

Establishing Trees and Shrubs Under Dryland Conditions

This fact sheet is about establishing trees and shrubs for shade and shelter in the arid zone of Australia, under dryland conditions where regular irrigation is not possible. Native plants require sufficient moisture to develop a root system which will enable them to survive on the soil moisture produced from natural rainfall. The aim of most revegetation programs is to establish trees and shrubs which have the capacity to survive under natural climatic conditions. The techniques demonstrated in this fact sheet provide a method for establishing trees and shrubs under minimal conditions.

M.W.Last
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1. A Conventional Method



In the past, when trees and shrubs were being grown in locations remote from a reticulated water supply, establishment was difficult.

The young trees (*Eucalyptus camaldulensis*) in this picture were irrigated once a week with water which was carted in a 200 litre drum from the local community. Most of them survived the establishment period and are now growing under natural climatic conditions. This method is successful, however it requires the regular input of a reliable person and the availability of a vehicle and equipment.

2. An Alternative Method



In some locations it is not possible to irrigate trees and shrubs during the establishment period. The tree (*Acacia ligulata*) in this picture was established with 30 litres (3 buckets) of water at the time of planting and a one litre carton of Aquagel* was installed next to the root ball. This product is a high moisture yielding compound which sustained the plant for a ten week period. At the end of this period, because of the lack of rainfall, this plant was irrigated with 70 litres of water plus a second carton of Aquagel.

During the second ten week period, the rainfall was sufficient to sustain the plant and produce growth. It was therefore not necessary to irrigate or install a third carton of Aquagel. The plant is now thriving under local climatic conditions.

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3. Aquagel



Aquagel is a compound of biodegradable non-toxic food grade material which contains water. It is a gel which is liquified by soil bacteria to produce a trickle of water to irrigate the root system. This alternative source of moisture sustains the plant between rain periods.

Aquagel is available in a one litre carton similar in shape to a milk carton. It has a neutral pH, is safe to use and harmless to children and animals. In Central Australia, each one litre carton supplied sufficient moisture to sustain a plant for a ten week period.

4. The Method



A hole is dug for each tree and shrub and filled with a bucket of water (10 litres). The root ball of the plant is then placed in the water and the hole is backfilled with soil. A basin is then formed around the plant to hold more water. It is essential that the root ball of the plant be in contact with moist soil.

In some locations, trees and shrubs can be planted in association with storm water harvesting programs. These schemes would provide extra water for the growth of the plant.

5. Installing Aquagel



About 20 cm. out from the base of the plant, dig a hole in the soft moist soil on an angle to the bottom of the root ball. The bottom of a carton of Aquagel is removed and the hand is held over the bottom to prevent the gel sliding out as the carton is placed into the hole. Arrange the carton so the gel makes contact with the base of the root ball. The carton should be completely covered with 25 mm of damp soil to prevent animals and birds breaking open the top and eating the gel. A second bucket of water is then poured into the basin around the plant to settle the soil and provide extra moisture for root development. A third bucket of water should be applied the next day.

When using these minimal methods for establishing native plants, it is important to observe the results and make adjustments to the method where required. If significant rainfall occurs during the first application of Aquagel (10 weeks), root development of local species should be rapid. In some cases where rainfall is non-existent, it may be necessary to provide extra water to the plant during the establishment period.