

TURFGRASS SCIENCE

at the UT Institute of Agriculture

Brush Control in Urban Landscapes

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Brush is defined as woody shrubs, vines or trees that are undesirable in a specific location. Controlling brush species can be a daunting task for most landscape managers because removal and disposal of unwanted brush species can be difficult, costly and very time-consuming. If proper steps are not taken in the appropriate order, you may spend more time and money to remove the woody brush species than necessary.

So, what to do with woody brush? Hand removal is time-consuming and labor-intensive. Unfortunately, many species will simply re-grow to their original size a few years after hand removal.

Broadcast applications of herbicides over the top of woody vegetation are another potential control strategy; however, this type of application removes leaf tissue and leaves behind woody stems that require hand removal. In addition, control with broadcast herbicide applications is often erratic due to the fact that adequate herbicide coverage is often difficult to achieve. Additionally, brush species are often found in areas where mowing or spraying equipment cannot be used due to excessive slopes or perpetually wet soils that cannot be traversed.

Other options for control of brush are cut-stump, basal-bark and foliar spray-to-wet applications, which will be discussed in further detail later in this publication.

Effective control of woody vegetation requires strategic planning. Following the outline below will save time, money and prevent problems associated with controlling brush species.

1. Identify the brush species requiring control.

The initial step in controlling any weed is proper identification. It is impossible to know how to control a weed without knowing what it is that needs to be eradicated. Some brush species are harder to control than others. Mimosa (*Albizia julibrissin*) and Chinese privet (*Ligustrum japonicum*) are two species that

are particularly difficult to control because they often resprout after mechanical removal.

Additionally, some unwanted brush species cause allergic reactions. For example, poison ivy (*Toxicodendron radicans*) and giant hogweed (*Heracleum mantegazzianum*) can cause dermatitis in susceptible individuals. Upon contacting these species, susceptible individuals may develop a severe rash. Virginia creeper (*Parthenocissus quinquefolia*) and Chinaberry (*Melia azedarach*) produce toxins that may be harmful to humans or other animals if ingested. Therefore, controlling these species may help alleviate potential health hazards.

Visit tennesseeturfgrassweeds.org for help identifying troublesome brush species in your landscape.

2. Survey the plant diversity in areas requiring control.

A. How large are the species that you want removed (height, diameter of trunk, amount of foliage, etc.)?

Plant size often dictates which application technique is required to achieve adequate control. If plants are too large and adequate spray coverage cannot be achieved, spray-to-wet applications will not provide effective control. In these situations, a basal-bark or cut-stump treatment would be the preferred method. If a species has a trunk diameter larger than 6 inches, then the cut-stump method would provide better control.

B. Which species are present and how much area do plants cover?

The effectiveness of control strategies often varies by species. One might want to concentrate on the species that are the most difficult to control or the

problem species that occupy the most area. Many species will require a second herbicide application to control foliage that recovers after initial treatment. Considering that two herbicide applications will be required, use the first application to control the most problematic species, and focus on those that are less problematic with the second application.

C. Can the target species be mowed, clipped or cut down with a chain saw or other mechanical removal equipment?

The type of equipment needed to remove an unwanted species can dictate which method of treatment can be utilized. If a chainsaw is used for removal, then a basal-bark treatment can be used for control, as long as there is an adequate amount of time between treatment and brush removal for the herbicide to translocate throughout the plant. If time is an issue and the brush needs to be removed immediately, the cut-stump method would be preferred.

3. Select the correct herbicide application method.

Selecting an appropriate method of herbicide application is arguably the most important decision in controlling woody brush species. Treating individual plants instead of broadcasting a treatment entirely over an area is the preferred method of herbicide application in most situations. One reason for this is due to the inability to get adequate coverage on all foliage with broadcast spray applications. Individual plant treatments also reduce the possibility of off-target herbicide movement and damage to nearby non-target species.

When selecting the proper application method, it is important to determine which equipment is needed to uniformly apply a herbicide across the site. Almost any of the hand-held or backpack sprayers with low-pressure wands can be used to make herbicide applications for woody brush control. The sprayer selected should be chemical-resistant and suitable for use with basal oil. Basal oils are designed specifically for basal-bark and cut-stump treatments.

The following techniques can be used to apply herbicides for woody brush control.

Cut-stump: This application can be done at any time of the year as long as conditions allow for proper application; however, cut-stump herbicide applications are often used during late fall and early winter. This method of application involves removal of the woody species, followed by treatment of the stump with a herbicide to prevent re-growth. The herbicide mixture must be applied immediately after plants are physically cut. To treat, spray the mixture on the cut surface of the stump. Do not apply to the point of runoff. The goal of this application is to apply herbicide to the cambium layer of the stump, as it is the only portion of the stump where herbicides are translocated

(Figure 1). The vascular cambium is roughly located along the outer 1/8 - 1 inch of the trunk. The stump must be treated within 1 hour of being cut. Cut-stump treatments allow for herbicide applications that are low in both pressure and spray volume. Basal oil is mixed with the herbicides applied to cut stumps to aid in herbicide penetration of the chemical into the wood.



Figure 1.

Basal-bark: Basal-bark treatments require that vegetation is not removed until adequate time has been given for the herbicide to translocate throughout the plant. Plants must be less than 6 inches in diameter to achieve adequate control with basal-bark applications. For plants larger than 6 inches in diameter, cut-stump treatments would be more effective. To treat, apply enough spray solution to the bottom 15-20 inches of the trunk (Figures 2 & 3). Do not apply to the point of runoff. Similar to cut-stump treatments, basal-bark treatments allow for herbicide applications that are low in both pressure and spray volume, and use basal oil as a carrier to aid in penetration into the target plant.



Figure 2.



