

# POKEWEED

*(Phytolacca americana)*

## SEEDLING DESCRIPTION

The two seed leaves (cotyledons) of pokeweed seedlings are green, pale underneath, and about ½ inch wide by 1 inch long (12 by 25 mm). The seedling stem (hypocotyl) is tender, succulent, green, and often tinged with purple. True leaves are tightly folded in the bud. They are smooth, tender, and pale green, with a powdery bloom on the purple-tinged lower surface. Leaf margins continue down the stems as bright red lines. Since pokeweed is a perennial, its overwintering roots send up shoots every spring. Unlike true seedlings, these shoots have no seed leaves. The true leaves emerge as a compact, erect cluster.

## BIOLOGY

Pokeweed is a nonwoody (herbaceous) perennial that grows 3 to 10 feet (0.9 to 3 m) tall. The large, fleshy taproot can grow 1 foot (30 cm) long and 4 inches (10 cm) thick in older plants. The taproots look something like potatoes, with brown skin and white inner flesh. The plant itself is widely branched, shaped much like a small tree. The smooth, succulent stems are often bright red but may be purple or green. While all parts of the mature plant are poisonous, the first young shoots that emerge in spring are edible when cooked.

The mature leaves are alternately arranged and grow 4 to 12 inches long and about half as wide. They are pointed at both ends, have smooth or slightly wavy margins, and are attached to the stem by leaf stalks (petioles) ½ to 1¼ inch (12 to 31 mm) long. The mature leaves, roots, and stems are poisonous to livestock and people, and have a bitter, narcotic taste.

Pokeweed may bloom anytime from May to October. Berries form one month after blossoms open, and both fruit and flowers may appear together on the same plant. Individual flowers are only ¼ inch (6 mm) across and are arranged in graceful clusters up to 8 inches (20 cm) long. A stout red flower stem (pedicel) about ¾ inch (9 mm) long attaches each flower to

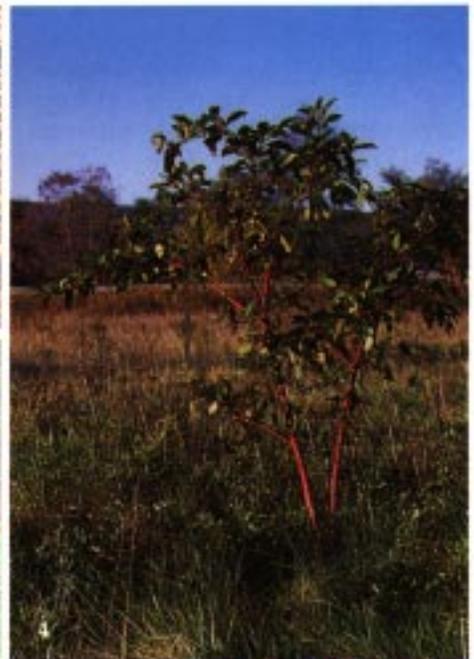
the central flower stalk. The flowers are perfect (have both male and female parts), and their five pink or pale green petallike sepals surround ten stamens.

Pokeweed berries are green at first, turning dark shiny purple when ripe. They are about ¼ inch across and nearly round

or slightly flattened. The whole cluster droops heavily when the berries are fully mature.

Each berry contains ten shiny black seeds neatly arranged in a ring. Seeds are flattened or lens shaped, about ¼ inch (3 mm) across, and poisonous to humans.

1. Pokeweed shoots emerge in early spring.
2. Large ovate leaves and bright red Y-shaped branches are distinguishing features.
3. Flowers, immature, and mature berries can be found on the same branch.
4. Pokeberries provide food for many wildlife species.
5. The deep purple berries have given pokeweed the name "inkberry."



Pokeweed reproduces mainly by seed. Its large perennial taproot does not extend far horizontally underground, but it may produce several vertical shoots such that the weed grows in clumps.

Frost kills the upper parts of the plant, but the dried branches remain upright all winter, bleaching to a pale tan and eventually disintegrating the following spring.

#### SIMILAR SPECIES

The *Phytolacca* genus has several dozen species, most of them coarse shrubs or tree-like plants native to the tropical regions of China, Japan, India, South America, and Africa. No other weeds in North America resemble mature pokeweed enough to cause confusion.

#### NATURAL HISTORY

Pokeweed is a native of North America and has become established in Europe. In North America, it is most common in the eastern United States and southeastern Canada. It grows as far west as Texas but is rare in the Great Lakes region. Its range extends north into Ontario and south as far as Mexico.

