

Appendix 9: Commercial Thinning

Objective: To improve the growth and quality of desired stems in plantations and pre-commercially thinned stands by removing stems with lower potential and releasing the remaining desired stems which increases growth rate and promotes higher valued products.

Pre-Treatment Assessment:

- Plantation or pre-commercial thinning at least 25 years old (stand age) and not older than 40 years (stand age).
- Stands should be considered for treatment when crowns begin to compete.
- Less than 50 m²/ha BA.
- Moderately well to well-drained without evidence of unacceptable risk of windthrow, pest or disease damage. Site should be an ecosite 5 or 7 (DNR Ecosite Classification).
- Live Crown ratio > 35% (dominants & co-dominants).
- Stands that have trees with root masses that are predominantly shallow are not eligible.
- Woodlot owner signed agreement on plan objectives and timeline.

Post-Treatment Inspection:

- Removed between 30% and 50% BA (including trails).
- Thinned from below using consistent pattern.
- On previously planted sites, the treated stand must have ≥80% of BA comprised of softwood crop trees (not including balsam fir, red pine, jack pine or tamarack). ERD must be consulted and pre-approve any Red Pine or Jack Pine plantations proposed for treatment.
- On previously pre-commercially thinned sites, the treated stand must have ≥50% of BA comprised of spruce, white pine, hemlock, cedar, sugar maple, red maple and/or yellow birch.
- Extraction trails should be laid out and flagged in straight lines in order to keep the leave strip a consistent width and prevent the trails from converging.
- Leave strip width between trails must average between 15 m and 18 m.
- Removal (priority) pecking order: defective, damaged or likely not to survive; trees with non-vigorous crowns.
- Crop tree damage incidents must be < 10% of crop trees (in BA sweeps).
 - exposed sapwood greater than 200 cm²;
 - > 20% crown damaged;
 - > 20% root system damaged

- Crop trees should have at least 3 sides of the crown released. Adjust for site quality and consider risk of windthrow.
- Trails should be ≤ 5 m.
- Untreated areas $> 1000 \text{ m}^2$ must be mapped out.
- A buffer (minimum 20 m) should be left on open stand edges to reduce risk of windthrow.
- Sampling: Plot intensity greater of one plot per ha or 4 plots per work area.

Stand Assessment Guidelines (additional methods of assessing suitability for treatment):

- Avoiding windthrow: Height to diameter ratio on crop trees less than 0.80.
- Initial density of quality trees: Minimum 1000 potential crop trees/ha by assessing Acceptable Growing Stock density versus Unacceptable Growing Stock density (pg.42, Pelletier, G., Landry and M.Girouard. 2013. A Tree Classification System for New Brunswick. Northern Hardwood Research Institute. Edmundston, New Brunswick).