



hill country heroes

poplars & willows - securing new zealand's hill country

Fact sheet

MAY 2016

02

The benefits from pollarding poplars and willows to provide fodder

Pollarding is a pruning system in which the upper branches of a tree are removed, promoting a dense head of foliage and branches. Pollarding is primarily undertaken in New Zealand to provide fodder to feed livestock, trees being pruned at intervals of three to four years so their edible material is most abundant.

Summary

The planting of palatable trees for fodder should form part of a farm drought resilience plan. In a drought often the only sight of green on parched farms is trees, particularly poplars and willows. Some farmers are using this resource as a feed source for stock, while other farmers are ignoring this fodder supply on their own farms.

Poplars and willows managed for fodder will still perform a soil conservation and water quality improvement role. In addition they are valuable shade and shelter trees. Wise placement of additional trees for these purposes will make the job of pollarding them for fodder much easier.

Both poplars and willows are very resilient and respond well to removal of branches by growing more. They can be used as regular suppliers of stock fodder, with mature trees capable of sustaining pollarding (see section headed "Pollarding").

- Poplars and Willows can be pollarded to provide supplementary feed either for use in times of drought or as a regular supplement
- Poplars and Willows are deep rooting and draw moisture in times of drought providing nutritious feed when pasture has died off
- The feed value of poplar and willow is well above stock maintenance requirements. Cattle will eat trimmings up to 10mm and sheep up to 5mm in diameter
- Both cattle and sheep will strip off and eat the bark; it takes just one feeding to condition stock to eating tree fodder in drought.
- Research trials by Massey University showed improved lambing percentage for stock fed on poplar and willow forage compared with stock fed on droughts pasture alone
- High density planting in swampy corners unsuited for good pasture growth draws on otherwise unused nutrients and dries land out while improving pasture and providing fodder.



Even with grass available sheep enjoy poplar fodder



A group of soil conservation 'Tangoio' willows ideally spaced for fodder in a few years

Feed quality

The feed value of poplar and willows leaves is 65–70% dry matter digestibility, about the same as lucerne hay. A crude protein level of 15% is well above that required for livestock maintenance. The leaves contain valuable compounds called condensed tannins (CT) and phenolic glycosides (like aspirin) and these have health benefits for stock.

Massey University research found that 5–10 year-old trees yield up to 22kg DM per tree of edible forage, and that poplars and willows were similar in nutritive value. Condensed tannin levels are usually higher in willows.

Willow leaves are also high in zinc and magnesium, which are important animal health minerals. However, sodium (salt) levels can be low in willow leaves, and, if little or no pasture is on offer, a salt block should be provided. The tree bark also had good nutritive value.

Willows produce more fodder than poplars, growing 4-5 times the number of new shoots and carrying more edible material, i.e. leaves, small stems and bark.

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Mature poplars and willows shed a large quantity of leaves in autumn and early winter. Once trees are about five years of age, leaf fall can provide 60kg or more of dry matter per tree.

Pollarding

Pollarding is the removal of almost all the branches back to a stump at above cattle grazing height (~2.4m). Leave 10–20 cm (a hand-span) of branch so that the new shoots are more spread out and better able to cope with wind (see the photos).

Pollarded trees regrow as bushy trees bearing plenty of fine stems for feeding—but out of stock reach. After the initial pollarding it is relatively easy and much safer to cut off these thinner branches when growing at this height. These trees will still act as “water pumps”, helping to prevent erosion on unstable hill slopes. Soil conservation trees intended for pollarding should be planted 6–10m apart, and not pollarded for at least five years, but thereafter can be harvested on a 3–4 year harvesting cycle.

Pollarding as a two person operation allows one person to cut the fodder and the other to drag it away so stock milling round do not become a hazard.



A managed Japanese willow (Kinuyanagi) fodder block in South Otago showing the size of plants



Pollarded 'Moutere' willows on a 3 year harvest cycle



Pollarding poplars for feed during drought



Regrowth on pollarded willows

What to plant?

Your local Regional Council land management officer will give you the best advice and possibly be able to network you with other farmers doing the same.

Farmer safety during harvesting tree fodder

Operator safety is paramount when harvesting poplars and willows. With the right preparation and precautions, trees can be harvested efficiently and safely.

It is both dangerous and illegal to use a chainsaw above shoulder height. Special pruning chainsaws are available with their blade partly covered by a plastic guard that helps to prevent the blade reaching your body. They run at much

higher revs, so cut through the branches much quicker, thereby being dangerous for shorter periods. Protective "chaps", gloves and headgear are other commonsense essentials during tree pruning.

Large branches are dangerous to fell, so use safe methods and make sure regrowth is never left longer than three to four years before re-pollarding.



Before...



...and after Matsudana willow on its second pollarding cycle.



www.poplarandwillow.org.nz