AGR-186

UK COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY — COLLEGE OF AGRICULTURE

Kudzu Identification and Control in Kentucky

M.P. Blair and W.W. Witt, Department of Plant and Soil Sciences

Kudzu (*Pueriaria 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 is now considered invasive due to its growth habit and ability to dominate a site. Kudzu grows throughout the southeastern United States and Kentucky, occurring in a variety of sites, such as forest edges, rights-of-way, old homesteads, and stream banks. It has been confirmed that kudzu is a host for soybean rust, which further increases the importance of proper identification and control.

Plant Characteristics and Life Cycle

Kudzu is an aggressive, climbing or trailing, herbaceous to semi-woody, deciduous, perennial vine. Leaves are alternate pinnately compound with three leaflets that are 3 to 4 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 that increases as the plant matures. Juvenile vines are covered with tan to bronze hairs that deteriorate as the plant matures. Tender shoots and stems become semi-woody to woody with age. Mature vines may grow up to 10 inches in diameter and exhibit infrequent branching. The vines can climb almost any type of structure measuring less than 6 to 8 inches in breadth or diameter. Flowers develop from June to September and display lavender-colored petals with yellow centers.

Photo by Jill Swearingen, USDI National Park Service

Kudzu displaying its climbing ability

Photo by James H. Miller, USDA Forest Service

Kudzu leaflet in early summer.

Kudzu reproduces by seed and spreading adventitious roots that develop new juvenile shoots. The plants have an extensive root system with large tuberous roots that may reach 3 to 10 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 in the period 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. Capable of growing 12 inches a day under optimal conditions, kudzu exhibits rapid growth rates that contribute to its aggressiveness in the summer.

Photo by Jerry Asher, USDI Bureau of Land Management

Kudzu's ability to dominate a site

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% solution in the following growing season may increase control efforts of smaller infestations.

Kudzu cannot be controlled with one herbicide treatment; to reduce an infestation, multiple treatments are necessary over three or more years depending on the age of infestation. The herbicides listed in Table 1 are available for kudzu control and should be used at high application volumes (> 50 gallons per acre [GPA] of spray to thoroughly wet leaves to the point of runoff). The results of studies conducted at the University of Kentucky in 2004 were in agreement with the recommendations for picloram, metsulfuron, clopyralid, and triclopyr recommendations listed in Table 1. These treatments will undoubtedly require annual applications to eradicate the infestation.

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 products including the grazing and harvesting restrictions for herbicides labeled for pastures and general farmstead use. Consult the label and your local county Extension office to determine which products will best suit the site characteristics.

Table 1. *Herbicide recommendations for control of kudzu.*

Active Ingredient(s)	Herbicide(s)	Sites Labeled	Rate of Product	Comments
Glyphosate	Roundup, Touchdown, etc	Home and farmstead	4 qt/ac or 2% solution	Apply at 50 GPA or greater spray volume or spray to runoff in mid- to late summer.
	Roundup, Accord, etc	Forestry and non-crop	4 qt/ac or 2% solution	Apply with nonionic surfactant at 0.5% volume of total solution (v/v).
Metsulfuron methyl	Escort	Forestry and non-crop	3 – 4 oz product per acre	Apply at 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	Lontrel Turf & Ornamental	Non-residential turf	0.8 – 1% solution	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.
	Transline	Forestry, rights-of-way, rangeland, and permanent pasture	0.25 – 1.3 pints/ac	
Triclopyr ester	Garlon 4	Forestry, rights-of-way, and non-crop	20% v/v with oil carrier for basal spray or 4 – 8 qt per 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 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.
	Remedy	Non-crop, rangeland, and permanent pasture	20% v/v with oil carrier for basal spray or 1 qt per acre for broadcast foliar	
Triclopyr amine	Garlon 3A	Forestry, rights-of-way, non-crop, farmstead	0.25 to 3 gallons/ac	Apply at 50 GPA or greater spray volume or spray to runoff in mid- to late summer. Add a nonionic surfactant at 0.5% v/v.
Triclopyr amine + clopyralid	Redeem R & P	Non-crop, rangeland, and permanent pasture	0.75 – 1% solution	Apply up to 100 GPA 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.
Dicamba	Clarity	Row-crop, Conservation Reserve Program lands, general farmstead, turf	32 – 64 oz/ac	Apply at 50 GPA or greater spray volume or spray to runoff in mid-to late summer. Add a nonionic surfactant at 0.5% v/v.
	Vanquish	Turf, rights-of-way, forestry	8 – 64 oz/ac	
Picloram + 2,4-D	Tordon 101M	Forestry, rights-of-way, non-crop	1 – 2 gallons/ac	Apply at 50 GPA or greater spray volume or spray to runoff in mid- to late summer. Add a nonionic surfactant at 0.5% v/v.

Issued 11-2005