

Introduction

The Taranaki Regional Council's leaflet *Pole planting - general principles and practices* gives details about choice of species, where to plant them, when and how. This information sheet summarises what needs to be done to get the full benefit from poles once they've been planted.

Re-ramming and checking for die-back

The first spring and summer after planting, check poles a few times to make sure they are still tight in the ground. Some soils shrink as they dry, leaving poles loose. The young roots of a loose pole break easily if it wobbles, so it dries out and dies. Planting failure can be reduced by re-ramming the soil around any loose poles, taking care not to damage the bark.

If the top of a pole has died, saw off the dead wood before fungal infection sets in, and paint the cut with fungicide. This should enable fresh shoot growth from live tissue farther down the pole, and avert its total loss.



Fig. 1 A few months after planting, this pole should be firm, not loose

Blanking

Not all of the poles planted will strike. 100% survival of a planting is rare; 90% after the first year is a good survival rate. Sometimes due to adverse conditions such as cattle damage, possum browse or summer drought, survival drops to 50% or less.

Where mortality is heavy, it's essential to blank (re-plant) next winter. If this isn't done, tree spacing won't be sufficiently dense for roots to anchor the soil, and



Fig. 2 A pruned stand of poplars

slips or flows may open up in the gaps. The cause of partial planting failure is usually identifiable, so can be taken into account when blanking; for instance, by planting a heavier pole, or using a clone that's less palatable to possums, or one that's more drought-resistant next time.

Form pruning

Silviculture is still a good idea when planting non-commercial tree species, such as poplars and willows. Don't do it too early; wait until the tree has enough foliage for it to survive droughts, gales and animal pests once pruned. Start pruning in the third year. Then, selectively remove one or two side branches each year, keeping in mind the overall form of the tree. By year ten the tree will have developed a good shape, less likely to suppress pasture round its base or to split in a strong wind. Diagrams on the last page of this information sheet illustrate how to form-prune poplars and willows.

Animal pest control

Many poplar and willow clones are palatable to possums, hares, rabbits and goats. Possums cause considerable damage to unpalatable clones, by climbing and breaking leaders or branches. Needless to say, good pest control on a farm, by poisoning or shooting is the best aid to survival of poles.

Dynex sleeves afford good protection against rabbits and hares nibbling shoots that are low on the pole. They also give some protection against possums, which have difficulty climbing the smooth surface; and to a certain extent against goats which have difficulty bracing their forelegs against a dynex sleeve when they stand up on their hind legs in an attempt to browse top foliage. Netlon sleeves do not afford much protection against any kind of animal pest (and make good climbing nets for possums!).

Livestock control

Spell the paddock for at least 3 to 4 weeks after planting, or until the poles take root and growth shoots emerge. Doing this improves strike rate, and reduces the need to blank (re-plant). Sheep can be let back in after a month. If grazing cattle, spell the paddock for longer if possible, so that the poles' new roots strengthen before any cows lean against them. If possible, keep cattle out of a freshly pole-planted paddock for at least a year. In Taranaki, the home of the cow, this recommendation is not always feasible. An alternative is to temporarily fence off just those parts of the paddock where poles have been planted. Refer to the Council's information sheet *Pole planting – general principles and practices* for livestock control options that are appropriate on different farms.

