



[UC IPM Home](#) > [Homes, Gardens, Landscapes, and Turf](#) > [Dodder](#)

How to Manage Pests

Pests in Gardens and Landscapes

Dodder

[Download PDF](#)

Revised 3/10

In this Guideline:

- [Identification](#)
- [About Pest Notes](#)
- [Life cycle](#)
- [Publication](#)
- [Damage](#)
- [Glossary](#)
- [Management](#)

Dodder, *Cuscuta* species, is a parasitic annual plant that infests many crops, ornamentals, native plants, and weeds. More than 150 species occur worldwide, although dodder is most prevalent in the Americas. The genus *Cuscuta* is in the Cuscutaceae family, but sometimes it is included in the family Convolvulaceae (morning glories).

Dodder species vary in the number of different host species they can infect. Some, such as *C. salina*, are in rather restricted sites such as salty marshes, flats, and ponds on just a few host plant species.

Others, such as *C. pentagona* (*C. campestris* in some publications), are found on many crop and weed species including alfalfa, asparagus, melons, safflower, sugarbeet, [tomato](#), field bindweed (*Convolvulus arvensis*), lambsquarters (*Chenopodium album*), and pigweed (*Amaranthus* species). *C. indecora*, also has a wide host range that includes [alfalfa](#) and weeds such as field bindweed, five-hook bassia (*Bassia hyssopifolia*), lambsquarters, and Russian thistle (*Salsola tragus*).

Japanese dodder, *C. japonica*, which is native to Asia, recently has been found in California attacking and covering ornamental shrubs and fruit trees, with a preference toward citrus. However, Japanese dodder also can parasitize annuals, perennials, and native trees such as oaks and willows.

Table 1 lists some ornamental and vegetable plants susceptible to native species of dodder.

IDENTIFICATION

Dodder has slender, twining or threadlike stems that vary from pale green to yellow or bright orange; the bright stems can be readily seen against the foliage of the host plants.

Native dodder can be leafless or have small, scalelike, triangular leaves about 1/16 inch long. The bell-shaped flowers are cream colored and about 1/8 inch long; they usually occur in clusters but occasionally are borne singly. Each flower produces a seed capsule with 2 to 3 seeds. Seeds have rough coats and vary in size depending on species but generally are about 1/16 inch in diameter. Seedlings are yellowish, threadlike, rootless, leafless stems.

Japanese dodder stems are thicker than other dodder species and resemble spaghetti. Like native dodder, Japanese dodder stems are round and twining; however, they are leafless. This species rarely flowers, but if it does, the flowers are small and pale yellow to cream. It is most likely to attack trees and shrubs.

LIFE CYCLE

Although dodder is capable of limited photosynthesis, it obtains nearly all of its energy from the host plant. A dodder seedling can survive several days without a host, but if it doesn't come into contact with one within 5 to 10 days, the



Dodder, *Cuscuta* species, on tomato.

Table 1. Some Common Plants Susceptible to Native Dodder Infestation.

Vegetables	Ornamentals
asparagus	chrysanthemum
beet	English ivy
carrot	fennel
eggplant	impatiens
garlic	marjoram
melons	mint
onion	morning glory
pepper	periwinkle
potato	petunia
sweet potato	summer savory
tomato	

seedling will die. Dodder stems that have attached to a host plant have been known to survive for several days after being detached from the host plant.

As dodder plants grow, they continually reattach to the host. When other suitable hosts are nearby, dodder shoots spread from host plant to host plant, often forming a [dense mat](#) of intertwined stems. Shaded areas greatly reduce twining and attachment.

Native Dodder

Native dodder seeds lack obvious dispersal mechanisms and likely spread via people through the movement of soil and equipment or in mud attached to shoes and tires. These seeds also can be transported in infested plant material or be present as a contaminant in crop seed. Water might play a role in seed dispersal, particularly for species near aquatic environments.

Native dodder germinates at or very near the soil surface starting in spring when soil temperatures reach about 60°F. Germination occurs independently of any host plant influence. The germinating seed sends up a slender, [twining stem that coils](#) around any object, including host plants.

Seedlings are dependent on carbohydrates stored in the seed (cotyledons) until they attach to a suitable host. When it contacts a host, the stem coils around the host plant and produces little structures called haustoria that penetrate the host's vascular tissue. The dodder plant begins to extract nutrients and water from the host, and its connection to the soil withers and dries.

Dodder flowers from late spring through fall, depending on the species, but seed set is highest in late summer and fall. Seed production generally begins near the site of initial attachment and proceeds outward. Dodder is a prolific seed producer; each plant is capable of producing several thousand seeds. Generally only about 5% of the seed germinates the year following its production; however, the remainder can remain dormant, yet viable, in the soil for more than 20 years, depending on the species and environmental conditions.

