

Low chill stonefruit information kit

Reprint – information current in 1998



REPRINT INFORMATION – PLEASE READ!

For updated information please call 13 25 23 or visit the website www.deedi.qld.gov.au

This publication has been reprinted as a digital book without any changes to the content published in 1998. We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research:

- Chemical recommendations—check with an agronomist or Infopest www.infopest.qld.gov.au
- Financial information—costs and returns listed in this publication are out of date. Please contact an adviser or industry body to assist with identifying more current figures.
- Varieties—new varieties are likely to be available and some older varieties may no longer be recommended. Check with an agronomist, call the Business Information Centre on 13 25 23, visit our website www.deedi.qld.gov.au or contact the industry body.
- Contacts—many of the contact details may have changed and there could be several new contacts available. The industry organisation may be able to assist you to find the information or services you require.
- Organisation names—most government agencies referred to in this publication have had name changes. Contact the Business Information Centre on 13 25 23 or the industry organisation to find out the current name and contact details for these agencies.
- Additional information—many other sources of information are now available for each crop. Contact an agronomist, Business Information Centre on 13 25 23 or the industry organisation for other suggested reading.

Even with these limitations we believe this information kit provides important and valuable information for intending and existing growers.

This publication was last revised in 1998. The information is not current and the accuracy of the information cannot be guaranteed by the State of Queensland.

This information has been made available to assist users to identify issues involved in low chill stonefruit production. This information is not to be used or relied upon by users for any purpose which may expose the user or any other person to loss or damage. Users should conduct their own inquiries and rely on their own independent professional advice.

While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained in this publication.



Queensland Government



Common QUESTIONS

This section contains the most commonly asked questions about growing low chill stonefruit. The answers are as brief as possible. Where this is difficult and more detail is required, we refer you to other sections of the kit. Symbols on the left of the page will help you make these links.

Contents

Varieties and rootstocks	2
Pruning and thinning	2
Preparation for planting	3
Pests	3
Problems	4
Postharvest treatment	6
Planning	6
Spraying	8

Varieties and rootstocks

What variety should I plant?

This is a difficult question to answer simply as it involves several different factors. The first is your farm location and the amount of chilling it receives. This determines the range of suitable varieties available to you. The choice of these varieties then depends on the type of market you are going to target — early, mid or late season, or a combination to spread the risk. The final choice also depends on whether you specialise in peaches, nectarines or plums or a combination. We provide more detail on this decision in other sections of the kit.

more info



Varieties to consider
Section 3 page 5

a key issue



Selecting varieties
Section 4 page 28

Which is the best rootstock for low chill stonefruit?

The most commonly used and recommended rootstock is coastal peach. Various selections are used by different nurseries. This is a vigorous rootstock and is generally compatible with most varieties of low chill stonefruit. Its main problem is susceptibility to nematode damage. Where soils are very sandy and a nematode soil test indicates nematodes are present, use Okinawa or Flordaguard. These have better nematode resistance but should not be used in alkaline soils. As none of the rootstocks has good resistance to root and trunk rot, it is essential that well drained soils are used for all low chill stonefruit plantings.

If I want to do my own grafting, can I use budwood from my neighbour's trees?

It is preferable not to use budwood from other orchards because of the risk of bringing in virus diseases. These diseases can affect yield, fruit quality, fruit maturity time and tree vigour. Instead, use the special virus-tested budwood available from specialist budwood suppliers.

Pruning and thinning

How do I prune low chill stonefruit trees?

Pruning low chill stonefruit trees is complex. We provide full detail in other sections of the kit. As well as studying these sections, attend any pruning field days or short courses to gain practical field experience. Basically you are aiming for an open tree with good light penetration into the centre to stimulate lots of new fruiting wood. This can only be achieved with a combination of winter and summer pruning.

a key issue



Pruning and
controlling tree size
Section 4 page 56



Thinning fruit
Section 4 page 87

When should I thin fruit?

The best time to thin is at flowering before the fruit has formed. This is also the time when the job is easier and quicker. Thinning at flowering also leaves you with the option of thinning later if required to fine-tune your final level of fruit set. Where there is a risk of late frosts, or where there appears to have been insufficient chilling, delay thinning and thin fruitlets instead.

How can I get larger fruit?

It is important to remember that fruit of early maturing varieties, because of their shorter period of development, are naturally smaller. There are limits to what can be achieved here. The best way of improving fruit size is to thin the crop so there are fewer fruit left on the tree. However, take care as over-thinning may cause split stone and skin cracking in some varieties such as Flordaprince and SunWright. Cultar, a growth retardant, may also help to achieve larger fruit size but needs to be used with great care.

Preparation for planting



Tree and row spacing
Section 3 page 7

At what spacing should I plant my trees?

Spacing depends on your climate and the pruning or training system that you decide to use. For warmer areas such as coastal Queensland and northern New South Wales, we suggest 4 m between rows and 3 m between trees (palmette), and 5.5 to 6 m between rows and 4.5 to 5 m between trees (open vase). For cooler areas such as Kingaroy, we suggest 4 m between rows and 2.5 m between trees (palmette), and 5 to 5.5 m between rows and 4.5 to 5 m between trees (open vase). Any spacings less than these, particularly on fertile soils and/or under warmer growing conditions, will require some method of growth control such as the use of growth retardant.



