



Designing an orchard

It is important to plan and design an orchard depending on the site and space available to you. An orchard consists of five or more trees that, once planted, will potentially be there for over a century. It is therefore vital to plan carefully to ensure all the trees have the best chance to grow and thrive.

The three most important things to consider when designing an orchard are:

- Soil
- Space
- Sun



Soil

Ideally fruit trees need well drained, uncompacted, loamy soil with a pH of 6. A slight slope can be useful as it allows water to drain slowly while avoiding the risk of soil erosion. Most fruit trees require a soil depth of at least 0.6 metres before any solid substrate such as rock is reached. This ensures the roots have enough depth to grow and help stabilise the tree. There are some dwarf species of trees that require less soil depth.

It is wise to prepare the soil before planting. Once you know the type of soil there are different ways to improve it, such as adding organic matter (see our Information note – Soil) although in most cases trees can adapt to the soil present and form suitable root structures. It is important to remember that soil can continue to be improved over time. Mulch can be used around the base of the tree to improve the nutrient content of the soil, while the tree roots improve the soils ability to hold and store water.

By considering these three things you will be able to choose the fruit tree species best suited to your site, maximise the productivity of your trees and provide the best habitat possible.



Space

The layout of your trees will largely be determined by the shape of your site, the features present and the proximity to other trees or shrubs. Traditionally, orchards are planted in a grid formation, in rows orientated from north to south to maximise their exposure to sunlight.

It is important to consider the space your trees will require when fully grown. You need to ensure that there is enough room for competition free root and canopy growth. If these intermingle it can affect growth and reduce fruit production. Spacing between fruit trees should be generous. As a general rule, you should leave a 3.5 metre circle around a dwarf variety and a 7.5 metre circle around a standard size fruit tree. This spacing will allow sufficient light to reach the ground allowing smaller plants to be planted around the trees in future to increase your orchards biodiversity.



Sun

Fruit trees need direct sunlight to grow well and produce abundant fruits. Ideally fruit trees require 6 to 8 hours of sunlight a day. It is important to be aware of any shade spots located on your potential orchard site, including any trees that will potentially grow larger in the future and shade out the fruit trees. Visiting the site at midday, when the sun is at its highest point, will give a good indication of the best places to plant your trees. If your proposed site is semi-shaded, varieties such as cooking apples that require less sunlight may be more suitable.

Glossary

Uncompacted soil – soft and loose soil which hasn't been pressed together from activities such as driving over an area.

Loamy soil – a rich soil containing a high proportion of organic matter and a mix of some clay and sand.

Mulch – material (such as decaying leaves, bark, or compost) spread around or over a plant to enrich or insulate the soil.

Soil pH – a measure of how acidic or alkaline a soil is. Certain plants thrive or are adapted to different pH levels.

Substrate – the substance or layers in soil are referred to as substrates. A solid substrate may be a layer of gravel or rock underground.

Looking for more learning resources, information and data?

Please contact: education@naturalresourceswales.gov.uk or go to <https://naturalresources.wales/learning>

Alternative format; large print or another language, please contact: enquiries@naturalresourceswales.gov.uk
0300 065 3000