Figure 3.

Spray-to-wet: These applications must be made when plants are green and actively growing, making spray-to-wet applications a preferred method during the late spring and summer. Plants must be small enough that foliage can be wet with spray solution, as the concept of this treatment is to make sure all leaves of the target plant are thoroughly wet. Unlike cut stump or basal bark treatments, spray-to-wet applications require a high spray volume of mix; however, applications can be made at low pressure. Herbicides used in spray-to-wet applications are mixed with water rather than basal oil.

4. Select the correct herbicide.

When selecting a herbicide, consider whether or not there is any desirable vegetation in close proximity to those species requiring removal. For example, is there established turfgrass surrounding the woody brush that needs to be removed? If so, a selective herbicide like triclopyr (trade name — Garlon) should

be used instead of a non-selective herbicide like glyphosate (trade name - Roundup). If drift onto non-target species is a concern, limit the use of products that contain 2,4-D (e.g., Crossbow) to decrease the possibility of vapor drift injuring or killing non-target vegetation.

Table 1 provides a list of some herbicide options for control of unwanted brush.

Table 1. Herbicides for unwanted brush removal*

Herbicide	Active Ingredient	Rate	Carrier	Application Method	Sensitive Species
Arsenal	imazapyr	8-12 oz/gal	Water	Cut-Stump	Poplar, Privet, Sumac, Maple and others
Arsenal	imazapyr	0.5-5%	Water	Spray-to-wet	Poplar, Privet, Sumac, Maple and others
Brush Buster	2,4-D + dicamba	16 oz/gal	Water	Spray-to-wet	Numerous species
Brush Killer, BrushMaster, others	2,4-D + mecoprop + dicamba	0.5-2 gal/100 gal	Water	Spray-to-wet	Numerous species
Brush Killer, BrushMaster, others	2,4-D + mecoprop + dicamba	10 oz/gal	Basal Oil	Cut-Stump	Numerous species
Brush-no-more, others	2,4-D, dichlopop-p, dicamba	3-5 oz/gal	Water	Spray-to-wet	Numerous species
Brush-no-more, others	2,4-D, dichlopop-p, dicamba	20 oz/gal	Water	Cut-Stump	Numerous species
Crossbow	triclopyr + 2,4-D	1-1.5%	Water	Spray-to-wet	Ash, Black Locust, Cottonwood, Maple, Sumac and others
Crossbow	triclopyr + 2,4-D	1.50%	Basal Oil	Basal-Bark	Elm, Sweetgum and others
Escort	metsulfuron	4-8 oz/100 gal	Water	Spray-to-wet	Ash, Black Locust, Cottonwood, Elm, Oaks and others
Garlon 4	triclopyr	20-30 gal/100 gal	Basal Oil	Basal-Bark or Cut-Stump	Tree-of-heaven, Osage orange (bois d' arc), Oak, Elm, Mixed Hardwoods and others
Garlon 4	triclopyr	2 qt/100gal	Water	Spray-to-wet	Osage Orange (bois d' arc), Locust, Sassafras, Sumac, Sweetgum and others
PastureGard	triclopyr + fluroxypyr	50%	Basal Oil	Basal-Bark or Cut-Stump	Birch, Elm, Hackberry, Maple, Oak, Locust, Poplar, Sumac and others
PastureGard	triclopyr + fluroxypyr	1-2 gal/100 gal	Water	Spray-to-wet	Birch, Elm, Hackberry, Maple, Poplar, Sumac and others
Roundup Pro, others	glyphosate	50-100%	Water	Cut-Stump	Alder, Oak, Sweetgum and others
Roundup Pro, others	glyphosate	1-2%	Water	Spray-to-wet	Maple, Oak, Pine and others
Roundup Poison Ivy & Tough Brush Killer	glyphosate + triclopyr	6 oz/gal	Water	Spray-to-wet	Numerous species

* This is a partial list of materials that can be used for unwanted brush control. The active ingredients contained in these herbicides will aid in unwanted brush management.

Once the situation has been assessed, a management strategy can be adapted to control the unwanted woody brush. Several chemical and mechanical control strategies can be effective (Table 1). Regardless of the combination of herbicides and mechanical techniques selected, complete control often requires implementing a control measure more than once. Visit the site at least two times per year to spot-treat any re-growth. Planting desirable vegetation (turfgrasses, native warm-season grasses, native woody ornamentals, etc.) after treatment may help provide competition against re-growth. It is important to ensure that desirable vegetation introduced after treatment is tolerant to the herbicides used for weed control.

Always refer to the product label for specific information regarding proper product use, tank-mix compatibility and turfgrass tolerance. For more information on weed control, please visit the University of Tennessee's weed science website, tennesseeturfgrassweeds.org.

Herbicides listed in this publication have provided good to excellent control in research trials conducted at the University of Tennessee; however, other herbicides may also have activity on this weed. For more information on herbicide selection, please visit The University of Tennessee Mobile Weed Manual (MWM) at mobileweedmanual.com. MWM was developed by UT Extension professionals to assist green industry professionals in selecting herbicides for use in turf and ornamentals. MWM is a web-based platform optimized for use on mobile devices such as smartphones and tablets but it will function on desktop and laptop computers as well. The site provides users with weed control efficacy information for 90 different herbicides, tolerance information for over 2300 turf and ornamental species, as well as direct links to label and material safety data sheet information on herbicides used for turf and ornamental weed management.



Disclaimer

This publication contains herbicide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the herbicide applicator's responsibility, by law, to read and follow all current label directions for the specific herbicide being used. The label always takes precedence over the recommendations found in this publication.

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), the University of Tennessee Institute of Agriculture and University of Tennessee Extension assume no liability resulting from the use of these recommendations.

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