

TreeNote

No. 3
July 1998
(Revised)

Thinning for sawlogs

Reasons for thinning

Stands of trees are thinned to:

- Remove crooked, forked, unhealthy or slow growing trees that are unsuitable as sawlog trees.
- Increase the growth rate of the remaining sawlog trees by reducing competition from other trees.

Thinning also reduces the number of trees which require labour intensive pruning.

Selecting crop trees

Trees with straight trunks, small branches, and narrow, healthy crowns are potential crop trees. In order of importance, selection criteria for crop trees are:

- form – choose trees which are straight, and free from large branches, forks and other malformations;
- vigour – select the biggest and healthiest trees; and
- spacing – where possible, choose crop trees which are fairly evenly spaced.

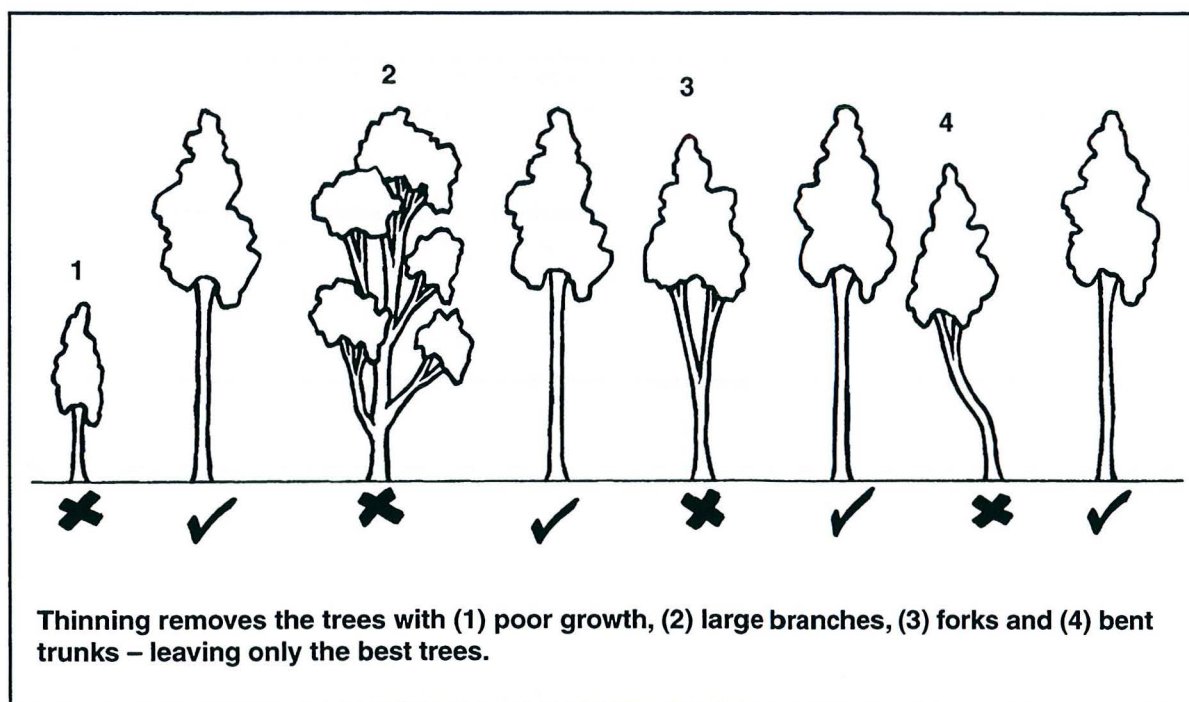
Number of trees per hectare

The number of trees retained in a stand depends on factors such as:

- the timber products intended from thinnings and the final crop;
- the expected time to harvest;
- tree species;
- site quality; and
- planting design.

Aim – rapid sawlog production

To grow trees to sawlog size in the shortest possible time, final densities as low as 100 to 150 trees per hectare can be used. Wide-spaced trees grow quicker than close-spaced trees because there is less competition for nutrients, water and light. At low tree densities, other activities such as grazing and cropping can be combined with tree growing, especially while the trees are young.



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Aim – maximum timber production

Higher final densities (200 to 400 trees per hectare) will maximise the volume of timber produced per hectare, although the trees will take longer to reach sawlog size. In this strategy, thinning is used to balance maximum growth of the crop trees with maximum use of the available nutrients, water and light.

Timing

Factors affecting the timing of thinning include:

- growth rate of crop trees in a stand;
- grower's aim;
- availability of farm or other labour; and
- availability of markets for thinnings.

For example, a sawlog grower who plans to sell thinnings for pulpwood may have to delay thinning until the culled trees are marketable at eight to ten years old. A different grower may concentrate on rapid sawlog production and thin after four or five years, if labour is available.

Typical timetables

Thinning regimes vary but typically start when the trees are about 4 to 6 metres tall. For faster growing species, this is usually at about three or four years of age. By this time any undesirable characteristics should be obvious.

Faster growing trees may also be ready for pruning at an early age. To avoid wasting labour by pruning trees that are later culled, it is best to thin a stand before pruning, or thin and prune at the same time.

By the time trees are about 10 metres tall a final thinning can be carried out, leaving only crop trees. These trees are retained to final harvest.

In areas where tree growth is slow, such as low rainfall areas, thinning might be delayed. It might start at five to six years, and finish at eight to ten years.

Typical planting and thinning regime to produce sawlogs

- Age 0: plant 750 to 1250 trees per hectare.
- Age 3 to 4 (4 to 6 m tall): thin to 250 to 500 trees per hectare and prune to 10 cm stem diameter.
- Age 5 to 6 (10 to 12 m tall): thin to 125 to 250 trees per hectare and prune to half the tree height up to a height of 5 to 6 m.

What to do with thinnings

Thinnings can be used (or sold) for firewood, chipwood, pulpwood or posts and rails. Simple, low cost techniques are available for preserving posts and seasoning timber on the farm.

If thinnings have no commercial value, they can be left on the ground to rot, pushed into heaps for burning or chipped for use as mulch.

Typical steps in thinning

- Find out the current number of trees per hectare.
- Decide what density of crop trees to retain.
- Calculate the proportion of trees to be culled.
- Select the crop trees and mark them (with paint or plastic tape, for example).
- Fell unusable thinnings into every second row, to maintain access.

Knots and branch growth

Large knots reduce the value of timber. The highest value wood has no knots and is known as 'clearwood'.

Knots form as the trunk grows outward, enveloping the base of the branches. If branches are removed, the trunk grows over the branch stubs, and then all further new wood is free of knots.

Tree density affects branch (and knot) size. At low stocking rates (less than 600 to 800 trees/ha) trees develop long thick branches. However, at densities greater than 1000 trees/ha, lower branches are soon shaded and have little room to grow outwards. This results in small branches, small knots, and high quality wood.

The control of branch size is one factor to consider when deciding how heavily to thin a stand of trees. In a heavily thinned stand the remaining trees respond to the extra light by growing larger branches. These branches must be pruned to produce high quality wood.

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ISSN 1329-3273 Print Post Approved 606811/00013

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Revised 98/07 -2500