Dodder's long dormancy is thought to be largely a result of its hard seed coat. To break seed dormancy, scarification—the breaking, scratching, or softening of a seed—usually is required. In nature, this probably occurs through soil microbial activity, weathering, and other natural disturbances such as fire or grazing. In managed settings, scarification likely occurs when fields are cultivated.

Japanese Dodder

Japanese dodder is different from other dodders in that no viable seeds have been observed following flowering in California. Instead, most spread occurs through the dissemination of small pieces of stems distributed by birds and other animals or through pruning, composting, and the improper disposal of infested plant material.

When these stem pieces come in contact with new host plants, they can grow until they cover an entire tree or shrub with their thick, yellow-gold or green stems. Japanese dodder typically grows much larger and faster than other dodders that attack herbaceous plants—up to 6 inches a day.

DAMAGE

Impact varies from moderate to severe reductions of plant growth and, in some cases, complete loss of vigor and death. The severity of an infestation depends on the growth stage of the host plant at the time of initial dodder attachment. With native dodder, the greatest growth reduction occurs when the parasite attaches to seedlings; the infestation usually doesn't kill established host plants, but when multiple attachments are made to the same host plant, death can occur. Japanese dodder can cover and kill most large shrubs and small trees. The weakened state of infected plants also predisposes them to diseases and insect and nematode invasions.

MANAGEMENT

Japanese Dodder

If you believe you have Japanese dodder in your landscape, *do not try to control it yourself*. This weed is under an eradication program in California and has spread to more than a dozen California counties including Alameda, Butte, Contra Costa, Fresno, Los Angeles, Merced, Sacramento, Shasta, Solano, Sutter, Tulare, Yolo, and Yuba. Contact your



Dodder flowers.



After dodder attaches to a host, its connection to the soil withers.



Mature dodder plant with seeds.



Japanese dodder can cover entire trees with its bright yellow-gold and green stems.

county agricultural commissioner to receive proper identification and help with control. More information is available on the California Department of Food and Agriculture Web site.

Native Dodder

The most successful control involves a systematic approach that combines several methods; you usually can't eliminate dodder with a single treatment or in a single year. If you see native dodders infesting herbaceous landscape and garden plants, take immediate action to eliminate or reduce the infestation.

Effective management requires control of the current population, prevention of dodder seed production, and suppression of new seedlings in subsequent years. Where extensive infestations exist, remove the infested host plants and replant with nonhosts; in vegetable gardens rotate to nonhost crops for several years. When you plant a host crop again, remove any new dodder plants as soon as possible.

Prevention

The use of dodder-free planting seed has long been a primary way of preventing the spread of dodder infestations. Many countries and states have seed laws that prohibit the presence of dodder seed in planting seed.

Clean and inspect clothing and equipment before moving from infested to "clean" areas. Once you know an area is infested, you must manage it to prevent the further production of dodder seed. Isolate small infestations, and remove them by hand before the plant produces seed. Monitor larger infestations, and mow, prune, burn, or spray herbicides to prevent seed production.

Cultural Control

Planting nonhost plants can be an effective means of managing a dodder infestation. Plants that aren't hosts of dodder include grasses and many other monocots including lilies. Plants that grow primarily during winter such as crucifers and legumes and transplanted trees and shrubs usually are good alternatives.

Dodder can't penetrate tree bark, but it can penetrate tree foliage, if it is able to contact it. Be sure to remove weeds in these plantings, so the weeds don't serve as hosts for dodder and increase the amount of dodder seed in the soil.

Dodder seedlings are difficult to find, but if you see them before they attach to a host, remove them by cultivation or hand pulling. If you see dodder soon after it has attached itself to a host, prune the infected portion of the host plant 1/8 to 1/4 inch below the point of attachment, otherwise the dodder can regenerate from the haustoria left embedded in the host plant. Pruning trees and shrubs generally has been of little benefit unless dodder is confined to one or two branches that you can remove without destroying or disfiguring the entire host plant.

If no host plants are present, you can leave cultivated dodder plants on the soil surface to dry and die. However, if you allow freshly removed dodder to contact a healthy host plant, a new connection sometimes occurs. If the dodder plants have set seed, remove the plants from the area to prevent future infestations. Place plants in a plastic bag, and dispose of them in the trash.

Dodder seed can survive soil solarization—a method for killing weeds using a clear, plastic tarp and the sun's heat—probably because of its hard seed coat. Although studies haven't been conducted, composting might kill most dodder seed, because higher temperatures are reached in the composting process than in solarization.

