

TASMANIAN BLACKWOOD (*Acacia melanoxylon*)

Tasmanian Blackwood, also known as Australian Blackwood, is a medium tall tree which grows from 15 metres to 35 metres in height. On favoured sites in New Zealand, trees have grown to more than 35 metres in height and produced diameters (at breast height) of 100 centimetres. This species generally has a wide site tolerance and will grow well on moderately dry sites (minimum 650 millimetres annual rain fall). The tree grows best on sheltered, deep summer-moist soils, but dislikes poorly drained soils.

Tasmanian Blackwood is well suited to soil conservation use for a number of reasons. It has a fast initial growth rate and establishes easily from seedling stock. It has the ability to sucker and coppice, and will persist if damaged or is subject to earth movement. It is a legume and nitrogen fixer, and will contribute to the restoration of soil fertility on degraded sites.

Tasmanian Blackwood has been deployed successfully for soil conservation in New Zealand to control slip and gully erosion on hill country sites, and has also been used in shelter belts. Tasmanian Blackwood has considerable potential as a specialty timber. It possesses a dark oak-like



21 year old well tended blackwood plantation, Paengaroa, Bay of Plenty

character with good working and polishing abilities suitable for cabinet-making. Trees of this species also bear a strong resemblance to the New Zealand native tree, Tawa. Tasmanian Blackwood has high aesthetic compatibility for planting amongst or alongside native flora.

MANAGEMENT

Establishment

Tasmanian Blackwood grows well from seeding stock. For good establishment in the field, seedlings should be at least 25 centimetres high and have a minimum diameter at the root

collar of 5 mm. Container-grown stock usually gives more reliable establishment, particularly on drier field sites, although well wrenched bare-rooted stock is satisfactory if planted well in advance of spring conditions. In both cases, nodules should be present on seedling roots, indicating the presence of nitrogen-fixing rhizobium which will enhance growth.

Good control of competing grasses and broadleaf weeds is essential for the establishment of seedling trees. On pasture sites this can be done by spot-spraying about three weeks prior to planting. Spots should be a

metre square approximately, and the following knapsack herbicide rates are suggested: Glyphosate (36% a.i.) 10 ml/litre of water, Terbutylazine (50% a.i.) 25 ml/litre of water (or equivalent of 15l/ha) For more information about spot-spraying, contact your local Land Management Officer.

At planting, slice off and discard a square of turf in the middle of the sprayed spot before digging the planting hole. This will avoid the potential leaching of residual herbicide into the plant root zone (see *Sustainable Options LM15 Establishment Techniques for Revegetation Projects*).

Further release sprayings may be necessary in late summer or the following spring. To prevent herbicide contact on green plant tissue use a nozzle hood, and do not apply residual herbicides more than once per season. Seedlings respond well to some fertilizer at planting, but applications of nitrogen should be limited or rhizobium activity will be suppressed. Tasmanian Blackwood seedlings benefit mainly from the application of phosphate and a little sulphur. A dressing of 40-50 g of superphosphate (0-10-0-11) per plant will assist initial growth.



17 year old well tended blackwood plantation, Paengaroa, Bay of Plenty

Spacing and Tending

For timber production, a final crop spacing of around 200 stems per hectare (sph) is currently recommended in New Zealand. Initial planting should be at least five times this number i.e. 1,000 sph. This is necessary because of the variation within seedling stock currently available, which often displays differences in inherent vigor and response to site conditions or insect attack (see Pests below).

Higher initial stocking assists the selection ratio but does not compensate for a lack of pruning. Two forms of pruning are vital for blackwood: form pruning and pruning for clearwood.

Form pruning

Form pruning is carried out using a simple 30 millimetre homemade gap gauge. From age three, remove every branch greater than 30 millimetres. Visit on an annual basis until the butt log is formed.

Pruning for clearwood is aimed at producing a clear wood stem of at least 6 metres. A secondary advantage of the gauge form pruning is that clearwood lifts are simple and easy. Pruning lifts should leave at least 3 metres of green crown on the trees at each lift.

