



Ministry of Forests



FIA PRUNING STANDARDS

Effective April 1, 2005

These standards apply, in addition to the [General FIA Standards \(FS 1001\)](#), to all pruning activities funded under the Forest Investment Account (FIA).

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ARTICLE 1: DEFINITIONS

1.1 In this document the following words shall have the following meanings.

“Approved Pruning Quality Inspection System” means the Pruning Quality Inspection system contained in this document or another similar system approved in writing by the District Manager prior to the commencement of Work.

“Internodal Branchlets” means small branches less than 5 cm long on the stem of the tree between the major whorls.

“Inter-tree Distance” means the horizontal distance between two trees on a centre to centre basis, calculated or measured to the nearest 1/10th of a metre unless otherwise Specified.

“Minimum Inter-tree Distance” means a Specified minimum Inter-tree Distance that must be maintained between pruned trees.

“No Treatment Zone” means an area within which no Pruning takes place.

“Natural Opening” means a contiguous area having an average diameter greater than twice the Target Inter-tree Distance and that has no trees taller than half the average height of the Prunable Trees along its edge.

“Prunable Tree” means a tree that is suitable for Pruning in accordance with Specified criteria.

“Pruning” means the removal of all of a tree’s lower dead and living branches in accordance with a Treatment Plan or a Work Plan.

“Pruning Damage” means any non-reworkable pruning error as defined in an Approved Pruning Quality Inspection System.

“Scarring” means damage to a tree stem that exposes the wood beneath the bark.

“Slash Removal Zone” means an area within which all slash created as a result of the Work is removed.

“**Target Inter-tree Distance**” means, unless otherwise Specified, the distance determined by the formula:

$$\sqrt{\frac{11,547}{\text{Target Stems Per Hectare}}}$$

ARTICLE 2: PRUNING STANDARDS

General Requirements

- 2.1 All Pruning must be in accordance with the FIA Standards, including any standards or specifications stated or implied in the Approved Pruning Quality Inspection System which forms part of the FIA Standards.
- 2.2 Despite any requirement that is Specified on a per hectare basis, all pruning and density requirements must be met throughout the entire Work Area, so that pruned trees are as well distributed as possible.

Work Plans

- 2.3 Where any of the following is not specified in a Treatment Plan for Pruning it must be specified by Treatment Unit in a Work Plan:
- (a) the tree species for Pruning, in order of preference;
 - (b) any tree species that must not be pruned;
 - (c) the target number of well-spaced stems per hectare to be pruned;
 - (d) the pruning height (the height above ground to which a tree must be pruned);
 - (e) the minimum % live crown and the minimum number of live whorls to be retained;
 - (f) the minimum tree height below which a tree is not required to be pruned;
 - (g) the Minimum Inter-tree Distance between pruned trees; and
 - (h) the locations and widths of any No Treatment Zones or Slash Removal Zones.
- 2.4 The Work Plan specifications for minimum % live crown must not be less than 30% and for minimum number of live whorls must not be less than three.

Selection of Trees for Pruning

- 2.5 If two Prunable Trees are within the Minimum Inter-tree Distance of each other, the tree selected for Pruning must be the one having the best overall possible combination of:
- (a) the species having the higher ranking in a Specified species preference; and
 - (b) the taller tree having good form and vigour and which can be expected to continue exhibiting superior growth in comparison to adjacent trees.
- 2.6 When evaluating trees for good form and vigour the selected trees must optimize as many of the following characteristics as possible:
- (a) dominant or co-dominant in the stand canopy;
 - (b) free of injury and disease;
 - (c) healthy, full crown of good colour;
 - (d) straight stem with no forks or multiple tops;
 - (e) good terminal leader growth;
 - (f) large stem diameter; and
 - (g) less than 10 main branches in each major whorl.
- 2.7 Where the Target Stems per Hectare to be pruned is less than the total number of Prunable Trees/ha, the best Prunable Trees must be selected for Pruning in accordance with sections 2.2, 2.5, and 2.6.
- 2.8 In a Treatment Unit where not all trees are Specified to be pruned, additional trees must be pruned around the edge of a Natural Opening equivalent to the number of trees that the opening could

accommodate at the Target Inter-tree Distance. The distance between all such pruned trees must not be less than the Minimum Inter-tree Distance.

Trees Not to be Pruned

- 2.9 The following trees must not be pruned:
- (a) a tree within a No Treatment Zone;
 - (b) a pacific yew; or
 - (c) a tree of a species Specified not to be pruned.

Trees Not Required to be Pruned

- 2.10 Unless otherwise Specified, the following trees are not required to be pruned:
- (a) a tree that is not of a species Specified for pruning;
 - (b) a tree that is shorter than a Specified minimum tree height; or
 - (c) a tree that meets the Specified criteria for pruning, but is within a Minimum Inter-tree Distance of a superior Prunable Tree.
- 2.11 If a tree not required to be pruned is pruned, it must be pruned to the FIA Standards.

