

Tree Series



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Controlling Broadleaf Weeds and Grasses for Plantation Site Preparation

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Weed control in hardwood and conifer plantations can be difficult without careful planning and thorough site preparation before planting. Potential reforestation sites in agricultural settings often contain hard-to-control annual and perennial herbaceous weeds, volunteer or remnant crop species, and brush. For example, some recently cropped fields may contain weeds such as velvetleaf that have developed resistance to commonly used herbicides. Old hayfields and pastures often contain remnant clover and alfalfa that can be severe competitors with tree and shrub seedlings for moisture and sunlight. Control of this competing vegetation is most easily and efficiently accomplished in the fall **before** planting, for several reasons:

- Mowing has been shown to stimulate greater weed root development and encourage more vigorous regrowth of most brush and herbaceous weed species. Many brush species resprout and spread following mowing.
- Mowing to control weeds between seedlings in rows is difficult, if not impossible, especially in large-scale plantings.
- A universally effective selective herbicide for weed control in hardwood and conifer plantations is not yet registered for use in reforestation. Most selective herbicides are designed to affect only a narrow range of plant species. This means that multiple selective herbicides or directed applications of non-selective herbicides are necessary to provide weed control.
- Postplanting weed control can be expensive and time consuming in plantations containing

resistant weed species or tough-to-kill undesirable woody plant species (e.g., sumac, multiflora rose, gray dogwood, autumn olive, blackberry).

These problems can be overcome by eliminating problem weeds in the entire field well before planting begins. Application of a broad-spectrum herbicide or a brush-killing herbicide and, in some cases, use of a cover crop can significantly reduce weed problems during the year of planting.

Site Preparation

Aggressive site preparation can eliminate many of the difficult-to-control weeds in the fall before planting. Use one or a combination of the following methods to alleviate your weed control problems in advance.

For sites with perennial grasses and broadleaf weeds

Apply a broadcast spray of Roundup or Accord at a rate of about 2 to 4 quarts per acre to actively growing grasses and broadleaved weeds in late August or September. Use a tractor-mounted boom sprayer for treating large areas or a hand or backpack sprayer for smaller areas.

For spot treatment, use a 2 percent solution by volume, or about 1 fluid ounce per gallon of water. One gallon should treat about 650 square feet. Spray coverage should be uniform and thorough but not wet the foliage to the point of runoff.

For best results, wait at least 10 days after using Roundup before mowing, plowing or disking.



Disturbing treated sites too soon will prevent the herbicide from being translocated to plant roots and will result in incomplete weed control.

For sites with light to heavy brush

Brush species in hardwood and conifer plantations can be very difficult to control after trees are planted. They can also be very tough competitors with seedlings for light and moisture. Brush control is best achieved by eliminating brush species during the fall before planting. Reduce brush cover and height first by mowing or brush hogging during mid- to late summer (late July, early August). Wait until the brush sprouts reach about 12 inches in height, then apply a combination of herbicides that kill brush species and control the other broadleaf and grass weeds present. A good guideline in Michigan is to make these applications around Labor Day, before leaves turn color and fall.

For hardwood plantations, use a mixture of Accord or Roundup and Garlon 3A. For conifers, use one of the herbicides in the following chart for brush control and a postemergent herbicide such as Roundup or 2,4-D to control annual and perennial grasses. Wait four to six weeks before disking sites. Note that these herbicides may provide partial or incomplete control of grasses and weeds—you may wish to tank mix with another herbicide to provide more complete control.

Consult the product label for other specific instructions regarding timing of application, methods and personal safety precautions. Wear at least the minimum personal protective gear recommended on the label. Additional information and supplemental labels can be found at the following website:
<http://www.greenbook.net/free.asp>.

Consider planting a cover crop

First-year control of weeds in hardwood and conifer plantations can be improved by using a cover crop of wheat, barley, oats or rye. Plant cover crops in the fall after killing annual and perennial weeds and any brush cover. Trees are planted into

the cover crop in the spring and treated with a banded herbicide application centered on each row. The cover crop provides natural weed control by preventing weeds from growing between the rows throughout the first growing season. The cover usually dies in July, when seedling moisture demand peaks. Sites can be planted after disking or with a no-till drill on sites without brush cover. For economy, "off-spec" or cheaper seed can be used to achieve acceptable results.

Weed control activities must continue from the time of planting until the seedlings have been in the ground for three years. For information on year-of-planting and followup weed control, consult MSU Extension Bulletin E-2752, "Herbicides for Year-of-Planting Weed Control in Hardwood and Conifer Plantations."

Information sources

Holaday, S., and J. Martin. 1995. Wisconsin's forestry best management practices for water quality using forestry chemicals. Forestry Facts No. 10. Madison, Wis.: University of Wisconsin—Madison Department of Forestry.

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vonAlthen, F.W. 1990. A Guide to Hardwood Planting on Abandoned Farmland in Southern Ontario. Sault Ste. Marie, Ontario: Great Lakes Forest Research Centre.

Other *Tree Series* bulletins:

E-2752, Herbicides for Year-of-Planting Weed Control In Hardwood and Conifer Plantations

E-2753, Site Preparation and Tree Planting for Forest Production



Herbicides recommended for site preparation for hardwood and conifer tree seedlings.^{1, 2}

For both hardwood and conifer regeneration:

Quantity

Accord, Glypro, Roundup Pro ³	3/4 to 4 quarts/acre
Garlon 3A	1/4 to 3 gallons/acre

For conifer regeneration only:

Velpar DF	1.3 to 6.6 pounds/acre (site preparation only)
Velpar L	4 to 10 quarts/acre (for conifer site preparation only)
Arsenal	1/4 to 2.5 pints/acre (summer applications)
2,4-D ester (2,4-D LV4)	1.5 to 4 quarts/acre (between full leaf development to two weeks before first frost)
Patron 170	1 to 2 gallons/acre (between full leaf development to two weeks before first frost)
Vanquish (Dicamba)	1 pint to 2 gallons/acre (between full leaf development to two weeks before first frost)
Garlon 4	3 to 6 quarts/acre (wait 1 to 2 months after application before planting)

¹For site preparation on sites with minor patches of woody brush, spot spray with Garlon 4 or a concentrated Roundup solution per the label instructions.

²Reference to commercial products or trade names does not imply endorsement by the MSU Department of Forestry or the MDNR Forest Management Division, or bias against those not mentioned.

³Roundup Pro is registered for landscape and ornamental uses. Accord concentrate and Accord SP are labeled for forestry site preparation.





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