



### Background and Purpose

Forest Stand Improvement is the manipulation of species composition, stand structure, and stocking by cutting or killing selected trees and or understory vegetation. The purpose of this practice is to help meet landowner's objectives while improving forest products, forest health, wildlife habitat, and a variety of other resources. This job sheet will focus on **crop tree release** and **area-wide** pole size (4-9" dbh) thinnings on productive forest sites that are overstocked or not meeting landowner objectives (e.g. objective of increased mast production).

### Criteria for Thinning Operations

This practice is generally non-commercial and should be kept as separate as possible from commercial harvests. Firewood removal is allowed so long as wildlife habitat criteria (see below) are addressed. Prescriptions in forest plans will be based upon USFS Silvicultural stocking guides or other guides approved by a forester.

This job sheet was developed to implement NRCS funded pole size thinning approaches using the **area-wide** and **crop tree release** techniques. Both prescriptions usually call for a lowering of the basal area (measure of tree density in ft<sup>2</sup>) as the stands are overstocked and there is little to no available growing space. Area-wide thinnings usually focus on removing the poor growing stock and retaining the good trees while paying little attention to the crowns of individual trees. Crop tree management requires attention to be focused on individual trees with the greatest potential for future income, wildlife habitat, or other values. During crop tree release, some of the trees that may have been retained in an area-wide thinning will be removed to give growing space to the crop tree. Where species diversity and quality differences between trees in a stand are low (e.g. red pine plantation), area wide thinnings are often prescribed. Where species diversity and potential for quality trees is high (e.g. northern hardwoods), crop tree release is often prescribed.

### Area-Wide Thinnings

For area-wide thinnings, be sure to specify how the current stands basal area will be lowered to the target basal area such as through spacing of individual stems, variable removal of individual trees or groups, or number of rows to be removed in a plantation. Trees to be cut will be marked (flagged or painted). Rows to be removed may be minimally marked. **Stocking level shall be reduced to the B line on the stocking guide in the approved silvicultural guide for the species involved. Minimum level of acceptable growing stock (AGS) must be equal to the C line on the stocking guide.**

### Crop Tree Release

For crop tree release, specify approximate number of trees expected to be released per acre, target species, and other species to retain. **Crop trees will be released on 3-4 sides.** At a minimum, crop trees will be marked (flagged or painted) in a manner so that they are easily

identifiable. It is recommended that trees to be cut will be marked with a different color flagging or paint. It is very important for good communication between landowner, forester and contractor on the crop tree approach so crop trees are retained and not accidentally cut. Tally sheets are also recommended but not required. A tally sheet is available for landowners that are interested in a greater level of detail and record keeping. The sheet can be used to inventory or analyze potential crop trees or can also be used to record the number of trees to cut. **Minimum number of timber crop trees to be released per acre is 40 for hardwoods and 50 for softwoods. Maximum number of timber crop trees to be released per acre is 75 for hardwoods and 100 for softwoods. Minimum level of acceptable growing stock (AGS) must be equal to the C line on the stocking guide.** The number, acreage, species and degree of release of crop trees will be evaluated after treatment.

### **Wildlife Habitat Criteria**

Do not discriminate (cull trees) entirely on species basis. When possible favor uncommon and valuable wildlife tree species over common species. Favor mast producing species such as oak, black cherry, ash, maple, yellow birch and white pine during thinning operations. Species of low commercial value but high value to wildlife should also be encouraged. Beech, hickory and aspen are valuable species for mast production, denning, nesting and roosting. Retain den and nest trees during thinning operations. **The recommended stems to the acre will be left on the forest floor and these will be from the large diameter poles culled on site. If the stand has pole diameters of 6 inches or greater, 2 - 4 snags /acre will be maintained or created through girdling. Treatment areas within Indiana bat range (consult with NRCS) will need review and potentially limitations on timing of the practice or design.**

### **Considerations**

Time the practice so it minimally affects seasonal wildlife activities (e.g. breeding birds, seasonal food sources for bear, etc.). When in softwood stands, consider the potential impact to deer wintering areas in the upper pole size diameters and snowshoe hare at the lower size diameters in spruce-fir.

