

Trees on farms

Trees for fodder

Growing trees for fodder is one way to mitigate the risk of livestock feed shortages in times of drought. Poplars and willows are fast-growing, highly versatile species and, as well as other benefits, have the potential to provide livestock fodder in dry summer weather. Both species grow large amounts of nutritious foliage, available in summer and autumn when grass is most likely to be in short supply.

As the climate becomes warmer and drier in some parts of New Zealand, droughts are likely to become more frequent and severe, and fodder trees may become more highly valued.

Have a Plan

All planting on-farm is better when it's planned.

When investigating planting trees for fodder, it is important to consider how they might be incorporated into other plans for your property. In particular, think about integrating the trees on your farm with your riparian management plans. Visit dairynz.co.nz/riparianplanner for more information.

Fodder is an additional benefit of poplars and willows planted for other objectives such as shelter and erosion control.

First check that your trees are not toxic to animals

Many trees available and for sale in New Zealand could be harmful to companion animals and livestock. Some of the tree species mentioned on the website below could, in some cases, cause issues in some animals. Before planting, make sure that you have selected the right trees. Check with your vet for advice or visit this site for a general list of toxic plants: tararuavets.co.nz

Planting options for fodder trees

On intensively managed land, farmers may be reluctant to put land aside for fodder plantings. However, fodder is an additional benefit to consider when thinking about planting poplars and willows for other objectives.

- (i) Shade and shelter:** Narrow belts can be trimmed each summer to provide useful supplementary fodder for dairy cows or other grazing livestock.
- (ii) Spaced plantings:** On erosion-prone hillsides trees can be pollarded when feed is in short supply. Pollarding involves cutting all the branches off the tree above browsing height (around 2 metres for cattle). Livestock then help themselves to the feed on the ground. Trees regrow multiple branches from the cut stumps. The operation can be repeated every 3-5 years. Sheep will eat material up to 5cm diameter, cattle up to 10cm diameter.



Poplar shelterbelts can be trimmed in summer to provide additional feed.



Pollarded willows

(iii) Willows in wet areas: Willows thrive and produce large quantities of palatable biomass in areas where it is too wet to farm or grow other tree species. They are also effective at capturing and filtering run-off around wetlands and watercourses or other areas where high concentrations of run-off from paddocks may accumulate. Fodder plantings can also be tucked into corners or adjacent to plantations.



A small pollarded block of willows utilising land too wet for plantation species.



A row of willows bordering a woodlot which can be cut and fed over the fence.

Quantity and quality of fodder

By 5-10 years of age, open-grown poplars and willows can produce as much as 22kg of dry matter per tree per year. If planted at a density of 50 trees per hectare, these trees will produce an estimated 600-1100 kg of dry matter per hectare per year.

The fodder is highly palatable and has roughly the same nutritional value as lucerne hay or summer pasture:

- 65% digestible dry matter
- 15% crude protein
- 8-9 MJ/kg metabolisable energy ME

It also contains other compounds and minerals which have health benefits for stock.

Practical considerations

- **Species choice:** Not all willows and poplars are equal when it comes to their suitability for different sites and as fodder. Avoid problem willows such as crack willow (*Salix fragilis*) and grey willow (*S. cinerea*). Take advice from the Poplar and Willow Research Trust or your local regional council on the best varieties for your site and objectives.
- **Establishing poplars and willows:** Both poplars and willows can be established from poles, cuttings or rooted planting stock. In many regions subsidised poplar and willow poles are available as part of soil protection initiatives. Cuttings or larger stakes can be bought, or cut from existing trees, and then planted. As long as they are carefully handled, they will establish easily. Protect all new plantings from grazing livestock, and pests such as rabbits, hares, possums, goats and deer. See the Trees on Farms: Planting for biodiversity for information on pest control.
- **Pollarding widely spaced trees:** Regular pollarding keeps branch size small, makes the job easier, maximises the amount of edible fodder on trees, and reduces woody debris left in the paddock. However this does involve the skilled use of a chainsaw and can be dangerous. If livestock are grazing around trees being pollarded, there is a risk they will knock over ladders and people in their rush to get to the cut foliage. It may be wise to employ a professional for this task.
- **Other fodder species:** Tree lucerne (tagasaste) and some eucalypts are occasionally used for fodder. Less is known about the nutritional values of these species compared to poplars and willows.

Indicative establishment costs

Cost item	How much?	Other considerations
Wide-spaced pole plantings Planting stock – usually poles, 2-3 metres long; 50-150 stems per hectare	\$5-7 each for 2m poles \$8-10 each for 3m poles	If cattle graze the area or deer are present, use 3-metre poles. With sheep, 2-metre poles will suffice.
Shelters/sleeves	\$5-\$7 each for 2m poles \$8-\$10 each for 3m poles	Sleeves must be used if livestock are grazing round new plantings. If deer are present, use the tallest sleeves available.
Planting poles	\$4-\$5 per pole (contractor rates)	Helicopters are sometimes used to distribute poles, which adds to costs.
Shelterbelts/fodder blocks Cuttings (willow only) Rooted cuttings or stakes	50 cents each \$2- \$3 each	Livestock access must be managed at all times. Up to 6000 stems per hectare @ 1m x 1.6m spacing. Cuttings (20-30 cm long x 1 cm diameter) can be taken from existing trees. Weed control needed at establishment.

Further information

NZ Poplar and Willow Research Trust

Visit poplarandwillow.org.nz for information on choosing poplar and willow species and planting design for fodder and multiple objectives.

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Regional councils with a soil-conservation remit can also help with advice and supply of planting material.