Pruning Specifications

- 2.12 Except as otherwise provided for in sections 2.7 and 2.13, all trees of a species Specified to be pruned that are equal to or taller than a Specified minimum tree height must be pruned to at least the Specified pruning height.
- 2.13 Where the requirement to meet a Specified minimum % live crown or maintain a minimum number of tree whorls requires a tree be pruned to a height lower than a Specified pruning height the tree must be pruned to the lowest of the possible heights.
- 2.14 Unless otherwise Specified, trees must be pruned so:
- (a) no Pruning Damage occurs;
 - (b) all live and/or dead limbs below a Specified pruning height are completely cut;
 - (c) the pruning cut is made as close as possible to the branch collar, staying roughly parallel to the stem;
 - (d) the pruning cut is smooth and not shattered or split;
 - (e) Scarring of the stem does not expose the cambium layer over an area greater than that of the largest pruned branch scar on the tree;
 - (f) the stub length does not exceed 0.5 cm from the branch collar; and
 - (g) no more than
 - i) five Internodal Branchlets remain on the first 3 m pruned portion, and
 - ii) ten Internodal Branchlets remain above the first 3 m pruned portion.

Treatment of Slash

- 2.15 Slash within the pruned area must not lean against any tree.
- 2.16 Slash or debris must be removed and redistributed within the pruned stand if, as a result of the Work, it occupies:
- (a) a Slash Removal Zone;
 - (b) a road, road-bank, stream, ditch, or fireguard;
 - (c) a cattle or game trail; or
 - (d) adjacent standing timber.

ARTICLE 3: INSPECTION & NOTIFICATION

Quality Inspection

- 3.1 All Work must be inspected by a person (the “Inspector”) who is:
- (a) the Registered Professional Forester (RPF), or operates under the direction of the RPF, who will sign and professionally seal reports for the Work;
 - (b) experienced and competent in conducting inspections of pruning operations;
 - (c) familiar with the Treatment Plans and Work Plans for the Work Areas; and
 - (d) not engaged in the direct conduct of the pruning operations.
- 3.2 An Inspector must inspect the Work in accordance with an Approved Pruning Quality Inspection System in a timely manner to ensure all Work is performed to the FIA Standards.
- 3.3 Unless otherwise Specified, the methodology given in this Article shall form the basis for the Approved Pruning Quality Inspection System. (This methodology is best suited to situations where either all trees or all trees of Specified species in a Work Area are to be pruned.)
- 3.4 The Inspector must:
- (a) systematically establish and evenly distribute throughout the Work Area quality inspection plots having a radius of 5.64 m at a minimum density of one plot per hectare with a minimum total of 5 plots per stratum; and
 - (b) mark quality inspection plots in the field and record them on a survey map such that the District Manager can locate the plots for a period of up to three months after their establishment or until they may be covered for an extended period by snow, whichever is sooner.
- 3.5 At each quality inspection plot the Inspector must record the following items on a plot card:
- (a) the number of Prunable Trees that were pruned;
 - (b) the number of missed Prunable Trees (every such tree is a reworkable error);
 - (c) the number and codes of reworkable errors on pruned trees (errors which **can** be corrected - see below for codes), including reworkable errors on trees not required to be pruned that were pruned;
 - (d) other Specified requirements which are reworkable;
 - (e) the number and codes of non-reworkable errors (errors which **cannot** be corrected - see below for codes), including non-reworkable errors on trees Specified as not to be pruned that were pruned;
 - (f) other Specified requirements which are non-reworkable; and
 - (g) any instances of non-compliance with other FIA Standards.
- 3.6 All errors must be recorded. However, when totalling errors across all plots only one error for each tree is counted, with non-reworkable errors taking precedence over reworkable errors.

Error Codes

- 3.7 Reworkable error codes are:
- [R1] - Missed tree,
 - [R2] - Live and/or dead limbs below pruning height,
 - [R3] - Limbs not completely severed from stem,
 - [R4] - Stub length or angled cut greater than 0.5 cm from branch collar,
 - [R5] - More than allowed number of Internodal Branchlets,
 - [R6] – Improper Prunable Tree selection.
- 3.8 Non-reworkable error codes are:
- [NR1] - Failing to maintain a Specified minimum percent live crown,
 - [NR2] - Leaving fewer than a Specified minimum number of branch whorls of at the top of a tree,

[NR3] - Scarring of the stem, and

[NR4] - Pruning a tree Specified not to be pruned.

Performance Quality Calculation

3.9 The Inspector must calculate the performance quality (P.Q.) by Treatment Unit or stratum, as follows.

3.10 The reworkable and non-reworkable error % is calculated as:

$$\text{Reworkable error \%} = \frac{\text{No. of reworkable errors}}{\text{No. of Prunable Trees}} \times 100$$

$$\text{Non - reworkable error \%} = \frac{\text{No. of non - reworkable errors}}{\text{No. of Prunable Trees}} \times 200$$

3.11 Performance quality (P.Q.) shall not exceed 100% and is calculated as follows:

$$\text{P.Q} = 100\% - \text{Reworkable Error \%} - \text{Non-Reworkable Error \%}$$

Determination of Satisfactory Treatment

3.12 The Inspector may declare an area satisfactorily treated when the average performance quality of all plots is 85% or higher, and there are no contiguous areas of unsatisfactory Work greater than one tenth (1/10) hectare.

Requirement to Notify the District Manager

3.13 Further to the notification requirements contained in the [General FIA Standards \(FS 1001\)](#), a Recipient must immediately notify the District Manager whenever an inspection reveals, on any contiguous area greater than one-tenth (1/10) hectare (or other minimum area that may be Specified by the District Manager), performance quality to be less than the minimum acceptable standard of eighty-five percent (85%), and the nature and extent of the errors are such that performance quality cannot be raised to at least 85%.