

FACT SHEET **03**



THE NEW ZEALAND
POPLAR & WILLOW RESEARCH TRUST

Setting up a willow coppice block for fodder

Tree fodder is a valuable source of stock nutrition, especially during periods of drought.

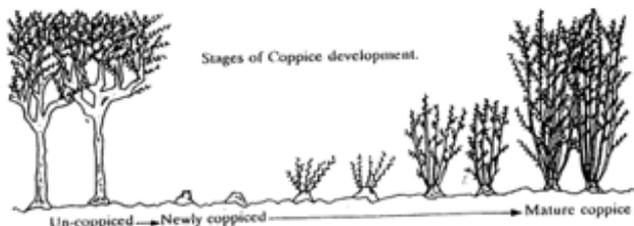
Both willows and poplars are highly palatable to all stock classes, contain condensed tannins that have health benefits to stock, and respond well to frequent pruning, trimming or coppicing.

Willows are recommended for fodder blocks primarily because they produce many shoots from cut branches or stumps, all with edible leaves and small stems

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.

WHAT IS COPPICING?

Coppicing is the process of reducing trees down to a stump, allowing the stump to regenerate a mass of stems and then harvesting the resulting stems. Larger stumps produce more stems. The stumps are usually called stools.



STEPS IN DEVELOPING A WILLOW COPPICE BLOCK

a. Locating the willow coppice block

Most farmers using coppice blocks have planted them in a wet area on the farm, either flat or sloping. A flat area is easier to plant. Willows thrive in wet areas and will dry them out and improve the pasture at the same time.

b. Selecting the willow

The tree willows recommended are Tangoio, Moutere, Matsudana in that order. Kinuyanagi (Japanese fodder willow) and 'Viminalis' are other options. It is recommended to plant a mixture. Any poor performers can be replaced after a few years

All produce many shoots which grow upwards. All are very palatable.

Tangoio, Moutere and Kinuyanagi are all being used successfully in coppice blocks.

c. The Planting material

Harvest or purchase 50 cm lengths that are around 3 cm thick (bit over an inch), angle cut the bottom and plant them 30 cm into the ground. Preferably harvest new season's wood. Plant them in winter after pre-soaking in a trough or stream for 1 or 2 days. Don't let them dry out between cutting and planting. The reason they are planted deep is to resist any stock pushing them over later and possibly breaking off roots.

d. Management

Pre-planting: Spot spray with glyphosate prior to planting to reduce grass and weed competition in the first 3-4 months. Ripping the rows before planting makes planting easier, promotes root spread and the willows grow faster.

During the first growing season: Graze with sheep only from January. Reason: the root system may not be sturdy enough to cope with cattle.

During the second growing season: The root system will become more resilient and young cattle can be put into the coppice block as a self-grazing system in late summer.

After leaf fall (late May) any lanky stems should be cut to 5-10 cm above the original stake height of 20 cm using a scrub saw and the buds present at the base of the stems will produce new stem and leaf material the next season. Remove the cut material, otherwise it will sprout in the rows and block stock and vehicle access

Planting density suggested is around 6000 stems per hectare (sph).

At 6000 sph the planting material should be planted in rows at spacing of 1 m apart and the rows should be around 1.6 m apart. For lower densities alter the spacing accordingly.

e. Grazing regime

A coppice block is designed for stock to manage the grazing. As stools get more mature stem growth becomes more vigorous (see photo of 'Kinuyanagi') and grazing is possible several times during the growing season. Tall stems can't be reached by grazing stock and can only be controlled by repeated grazing by lambs, adult sheep and cattle, and cutting back of the stems after leaf fall. Blocks can be grazed in winter to control grass, removing stock when the willows burst bud, and not returning them till the new shoots are at least 70 cm long.

f. Replacing dead stools

Willows should only be grazed 2 to 3 times over their growing season. Stools can die from overbrowsing and disease. Replacement stakes will need protection.

1-year 'Kinuyanagi' stems on 4-year stools growing on a sloping site



g. Thinning the coppice block

Some stools may need to be removed after a few years to keep good light penetration to the stems. This has not been reported but could become an issue. Stems grow up and not out if they are competing for light.

FORAGE YIELD

In a trial at Massey University's Riverside Farm in Wairarapa 100 ewes grazed ten breaks across 4 ha of coppice willows each lasting 7 days (70 days grazing of willow + pasture). In another trial at Fernglen in Wairarapa a 1.6 ha coppice willow block fed 100 ewes across 5 breaks each for 11 days (55 days grazing). Herbage allowance was 2.1 kg DM/ewe/day at Riverside Farm and 2.5 kg DM/ewe/day at Fernglen. This trial was carried out during 2003, a drought year. Conception rates were higher for willow supplemented ewes compared with control ewes fed drought pasture only.

High density coppice blocks (2,500 – 16,000 sph) have produced from 1.4 – 5.7 t DM/ha of edible forage over the first 3-5 years. Pasture production in the coppice block is additional to this. For wet sites pasture production improves as the site is dried out

NUTRITIVE VALUES

Organic matter digestibility of poplar and willow is 60-65%, similar to the OMD of normal summer pastures (55-65%) and greater than OMD of drought pasture (52-55%). Metabolisable energy (ME) of poplar and willow forage at 8-9 MJ/kg DM is much the same as normal summer pasture.

As with all other grazing management approaches you learn by experience and talking to others!

Contact ian.mcivor@plantandfood.co.nz for more information



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>