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Kudzu

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For other uses, see [Kudzu \(disambiguation\)](#).

Kudzu ([ⓘ] /ˈkudzuː/; ***Pueraria lobata***, and possibly other species in the genus *Pueraria*; see [taxonomy section](#) below) is a plant in the genus *Pueraria* in the [pea](#) family [Fabaceae](#), subfamily [Faboideae](#). It is a climbing, coiling, and trailing [vine](#) native to southern [Japan](#) and southeast [China](#). Its name comes from the [Japanese name](#) for the plant, *Kuzu* (くず or くづ). Where it occurs as an [invasive species](#) it is considered a [noxious weed](#) that climbs over trees or shrubs and grows so rapidly that it kills them by heavy shading.^[1] The plant is edible, but often sprayed with herbicides.^[1]

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Kudzu



Scientific classification

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Rosids
Order:	Fabales
Family:	Fabaceae
Genus:	<i>Pueraria</i>
Species:	<i>P. lobata</i>

Binomial name

Pueraria lobata
(Willd.) Ohwi

Taxonomy and nomenclature

[\[edit\]](#)

Five species in the genus *Pueraria* are closely related and

the name kudzu describes one or more of them. They are *P. montana*, *P. lobata*, *P. edulis*, *P. phaseoloides* and *P. thomsoni*.^[2] The morphological differences between the five species are subtle, they can breed with each other, and it appears that introduced kudzu populations in the United States have ancestry from more than one of the species.^{[2][3]} The name *Pueraria thunbergiana* is a synonym for *Pueraria montana* var. *lobata*.^{[4][5]}^[*clarification needed*] *P. tuberosa*, a species from the Indian subcontinent, is also known as kudzu.

Propagation [edit]

Kudzu **spreads** by vegetative expansion, via **stolons** (runners) that **root** at the **nodes** to form new plants and by **rhizomes**. Kudzu will also spread by **seeds**, which are contained in pods and mature in the autumn, although this is rare.^[*citation needed*] One or two viable seeds are produced per cluster of pods. The hard-coated seeds may not **germinate** for several years, which can result in the reappearance of the species years after it was thought eradicated at a site.^[*citation needed*]



Kudzu seedpods.

Uses [edit]

Soil improvement and preservation [edit]

Kudzu has been used as a form of **erosion control** and also to enhance the **soil**. As a **legume**, it increases the **nitrogen** in the soil via a **symbiotic relationship** with nitrogen-fixing **bacteria**.^[6] Its deep **taproots** also transfer valuable **minerals** from the **subsoil** to the **topsoil**, thereby improving the topsoil. In the deforested section of the central **Amazon Basin** in **Brazil**, it has been used for improving the soil pore-space in **clay** latosols, and thus freeing even more **water** for plants than in the soil prior to **deforestation**.^[7]

Animal feed [edit]

Kudzu can be used by grazing animals as it is high in quality as a **forage** and palatable to **livestock**. It can be grazed until **frost** and even slightly after. Kudzu had been used in the southern United States specifically to feed goats on land that had limited resources. Kudzu **hay** typically has a 15–18% crude protein content and over 60% total digestible nutrient value. The quality of the leaves decreases, however, as **vine** content increases relative to the **leaf** content. Kudzu also has low forage yields despite its great deal of **growth**, yielding around two to four tons of dry matter per **acre** annually. It is also difficult to bale due to its vining growth and its slowness in shedding **water**. This makes it necessary to place kudzu hay under sheltered protection after being baled. Kudzu is readily consumed by all types of grazing animals, yet frequent grazing over 3 to 4 years can ruin stands. Thus kudzu only serves well as a grazing crop on a temporary basis.^[1]

Basketry [edit]

Kudzu fiber has long been used for fiber art and basketry. The long runners which propagate the kudzu fields and the larger vines which cover trees make excellent weaving material. Some basket makers use the material green. Others use it after splitting it in half, allowing it to dry and then re-hydrating it using hot water. Both traditional and contemporary basketry artists use kudzu.

Medicine [edit]



This section needs more [medical references](#) for [verification](#) or relies too heavily on primary sources. Please review the contents of the section and [add the appropriate references](#) if you can. Unsourced or poorly-sourced material may be [removed](#).
(July 2012)



Kudzu leaves



The [Harvard Medical School](#) is studying kudzu as a possible way to treat [alcoholic](#) cravings, by turning an extracted compound from the herb into a medical drug.^[8] The mechanism for this is not yet established, but it may have to do with both alcohol [metabolism](#) and the reward circuits in the brain.

