PRIVATE FORESTS TASMANIA

Blackwood

Info Sheet No. 4 – Thinning Regimes

This series on Blackwood has five parts. Each part can be read individually or as part of the series.

1. Overview
2. Establishment
3. Pruning Regime
4. **Thinning Regime**
5. Labour Estimates

THINNING REGIMES

Thinning the Nurse Crop

Thinning of the nurse crop must take into account the following:

- Increased exposure to wind and light following thinning often causes deterioration in tree form, further increasing form pruning requirements.
- Excessive thinning may result in windthrow of the blackwood, particularly if the blackwood has become suppressed.
- Potential damage to the retained Blackwood during felling of the nurse crop.

NB - Anticipated thinning ages are indicative only and will vary from site to site, depending upon stocking and the relative growth of the blackwood and nurse crop.

Group Planting with a High Nurse Crop Density *(refer to diagram over page)*

The following example is based upon:

- ~200 groups/ha (7.0m b/w groups) with 4 blackwood planted/group.
- ~600 nurse crop trees/ha for a total stocking of ~1,400 stems/ha.

Initial Plantation Layout

Nurse crop trees indicated by 'n' are closer to the blackwood groups (~2.7m) than those indicated by 'N' (~3.5m) when the blackwood is planted 2.0m apart within groups.

First Thinning (anticipated age of 4-5)

- Remove 50% of the 'n' nurse crop trees (~200 stems/ha).
- Stem injection with glyphosate to kill the trees is recommended. Manual felling may damage the blackwood, as gaps between trees are small.
- Thinning can be regular (as illustrated) or by thinning the dominant trees. Thinning the dominant trees first may reduce suppression of the blackwood.
- Blackwood reduced to the best 3 or 4/group (thinning of poor quality trees only)*.

Second Thinning (anticipated age of 5-6)

- Remove the remaining 'n' nurse crop trees (~200 stems/ha).
- Manual felling is recommended at this stage, including felling of the dead stem-injected trees from the first thinning. Dead stem-injected trees will eventually fall on their own accord as the stems decay over a number of years. This poses a safety hazard to anyone within the stand and potential damage to blackwood stems.
- At the completion of this thinning stage, the retained stocking of nurse crop trees 'N' is ~200 stems/ha with each group of blackwood surrounded by 4 'N' trees.
- Blackwood reduced to the best 2 or 3/group*.

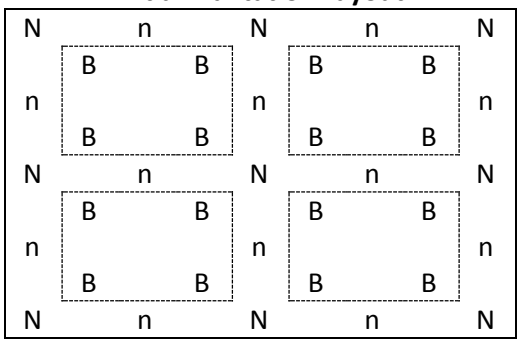
Third Thinning (anticipated age of 6-8)

- Remove 50% of the 'N' nurse crop trees (~100 stems/ha).
- Stem injection with glyphosate is recommended.
- Thin the dominant nurse crop trees that are closest to the blackwood, while retaining an even distribution across the stand.
- Blackwood reduced to the best 1 or 2/group*.

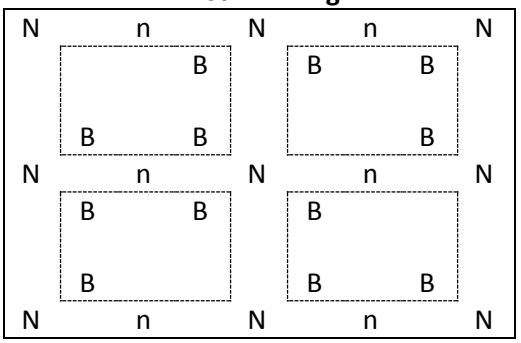
Fourth and Final Thinning (anticipated age of 8-10)

- Manually fell the remaining nurse crop trees (N) and those that were stem injected during the previous thinning operation.
- Blackwood is reduced to final stocking.

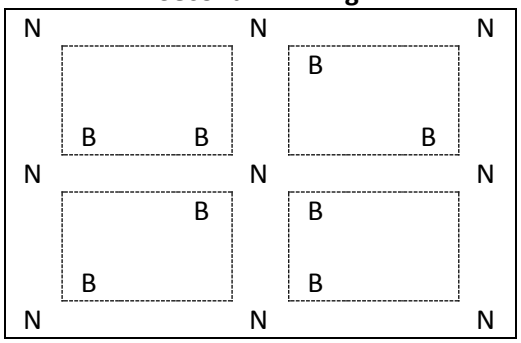
Initial Plantation Layout



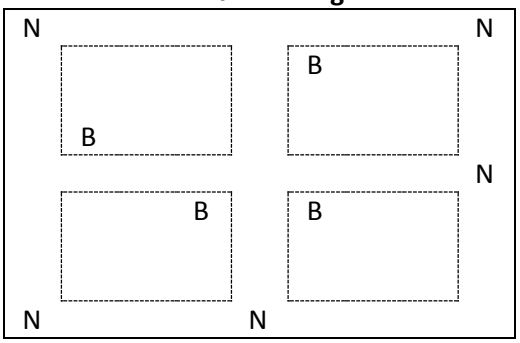
First Thinning



Second Thinning



Third Thinning



* Blackwood of good form and vigour should be retained as long as possible. If they begin to grow away from each other and exhibit stem curvature, then they should be thinned immediately.

