

Forest Health



Invasive Plant Hit List: Kudzu

By Mitch Blair

Kudzu (*Pueraria lobata* Willd.) is a leguminous vine native to China. The plant was first introduced to the United States in the late 1800s as an ornamental and later grown as a forage crop and soil stabilizer. Kudzu now grows throughout the southeastern United States, including Kentucky, and occurs in a variety of sites, such as forest edges, rights-of-way, old homesteads, and stream banks. Capable of growing two inches a day under optimal conditions, kudzu is considered an invasive species due to its growth habit and ability to dominate a site if left unchecked.

Identification and Reproduction

Kudzu is an aggressive, climbing, or trailing herbaceous to semi-woody, deciduous, perennial

Kudzu leaf



vine. Leaves are alternate pinnately compound with three leaflets that are three to four inches long. Leaflets are attached to a long petiole, and both the leaflets and petiole are covered with bronze

hairs. Leaf characteristics remain the same with age, except for leaf size, which increases as the plant matures. Tender shoots and stems become semi-woody to woody with age. Mature vines may grow up to ten inches in diameter and show little to no branching. The vines can climb almost any type of structure measuring less than six to eight inches in breadth or diameter. Flowers develop from June to September and are lavender with yellow centers.

Kudzu plants have an extensive root system with large tuberous roots that may reach three to ten feet in depth. Sprouting from adventitious roots and tubers is more problematic and common in Kentucky than germination from seed. Reproduction by sprouting is often aggressive and can result in dense monoculture mats that are difficult to manage. Root sprouts emerge each year between late spring and early summer. Kudzu is extremely susceptible to frost, and the aboveground portions die back after the first frost of the season, but the belowground portions remain viable.

Control Measures

Cultural control methods, such as livestock grazing, have been shown to be effective in controlling the size of a small ongoing infestation. Intensive grazing by goats and cattle, for example, may help deplete root reserves and weaken the plant to allow for easier control.

Mechanical control of kudzu infestations by mowing, hand removal, or prescribed burning is usually ineffective due to the inadequacy of these methods to control sprouting roots and tubers. Mowing or burning late in the growing season followed by an early application of triclopyr ester or glyphosate as a 2 percent solution in the following growing season may increase control efforts of smaller infestations.

Kudzu cannot be controlled with one herbicide application. To reduce an infestation, multiple applications are necessary over several growing seasons depending on the age of infestation. The herbicides listed in Table 1 are available for kudzu control. Foliar applications should be used at moderate high application volumes (25 to 50 gallons per acre or greater of spray solution, depending on density and size of the infestation) to thoroughly wet leaves. Basal applications can be made to climbing or trailing stems while taking precautions to avoid non-target damage.

Care should be taken when using picloram due to its water solubility and soil persistence. Use extreme caution to avoid off-target damage when using herbicides. Always follow the labeled instructions related to the application of herbicides and related personal protective equipment. Consult the label and your local county Cooperative Extension office to determine which products will best suit the site characteristics.

Foliar application on kudzu



Photo courtesy: Mitch Blair

Kudzu

Kentucky Forest Health Task Force

Table 1. Common herbicides available for kudzu control.¹

Active Ingredient(s)	Herbicide(s)	Rate of Product	Comments
Glyphosate	Roundup, Accord, etc. ²	4 qt/acre or 2% solution	Apply at 50 GPA ³ or greater spray volume, or spray to runoff in mid- to late summer. Apply with nonionic surfactant at 0.5% v/v ⁴ .
Metsulfuron methyl	Escort	3-4 oz product/ acre	Apply at 25-50 GPA or greater spray volume, or spray to runoff in mid- to late summer. Add a nonionic surfactant at 0.5% v/v.
Clopyralid	Transline	0.25-1.3 pints/acre	Apply up to 100 GPA spray volume, or spray to runoff in mid- to late summer before kudzu flowers to ensure sufficient coverage. Include a nonionic surfactant at 0.5% v/v.
Triclopyr ester	Garlon 4	20% with oil carrier for basal spray or 4-8 qt/ acre for broadcast foliar	Apply as a basal spray Jan.-Apr. to vines 2" or less in diameter. Apply as a foliar spray using water at 25-50 GPA or greater spray volume, or spray to runoff in mid- to late summer. Include a nonionic surfactant at 0.5% v/v when using foliar treatment.
Triclopyr amine	Garlon 3A	0.25 to 3 gallons/acre	Apply at 25-50 GPA or greater spray volume, or spray to runoff in mid- to late summer. Add a nonionic surfactant at 0.5% v/v.
Dicamba	Vanquish	8-64 oz/acre	Apply at 25-50 GPA or greater spray volume, or spray to runoff in mid- to late summer. Add a nonionic surfactant at 0.5% v/v.
Picloram + 2,4-D	Tordon 101M	1-2 gallons/acre	Apply at 25-50 GPA or greater spray volume, or spray to runoff in mid- to late summer. Add a nonionic surfactant at 0.5% v/v.

¹ There are other herbicide brands available for kudzu control. The herbicides listed above are those that have widespread use.

² There are a large number of brand names for glyphosate herbicides. Many are for use in fields, fencerows, and other non-forestry settings. Few such as Accord are labeled for forestry use (see the July 2006 issue of Kentucky Woodlands Magazine for more information on glyphosate herbicides).

³ GPA = gallons per acre.

⁴ v/v = an abbreviation for 'by volume'. Thus 0.05% v/v means that the volume of the substance is 0.05% of the total volume of the solution or mixture.

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