

Guidelines for Marking for Retention for Harvest

The primary objective is to improve the quality of timber produced and increase the value of production. These treemarking guidelines take into account the fraction of the stand subjected to silvicultural treatment following harvesting.

Objectives:

- To harvest the accumulated capital growth component of the forest, whilst reinforcing the development of a section or multi-tiered stand structure.

If a regular yield of forest products is to be achieved, it is necessary to ensure that residual stand structure is sufficient to maintain such yields. Harvesting must also involve complete utilization which is achieved by thoroughly logging areas to a face and ensuring that all utilisable stems required to be removed are removed.

A follow up silvicultural treatment must ensure all non merchantable trees not required as habitat trees or for environmental protection are removed and the remaining sub merchantable fraction of the stand is thinned to a spacing which will allow and promote reasonable growth to occur.

- To ensure harvesting operations are undertaken in an environmentally sensitive manner.

Thoughtful tree marking and directional felling can help minimize the environmental impact of harvest operations. It is important that any environmental guidelines which apply to the area are considered carefully before treemarking and felling commences.

- To improve the quality of the resource and optimise stand productivity within the above constraints.

Treemarking should concentrate on thinning the stand by removing the poorer formed and less vigorous stems. The guidelines aim to increase stand productivity by thinning in defined size classes to optimum basal areas within these size classes. Treemarking guidelines also ensure that the stand basal area is maintained in a range that will encourage moderate flushes of regeneration following logging.

Treemarking Technique:

Paint marking for retention is the favored approach if silvicultural treatment is to be carried out immediately following a harvesting operation. Here trees to be retained as the growing stand are marked usually with 3 dots of paint around the trunk at about head height. Habitat trees are marked with 3 H's. Exclusion zones are marked with red stripes to indicate a no go zone or limit of harvesting or treatment operation. All trees not marked outside exclusion zones can be harvested or treated.

Exception to this rule is where a cutter indicates that a tree is too dangerous to fall. Stump height in cypress pine stands should not exceed 22 cm except where breached trees are encountered; or trees are too dangerous to fall at the standard height; or trees are obviously useless at the standard height because of defect and falling at that height will result in excessive wear and tare on the chainsaw.

Minimum Standards for Retention:

For a tree to be suitable for retention it must meet the following minimum criteria:

1. It must have a spiral grain of less than 1 in 6. Where the bark indicates this degree of spirality the actual spiral must be measured on the surface of the wood.

and

2. The greater part of the merchantable bole must be free of bad fire scarring. Any scar should not show evidence of significant decay, and there should be no doubt that the tree will yield a millable log. If any doubt exists the tree should be marked for felling.

and

3. It must be straight enough to yield at least one reasonably straight log 2.4 m in length with a top diameter under bark of not less than 14 cm.

and

4. It must from external appearances, be solid and free of obvious decay for the majority of the length of the merchantable bole.

and

5. It must be sufficiently free of heavy limbs to yield a 2.4 m length section with not less than half the round of the log free of knots larger than 12 cm diameter and less than one metre apart.

and

6. It must be alive and healthy enough to be expected to live until at least the next harvest.

Seed Trees:

1. Seed trees need only be retained where there will be insufficient stocking
2. Where considered necessary, seed trees should be retained at a frequency of two trees per hectare, not more than 70m apart

Treemarking Rules:

These rules are to be applied to all treemarked stands, unless otherwise specified in the sale agreement.

The aim of tree marking is to achieve the objectives outlined previously in these guidelines. Consideration should be given not only to stems in the thinning range 19-38.9cm but also to those less than 19cm dbh. In this regard, it is important in silvicultural treatment, that poorer stems 19cm+ dbh be removed where there are superior stems available in the less than 19cm dbh class.

Trees from 17 to 18.9 cm dbh that are dead, dying, damaged, fungus infected or otherwise declining should be marked for removal, provided such trees are capable of yielding a merchantable log at least 2.4m in length with a minimum top diameter of 14cm under bark.

The following treemarking rules are to apply:

Retention Standards for Harvesting

Class 39cm + dbh

Retain stems of outstanding form and vigour ("elite" trees) only, regardless of spacing prescription in other size classes. These stems are to be ignored for all stocking and spacing purposes.

Class 33 - 38.9cm dbh

Retain up to 20 acceptable stems per hectare in this size class. To be retained an acceptable stem must meet the minimum standards previously listed in minimum standards for retention and:

- Be at least 6 metres from the nearest 26-32.9cm dbh stem being retained.
- Be at least 4 metres from the nearest 19-25.9cm dbh stem.

Class 26 - 32.9cm dbh

Retain acceptable stems within this class aiming at a minimum spacing of 15m between retained acceptable stems (44 stems/ha).

To be retained an acceptable stem must meet the minimum standards previously listed in minimum standards for retention and:

- Be at least 6 metres from the nearest 33-38.9cm dbh stem being retained.
- Be at least 7.5m from the nearest superior 19-25.9cm dbh stem.

Class 19 - 25.9cm dbh

Retain acceptable stems within this class aiming at a minimum spacing of 7.5 metres between retained acceptable stems (178 stems/ha).

To be retained an acceptable stem must meet the minimum standards previously listed in minimum standards for retention and:

- Be at least 4 metres from the nearest 33-38.9cm dbh stem being retained.
- Be at least 7.5 metres from the nearest superior 26-32.9cm dbh stem being retained.

Retention Standards for Silvicultural Treatment of trees less than 19.0cm d b h

Class 17 - 18.9cm dbh

Retain all trees which contain bole lengths of 6.0m or greater, are reasonable straight and are either presently or potentially merchantable.

Class 3m in height - 18.9cm dbh

Select trees of potential merchantable quality to give an average spacing of 5.5m x 5.5m (331 stems/ha) for the 3m height – 25.9cm d b h class.

Minimum distance between trees retained in this fraction will depend on degree of equidominance, form, vigour and the availability of other more suitable located trees.

Other Requirements

- Trees 26cm+ are to be disregarded for spacing purposes.
- Additional trees to those selected above should be retained so that each 17 – 25.9 cm d.b.h. tree has an understory replacement provided it:
 1. is smaller than the 17cm – 25.9cm d.b.h. tree by more than 15cm d b h.
 2. is closer to the 17cm -25.9cm d b h tree than each other tree retained in the Class 3m in height – 18.9cm d.b.h..
 3. No minimum distance from a Class 17cm – 25.9cm d.b.h. tree applies but the additional tree should have the potential to produce a first class log 6m+.

General:

In selecting the trees which the treemarkers intend to keep for the residual stand, the best **quality growing stock in the merchantable** sizes should be retained, irrespective of the size of the trees being selected. In other words, a tree of superior diameter should not be retained instead of a tree of smaller

diameter if the smaller tree has better form and a more vigorous and healthy crown. This requirement will of course be subject to the minimum spacing constraints set out above.

Retention of Stocking Trees:

If the application of these treemarking guidelines results in a residual stand stocking of less than 60 stems per hectare, in the merchantable size classes, then additional "stocking" trees may be retained. The residual stand stocking is to be assessed using circular 1/20th ha plots (radius 12.6 metres). This provision in the rules is likely to be invoked in irregular stands which contain gaps in the forest cover.

Additional stocking trees are to be retained, where available, to achieve a residual stocking for the 19-38.9cms dbh fraction of the stand of not less than 60 stems/ha. Stocking trees may be retained at below the normal minimum spacing, provided that the additional stems are no less than 5 metres from a stem 10cm dbh or greater, of acceptable form and vigour, and free from major defect. These additional trees can be in the size classes.