every application including: the name of the chemical, the date applied, the type (fungicide, herbicide etc.), method of application (foliar, dry or fertigation), the rate applied (expressed as either rate per 100 L or rate per ha) total quantity used and dollar value.
- Cost summary (by block, variety or property), giving details of the total quantity of elements applied (N.P.K. etc.) and the total quantity expressed as a per ha. rate
- And many more.

Free trial offer

GrowData are offering a 30 day free trial and a full money back guarantee if you're not completely satisfied.

Read all about it at: www.spraydiary.com

New electronic SprayDiary makes audits a breeze

Improve productivity at harvest

Transtak® Engineering & Equipment manufacture a range of equipment to improve productivity during harvest.

Bin carriers

The Transtak bin carriers will load and carry the bins within the orchard. These trailers have long forks on which the bins are carried three, four or six bins at a time.

The forks are 'rubber load cushioned' to absorb bumps, with hydra-float suspension available as an option.

These trailers have few moving parts to wear out, don't damage the bins, and are simple and easy to operate.

The Low-Lift Transtak 1500L/2500L models have a bolted fork angle adjustment at the drawbar; while the Transtak 3500N lifts to one metre high and is fitted with hydraulic forks tilt, to load, level and stack bins.

This registered design range of trailers may be viewed on our website www.transtak.co.nz. They are supplied direct to fruit growers in Australia at very reasonable prices. Please enquire on-line or by phone for pricing & delivery.

Aluminium orchard ladder

The Transtak aluminium orchard ladder is a fully welded, high tensile aluminium ladder with a 180 kg load rating (the strongest available).

These ladders which have a long proven service history in Australia, are available from any EE Muir & Sons Pty Ltd branch in all states, or from IK Caldwell Rural in Shepparton,Victoria.

Contact Peter Guy, Transtak Engineering & Equipment
phone 0064 35288218 www.transtak.co.nz

YIELDMAX = MAXYIELD

Yieldmax fruitpicking buckets are filled with innovative features to help you maximize your yield when picking.

The premium 28 L bucket for apples and pears helps minimize worker injury strain and fruit bruising or damage, due to its ergonomic design and uncompromising quality.

It is strong, simple, easy to use, and stackable.

The Yieldmax YM2810C comes with a harness with two, wide shoulder pads that cross over at the mid-back area for extra support.

The bucket itself is made from durable polyethylene with a polyurethane foam casing and a replaceable nylon liner. It is kidney–shaped to aid comfort when picking and to keep the fruit weight closer to the body to minimize strain.

The Yieldmax is easy to empty through the tapered bucket by a simple rope-and-hook catch system.

Don't have one? It's simple:
phone 1800 655 542 or email info@woodchuck.com.au
for more information and your local distributor.

Reduce environmental stress in crops

Agricrop announced the launch of a new class of naturally occurring compounds that reduce environmental stress in crop plants.

After three years of trial work in Australia, Photon 500SG has demonstrated efficacy in various key crops including apples, citrus and grapes.

The new class of products is based upon naturally occurring compounds (dicarboxylic acids) that are effective at very low rates of active ingredient (g/ha).

Advantages include higher yields, improved fruit quality, larger size, increased fruit density and reduced flower abortion.

Manage crop stress

Developed by Crop Microclimate Management (CMM) USA, Photon 500SG enables growers to better manage crop stress conditions such as high light intensity, extreme heat or cold, drought and even some salinity, says Chuck Kupatt, CMM president and R&D director.

"Our focus has caused us to explore areas that traditional crop protection companies tend to overlook," Chuck added. An example of that focus is Screen Duo, which produces larger yields of higher quality fruit by reducing losses due to excess heat, light and drought.

Screen Duo is CMM's first product based on its proprietary Fusion Technology™ (patent pending).

According to Agricrop sales manager Stewart Frankling, Photon 500 SG will be available in limited quantities this season. "Photon 500SG should prove popular with growers as there is no residue and application rates of about 40 g/ha makes mixing and application simple," Stewart said.