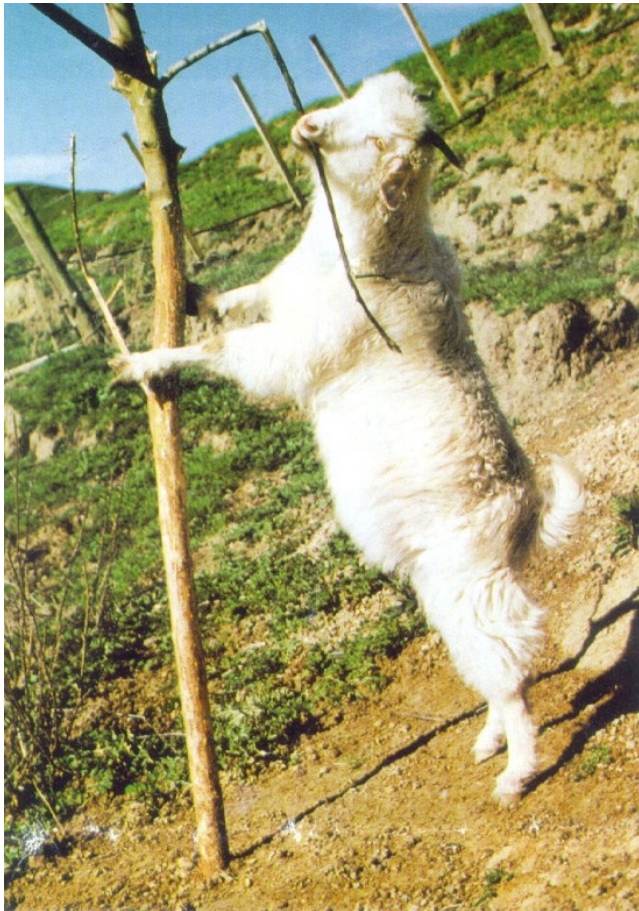


Fig. 3 *Damage by animal pests and stock needs to be avoided*

Sleeve removal and recycling

Netlon or dynex sleeves, if left on growing poles, eventually split and drop off. The occasional sleeve doesn't; if a tree starts to look strangled, cut the sleeve.

Fragments can be collected and returned (through the Regional Council) to the manufacturers for melting down and recycling. If they've just split into two halves, they can even be wired back together on-farm, ready for next winter's planting.

Later silviculture

By the time poplars and willows are 10 years old they will start to form a closed canopy over pasture. This doesn't suppress grass growth as much as people assume, because the canopy is still fairly open compared with conifers at an equivalent spacing (see *Pole planting – what are the benefits?* for details). Even so, farmers often wish to thin their trees to stimulate pasture growth underneath.

Where trees have initially been planted at a wide spacing of 10 to 12 metres, it is probably safe to thin every second tree i.e. to a spacing of 20 to 24 metres, but only once they are 10 to 20 years old. It takes until this stage of a tree's life for roots 5 to 12 metres away from the trunk to become sufficiently dense for erosion control.

At least 30, and probably 60, years of good growth can be expected from poplars and willows, but like all trees they eventually grow old. Gradually felling and replacing individual trees that are over-mature, before they are toppled by wind or killed by rot and disease, is a lot easier than cleaning up the mess in a stand of trees that's been let go.

A big advantage of poplars and willows is that if felled when the roots are still healthy, they'll sprout again from the stump. If this is done, it's important to select a single leader in the second year to avoid dense, spindly regrowth.

By felling and replacing trees individually, farmers eventually create a mixed-age planting, which is good for slope stability. Vigorously growing young trees are interspersed with older ones as they lose their effectiveness.

Disposal of felled trunks and branches is a problem. They have to be either burnt, or cut up and left to rot where felled, so long as there's little commercial demand for poplar or willow timber. This may change in future years, as a small but growing domestic market develops for poplar clearwood, which is used by small factories to manufacture joinery and furniture.

Poplar and willow pulp are widely used overseas for manufacture of paper and fibreboard. Trial batches have also been found satisfactory by New Zealand mills, but they won't buy it for production runs, while there's an oversupply of cheap pine pulp.



Fig. 4 Old stands can still be well-maintained by judicious thinning, together with replacement of individual trees

Where to get advice

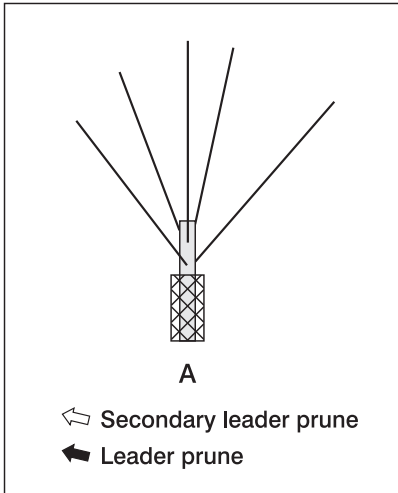
The Taranaki Regional Council offers a free advisory service to landowners who need to maintain existing poplar and willow plantings. A Land Management Officer can visit to discuss any problems on-site, and how to fix them.

