

# Creating an Indigenous Garden

## Soil Preparation

Once your garden beds are marked out according to your design drawing and your hard landscape features such as rocks, paving, logs etc. are installed, the soil can now be prepared for planting.

Soils around Warrnambool are quite varied. This reflects the differing bedrock's they have formed from as well as their varying ages.

Properties of your soil which should influence selection of plants are:

### **(a) Soil acidity (ph)**

Alkaline soils (ph greater than 7) generally form on coastal sands and limestone. Warrnambool, coastal areas west to Port Fairy, and areas south of Brucknell Creek to the east, have predominantly alkaline soils. Volcanic ash around Tower Hill also forms alkaline soils. Check with your nursery for lime tolerant species suitable for these areas.

Photo: Cliffs of pale yellow limestone near Port Campbell. An old sand dune (reddish in colour) sits on top of the cliff. This is typical of the make up of alkaline soils of the south west including Warrnambool.



Soils derived from basalts occur roughly north of Warrnambool and the Prince's

Highway to the east and west. Basalt, or "bluestone", is solidified lava and forms acid soils (pH less than 7)

If your soil's pH is  $<4.5$ , it may require application of lime. Application rates depend on current pH and are usually found on the product package. Highly alkaline soils ( $> \text{pH } 7.5$ ) can be corrected using sulphur or iron sulphate. Sulphur application rates are generally substantially lower than those for iron sulphate, however, sulphur takes effect in 3 – 4 months, iron sulphate shows results in just 3 – 4 weeks. The reason pH is corrected is that some nutrients are either not available to plants or become much more available in the high pH ranges, resulting in deficiency or toxicity.

**At pH ranges lower than 4.5, aluminium becomes more soluble and thus more available to plants, potentially resulting in aluminium toxicity. On the other end of the scale, at a high soil pH iron is less available, potentially leading to iron deficiency.**

### **(b) Soil Drainage**

Sandy soils such as occur in Warrnambool do not retain water. They are described as "well drained". Clay soils, found in the district, have poor drainage. Some plants, adapted to well drained soils may get "wet feet" and die, in poorly drained soils during winter and spring. Plants adapted to wet or swampy environments may not cope with well drained soils.



A red terra rosa soil laying above south west Victorian limestone from which it may have been derived.  
Photo: John Sherwood

### **(c) Soil Depth**

Shallow soils dry out more quickly than deeper soils. Higher parts of Warrnambool have very shallow soils - in some places bedrock shows through. These places also have sandy soils and so dry out very quickly in the warmer months. Plants requiring moist conditions, such as tree ferns, are not suited to these conditions. Choose plants that naturally occur in sandy locations. Soils of house blocks often have been disturbed and altered at the time of building and may need work to achieve the desired pH, structure and texture. The better your soil, the more likely your plants are going to succeed, saving you a lot of money in the long run and making them more resistant to pests and diseases. Soil texture and structure can be improved by adding organic material or, in the case of very sandy soils, clay. Where the topsoil is very thin and the clay layer is exposed, gypsum can be applied to break up the clay. It is not necessary to get rid of clay entirely. On the contrary, some clay is desirable, as each clay particle has a huge surface area compared to sand or silt and a slight negative charge which enables it to attract and hold water and nutrients.

**To determine whether soil will be responsive to gypsum application, stir a tablespoon of clay into a glass of water and stand it for 5 – 10 minutes. If the water remains cloudy, the clay is likely to respond to gypsum. Now add some gypsum and check if the clay flocculates (sticks together).**

Local plants are adapted to the local soils. There is no need to add fertilizers, manures and other soil conditioners – these can actually have a negative effect on growth of indigenous plants.

Good drainage is essential for most plants. Drainage can be improved by mounding the soil. If the soil is broken up, water penetration will be improved and deep rooting will be encouraged.

In large-scale plantings, consider deep ripping but avoid narrow, shallow furrow ripping which can impede natural root spread.

### **(d) Weeds:**

If you have a weedy site, it is easier and better to control weeds before planting. If the soil contains many weed seeds, allow them time to germinate. All traces of couch grass and other weeds with underground runners should be removed from the soil. Such weeds are very difficult to remove from around garden plants. Plant after all the weeds have been removed.