Poles – why plant them?

TARANAKI REGIONAL COUNCIL

Introduction

A pole is a young tree stem between one and three metres long, which roots and sprouts when planted in the ground. The advantage of planting a pole instead of a seedling, is that its height gives it a 'head start', so it is less likely to be damaged by browsing animals. Many tree species can be pole-planted; the main ones used in New Zealand are poplars and willows. This is because they have the additional advantages for erosion control, of being fast-growing and deep-rooting.

Afforestation with pines, or reversion to indigenous scrub, are not the only options for dealing with erosion-prone land. Much erodible hill country can be stabilised and sustained as farmland by planting poles into pastoral areas. In the past, poles have mainly been used for riverbank or roadside stabilisation in Taranaki. As they grow well in the local climate, they can also be used for stabilising erosion-prone hillslopes. When driving in or out of the region, many examples of their successful use may be seen from the road, on similar hillslopes in the King Country and Wanganui districts.

This information sheet outlines where and why poles are planted.

Along watercourses

Poplars or willows can be planted up small, steep-gradient watercourses on hillslopes, where there is some risk of gullying by storm runoff. They can be planted along the lines of sub-surface tunnels (under-runners or tomos), which are also at risk of blowing-out into open gullies. On permanently flowing channels, the poles are usually planted in pairs, one on each bank. On ephemeral channels, which only flow after heavy rain, a single line of trees within the channel is more common.

Fig.1 Pair-planting along watercourse

Around debris dams

Debris dams are small check-dams constructed out of timber and netting. They are used on watercourses where gullying is at an early stage, to prevent further scour and trap sediment. Poplars or willows are planted afterwards to stabilise the sediment, and also to prevent streams from scouring around the sides of the dams.

Fig. 2 Stabilisation planting next to debris dam

In gullies

Particularly severe open gullies can be fenced off and close-planted with poles. They are lost to grazing, but doing this at least stops the gullies from eating headward into good grazing land. Sometimes commercial timber species such as pines or blackwoods are planted around the gully margins, and if harvested enable some ongoing economic return from the land. However it is not a good idea to harvest timber from the unstable gully walls or floor, in case erosion starts again. These areas are best left to revert to native cover or if severely eroding, planted with willows and poplars to speed up stabilisation.

Fig. 3 Close-planting up gully

On hillslopes

On easier slopes that are valuable grazing country, poplars or willows can be space-planted in pasture at risk from soil slips, earthflows and slumps. Their lateral roots interlock for distances of up to 12 metres from the trunks, and form very dense mats for about 5 to 6 metres out, binding unstable subsoil and even anchoring weathered rock beneath. The trees also reduce frequency of waterlogging in the soil, by pumping water out through their roots and transpiring it through their leaves. Even deciduous trees can appreciably delay onset of waterlogging in winter, because they have pumped so much water out of soil in autumn that it takes a long time to build up again.

Fig. 4 Spaced planting on erosion-prone hillslope

Pasture suppressed by the trees is counter-balanced by growth on areas that would have been lost to erosion, had the trees not been planted (see the Council's information sheet ***Pole planting -what are the benefits?*** for additional information).

On badly eroded ground

Close-planting with trees is needed to stabilise small patches of hill face where erosion is particularly severe. Pines or other commercial timber species are normally used to stabilise these areas, but poplars and willows can be equally effective, provided there is still enough soil left for them to establish.

Fig. 5 Close-planting on badly eroded ground

Beside farm assets

Poplars and willows can be planted specifically to protect farm assets. Examples are:

- Fences, where prone to slip damage
- Tracks, where prone to drop-outs
- Vehicle crossings, culverts and bridges
- Unstable ground, above or below farm buildings

Fig. 6 Protective planting next to track

Summary

Poles can be successfully established on hill country, wherever soil is sufficiently deep and moist for them to take root. They will not establish on steep upper faces where little soil remains, or which dry out in the summer. If planted in the right places on a farm, poplar and willow poles effectively control hill country erosion.

On Taranaki's easier hill country - wherever there is a complete or partial mantle of soil on slopes - pole planting in pasture is an option which enables erodible land to be sustainably farmed, as a viable alternative to afforestation or reversion.

Where to get advice

The Taranaki Regional Council offers a free advisory service to landowners who need to control erosion in the hill country. A Land Management Officer can visit to discuss any problems on-site and if need be, prepare either an erosion control plan for a specific problem, or a comprehensive soil conservation plan for the entire property.

For further advice or information about pole planting, contact:

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