

Deep Planting: a Radical New Idea for Sustainable Gardening[©]

Angus Stewart
New World Plants Pty Ltd, Sydney, Australia
Email: angus.stewart@ramm.com.au

INTRODUCTION

If I were to advise you to dig a planting hole one metre deep and bury the stem of a new planting of a shrub or tree way below ground level, most horticulturists would be horrified. The conventional wisdom is that this would be a death sentence for the plant, dooming it to demise by collar rot of the submerged stem. A few years ago I would have agreed wholeheartedly, but a meeting with electrical engineer and amateur horticulturist Mr. Bill Hicks a few years ago has completely changed my thinking on establishing plants in areas where supplementary irrigation is difficult or non-existent.

A RADICAL NEW IDEA

About 20 years ago Bill Hicks developed a technique called “long stem planting” through his interest in environmental restoration projects in the New South Wales Hunter Valley. Eroded river banks had traditionally been stabilised by planting exotic willow trees (*Salix* species) in the degraded areas. Alarmed at the way these willows had been seeding themselves and spreading like wild fire as environmental weeds, Bill experimented with indigenous native plants as a substitute. To overcome the problem of the native plants being washed away by floods, he experimented with planting them much deeper than normal. To the surprise of the professional horticulturists, not only did the trees survive, they thrived and in most cases the establishment rates and subsequent growth far outstripped that of conventionally planted trees of the same species. Bill’s website <<http://www.longstemtubestock.com/longstem-application.html>> explains his technique very eloquently and is well worth viewing. His work inspired me to experiment and adapt the technique to other circumstances such as everyday garden situations. So a couple of years ago I began trials with as many plant species as I could lay my hands on. The results have been extremely encouraging and whilst there have been some failures; the majority of species have been very successful.

There appear to be a number of reasons why planting more deeply often achieves quite spectacular improvement in plant establishment and subsequent growth. The greater planting depth puts the root ball from the potted plant down into a deeper part of the soil profile that usually has a reservoir of moisture that does not dry out as readily as at the soil surface. The greater planting depth also insulates the roots from drying out if there is no rain or if irrigation is not possible. Over time the plant also forms a new root system along the buried stem that complements the original root ball. This extra root system gives the plant a much greater surface area to take up water and nutrients from the deeper part of the soil profile it is planted into. The extra root system would also replace any malformed or damaged roots that often result when plants are raised in pots.

DEEP PLANTING APPLICATION

Deep planting is not for every situation but there are certainly several important applications where its use can offer significant advantages as follows.

Erosion Control

Another great application for deep planting lies in stabilising embankments and other erosion prone areas. Great success has been achieved with deep planting of various Australian native shrubs such as wattle (*Acacia*), bottlebrush (*Callistemon*), and paperbark (*Melaleuca*) in such situations. An excellent example was documented in the use of *A. longifolia* in sand dune restoration works on the NSW Central Coast (Bakewell et al., 2009). Long stem plantings had a survival rate of 79% versus 53% for conventional planting.

Protecting Plants from Vandalism and Wildlife

Urban horticulturists sometimes have the unfortunate experience of planting expensive trees and shrubs, only to find them ripped from the ground by thieves and vandals. Deep planting provides a cure for such antisocial behaviour as it also does for animals such as rabbits and possums that often dig out or graze on new and established plantings. Deeper planting makes it much harder for them to wreak their havoc. Even if plants are taken back to ground level they will often still sprout from vegetative buds below the ground.

Establishing Trees and Shrubs in Situations Where Irrigation Is Limited or Non-Existent

I have had good success establishing a wide range of ornamental plants such as wattles (*Acacia* species), gum trees (*Eucalyptus* species), coastal rosemary (*Westringia fruticosa*), bottlebrush (*Callistemon* species), paperbark (*Melaleuca* species), as well as fruit plants such as pomegranate (*Punica*) and the native finger lime (*Citrus australasica*). This wide range of species is thriving without any supplementary watering whatsoever (although it is important to say that I live in a climate with reasonably regular rainfall). I used potted plants (generally 50 mm up to 140 mm diameter containers), and planted them such that approximately 75% of the above ground stems were buried after first removing the leaves from those parts of the stem that went underground. Before planting, I first dunked the whole pot into a bucket of water to make sure the root ball was fully saturated and then watered the plant in thoroughly. No further watering was given after that.

Deep Planting Is not for Every Plant or Soil Type

Whilst this very interesting idea has great potential for a range of planting situations, it is very important not to dismiss the conventional time-honoured planting technique, as I have found there are some species and certain circumstances where deep planting does not work. Species that do not root readily as cuttings are less likely to succeed than ones that do. Also, plants with a clumping habit such as kangaroo paws and irises do not have elongated stems that can be buried for obvious reasons. Also, in poorly drained soils that are subject to periodic waterlogging I have had failures as well as a lack of oxygen will drown the roots of many common garden plants. My suggestion is to first trial the technique with species of interest in your own soil and environmental conditions.

SUMMARY

In the right circumstances and for a wide variety of species deep planting may be applicable to your situation and my personal experience is that it a very useful tool to add to your kit of planting techniques. It can help to improve survival rates, save water and create stronger root systems to make your plantings more sustainable and dramatically reduce maintenance.

Production of long stem tubestock can provide an interesting specialist avenue for professional propagators, especially to supply environmental restoration projects.

Literature Cited

Bakewell, G., Raman, A., Hodgkins, D. and Nicol, H. 2009. Suitability of *Acacia longifolia* var. *sophorae* (Mimosaceae) in sand-dune restoration in the central coast of New South Wales, Australia. *N. Z. J. For. Sci.* 39:5-13.