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EXTENSION SERVICE

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Autumn Olive

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What is autumn olive?

Autumn olive (*Elaeagnus umbellata* Thunb.) is a large deciduous shrub capable of forming dense thickets in West Virginia pastures. It was introduced to North America in the 1800s and is native to eastern Asia. Individual plants may reach heights of 20 ft, and can be easily distinguished by their leaves, which have a lustrous silvery appearance on their lower surface, and are arranged alternately to the stem. A bush honeysuckle called Tartarian honeysuckle (*Lonicera tartarica* L.) can be mistaken for autumn olive, but its leaves are more oval, oppositely arranged, and are not silvery on either surface. Autumn olive displays a vivid white bloom in early spring, and its growth habit may provide refuge for certain wildlife.

What problems does it cause?

Autumn olive is one of the most common invasive brush species in the state. If left uncontrolled, it is capable of significantly affecting pasture productivity. It may reduce the water, nutrients and sunlight available for desirable plant species, and may depreciate the productive area of a pasture considerably. Dense thickets of autumn olive can be an eyesore and may serve as a source of undesirable weed seeds to nearby pastures and farms.

How can it be controlled?

While new infestations of younger autumn olive plants may be controlled within a growing season, a persistent approach covering multiple (3 to 5) years may be required to control well-established stands. A combination of mechanical and chemical methods is recommended whenever feasible.

Mechanical control methods

Understanding the physiology of autumn olive is important for appropriately timing a control method. The ultimate goal is to kill the root system, since it can sprout new growth if left viable. The roots expend energy during spring months when the plant works to reestablish its canopy. At this time the predominant flow of stored sugars (the plant's energy reserves) is in the upward direction, into new shoots and leaves. Taking advantage of this timing can make mechanical control methods, such as girdling, prescribed burns, bush-hogging and cutting, more successful. Likewise, a young autumn olive shrub may be grubbed most effectively in spring, after the plant leafs-out fully, by removing the entire root system when the soil is moist. Such well-timed mechanical methods leave the roots compromised and potentially unable to produce new shoots. Any sprouts appearing after mechanical removal should be treated with herbicides to achieve proper kill.

Chemical control methods

The herbicides effective for autumn olive control are systemic (circulate throughout the plant) by nature (Table 1). Like with mechanical controls, optimal herbicide effectiveness is achieved when well-timed applications take advantage of the seasonal changes in the plant's physiology. When systemic herbicides are applied later in the season, when the flow of sugars is downward toward the roots, better translocation of chemicals to the root system may be facilitated. Choosing the proper herbicide, timing, method and rate of application will determine the treatment success. Repeated applications during successive growing seasons may be required in some instances.

Common Name	Trade Name	Application Method	Application Rate (Product)
Glyphosate	Roundup® *(≥ 4 lb/gal)*, *several formulations*	Directed foliar, cut-stump	Foliar: 2 to 3% solution Cut-stump: 20 to 25% solution
Fluroxypyr + triclopyr	PastureGard® HL	Foliar	1% solution
Picloram + 2,4-D	Tordon® RTU	Cut-stump	Full strength
Picloram + 2,4-D	Grazon® P+D	Foliar	2% solution
Tebuthiuron	Spike® 20P	Directed soil	¾ oz per 100 ft^2
Triclopyr	Remedy® Ultra	Foliar, basal bark, cut-stump	Foliar: 1 to 2% solution Basal bark, cut-stump: 20% in oil
Triclopyr + 2,4-D	Crossbow®	Foliar, basal bark, cut-stump	Foliar: 2% solution Basal bark, cut-stump: 5% in oil

Table 1. Herbicides used in pasture for control of autumn olive.

Use a foliar (leaf) herbicide application to wet the entire canopy without allowing the droplets to drip. Directed applications of herbicides containing the active ingredients glyphosate (Roundup®, etc.), triclopyr (Remedy® Ultra, Crossbow®), fluroxypyr (PastureGard® HL), and picloram (Grazon® P+D) are especially effective for this purpose. Other herbicides such as 2,4-D and dicamba provide suppression of autumn olive.

Foliar applications of systemic herbicides are especially effective in the months of July through September when there is adequate moisture in the soil. Late spring is also a suitable window for application. Of the herbicides listed, glyphosate is non-selective and will cause injury to grasses and other vegetation. It should, therefore, be applied as a directed spray to the target plants. If using glyphosate, use a coarse spray with an air-mix nozzle to avoid drift while providing good foliar coverage.

To control larger plants, basal or cut-stump applications are recommended. For basal applications, a triclopyr herbicide mixed with high-grade mineral oil or No. 2 diesel oil, and applied around the bark of a standing plant to a height of 12 to 18 inches above the soil is recommended. Follow the instructions on the herbicide label regarding type of sprayer and spray volume required. Basal applications may be carried out year-round, except when snow or rain prevent the spray from being applied all the way to the ground.

Herbicides containing glyphosate or triclopyr are also recommended for cut-stump applications. Using a sponge, brush or sprayer, apply the herbicide solution to the entire cut surface of the

stump immediately after cutting. In addition, certain ready-to-use formulations may be used to conveniently treat small areas. A liquid formulation containing picloram and 2,4-D (Tordon® RTU) is effective as a cut-stump treatment.

A pelleted formulation containing tebuthiuron (Spike® 20P) may be broadcast directly over soil in the vicinity of autumn olive stems. Care should be taken not to apply this herbicide to areas prone to runoff. Application of this herbicide during early spring prior to active growth and rainfall will provide the best results.

Biological Control Methods

An effective and sustainable strategy to manage autumn olive is to graze goats along with cattle on the affected pasture. Goats prefer brushes such as multiflora rose and autumn olive, especially when they are young, over other forage. They can defoliate areas infested with brushes that offer limited access to humans. Livestock tend to trample and forage on brushes when their grazing is confined to a tighter area. Such targeted grazing by goats contained using a solar-powered temporary step-in fence has proven to be effective, especially to control smaller brushes. Various types of fencing materials, such as poly-wire, electric-tape and electric-netting, are available on the market. Once brush is under control, create and maintain a dense canopy of forage and employ rotational grazing. These help the forage out-compete new autumn olive seedlings and prevent the shrub's reestablishment.

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