ESTABLISHING TREES AND SHRUBS IN RURAL CANTERBURY

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A growing recognition of the benefits from trees and shrubs on farms and lifestyle blocks has led to a recent upsurge in planting in rural areas. Not only are plant numbers increasing but also a greater diversity of species is being tried. From Footrot Flats cartoons to pro-tree groups we frequently receive a simple message - 'plant more trees'. Some surveys have suggested, however, that a significant proportion of these trees (possibly up to 50%) (excluding forestry) die within two years of planting. Virtually anyone can 'plant more trees', but surely the worth of doing this is best measured by the proportion of these trees established and thriving a few years later. Certainly Canterbury can be a very hostile area for both tree establishment and subsequent growth, as foresters will attest. However, much of this establishment failure is not so much due to our province's environments as to the failure by planters to follow a number of basic tree establishment procedures.

Perhaps it is time to change from the rather simplistic 'plant more trees' philosophy to one which ensures that all the steps are taken for successful tree establishment and long-term survival. The 'establish more trees' approach, if properly followed through, should not only lead to a significantly higher success rate in tree establishment, but will also have a follow-on effect of providing more positive rewards for people's efforts, therefore encouraging even more plant establishment.

'Establishing trees' involves a number of steps. It is important that each of these steps is given due regard as failure to heed one has the potential to negate all the efforts put into the others. They are like links in a chain, and any chain is only as strong as its weakest link.

These steps can be listed as follows:

1. **Selection of appropriate species**. It is not by mere chance that so much of Canterbury is dominated by *Pinus radiata* and *Cupressus macrocarpa*. In many cases other species will have been tried but failed. Some parts of Canterbury (especially those with light stony soils) are simply too tough for most broadleaved species. Generally a greater diversity of species (especially broadleaves) is associated with better soils and/or higher rainfalls.

   A very good indication of what species to plant is often obtained by looking at those species already growing happily close by. It is important to select species to match a given site, as it is far easier to change species selection than it is to change the site itself. Ideal species need to be site tolerant for the full 365 days of the year.

2. **Selection of the best quality plants available.** The computer adage 'rubbish in - rubbish out' is quite applicable to stock quality, yet few planters stipulate minimum specifications when ordering their planting stock.

   A plant's reserves are fairly proportioned to stem diameter hence a stocky plant is better than a spindly one. The quality of the root system is also important for both bare rooted and potted stock. Ordering early improves the chances of getting the best quality plants available. Selection of the most suitable provenances and size grades can also be important, this will vary depending on both species and planting site.

3. **Correct storage and handling.** Plant health can easily be compromised by incorrect storage and handling procedures. Even when dormant, plants should be respected as living organisms requiring an appropriate standard of care, especially if held for long periods between purchase and planting.

4. **Pre-planting site preparation.** This will depend on the state of the site itself but will generally include elimination of competitive vegetation (especially grasses). This will not only help the plant establish faster but generally also makes planting much easier.

   In some situations there may be a very compacted soil or pan present; ripping with a wing-tipped ripper (as is becoming popular in forestry establishment) can pay large dividends in both deeper rooting, faster establishment and easier planting.

5. **Correct planting technique and timing.** Roots provide anchorage as well as nutrient uptake; they cannot move (~~except~~ even by growing). Because of this it is important that they be balanced and correctly aligned at the time of planting. Many growers blame the species involved when established trees topple but all too often this is due to poor planting technique.

   The timing of planting can also have a bearing on establishment success. For instance on heavy soils in cold and exposed sites, planting should be carried out in early spring a month or so before bud-burst. This way the plant has the least demanding part of the year to become well established before facing the onslaught of the next winter. This is especially so of most natives. It is ironic that Arbor Day could not be at a worse time of year for such sites, yet some groups still tout it as being the time to plant! The safe planting period extends earlier into the winter for warmer and more protected sites, especially on free-draining soils. Early autumn planting (April) can be acceptable on warmer sites provided soil moisture levels are adequate.

6. **Protection from browsing.** Both wild animals and domestic stock will eat young (and old) trees if given the opportunity. This is especially so when there are few alternatives as is often the case in late winter. At this time of year a newly planted tree must look like icecream to most hungry animals.

   Protection comes in the form of repellents, tree protectors and fencing. Repellents are substances which smell or taste repulsive to the potential

browser. They should be applied the same day as planting out so that the first sniff or taste is a bad experience, hopefully not one to be repeated. Tree protectors are physical barriers placed around individual trees and can vary from the home-made to purpose-built. Tree shelters are purpose-built opaque tubes which are placed around a young tree. They not only provide physical protection from browsers but also make weed spraying simpler and safer, promote faster initial growth, promote better form and minimise losses by providing a small microclimate for the plant within. Fencing to exclude domestic stock must be 100% reliable. We've all heard the story about how the rams broke down the 'temporary' fence and ate the farmer's best trees. As much as an accusing finger was probably pointed at them, it was not of course the rams' fault.

When budgeting for rural tree establishment, allowance should be made for protection from browsing. In some cases this cost can exceed the cost of the plants themselves.

7. **Protection from weed competition**. Be this by physical, chemical or whatever means, elimination of competitive weeds is generally the most important factor that aids quick establishment. Good weed control significantly increases survival rates, and promotes stronger growth and quicker establishment through to full independence.

   It is usually far easier and cheaper to prevent moisture robbery by eliminating weeds than it is to add water. If the correct species has been chosen for a site, once established it will be quite capable of out-competing weeds by itself. If good weed control is carried out then watering need be a last resort or at most a temporary establishment tool only (excluding valuable horticultural crops or exceptionally important plants).

   Choosing plants which will require supplementary watering all their life is to choose to be a slave to those plants. Surely it is better to choose plants tolerant of the moisture regime of one's site? These plants can then be your servants.

Thus the simple step of 'planting a tree' is only one of a number of steps toward successful plant establishment. If all steps are given due regard then success rates should improve greatly. Much of this approach is already in practice in plantation forestry establishment, but all steps are equally applicable to other rural planting of both exotics and natives, whatever their purpose.

Perhaps it is time to change from that simplistic cliché 'plant more trees" to one which better includes all the other critical factors influencing the success of tree establishment.