Nursery tree
suppliers
Section 6 page 5

Where can I buy trees?

Most specialist tree fruit nurseries stock low chill stonefruit trees. Before purchase, check whether the nursery is using virus-tested budwood and seed to propagate their trees.

Pests

How do I control fruit fly?

There are a number of strategies to control fruit fly.

- Most importantly, use fruit fly traps to monitor fly numbers. This helps to determine when fruit fly spraying should start.

Set up traps early in the season well before fruit start to colour. When fly numbers over three to four days reach 20 per trap, start spraying.

- Use a combination of bait sprays and cover sprays. Bait sprays are recommended at weekly intervals up until four weeks before harvest. Then apply weekly cover sprays of fenthion until harvest. Observe withholding periods. Details of registered chemicals are contained in the *Problem solver handy guide*.
- Regularly monitor fruit for gumming and fly sting marks so that the spray program can be refined where required.

How do I control birds?

Experience has shown that the only long term successful method of bird control is total exclusion bird netting. This involves completely enclosing whole blocks of trees with nets supported on poles and wires above the trees. Most scaring mechanisms generally only work for a short time as the birds quickly get used to them. Recently developed electronic scaring devices are more effective but do not offer the same long term advantages as netting.



Netting
Section 4 page 79

How do I control flying foxes?

The best control for flying foxes is the total exclusion netting used for bird control. Experience has shown that all other mechanisms are of limited value, particularly when feeding pressure is high.

Problems

Why are my leaves going yellow and falling off?

Stonefruit leaves will yellow and fall naturally as the trees go dormant. However, when leaves yellow and fall off early, say before the end of April, it means that there is another problem. This is generally water stress, insufficient nitrogen, heavy spider mite infestation or high levels of rust or shot hole disease. Although less common, severe leaf fall may also result from spraying with a mixture of mancozeb and fenthion.

- For water stress, ensure that trees receive enough water from rain or irrigation until March. This is particularly important in drier areas.
- With nitrogen, trees need enough nitrogen to keep them going until natural dormancy around May-June. If there's been heavy rain in summer and autumn, more nitrogen may be needed.



- For spider mite, a spray may be necessary if there is insufficient build-up of natural predators.
- For diseases such as rust and shot hole, maintain a regular spray program. Also, do not use mixtures of mancozeb and fenthion. The fungicide, chlorothalonil, is the preferred alternative to mancozeb for disease control.

Why are my trees flowering early?

Trees flower early because the leaves have fallen early. Anything that causes the leaves to drop early will cause early flowering. When leaves fall and temperatures are still mild enough, trees are induced into an early dormancy and start to flower. Fruit set from this flowering will develop over winter and is generally not marketable. There are three main causes of early leaf fall — poor control of rust and/or bacterial spot disease, insufficient nitrogen, or insufficient water. The problem is exacerbated by a lack of summer pruning.

What causes gum to ooze out of my trees?

The cause can be difficult to diagnose as any sort of damage to stonefruit trees produces gumming around the damaged area.

- Gumming confined to low down on the trunk is generally caused by *Phytophthora* disease. This is particularly common in younger trees up to two years old. The problem is often exacerbated by damage from the herbicide glyphosate.
- If the gumming is higher up in the tree, it is probably caused by San José or white peach scale, or hail damage.
- Gumming on the trunk and branches of older trees is generally caused by peach tree fungal gummosis disease. This disease produces copious amounts of gum, particularly after rain in January.
- A milder symptom of gummosis is swollen lenticels (breathing pores) oozing gum.



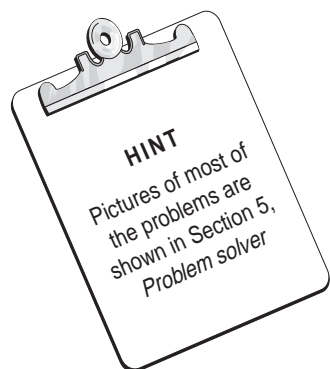
What has caused my tree to die?

The most common cause of tree death in low chill stonefruit is root rot disease caused by *Phytophthora*. This means that the site probably has insufficient drainage. The other common cause of tree death is a heavy infestation of either San José scale or white peach scale or both.

What is this mouldy stuff on my fruit?

There are two likely causes of mould on fruit. The most likely is brown rot disease where the mould tends to be grey-brown, powdery and not elevated much above the skin. This disease can be a major problem in crowded orchards and spraying is recom-

mended. Details of registered chemicals are contained in the *Problem solver handy guide*. The other possible cause is Rhizopus rot where the mould is grey-black, fluffy and elevated above the skin. It is generally only a problem in the field in damaged fruit and is more common during transit and storage.



Why are parts of my tree dying?

