

FACT SHEET **02**



THE NEW ZEALAND
POPLAR & WILLOW RESEARCH TRUST

Poplars and willows as Fodder

“One of the biggest dangers with tree fodder is the farmer being trampled by hungry sheep or cattle”

- Denis Hocking Rangitikei sheep and beef farmer

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”).

Pollarded ‘Moutere’ willows on a 3 year harvest cycle



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.

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.

Even with grass available sheep enjoy poplar fodder



Massey University research found that 5-10 year-old trees yield up to 22 kg 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.

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.

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 60 kg 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 (~2.4 m). 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 6-10 m apart, and not pollarded for at least 5 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 group of soil conservation 'Tangoio' willows ideally spaced for fodder in a few year



Regrowth on pollarded willows



Matsudana willow on its second pollarding cycle before cutting.



Matsudana willow on its second pollarding cycle after cutting.



THIS IS ONE OF A SERIES OF FACT SHEETS PRODUCED BY THE NEW ZEALAND POPLAR AND WILLOW RESEARCH TRUST

Read other fact sheets on the Trust website at www.poplarandwillow.org.nz

HIGH DENSITY WILLOW PLANTING

Willows planted close together (1 m x 1.5m), in rows at up to 6,000 per hectare are called browse blocks and these can be browsed by stock two or three times a year once well established. They are managed by cutting them back down to 15-20 cm above ground level after seasonal browsing, to allow regrowth for the next summer. Best places to establish them are in swampy corners unsuited for good pasture growth. They will use the nutrients that run in to the swampy area, dry it out, improve pasture and raise productivity while providing fodder.

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



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.

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.



Ministry for Primary Industries
Manatū Ahu Matua



FOR MORE INFORMATION ON USE OF POPLARS & WILLOWS

The New Zealand Poplar & Willow Research Trust: www.poplarandwillow.org.nz

Bay of Plenty Regional Council: <http://www.boprc.govt.nz/media/29173/LandManagement-090526-Factsheet21.pdf>
<http://www.boprc.govt.nz/media/29176/LandManagement-090526-Factsheet22.pdf>

Environment Canterbury: <http://ecan.govt.nz/publications/General/PlantingPoplarWillow.pdf>

Environment Southland: <http://www.es.govt.nz/environment/land/climate/drought-mitigation-strategies/>

Hawkes Bay Regional Council: <http://www.hbrc.govt.nz>

Northland Regional Council: <http://www.nrc.govt.nz/Environment/Land/Poplars-for-erosion-control/>

Taranaki Regional Council: <http://www.trc.govt.nz/assets/Publications/information-sheets-and-newsletters/land-management-information-sheets/soil-conservation-information-sheets/35poplarwillowavailable.pdf>

Growing Poplar and Willow Trees on Farms: <http://maxa.maf.govt.nz/sff/about-projects/search/04-089/growing-poplar-and-willow-trees-on-farms.pdf>