

# Poison Hemlock and Waterhemlock

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*Providing research-based information to Minnesota horse owners*



Waterhemlock roots



Waterhemlock leaves



Waterhemlock mature plant

**Scientific Name:** Poison hemlock (*Conium maculatum*) and Waterhemlock (*Cicuta* species).

**Also Known As:** Cowbane.

**Origin:** Native to North America (waterhemlock) and introduced from Europe (poison hemlock). Some species are grown as ornamentals.

**Lifecycle:** Perennial (waterhemlock) and biennial (poison hemlock). Both reproduce by seeds; waterhemlock also reproduces by tuberous roots.

**Identification:** Both waterhemlock and poison hemlock are two to seven feet tall, with hollow stems that are branched at the top, and often mottled with purple spots. Both smell like parships or parsley when leaves are crushed. Both have white flowers that are borne in umbrella shaped clusters called umbels. Specifically, waterhemlock roots and stems may produce a yellowish, fragrant oil when cut. Leaves have toothed edges and grasp the stem like a celery bunch. Poison hemlock produces a rosette of leaves near the ground in the first of growth, followed by an erect, flowering stalk the second year. Leaves have a lacy appearance and smell like parsnip when crushed. The tap root resembles a small white carrot.

**Distribution:** Poison hemlock is found across most of the United States, with the exception of northern Minnesota, the Dakotas, and eastern Montana and Wyoming. Waterhemlock is found from North Dakota south to Texas and east to the Atlantic, with the exception of the Gulf Coast States.

**Habitat:** Both species are found in swamps, lowlands, usually in water or at the water's edge (i.e. along streams).

**Control:** While horses do not find these plants particularly palatable, they can be accidentally ingested. These plants can be controlled with herbicides, but make sure to follow all grazing restrictions and other pertinent information on the herbicide label. If they are growing near water, herbicide options may change, or special precautions may be needed to protect the waterway. Under no circumstances should herbicides be sprayed, or allowed to drift into any waterway, pond, or stream. Plants can also be dug or pulled, but gloves should be worn when handling the plants.



Poison hemlock flowers



Poison hemlock mature plant

**Toxin:** Waterhemlock contains the short chain alcohols cicutoxin and cicutol. Poison hemlock contains a number of alkaloids including coniine, N-methylconiine, and gamma-coniceine.

**When Toxic:** Virtually, all cicutoxin and cicutol are in the roots of waterhemlock. Because waterhemlock grows in wet areas, the roots can easily be pulled up and accidentally ingested when horses are grazing. The alkaloid concentration of poison hemlock generally increases as the plant matures and is highest in seeds. The alkaloid concentration decreases after the plant dries, but can still be toxic in hay.

**Toxicity:** Death is reported in animals ingesting about two grams of waterhemlock root per kg body weight or about two pounds per 1,000 pound horse. Lethal doses of poison hemlock range from 0.2 to 0.8 % body weight or two to eight pounds per 1,000 pound horse.

**Signs and Effects of Toxicosis:** Animals are most commonly just found dead after ingestion of waterhemlock. Rarely, violent seizures are observed. In closely observed cases, anxiety and muscle twitching are noted, particularly around the lips, nose, face, and ears, followed by seizures and teeth grinding. Finally seizures become more prolonged with frothy saliva, tongue lacerations and broken bones in severe cases.

Animals develop clinical signs of nervousness tremors, muscle weakness, incoordination, salivation, urination, and colic within an hour of ingesting Poison hemlock. Signs will progress to severe depression and recumbency. Horses often go down quietly, and may have tucked up flanks for several days after recovery. Seizures may occur, but they are less common than with waterhemlock.

**Treatment:** Animals that survive for 8 hours after the onset of clinical signs are more likely to recover, unless they have complications from seizures. There is no specific antidote. Sedation of the animal may help if it can be done safely. Charcoal may be useful but is rarely practical in a seizing animal.

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In Partnership...



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