

# JIMSONWEED

*(Datura stramonium)*

## SEEDLING DESCRIPTION

Jimsonweed seedlings have sturdy, smooth, purple stems. Their seed leaves (cotyledons) measure up to 2 inches (5 cm) long and are only about ¼ inch (6 mm) wide. The midvein is distinctly depressed on the upper surface of the seed leaves. Seedling leaf stalks (petioles) are much shorter than the seed leaves and are hairy on the upper surface.

1. Seedling with long, narrow cotyledons.
2. True leaves starting to show indented margins.
3. Upper leaf surface.
4. Lower leaf surface showing prominent ridged veins.
5. Fragrant flowers open at dusk.
6. Distinctive seed pod of jimsonweed.



Leaf stalks are short and covered with flattened hairs, and the seedling gives off a foul tomato-like odor when crushed.

#### BIOLOGY

Jimsonweed is a summer annual, growing more than 5 feet (1.5 m) high. The roots are well branched, shallow, and fibrous, and the purple or green stems are thick, smooth, and well branched. Jimsonweed leaves alternate along the stem. They are dark green, strongly scented, and oval or triangular with toothed margins and pointed tips.

The white to pinkish flowers of jimsonweed are 2 to 5 inches (5 to 12 cm) wide and funnel-shaped. Flowers are borne singly on short stalks in the crook of the leaf stalk. They do not open fully until evening and close after dawn the next day, and are pollinated primarily by the night-flying hawk moth. Flowers emit a sweet, tropical fragrance when open. Jimsonweed blooms from June to September.

Seed pods of jimsonweed are about 1 inch (2.5 cm) in diameter, egg-shaped, and covered with short, sharp spines. Pods commonly contain 400 to 800 seeds and split along the seams to release seeds in the late fall. The flat, kidney-shaped seeds are black or dark brown,  $\frac{1}{8}$  inch (2.5 mm) wide, pitted, and wrinkled, and have a white scar. Seeds can remain viable in the soil for more than century. They are dispersed by wind, water, animals and humans.

Seeds germinate in early spring. Seedling growth is slow and quite sensitive to competition from crops and other weeds. Jimsonweed prefers rich soils, full sun, and warm temperatures. It can be found in farmyards, waste areas, gardens, pastures, and ditches, along streams and roadsides, and in cultivated crops such as corn and soybeans.

When jimsonweed emerges at the same time a crop does, it is quite competitive for light and nutrients. Furthermore, its roots release various alkaloids that are allelopathic (toxic) to other plants.

#### NATURAL HISTORY

Jimsonweed is native to India and is now found throughout the warm, temperate areas of the world. It was brought to North America by the early settlers and has since become a problem weed throughout most of the continent, except for a large area in the northwestern United States.

In America, jimsonweed was first introduced into the colonial settlement of Jamestown, Virginia, where it got its contracted name of jimsonweed. This weed is also known by less familiar names such as Jamestown weed, thornapple, madapple, stramonium, and stinkwort.

Jimsonweed has long been used for medicinal purposes. The juices of the plant contain a poisonous substance that is the source of a valuable narcotic. Slaves in colonial Jamestown made medicine from the plant, which they used to treat burns, ulcers, and skin irritations. Extracts were also used to treat coughs and asthma. Several tribes of American Indians used jimsonweed as a painkiller during surgery and for treating wounds. In the Middle Ages, jimsonweed was one of the herbs used as incense during the Black Mass.

Livestock and humans can be poisoned from ingesting any part of the plant, including the seeds. As little as 10 to 14 ounces of the plant, or less than 0.1 percent of the body weight of an animal, has proven fatal. Leaves, stems, and seeds ingested or burnt for their hallucinogenic effects have caused numerous deaths.

Symptoms of livestock poisoning include intense thirst, distorted vision, lack of coordination, high body temperature, a rapid and weak heartbeat, convulsions, and coma. No specific medical treatment is recommended for livestock. Livestock eat jimsonweed only when they lack other forage, as the ill-scented herbage makes the plant highly distasteful. Symptoms of poisoning in humans are headache, dry burning skin, nausea, extreme thirst, nervous confusion, dilated pupils, blind-

production. When pulling individual plants, wear gloves to avoid skin and eye irritation. Cultivation and clipping are effective controls, but these methods do not completely eradicate jimsonweed because many seeds lie dormant in the soil.

Rotating from soybeans or corn to small grains or alfalfa alters environmental conditions enough to eliminate jimsonweed problems. Chemical control of jimsonweed in corn can be achieved with most preemergence treatments. Jimsonweed in soybeans can be effectively controlled by most postemergence treatments.

For specific recommendations, consult your county extension agent or the most recent *Weed Control Manual and Herbicide Guide*, available through Meister Publishing Company, 37841 Euclid Avenue, Willoughby, Ohio 44094. Follow label instructions for all herbicides and observe restrictions on grazing and harvesting procedures.

Prepared by W. Thomas Lanini, Extension weed specialist, and Betsy Ann Wertz, agricultural writer.

Where trade names appear, no discrimination is intended, and no endorsement by the Cooperative Extension Service is implied.

Issued in furtherance of Cooperative Extension work, Acts of Congress, May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture and the Pennsylvania Legislature. W. Wayne Hinish, Acting Director of the Cooperative Extension Service, The Pennsylvania State University.

Penn State is an affirmative action, equal opportunity university.

File No. IVC9 10M386 U.Ed. 85-439