Pokeweed prefers rich, moist soil and cultivated land. Its habitat includes barnyards, open woods and thickets, waste areas, and recently disturbed ground. It grows along creek banks, pond margins, ditches, roadsides, and fencerows.

Mature pokeweed contains a poisonous chemical compound called phytolaccatoxin. One of the ingredients that makes this compound so toxic is saponin, a soaplike substance found in some poisonous plants, including foxglove (*Digitalis purpurea*), corn cockle (*Agrostemma githago*), bitterweed (*Actinea odorata*), and bouncing Bet (*Saponaria officinalis*). Pregnant cows have been known to miscarry from eating the mature leaves and stems of pokeweed. Generally speaking, though, livestock are rarely tempted to eat these extremely bitter top parts. The roots are the most toxic part of the plant, and pigs have been poisoned after digging them up and eating them.

Symptoms of poisoning begin right after eating. The first symptom is a burning feeling in the stomach, followed within two hours by vomiting, diarrhea, and gastroenteritis (inflammation of the lining of the stomach and intestines). As the toxin enters the bloodstream and central nervous system, more general symptoms appear, including salivation, sweating, vision disturbances, weak pulse, and shallow

breathing. Death results when the narcotic effect of the toxin paralyzes the respiratory system. Autopsy reveals severe liver damage and bleeding and ulceration of the stomach and intestines.

A veterinarian may recommend an antidote for livestock known to have eaten pokeweed. The treatment may include a stimulant for the respiratory system, as well as a sedative for the digestive and nervous systems. Dilute tannic acid is sometimes administered.

Despite the poisonous nature of the mature plant, country cooks have long used the young shoots as a delicious potherb. The young shoots are gathered in spring, when no taller than 6 inches and before the stem turns purple. Both stem and leaves are edible and should be cut about 2 inches above the ground. The greens must be boiled twice, in two changes of water, and each change of water must be thrown away. Then the greens are flavored with salt and pepper, and butter or bacon, and are served hot. Prepared in this manner, "poke salad" is nutritious and nontoxic. But only the young shoots of early spring can be safely used; the root parts and older leaves must be carefully avoided.

Wild birds find the large juicy berries of pokeweed a good source of food. Species whose diets rely heavily on the berries include mourning doves, bluebirds, catbirds, and mockingbirds. Opossums and raccoons also eat the fruit.

When mixed with alcohol, the juice from the berries produces a good red ink. Cotton or wool dyed with pokeberry juice takes on a beautiful crimson shade, but the color fades rapidly since no one has discovered a way to permanently fix the dye to cloth.

Despite its toxic nature, pokeweed extract can be used to our advantage. Current research reveals that the extract is a molluscicide: it kills snails. Pesticides made from pokeweed may be used to discourage snails in vegetable crops and to control parasitic diseases spread by snails.

Like many poisonous substances, pokeweed extract can be medicinally beneficial in small quantities. Early Americans treated rheumatism, ulcers, and parasitic skin disorders with juice from the roots. The berries were used to treat tremors, hemorrhoids, and constipation.

Many solutions to medical problems have come directly from the wild plants that we call weeds. Scientists are investigating pokeweed extract as a possible anti-cancer drug.

The scientific name for pokeweed is derived from *phytos*, the Latin word for plant, and *lacca*, which refers to the deep reddish purple of the berries. The most frequently used species name, *americana*, refers to its native land. The less common species name, *decandra*, means "having ten stamens." The common name *poke* is a contraction of *puccon* or *pocan*, which the Algonquin Indians of Delaware called the familiar wild plant. Other common names for pokeweed include garget, coakum, American cancer, cancer jalap, scoke, pigeonberry, inkberry, Virginia pokeweed, and pokeberry.

#### CONTROL

Grassland that is badly infested with pokeweed may be plowed up and planted in a cultivated crop for two years, if the soil type and topography allow. If plowing is not possible, plants can be destroyed by being chopped off below the root crown. Pokeweed is susceptible to many of the herbicides commonly used to control broadleaved weeds.

Pokeweed has a perennial root system. Therefore, a systemic herbicide, which reaches the roots, will be more effective than a contact herbicide, which merely burns off the upper part of the plant. Systemic herbicides should be applied to the leaves in late summer, when the plant is mature, actively growing, and translocating nutrients to the roots for winter storage.

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.

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