

Compost for orchard establishment

Orchard establishment is a crucial time and can shape the future of your production for many years to come. Compost and compost mulch can help young trees get off to a good start and provide you with long term benefits in increased tree growth and yield. When you are establishing your orchard, compost and compost mulch can be used in a number of different ways to benefit your plants.



Compost incorporation at planting

Incorporating compost into your soil at planting can give you substantial benefits. Water and nutrients will be retained around the rootzone of your young trees as the amount of organic matter in this area increases. Incorporating compost helps to keep the water and nutrients where they are needed most- around the roots of your growing plants. Compost also stimulates biological activity in the soil - this improves soil structure and helps young roots to grow freely through the soil. Your young trees will be founded on a stable and effective root system if your soil structure and quality is enhanced

by compost incorporation. The benefits of improved water and nutrient uptake that go hand in hand with an effective root system will last for years to come. With compost incorporation at planting you can also expect your trees to grow taller and have thicker trunks. Australian research has demonstrated this effect during the first 18 months in new apple, almond and citrus orchards when compost is incorporated at planting. Young trees which are taller and stronger have a significant advantage.

Planting is also a good time to check on the quality of your soil. If any

amendments like lime and gypsum are needed, they can be incorporated with the compost into the soil. The increase in organic matter and biological activity that compost provides can actually increase the effectiveness of your amendments, giving you more value for money. Your compost supplier may also be able to customise your compost to include any amendments you might need.

Checking the status of your soil prior to compost application will also give you baseline records to determine how your soil has improved with compost use over time!

What compost type should I use for soil incorporation?

Compost used for soil incorporation should always be fully composted and stabilised. It is vital that you use good quality compost for incorporation as the product will come in direct contact with the roots of your young plants. If compost is not pasteurised or composted properly there is a risk it could be toxic to your plants (phytotoxic). The Australian Standards for composting includes phytotoxicity tests - your compost processor can supply you with a recent analysis of the compost material showing how it meets the standards. Make sure you check your compost meets the Australian Standards (AS4454) before incorporation.

Another factor to consider is the Carbon to Nitrogen ration (C:N). This ratio should be below 20:1 to make sure essential nitrogen is available to plants. If there is lots of woody material in the compost, microbes will draw nitrogen from the soil to break it down (nitrogen draw-down). This could reduce the amount of essential nitrogen available to plants, resulting in less plant growth or even plant death. You can check the C:N ratio on the compost analysis your processor gives you.

How much compost should I incorporate?

The general rule for compost incorporation at establishment is to have a 20-25% concentration of good quality compost mixed with your soil. Application rates higher than this have not been shown to be harmful, but neither have additional benefits been demonstrated.

Compost can also be applied in a band along the planting row and then cultivated into the top 10 - 25 cm of soil. A band width of around 50 cm will generally be sufficient. The quantity of compost you will need will depend on your row spacing - eg to apply a 50cm band, 5cm deep in an orchard with a 4m row spacing would require about 60m³.

Compost can also be used to good effect during mound formation; application rates of 60-100m³/ha are recommended. Following ripping and cultivation, application rates of 5-20t/ha will help to maintain soil structure. Compost can also be applied directly into the planting hole, although the benefits and application rates of compost used in this situation are not well documented. At vineyard establishment, 5L incorporated in the planting hole can be beneficial, but results in other trials have been variable and some phytotoxicity has been observed. A good rule of thumb is to add enough high quality compost to give a 20-25% concentration once it is mixed in with your soil.

Compost mulch at planting

Applying compost mulch at planting can protect your young trees from heat and moisture stress. When trees are first planted, the roots will be in shallow soil and they can experience a wide range of temperatures and moisture levels in this soil zone. Compost mulch protects the top layer of soil by insulating it from temperature extremes and promoting water conservation. With more moderate temperatures and stable moisture levels, the rootzone of your young trees is protected. Trials have shown that young trees grow faster when protected by compost mulch, with a marked increase in trunk diameter compared to trees without the protective compost mulch layer.

What compost mulch should I use at planting?

To choose the right compost mulch for use in your orchard there are two key factors to consider - texture and application rate.

Compost with a coarse texture is the best to use for mulch. The compost should have larger woody particles - these allow water and air to move through to the soil underneath. Fine textured material can also be used as mulch but if applied too thickly it can trap water and prevent it from reaching the soil; this only generally occurs if the compost is greater than 50 mm deep.

Applying coarse compost at rates of 50-75mm is recommended to provide protection for your young trees. Rates should not exceed 100mm as this depth of mulch could prevent moisture and air from reaching the soil. Coarse compost mulch can be applied in a 40 - 100cm wide band along the tree row or in a 1m² area surrounding each tree.

Fine textured mulch can be applied at a rate of 25mm for good results but it should never be applied at high rates (not more than 50mm).

As well as protecting your trees from stress, compost mulch will help to retain water in your soil. It is important that you monitor soil moisture after applying compost mulch, as you may not need to irrigate as much. Similarly, compost mulch can also provide extra nutrients to the soil. Fertiliser levels may need to be adjusted to account for the additional nutritional benefits of compost mulch. Soil moisture and nutrient monitoring will make sure you get the most out of your compost mulch.

For more information on choosing and using compost, visit www.compostforsoils.com.au for a range of free information sheets, or contact Compost for Soils - contact@compostforsoils.com.au.



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For more information and a list of quality suppliers, go to

www.compostforsoils.com.au

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