Thinning of the nurse crop occurs over a 4-6 year period, during which time the stand is gradually opened up. Gradual thinning minimises suppression and the potential for windthrow.

Group planting with a low nurse crop density

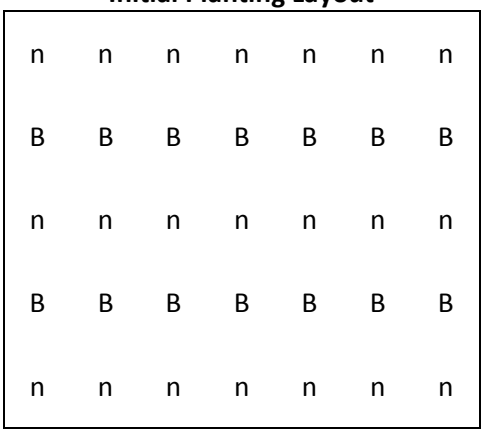
Thinning is undertaken in 2 stages, as outlined in the third and fourth thinning operations for nurse crops planted at high density.

Thinning Regime for Row Planting

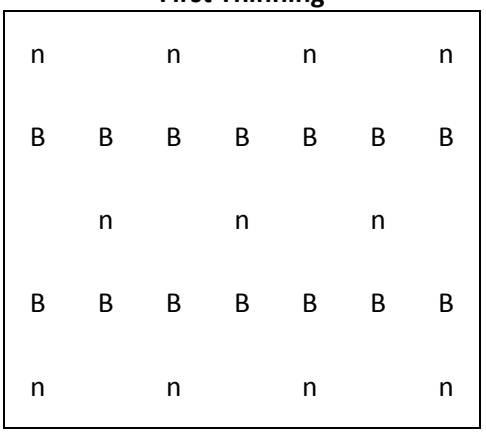
The following example is based upon:

- Alternate rows of Blackwood and *E.nitens* with 3.0m between rows.
- 2.5m between trees within rows for a stocking of 667 stems/ha of each species.

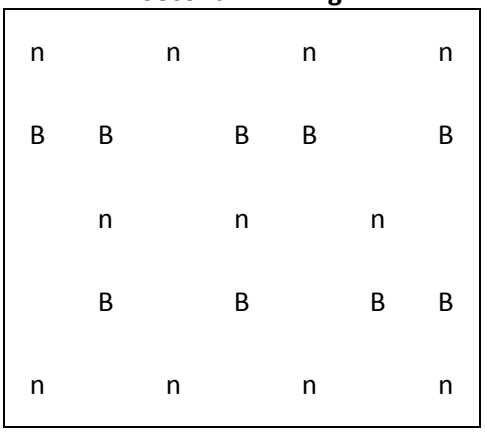
Initial Planting Layout



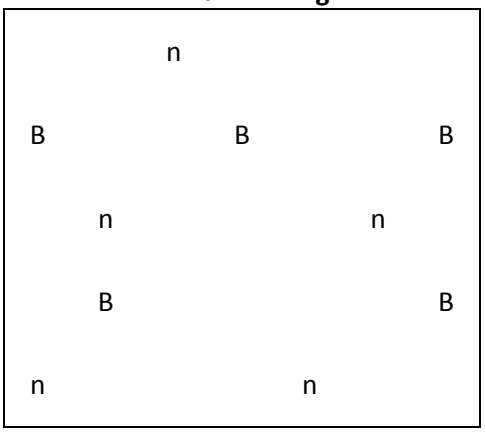
First Thinning



Second Thinning



Third Thinning



*** Fourth and final thinning removes the last of the nurse crop trees (n).**

First Thinning (anticipated age of 4-5)

- Remove 50% of the nurse crop trees. Every second nurse crop tree along a row is thinned. Thin alternate nurse crop trees within adjacent rows to provide an even distribution of nurse crop trees throughout the stand, as illustrated.
- Stem injection with glyphosate to kill the trees is recommended. Manual felling may damage the blackwood, as gaps between trees are small.

Second Thinning (anticipated age of 5-6)

- Blackwood is thinned to the best 400 stems/ha, with no more than 2 adjacent trees retained.

Third Thinning (anticipated age of 6-8)

- Manually fell ~50% of the remaining nurse crop and those previously stem injected. Thin the dominant nurse crop trees while maintaining relatively even spacing.
- Blackwood is reduced to the final stocking of ~200 stems/ha.

Fourth Thinning (anticipated age of 8-10)

- Manually fell the remaining nurse crop trees.

Blackwood Thinning (no nurse crop)

Retain unpruned trees for as long as possible to maintain mutual shelter throughout the stand, thereby increasing height growth and reducing branch development.

- Clearwood prune the best 400 stems/ha to ~4 metres (anticipated age 6-7) and thin blackwood of poor vigour (those that are small and not likely to influence the growth of neighbouring trees).

- Continue clearwood pruning the best 200 stems/ha to 6-7 metres while maintaining relatively even spacing and thin to the final stocking (anticipated age 8-10).

What distance between final crop trees?

It is recommended that the minimum distance between final crop trees following the completion of thinning is 4-5m. Retaining trees closer than 4.0m may result in crown 'shyness' and the development of an asymmetric (unbalanced) crown.[1] The result may be the formation of tension wood in the stem, with subsequent milling and drying difficulties. When trees are planted closer than 4.0m apart, no two adjacent trees should be retained as final crop trees.

REFERENCE

[1] Nicholas, I. & Brown, I., (2002). Blackwood: A Handbook for Growers and Users, Forest Research, Bulletin No. 225, New Zealand Forest Research Institute Limited.

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