



## Southeast Exotic Pest Plant Council Invasive Plant Manual

**Common Name:** Kudzu

**Scientific Name:** *Pueraria montana* (Lour.) Merr.

This aggressive vine can grow 60 feet per year forming a continuous blanket of foliage. This massive covering often chokes out competing native vegetation that provides food and habitat for native animals. The result is a large-scale alteration of biotic communities. Kudzu is also a problem in forest agriculture and landscaping. It belongs to the Fabaceae (Pea or Bean) family.

**Height:** Trailing or climbing semi-woody, perennial vines reach 30 m (98 ft) in length.

**Roots:** Kudzu roots typically reach a soil depth of 1-3 m (3-9 ft) and are capable of storing large amounts of carbohydrates. Roots are tuberous, up to 17.8 cm (7 in) in diameter.

**Stem:** First year vines are pubescent and may reach 1.3 cm (0.5 in) diameter. Old vines are fibrous, relatively soft, and may reach a diameter of 10 cm (4 in).

**Leaves:** Foliage is alternate and compound (trifoliate) with leaflets up to 10 cm (4 in) across. Each leaflet is entire or deeply 2-3 lobed with hairy margins. Foliage drops after the first fall frost.

**Flowers:** Kudzu plants do not usually flower until their third year. Flowers are purple, fragrant, about 1.3 cm (0.5 in) long, produced in long racemes, and resemble pea flowers in shape. Blooms July-October.

**Fruit:** Three hard seeds are contained in flat, 5 cm (2 in) long, hairy pods. Matures September-October.

### Life History

Kudzu is a leguminous perennial actively growing from early summer (May) until the first frost. Sexual reproduction is rare, however seeds have been collected in the Great Smoky Mountains National Park and sprouted in a laboratory dish. Kudzu establishes plants by forming roots at nodes where the vines come in contact with the soil. These roots enlarge to form new crowns. Vines grow rapidly- increases of 15 m (50 ft) in a single season are not uncommon. Roots can penetrate the soil to depths of 3 m (9 ft).



Photo by David J. Moorhead

## Origin and Distribution

A native of Asia, kudzu was introduced into the United States at the Philadelphia Centennial Exposition in 1876. By 1900 kudzu was available through mail order and sold mainly as an inexpensive livestock forage. The Soil Erosion Service (later renamed the Soil Conservation Service) distributed approximately 85 million seedlings starting in 1933 in an effort to control agricultural erosion. In 1953 the USDA removed kudzu as a cover plant and listed it as a common weed of the South in 1970. It is estimated that kudzu now covers seven million acres in the southeast. Distribution is as far north as Pennsylvania, Illinois, and Connecticut and from eastern Texas to central Oklahoma in the west. The largest infestations are found in Mississippi, Alabama, and Georgia.



Photo by Kerry Britton



Photo by James H. Miller

## Similar Species

Kudzu may be confused with other three-lobed legumes such as dollar leaf (*Desmodium rotundifolium* [DC.]). Distinguishing features of kudzu include: densely pubescent young stem, ovate/trifoliate leaves, and highly invasive characteristics often seen as large areas of contiguous cover. Hog peanut (*Amphicarpaea bracteata* [L.]) may be mistaken for young kudzu vines, but it does not have pubescent stems or climb extensively into tree crowns.



Photo by Ted Bodner

## Habitat

Kudzu grows well under a wide range of environmental conditions, although greatest growth is achieved where winters are mild (40-60°F), summer temperatures rise above 80°F, and rainfall is abundant (101+ cm [39 in]). Kudzu can grow in nearly any type of soil (e.g., acid soils, lime soils, lowlands with high water tables, and over heavy subsoil), and where winter soil temperatures remain above -25°F. Large roots allow plants to survive in fairly dry climates and drought conditions. Ideal conditions are moist to well drained and acid to neutral soils (4.5-7.0 pH). New growth may exceed one foot per day. Forest edges or disturbed areas, such as abandoned fields and roadsides, are preferred habitats. Kudzu can persist on the floor of a closed canopy forest; the vines grow up trees toward light and take advantage of any openings.

## Management Recommendations

### Mechanical Control

**Grubbing:** Using a pulaski or similar digging tool, remove the entire plant, including the taproot. Removed vegetation should be destroyed by burning or bagging. Because many roots exceed 1.8 m, eradication by this method is very difficult and should be considered primarily for small initial incursions.

**Cutting:** Vines and runners are chopped just above the ground level, and the pieces destroyed. Early in the season, cutting is repeated at two-week intervals, to weaken the crown and prevent resumption of photosynthesis. Later in the season, when the stored energy in the taproot has been reduced, the interval between cuttings can be extended. Cutting does not typically kill roots and should only be used to control the spread of kudzu.

### Herbicidal Control

**Cut Stump Method:** Use this method in areas where vines are established within or around non-target plants or where vines have grown into the canopy.

**Glyphosate:** Cut the stem 5 cm (2 in) above ground level. Immediately apply a 25% solution of glyphosate and water to the cross-section of the stem. This procedure is effective at temperatures as low as 40°F, and may require a subsequent foliar application of glyphosate.

**Triclopyr:** Cut the stem 5 cm (2 in) above ground level. Immediately apply a 25% solution of triclopyr and water to the cross-section of the stem. This procedure remains effective at low temperatures (<60°F) as long as the ground is not frozen. A subsequent foliar application may be necessary to control new seedlings.

**Foliar Spray Method:** Use this method to control large populations. It may be necessary to precede foliar applications with stump treatments to reduce the risk of damaging non-target species. After the stems and leaves have been brought under control (i.e., all above ground portions of the plants have been effectively treated) further treatment should follow the Root Crown Method.

**Glyphosate:** Apply a 2% concentration of glyphosate and water plus a 0.5% non-ionic surfactant to thoroughly wet all foliage. Do not apply so heavily that herbicide will drip off leaves. Glyphosate is a non-selective systemic herbicide that may kill non-target partially-sprayed plants. Ambient air temperature should be above 65°F.

**Triclopyr:** Apply a 2% concentration of triclopyr and water to thoroughly wet all foliage. Do not apply so heavily that herbicide will drip off leaves. A 0.5% concentration of a non-ionic surfactant is recommended in order to penetrate leaf cuticle. Ambient air temperature should be above 65°F.

**Root Crown Method:** Follow the young or resprouting stem of the plant to the root. Dig and cut into the root crown using a pulaski or similar tool. Apply a 50% glyphosate solution or 50% triclopyr solution to the main root crown and any below ground runners.

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