For replacement or extension of existing plantings, a limited supply of poles and sleeves is available at cost from the Council's own nursery. Rammers are also available on loan. Priority is given to landowners who have erosion control or soil conservation plans. The Council can help source larger supplies from commercial nurseries.

For further advice or information about pole planting, contact:

**The Land Management Section,
Taranaki Regional Council,
Private Bag 713
Stratford**

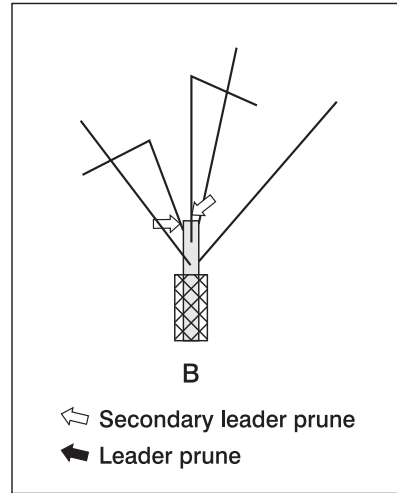
Ph: 06 765 7127 Fax: 06 765 5097



Year one

After one year's growth, where there is little possum or wind damage, a sheltered site and multiple leaders will develop.

Leave to develop until year three when selection can be made for the two or three dominant leaders.

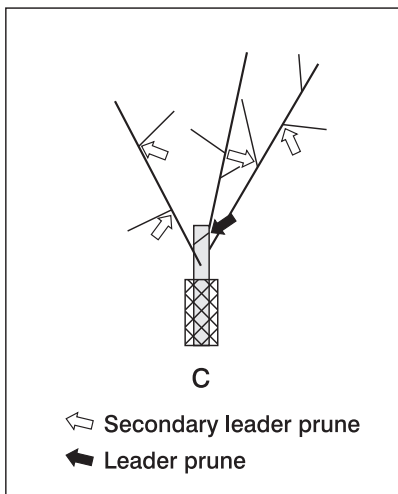


Years three to five

Broken and damaged leaders need to be removed from years three to five.

These leaders would have been the ones to form a main leader, but possum and wind damage require that they be removed.

In exposed areas it is critical that pruning is not undertaken too early as the one or two leaders left could suffer wind or possum breakage. This would destroy the pruned form of the tree and its potential to produce a quality butt log.



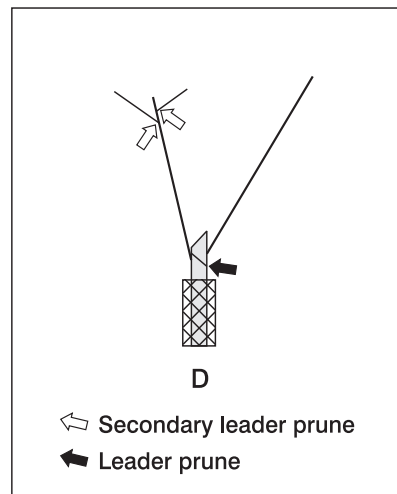
Years five to seven

Remove one limb and prune the remaining two leaders.

Remove side branches on these two leaders.

Both leaders will have increased in diameter, size and form, and the decision will be able to be made as to which leader remains as the main trunk most suitable for timber production.

If the top leader is removed then it is advisable to cut through the top of the pole (**blue line**) to reduce the possibility of die back.



Years six or seven

The pole is now showing form and has been pruned to two leaders.

Remove one leader and side prune the remaining leader. This last leader will now have good size and form, and should be able to stand reasonable winds without breaking off the top of the pole.