Kudzu also contains a number of useful [isoflavones](#), including [daidzein](#) (an [anti-inflammatory](#) and [antimicrobial](#) agent) and [daidzin](#) (structurally related to [genistein](#)). Kudzu is a source of the [isoflavone puerarin](#). Kudzu root

compounds can affect [neurotransmitters](#) (including [serotonin](#), [GABA](#), and [glutamate](#)).^[*citation needed*] It has shown value in treating [migraine](#) and [cluster headaches](#).^{[9][*unreliable source?*]} It is recommended by some^[*who?*] for allergies and diarrhea.^[10]

In [Traditional Chinese medicine](#) (TCM), where it is known as gé gēn ([Chinese](#): 葛根), kudzu is considered one of the [50 fundamental herbs](#). It is used to treat [tinnitus](#), [vertigo](#), and Wei syndrome (superficial heat).^[11]

Kudzu has traditionally been used as a remedy for alcoholism and hangover in China.^{[12][*unreliable source?*]} The root was used to prevent excessive consumption, while the [flower](#) was supposed to detoxify the liver and alleviate the symptoms afterwards.^[13] Some TCM hangover remedies are marketed with kudzu as one of their active ingredients. This has also been a common use in areas of the Southeastern United States.^[*citation needed*]

It has also shown potential in animal models of [Alzheimer's disease](#).^{[14][*unreliable medical source?*]}

It may help diabetes and cardiovascular disease.^[15]

Food uses

[edit]

The roots contain [starch](#), which has traditionally been used as a food ingredient in East Asia.

In [Japan](#), the plant is known as *kuzu* and the starch named [kuzuko](#). [Kuzuko](#) is used as in dishes including [kuzumochi](#), [mizu manjū](#), and [kuzuyu](#).

In [Vietnam](#), the starch called *bột sắn dây* is flavoured with [pomelo](#) oil and then used as a drink in the summer.

Kudzu is called *gé gēn* ([Chinese](#): 葛根) in China, where it is cooked and eaten.^[16]

The flowers are used to make a [jelly](#).^[17]

Roots, flowers, and leaves of Kudzu show antioxidant activity that suggests food uses.^[17]

Other uses

[edit]

Kudzu fiber, known as ko-hemp,^[18] is used traditionally to make clothing and paper,^[19] and has also



Kuzumochi (葛餅), Japanese style Kudzu starch cake (Katori city, Japan)



been investigated for industrial-scale use.^{[20][21]} The stems are traditionally used for [basketry](#).^[22]

Kudzu has also been used for centuries in East Asia to make tea and health tonics.^[23] Kudzu powder is used in Japan to make a sort of herbal tea called [kuzuyu](#).

It has been suggested that kudzu may become a valuable asset for the production of [cellulosic ethanol](#).^[24]

In the [Southern United States](#), kudzu is used to make [soaps](#), [lotions](#), and [compost](#).^[25]

Invasive species

[\[edit\]](#)



Kudzu growing on trees in [Atlanta, Georgia, U.S.](#)



Ecological Damage and Role

[\[edit\]](#)

Kudzu's environmental and ecological damage results from acting through "Interference Competition", meaning that it out competes other species for a resource. Kudzu competes with native flora for light, and acts to block their access to this vital resource by growing over them and shading them with their leaves. Plants may then die as a result from this, resulting in the soil or substrate nutrients previously used by the original plant to become more freely available to Kudzu. (Citation in Talk section)

United States

[\[edit\]](#)

Main article: [Kudzu in the United States](#)

Kudzu was introduced from Japan into the [United States](#) at the Japanese pavilion in the 1876 Centennial Exposition in Philadelphia.^[23] It is now common along roadsides and other undisturbed areas throughout most of the southeastern United States. Kudzu has been spreading at the rate of 150,000 acres (61,000 ha) annually.^[26]

Canada

[\[edit\]](#)

Kudzu was discovered July 2009 in a patch 110 m (360 ft) wide and 30 m (98 ft) deep, on a south-facing slope on the shore, of [Lake Erie](#) near [Leamington, Ontario](#), about 50 km (31 mi) southeast of [Windsor](#).^[27] Leamington is located in the second warmest growing region of Canada after south coastal British Columbia.

Ecologist Gerald Waldron made the Leamington find while walking along the beach. He recognized the kudzu instantly, having read about its destructive expansion in the southeastern United States.^[*citation needed*]

Other countries

[\[edit\]](#)

During [World War II](#), kudzu was introduced to [Vanuatu](#) and [Fiji](#) by [United States Armed Forces](#) to serve as [camouflage](#) for equipment.^[*citation needed*] It is now a major weed.^[*when?*]

Kudzu is also becoming a problem in [northeastern Australia](#), and has been seen in isolated spots in [Northern Italy \(Lake Maggiore\)](#).^[*citation needed*]

In New Zealand kudzu was declared an "unwanted organism" and was added to the Biosecurity New Zealand register in 2002.^[28]

Control

[\[edit\]](#)

Crown removal

[\[edit\]](#)

For successful long-term control of kudzu, it is not necessary to destroy the entire root system, which can be quite large and deep. It is only necessary to use some method to kill or remove the kudzu root crown^[29] and all rooting runners. The root crown is a fibrous knob of tissue that sits on top of the root (rhizome). Crowns form from vine nodes that root to the ground, and range from pea-size to basketball-size.^[29] The older the crown, the deeper they tend to be found in the ground, because they are covered by sediment and plant debris over time. Nodes and crowns are the source of all kudzu vines, and roots cannot produce vines. If any portion of a root crown remains after attempted removal, the kudzu plant may grow back.