There are several possible explanations. Heavy infestations of either San José scale or white peach scale or both may kill branches. Phytophthora infection of the trunk and girdling of branches by fungal gummosis may produce similar branch death. Brown rot disease also causes a blighting of branches. The other possible cause is a tree reaction to too many full strength oil sprays. More than two or three oil sprays in a season are likely to produce this effect.

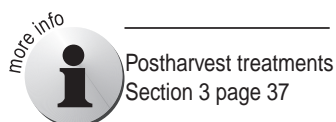
Why do my trees flower so profusely?

Low chill stonefruit varieties, most of which originate from Florida, have been deliberately bred for prolific flowering. This characteristic has been incorporated to ensure that at least some flowers survive the late frosts regularly experienced in north and central Florida.

Postharvest treatment

Do I need to treat my fruit?

Yes. Low chill stonefruit should be treated with a postharvest fungicide to stop destructive postharvest diseases such as brown rot and Rhizopus rot. If you are marketing your fruit in states other than Queensland and New South Wales, the fruit may also need to be treated with an approved insecticide for Queensland fruit fly.



Planning

Is my farm suitable for low chill stonefruit?

The main requirement for low chill stonefruit is well drained soil without heavy clay or rock within one metre of the surface. As stonefruit can be grown in frosty sites, there are few climatic limitations. Warmer areas need to receive sufficient winter chilling. In colder areas, there is a risk of damage from late frosts. An adequate supply of good quality irrigation water is essential.

What yield can I expect from my trees?

The average yield for a mature low chill stonefruit orchard generally ranges from 15 to 20 t/ha for an early variety such as

Flordaprince to around 25 to 30 t/ha for a later maturing variety such as Flordagold. However, yields of 25 t/ha for Flordaprince and 35 t/ha for Flordagold are achievable in some of the better managed orchards.

When will trees start bearing fruit?

Trees will generally start to bear fruit at about 18 months to two years from planting. Trees are at full bearing stage by about the fourth year.

How many trees should I plant?

A viable living for a couple is about three to four hectares of low chill stonefruit trees. A farm of this size will need to employ casual labour to complete pruning, fruit thinning, harvesting and packing.

How many different varieties should I plant?

On a small orchard, it is best to plant only one or two varieties. On larger orchards, the choice depends on whether you are going to target early, mid or late season fruit. Remember that as each variety has different management needs, it is best not to plant too many different varieties.



Selecting varieties
Section 4 page 28

How long will my trees last before I need to replant?

Under good growing conditions, low chill stonefruit trees should have a productive life of about 15 years. However, the continual advent of new improved varieties and the market force to upgrade to them means that this figure is largely academic. Planning and development of the orchard should therefore budget on a tree life of about 8 to 12 years.

How can I prevent hail damage to fruit?

The only practical prevention is to make the exclusion netting used for bird and flying fox control double as a hail protection system. This means that the net type selected has to have hail protection properties and the netting system designed for this extra function.

How profitable is growing low chill stonefruit?

Profitability depends on several factors:

- the quality of your product and the market reputation you develop;
- the efficiency of your orchard management and how much additional labour you need to employ.

An average mature orchard under good management could be expected to return a gross margin (income less production costs) of about \$20 000 to \$25 000 per hectare per year.



Economics of low chill
stonefruit
Section 4 page 9

Is low chill stonefruit difficult to grow?

All stonefruit have a large management requirement. However, low chill stonefruit are the most demanding of all stonefruit varieties. For example, low chill stonefruit must be pruned three times a year, and flowers and fruit must be thinned by hand. This is extremely time-consuming. There is also an intense period of harvesting, and a regular spray schedule. You should only contemplate growing low chill stonefruit if you believe you can master all of these requirements.

Can I grow low chill stonefruit organically?

For a number of reasons, it is difficult to grow low chill stonefruit organically. The large number of potentially serious pest and disease problems makes effective control by non-chemical methods very difficult. In addition, there may be statutory laws requiring the control of some pests and diseases. The intensive cropping pattern of low chill stonefruit also makes it difficult to achieve profitable yields and fruit quality from organic fertilisers.

Spraying

Do I need to spray a lot?

Yes. Several pests and diseases attack stonefruit and a regular spray program must be applied. This involves spraying about weekly from September to March for either pests or diseases or both.

Are these chemicals safe to use?

Although all chemicals are potentially hazardous, chemicals registered on low chill stonefruit can be safely applied providing that you act responsibly, use good spray equipment and take adequate precautions. This means reading the label, observing all safety recommendations, regularly calibrating your spray equipment and only spraying when weather conditions are suitable. All registered chemicals have approved residue limits set which will generally not be exceeded provided label recommendations are followed.

Will spraying my trees affect my neighbours?

Provided you exercise care with the application of all chemicals, it is unlikely that drift of chemical onto neighbouring properties will occur. These precautions include selecting equipment which minimises drift, avoiding spraying under windy conditions and establishing strategically placed windbreaks on the edge of the orchard. We also recommended that you discuss with your neighbours the nature of your spraying program and the safety of the chemicals you are using.