In agricultural settings, cultivate dodder before it attaches to a host plant, since cultivation done after dodder has attached itself to the host is of no benefit. Hand pulling, cutting, or mowing also can reduce dodder infestations. Be sure to break off, cut, or mow the host plant just below the point of dodder attachment (about 1/8 to 1/4 inch) for these methods to be effective. Close mowing is an effective management tool for dodder in alfalfa.

Burning reduces a dodder infestation as long as you destroy the invaded tissue of host plants along with the dodder to prevent regeneration of the dodder from embedded haustoria. Burning kills only some of the dodder seed; the amount of seed destroyed depends on the duration and intensity of the fire.

Biological Control

Several disease organisms are known to infect dodder including *Fusarium tricinctum* and *Alternaria* species, which attack swamp dodder (*C. gronovii*), and *A. alternata* and *Geotrichum candidum*, which attack field dodder (*C. pentagona*). Researchers in China have found that a suspension of *Colletotrichum gloeosporioides* can selectively control the dodder species *C. chinensis* and *C. australis* in soybeans. Difficulty in culturing and applying these organisms has limited their commercialized use.

Resistant Varieties

Breeding programs aimed at developing dodder-resistant varieties are not known to exist; however, some varieties of normally susceptible species have some resistance. Several varieties of processing tomatoes, a plant generally susceptible to dodder, have been observed to be either totally resistant or tolerant to dodder attack.

Chemical Control

Generally chemical control isn't necessary in the home garden and landscape, since you can control dodder for the most part by cultivating seedlings or through hand removal or pruning. Although pelargonic acid (Scythe) is effective, it also

kills any plant tissue it contacts; consequently good coverage and careful spraying are important, so desirable plants aren't damaged.

Where dodder has been a persistent problem in certain commercial agricultural fields or in landscapes, apply preemergent herbicides (e.g., trifluralin) before dodder seed germinates; where practical, follow up with close mowing, burning, or spot removal of parasitized host plants to control dodder plants that escaped the herbicide application.

Usually postemergent herbicides, which you apply directly to the dodder plant to control it, don't selectively control dodder without injuring the host plant and aren't a good choice for controlling established infestations.

[WARNING ON THE USE OF CHEMICALS](#)



REFERENCES

California Department of Food and Agriculture. [Noxious Weed Information Project: Japanese Dodder](#). Accessed March 2010.

Cudney, D. W., S. B. Orloff, and J. S. Reints. 1992. An integrated weed management procedure for the control of dodder (*Cuscuta indecora*) in alfalfa (*Medicago sativa*). *Weed Technology*. 6:603-606.

Cudney, D. W., S. B. Orloff, and D. A. Demason. 1993. Effects of thiazopyr and trifluralin on dodder (*Cuscuta indecora*) in alfalfa (*Medicago sativa*). *Weed Technology*. 7:860-864.

Dawson, J. H., F. M. Ashton, W. V. Welker, J. R. Frank, and G. A. Buchanan. 1984. Dodder and its control. *Farmer's Bull.* USDA. No. 2276.

Dawson, J. H., L. J. Musselman, P. Wolswinkel, and I. Dorr. 1994. Biology and control of *Cuscuta*. *Rev. Weed Sci.* 6:265-317.

PUBLICATION INFORMATION



Pest Notes: Dodder

UC ANR Publication 7496

[Download PDF](#)

Authors: W. T. Lanini, Weed Science/Plant Sciences, UC Davis; D. W. Cudney, Botany/Plant Sciences emeritus, UC Riverside; G. Miyao, UC Cooperative Extension, Yolo Co.; and K. J. Hembree, UC Cooperative Extension, Fresno Co.

Produced by UC Statewide IPM Program, University of California, Davis, CA 95616

PDF: To display a PDF document, you may need to use a [PDF reader](#).

[Top of page](#)

For noncommercial purposes only, any Web site may link directly to this page. FOR ALL OTHER USES or more information, read [Legal Notices](#). Unfortunately, we cannot provide individual solutions to specific pest problems. See our [Home page](#), or in the U.S., contact your [local Cooperative Extension office](#) for assistance.

[Acknowledgements](#) | [Staff-only pages](#) | [Subscribe \(RSS\)](#) | [Contact UC IPM](#)

Agriculture and Natural Resources, University of California

© 2017 Regents of the University of California | [Division of Agriculture and Natural Resources](#) | [Nondiscrimination Statement](#)

[Accessibility](#) | [Contact webmaster](#).