Mechanical methods of control involve cutting off crowns from roots, usually just below ground level. This immediately kills the plant. Cutting off vines is not sufficient for an immediate kill. It is necessary to destroy all removed crown material. Buried crowns can regenerate into healthy kudzu. Transporting crowns in soil removed from a kudzu infestation is one common way that kudzu "miraculously" spreads and shows up in unexpected locations.

Mowing [edit]

Close mowing every week, regular heavy [grazing](#) for many successive years, or repeated [cultivation](#) may be effective, as this serves to deplete root reserves.^[29] If done in the spring, cutting off vines must be repeated as regrowth appears to exhaust the plant's stored [carbohydrate](#) reserves. Cut kudzu can be fed to livestock, burned, or composted; strides have been made in using it for vehicle fuel as [ethanol](#).^[*citation needed*]

Grazing [edit]

The city of [Chattanooga, Tennessee](#) has undertaken a trial program using [goats](#) and [llamas](#) that graze on the plant. As of 2007 the goats are grazing along the [Missionary Ridge](#) area in the east of the city.^[30] Similar efforts to reduce widespread nuisance kudzu growth have also been undertaken in the cities of [Winston-Salem, North Carolina](#)^[31] and [Tallahassee, FL](#).^[32]

Fire [edit]

[Prescribed burning](#) is also used on old extensive infestations to remove vegetative cover and promote seed germination for removal or treatment. It is usually done to prepare for treatment of the root crowns.^[33] Landscape equipment, such as a [skid loader](#) ("Bobcat"), can also remove biomass. While fire is not an effective way to kill kudzu,^[29] equipment, such as skid loaders, can remove crowns and thereby kill kudzu with minimal disturbance of soil.^[29]

Herbicide [edit]

To properly manage kudzu, stem cutting should be immediately followed with the application of a systemic [herbicide](#); for example, [glyphosate](#),^[34] [Triclopyr](#),^[34] or [Tordon](#),^[35] directly on the cut stem.^[36] This process is an effective means of transporting the herbicide into the kudzu's extensive root system. The usage of herbicides can be combined with other methods of eradication and control, such as mowing, grazing, or burning, which can allow for an easier application of the chemical to the weakened plants.^[37] When it comes to large-scale forestry infestations, soil-active herbicides have been shown to be highly effective.^[36]

After initial herbicidal treatment, follow-up treatments and monitoring are usually necessary, depending on how long the kudzu has been growing in the area. It may require up to ten years of supervision, after the initial chemical placement, to make sure the plant does not return in the future.^[38]

Herbicides which have been proven to be effective to control kudzu are claimed to be "rather safe to humans, but generally lethal on most plants."^[39]

Fungi

[\[edit\]](#)

Since 1998, the [United States Department of Agriculture](#), [Agricultural Research Service](#) (ARS) has experimented with using the fungus *Myrothecium verrucaria* as a biologically based herbicide against kudzu.^[26] A [diacetylverrucarol](#) spray based on *M. verrucaria* works under a variety of conditions (including the absence of [dew](#)), causes minimal injury to many of the other woody plants in kudzu-infested habitats, and takes effect fast enough that kudzu treated with it in the morning starts showing evidence of damage by mid-afternoon.^[26] Initial formulations of the herbicide produced toxic levels of [trichothecene](#) as a by-product, though the ARS discovered that growing *M. verrucaria* in a [fermenter](#) on a liquid instead of a solid diet limited or eliminated the problem.^[26]

See also

[\[edit\]](#)

- [Chinese herbology](#)
- [Daidzein](#)
- [Daidzin](#)
- [Puerarin](#)

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[\[edit\]](#)

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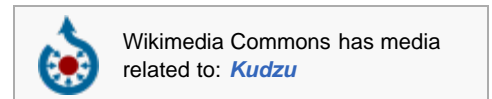
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External links

[edit]

- Species Profile - Kudzu (*Pueraria montana* var. *lobata*) , National Invasive Species Information Center, United States National Agricultural Library. Lists general information and resources for Kudzu.
- Ontario's Most Unwanted - Kudzu (*Pueraria montana* var. *lobata*) , Ontario Invasive Plant Council. Lists information and resources for Kudzu in Ontario.



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