United States Department of Agriculture

NRCS Natural Resources Conservation Service

Forestry Technical Note

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Low Volume Basal Bark Treatment

INTRODUCTION

Basal bark treatment is a selective method of controlling woody vegetation by spraying chemicals that are labeled by the manufacturer for the specific use on the stem (bark) of the targeted plant species.

This method is useful for controlling woody plants that are too tall for foliar applications. It is commonly used to control non-native invasive species such as Bush Honeysuckle (*Lonicea spp*.), Autumn Olive (*Elaeagnus umbellata*) and Tree of Heaven (*Alilanthus altissima*).

Photo Credit: John W. Taylor, Jr., U.S. Forest Service

METHODS

Basal bark treatment involves spraying labeled herbicide solution using a low volume spray wand. This method is usually used on woody plants that are 6 inches in diameter or less at breast height (DBH).

Basal bark treatment reduces potential damage to non-target plant species. The herbicide solution includes a surfactant and/or an oil carrier that allows the herbicide to penetrate through the bark to the cambium (conductive tissue). The cambium allows translocation of the herbicide to kill the plant by various mechanisms, such as disruption of amino acid production and growth regulation, or by girdling of the stem that prevents movement of nutrients to the roots.

Herbicides can be sprayed during the growing season or dormant season (in late fall or winter after leaf drop).

For best results and by most herbicide labels, basal bark herbicides should be applied when the air temperature is between 20 and 90 degrees Fahrenheit and when the bark of the stem is free of moisture such as snow, ice, or water from recent rainfall. With most oil based solutions, if the spray turns white or appears cloudy on the stem, there is too much moisture present for effective treatment.

Herbicides should not be sprayed when snow is on the ground that prevents treating the stem at ground level. Temperatures below 20 degrees Fahrenheit can inhibit herbicide uptake if the bark is frozen and herbicides can volatilize when temperatures are above 90 degrees Fahrenheit.

For larger stems (greater than 6 inches DBH) other treatment methods like cut stump treatment can be considered. If cut stump treatment is used for Tree of Heaven, follow-up foliar treatment is recommended to control the many root sprouts/suckers that will most likely form after cutting or other disturbance. An advantage of basal bark treatment for Tree of Heaven is that it reduces the number of root suckers as compared with cut stump or frill-girdling methods.

Regardless of the stem diameter of the plant, it is important to spray the herbicide solution around the entire circumference of the stem starting at the root collar (ground level) and extending upward to the desired height (usually 12 – 18 inches). The spray should cover the entire circumference of the stem (but not to the point of runoff), and every stem or trunk arising from the ground should be treated. Follow-up foliar herbicide application to control basal sprouts and root suckers may be necessary on some species.

HERBICIDES

According to Penn State University, Purdue University, Plant Conservation Alliance, the Maryland Dept. of Forestry, and the Southeast Exotic Pest Plant Council Invasive Plant Manual, herbicides shown to be effective using basal bark treatment include:

- triclopyr
- imazapyr

Contact a professional forester, Purdue University Extension Service or a licensed pesticide applicator for specific herbicide recommendations. Always apply herbicides according to labeled directions.

Species Specific Control Recommendation
Bush Honeysuckle

Purdue University Control Trial
http://mipn.org/bushhoneysuckletrial.html

Kentucky Woodlands Magazine
http://www.ca.uky.edu/forestryxtension/KWM/Bush%20honeysuckle.pdf

Tree of Heaven
Penn State University
Roadside Vegetation Management Fact Sheet 3
http://vm.cas.psu.edu/Publications/FS_3_AILAL_v2.pdf
(See page 3)

Virginia Division of Forestry
Control and Utilization of Tree-of-Heaven
http://www.dof.virginia.gov/health/resources/pub_Ailanthus-Control-and-Utilization.pdf
(See page 8)

Illinois Nature Preserves
http://dnr.state.il.us/INPC/VMG/VMG%20Tree%20of%20heaven%20original%202002.pdf
(See bottom of page 3 and page 4)

Maryland Department of Natural Resources - Forest Service
http://www.naturalresources.umd.edu/Publications/PDFs/Other/TreeOfHeaven.pdf
(See pages 3 and 5)

Plant Conservation Alliance's Alien Plant Working Group
http://www.nps.gov/plants/alien/fact/aial1.htm
(See "Management Options" on page 3 from pdf download)

Native Plants Journal
Techniques to control woody invasive plants in Indiana hardwood forests
Volume 8, Number 2, Summer 2007, pp. 107-113

Other Useful Websites

Purdue University Weed Science
http://www.btny.purdue.edu/weedscience/

Illinois Nature Preserve Management Guidelines
http://dnr.state.il.us/INPC/stewardship.htm