

Setting up an Orchard

When you are planning and establishing an orchard remember: you expect it to be there for a long time. So be sure you have everything in the best place, with the right soil and climate conditions, and the best layout.

The site you choose needs good soils with good drainage, good shelter from damaging winds, and should be free from frosts during critical times. You are most likely to need water at times, and must have easy access to do all the jobs needed to look after and harvest your crops.

Site selection

Remember, you are planning to have the orchard for a long time. Where is the best place?

The site has to be accessible so you can get machinery such as mowers, sprayers and harvest trailers in to look after and remove the crop.

The soil is very important. Almost all fruit trees require good soil drainage. The trees are in the ground all year and actively growing for much of it, and they do not like 'wet feet'. A poorly drained site is prone to root diseases, which are not really treatable. There is no point planting something that will not survive.

Trees also need a good supply of water. During summer an orchard will use about 5mm of rain equivalent every day. Much of this can be stored in a good soil, provided rain is reliable. If not, you will need to consider some way of watering the plants. This is especially critical while the trees are young, still developing and have small root systems. But when fruit is developing trees must also have enough water or fruit will be small and may even drop off.

Shelter is the next factor to consider. Excessive wind damages trees and will break off whole branches. Even minor damage will set you back each time as the tree has to spend time replacing lost parts.

Insects that do your pollinating also prefer calm conditions. If it is too windy, most will not fly so you risk missing out on pollination. No pollination means no fruit!

At sale time, a fruit with an excellent appearance will always have a higher price. Fruit with wind rub damage will not make first grade.

Some sites offer natural shelter. If more shelter is needed, there are many options. Usually shelter trees are the most suitable option. But you do want to make sure the shelter does not harbour pests or diseases that affect your fruit trees. And shelter trees need to be cared for at establishment and managed ever after to keep them doing their job.

Selecting varieties

Deciding what fruit crops and which varieties of each to plant can require a lot of research. You want to get it right.

You need to know your markets at the start. Be sure the varieties are what they want, and will want in future years as well.

You need to select crops and varieties that will do well in your soils and climate, and with the time and other resources you have available. And for organic production, you want to be confident the varieties you choose are best able to thrive without chemical assistance.

Once you have a list of possible options, decide which and how many of each you need. This will depend on the area and money you have available, and on your market expectations.

There are several reasons for selecting more than one variety of tree.

Some tree crops are 'self-infertile', and require more than one variety for 'cross-pollination'. Others fruit better if they are cross pollinated.

Different varieties often flower and fruit at slightly different times, so having a few different ones spreads work load, any risks and gives a longer market window.

And in a new region, you may not yet know which varieties will do best in your new orchard. This can be due to different climate and soil preferences.

Site layout

Site layout involves selecting the best row direction, row spacing and spacing between individual plants.

It also requires planning space to do work such as mowing, maintaining shelter, managing prunings, and gathering harvested fruit.

Usually orchard rows run North-South. This gives fruit on either side of the plants the same amount of sunshine, and usually gives the best and most even yields. If the plants are further apart, and do not form 'rows' as such, this is not important.

On sloping sites, the row angle may need to run down hill to make machinery use safe. And on long, narrow sites, there may be only one sensible way for the rows to run.

Do not make rows too long. You have to get in and out, particularly at harvest time.

Row spacing depends on the size to which the trees will grow and the size of any machinery running in between. If the trees are expected to grow 3.5m wide, and the tractor mower needs 1.5m to fit, the closest spacing would be 5m between each row.

The spacing between plants depends on how large plants grow, whether you want access all the way around each one or are happy to have a 'hedgerow'. Often you can find recommendations for plant spacing based on other people's experience with the particular variety you are planting.

Take time when planning to decide where you will collect fruit, any space you may need for parking or trucks, and so on. What things will you do there? How much room do they need?

Site development

Site development includes fixing any of the problems you have noted when selecting the best site. It may also involve adding nutrients to correct any deficiencies.

If the area you select is uneven you may need to level it out. But take care not to damage the soil when you do, and don't create drainage problems. If the soil is poorly drained, make sure you get drainage working before you plant.

Get your shelter established at the outset. Trees take time to grow, so you may need to plant shelter a year or more before you plant your orchard.

Site establishment

Measure, measure and measure again!

Remember, you get one chance to lay the block out and then live with it for years. If rows are not parallel, the mower will never quite fit. Every time you will need to do an extra run, or miss some out. Remember, there is a lot of distance to travel up and down every row in an orchard.

If the plants need a support structure, plan what bits go in before you plant and which bits after. Usually end posts and at least a few middle posts go in first to help plant the trees in exactly the right positions. But you may leave some out to make it easier to get access.

Young plants are very susceptible to drought stress. Any stress they suffer will reduce their production every year after, so you must be ready to look after them from the start. The establishment phase is most critical.

If you need to bury pipes for irrigation, it is usually much easier to do this before you plant the trees. But make sure you know where the pipes are so you don't damage them later.

'Te Pānui Tips' are simple fact sheets that cover topics designing organic crop production systems on the East Coast.

Te Pānui is edited and produced by Page Bloomer Associates for Crop & Food Research under FRST Funded Project C02X0305 Science for Community Change.

This information sheet is intended to provide accurate and adequate information relating to the subject matters contained in it. It has been prepared and made available to all persons and entities strictly on the basis that Page Bloomer Associates Limited, its researchers and authors are fully excluded from any liability for damages arising out of any reliance in part or in full upon any of the information for any purpose. No endorsement of named products is intended nor is any criticism of other alternative, but unnamed product.