**Please Note:** A current Forest Management Stewardship Plan that identifies the need and specifications for this practice is a requirement.

### **Operation and maintenance**

Periodic inspections during treatment activities are necessary to ensure that objectives are achieved and resource damage is minimized. Follow-up and ongoing management activities will be needed to obtain desired results.

### **Resources for More Information -**

Crop Tree Field Guide – Selecting and Managing Crop Trees in the Central Appalachians – USFS NA-TP-10-01  
<http://www.na.fs.fed.us/pubs/ctfg/index.pdf>

Crop Tree Management in Eastern Hardwoods – Forest Resources Management - USFS NA-TP-19-93  
[http://www.fs.fed.us/na/morgantown/frm/perkey/ctm/ctm\\_index.html](http://www.fs.fed.us/na/morgantown/frm/perkey/ctm/ctm_index.html)

Silvics of North America – USFS Agricultural Handbook 654 – [http://www.na.fs.fed.us/spfo/pubs/silvics\\_manual/table\\_of\\_contents.htm](http://www.na.fs.fed.us/spfo/pubs/silvics_manual/table_of_contents.htm)

**Forest Stand Improvement – Job Sheet – Specifications Sheet**

<i>For:</i>	<i>Tract #:</i> <i>Land Unit(s):</i>
<i>Stand Numbers:</i>	<i>Forest Management Plan Date:</i>
<i>Designed By:</i>	<i>Consulting Forester:</i>
<i>Signature:</i>	<i>Company:</i>
<i>Date:</i>	

<b>Purpose (check all that apply)</b>	
To increase the quantity and quality of forest products	Achieve a desired level of crop tree stocking and density
Improve wildlife habitat	Increase carbon storage in selected crop trees
Reduce the potential of damage from wildfire, pests, and moisture stress.	Other:

**EXISTING STAND CONDITIONS**

**NOTE:** It is expected that a good description of existing stand conditions (Site Class/Site Index, Mean Stand Diameter, stems/acre, etc.) and management prescriptions are found within the landowner’s forest management plan. Please be sure that a copy is included in the case file so that it can be referred to later. It is the basis for implementation of this practice and activity.

<b>Management Description</b> – Under site specifications be sure to describe applicable items. <b>For crop tree release</b> describe approximate number of crop trees/acre, target crop trees, unusual or important species to retain, target BA, how trees will be identified, etc. <b>For area-wide thinning</b> describe target species to retain, spacing or other proposed thinning specs., target BA, unusual or important species to maintain, how cull trees will be marked, etc. For either describe how the practice will be completed such as by hand (chainsaw), chemical, mechanical (e.g. harvester).		
<b>Stand Number:</b>	<b>Type of Forest Stand Improvement (check one)</b>	<b>Date to be completed:</b>
	Crop Tree Release	Area-Wide Thinning (basal area reduction)
<b>Acres to Treat:</b>	<b>Site Specifications:</b>	
<b>Stand Number:</b>	<b>Type of Forest Stand Improvement (check one )</b>	<b>Date to be completed:</b>
	Crop Tree Release	Area-Wide Thinning (basal area reduction)
<b>Acres to Treat:</b>	<b>Site Specifications:</b>	

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Installation shall be in accordance with the aforementioned criteria and specifications. Information concerning proper procedures and techniques for crop tree release are available through NRCS and the reference guide ‘Crop Tree Management in Eastern Hardwoods – Forest Resources Management - USFS NA-TP-19-93’ (see references above). For full information on the practice and specification go the NRCS website for practice standards: <http://www.nj.nrcs.usda.gov/technical/planning/practices.html>

<b>Additional Specifications and Notes:</b>

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Practice Checkout:

Amount completed: \_\_\_\_\_ units

Mark as-built location on plan map and attach photos.

Remarks \_\_\_\_\_

This practice meets NRCS standards and specifications

Yes

No

Check out completed by: \_\_\_\_\_ Date: \_\_\_\_\_

Certified by: \_\_\_\_\_ Date: \_\_\_\_\_