Blackwood Regime

Best possible silvicultural regime for *A. melanoxylon*
 (initial stocking 800-1111 stems/ha)

Age	Prune at height	Stocking	Pruning operation	Thin to
yrs	m	stems/ha		stems/ha
3			Form prune 75% of stems with 30 mm gauge	Remove malformed stems
4	3.8	600	Form prune with 30 mm gauge	
5	5.5	600	Form prune with 30 mm gauge	
6	8.0	600	Prune to 2.5 m or up to half height leave at least 3 m green crown, form prune above with 30 mm gauge	600
7	9.0	400	Form prune with 30 mm gauge	
8	10.0	400	Prune to 4.0 m or up to half height leave at least 3 m green crown, form prune above with 30 mm gauge	400
9	11.0	200	Form prune with 30 mm gauge	
10	13.0	200	Prune to 6.0 m or up to half height leave at least 3 m green crown	200



Blackwood butchers block showing blackwood colour variation

The growth rate and form of Tasmanian Blackwood responds well to side-shade or light-well conditions, which offers another management option. Trees can either be established in light-wells cut into existing vegetation, or be planted with a second 'trainer' species.

For establishment in light wells (e.g. scrub or gorse) groups of 3 - 5 seedlings at 1 metre spacings are recommended. In small clearings or cut lines at 7 metre spacing, two-thirds as wide as the height of surrounding scrub. Each group can be thinned to the single best tree at age five. To establish with a trainer crop, plant in rows 6 - 8 metres apart with an alternate row of the trainer species.. The trainer species is expendable and should grow slightly taller than the main crop, but not suppress it. It will require progressive thinning to avoid competition, and should be completely eliminated by the time the Tasmanian Blackwoods have attained a 6 metre clearwood stem. **Do not keep the trainer species past this time.**

Trainer trees are best killed standing (not felled) to allow acclimatization for the main crop, and to avoid access difficulties because of excessive slash. Suitable trainer species are Radiata pine or medium-vigour Eucalypts. Trainer crops complicate management, reduce selection ratio and do not always improve form. **Regular form pruning in pure stands is the better option.**

PESTS

Tasmanian Blackwood is highly palatable to rabbits, hares, possums and wallabies. Thorough ground control on planting sites is necessary before planting. Initial poisoning should be followed-up by night shooting, and this should continue after planting for maximum control. As a further precaution a repellent spray may be used on seedlings, but should be applied lightly (coarse droplet size, 50% leaf coverage) to avoid defoliation, particularly on juvenile foliage. Ready-made repellents are available (e.g. Plantskydd) or can be made up with five eggs and a teaspoon of acrylic (water-based) paint in a litre of water.

A variety of insects can attack Tasmanian Blackwood, including wood borers and leaf miners, but the sap sucking insect *Psylla acaciae* is potentially the most damaging of these. This psyllid insect mainly attacks the mature foliage of Tasmanian Blackwood, as well as woody branchlets up to 4 millimetres in diameter. It secretes a honey-dew which grows sooty mould, and larvae feed in terminal leaf clusters. Psyllid attacks can

often cause stunted or malformed growing tips, and although a lower branch will then become the main leader, stem form can degenerate into a series of misaligned sections. This is why form pruning is critical. Psyllids have an aversion to cool, shady conditions and their incidence is much lower on trees of Tasmanian Blackwood grown in light-well or line-cut situations. Resistance to psyllid attack can also vary amongst seedling stock, and planting at least five times as many plants as required for the final crop provides more opportunity to select out the most resistant trees.

Another pest that can occur in blackwood plantations is the Ghost moth which attacks the stems. This is confined to the knotty core and reduces as bark matures. Cicada damage can weaken small branches but such damage tends to be localised. A recent introduction is a leaf chewing pest *Dicranosterna* although the full effect of this insect is not well known.

FURTHER READING

Australian Blackwood (*Acacia melanoxylon*) "What's New in Forest Research" Number 105 New Zealand Forest Research Institute, Rotorua (1982).

Plant Materials Handbook for Soil Conservation' Volume II Introduced Plants. C W S Van Kraayenoord and R L Hathaway (eds), Water and Soil Misc. Publication Number 94, NWASCO Wellington (1986).

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