Contact Agricrop: www.agricrop.com.au
www.cropstress.com

Innovative schoolyard learning

Bas van den Ende

The Feluga primary school near Tully in north Queensland, recently erected a 30 m long Open Tatura trellis in the schoolyard and planted 17 different species of tropical fruit trees.

As far as I know, this is the first Open Tatura planting in a schoolyard.

Many schools in Australia have vegetable gardens, but not a fully operated trellis planting with drip irrigation.

The Feluga school has 26 students, a principal/teacher and another teacher. Several parents of the students have established Open Tatura plantings with different types of tropical fruit trees in the area and thought that it would be a good idea to introduce the students to some of the latest and basic techniques in managing a high density planting.

Many of the older students have adopted a tree and will take care of it under the supervision of a volunteer horticulturist.

I am sure that the enthusiasm and knowledge that the students will gain over the years will rub off on prospective orchardists in the area.

It certainly is an interesting experiment, and may well become part of a new modern and sustainable tropical fruit industry, which has been devastated by two tropical cyclones in recent years.

ClickSales™

Click an advert to visit the website or send an e-mail!

Book a spot here

or call 0417 145 452

(advert design is FREE!)

PHOTON 500SG

PHOTON

- Easy to apply, season long protection from environmental crop stress
- A non residual, ultra low-rate product from the makers of **Screen DUO**

www.agricrop.com

AGRICROP

Afron Cherry Picker

- Model P600
- 6 m extension
- Built in 2006
- 300 hours on it
- Always kept in shed

$22,000

Melissa Smith phone: 0429 929 632
e-mail: t.msmith@bigpond.net.au

TRANSTAK

Engineering & Equipment

Equipment to improve productivity

transtak@clear.net.nz

www.transtak.co.nz

JENNINGS TRAYFORMERS

The one erector that glues them all!

jenningstrayformers@gmail.com

mobile: +64 274 929 530 www.rjdl.com

NetPro

PROTECTIVE CANOPIES

Choose the correct canopy cover to achieve 90%+ A–grade packout

1300 NET PRO (638 776)

www.netprocanopies.com

Myna Magnet

Scientifically designed Indian myna & European starling trap

Pest IT

1300 665 657

www.mynamagnet.com.au

BATLOW apples

Batlow Fruit Co-operative Ltd

has fruit trees & rootstocks for sale

3476 x Greenstar/M26 trees

863 x Greenstar/MM106 trees

5765 x Red Chief/MM106 trees

7000 x M26 Roostocks

12,000 x M9 Rootstocks

9000 x MM106 Rootstocks

Enquiries to Matt:

phone 0438 625 567

matthewm@batlowapples.com.au

Membrane Unit

Flexible & Cost Effective

$19,000 + GST

(replacement value $26,000 + GST)

Completely rebuilt portable Nitrogen Generator with excellent performance and low power consumption.
All new components except only the air compressor which has low hours and full service history.
Flow rates 6–15 m^3/hr over a range of 99–95% purity.
Ideally suited for both initial room pull downs and purging for CO_2 control for smaller CA stores.
Suit multiply rooms of up to 400 bin capacity.
Detailed technical specification available & sold with new warranty.

PHONE MICHAEL MACTAVISH AT ACS ON 0418 999 465

FILTAWORX

Self Cleaning Filters

FILTAWORX® fully automatic self-cleaning screen filters have been designed, tested and built in Australia.

See the:
LARGE range
COMPACT range

Phone 03 9580 2122
www.trianglewaterquip.com.au

YIELDMAX

fruit picking buckets

Filled with innovative features to help maximize yield when picking.

HARVEST WEAR

yieldMAX maximum yield

www.woodchuck.com.au info@woodchuck.com.au

ClickSales™

Click an advert to visit the website or send an e-mail!

Book a spot here

or call 0417 145 452

(advert design is FREE!)

ONLY — **$66/spot**

Link to your e-mail

Try it

Link to your website

Try it

Instant feedback

Cost effective

POPULAR

It works

See, you are reading this!

Double spot only $132

Click & Book it now!