

HOARY CRESS

(*Cardaria draba*)

Description: Hoary cress, also referred to as heart-podded hoary cress, perennial pepper-grass and whitetop, is a member of the Brassicaceae or mustard family. Hoary cress is a deep-rooted perennial forb that can grow up to 2 feet tall. Stems of the plant are erect or procumbent, branching above, glabrous or slightly to densely pubescent below, and appear gray in color. Hoary cress has both basal and stem leaves. Basal leaves have scattered to dense pubescence, irregularly toothed to entire and taper to a short stalk that attaches to the crown of the plant near the ground. Middle and upper stem leaves are sparsely pubescent to glabrous, obovate, elliptic-oblong, or lanceolate, irregularly toothed to entire, and grayish-green in color. Upper leaves have two lobes that clasp the stem. Flowers of the plant are white, four-petaled, and borne on slender stalks. Fruits of the plant are a mature silicle or pod that is shaped like an inverted heart and usually contains two seeds. Seeds are oval or round at one end, narrow to a blunt point at the other, and reddish-brown in color.

Plant Images:



Hoary cress



Rosettes



Flowers



Infestation

Distribution and Habitat: Hoary cress is considered naturalized throughout Europe and other continents. The plant can occur in a variety of soil conditions with moderate moisture and typically the plant is abundant on alkaline soils that are wet during late spring. Hoary cress can be found in

grainfields, hayfields, croplands, pastures, waste sites, feed lots, and along roadside and irrigation ditches.

Life History/Ecology: Hoary cress is a herbaceous, deep-rooted perennial that reproduces vegetatively and by seed production. Seedlings of the plant begin to germinate and establish a root system that consists of vertical and lateral roots in the spring and fall. Both the vertical and lateral roots can produce adventitious buds that develop into rhizomes and new shoots. Seedlings that are produced in the fall overwinter as rosettes. Plants begin to emerge the following spring, flower from May to June, and begin producing seeds by July. A single plant can produce between 1,200 to 4,800 seeds each year, with a single flowering stem capable of producing as many as 850 seeds. Seeds can remain viable in the soil for approximately three years.

Hoary cress contains glucosinolates that may have allelopathic potential.

History of Introduction: Hoary cress is native to the Balkan Peninsula, Armenia, Turkey, Israel, Syria, Iraq and Iran. The plant is widely introduced and naturalized throughout Europe and all other continents. Hoary cress was first introduced to the United States in Long Island, New York, in 1862, through ship ballast or contaminated alfalfa. In North Dakota, hoary cress has had scattered occurrences and has been found in 27 counties across the state including: Foster, Stark, Slope, Billings, Adams, McKenzie, Dickey, Dunn, Grant, Williams, Mountrail, Golden Valley, Hettinger, Adams, Morton, Bottineau, Sheridan, Wells, Cavalier, Grand Forks, Towner, Cass, Barnes, Ransom, and Richland.

Effects of Invasion: Hoary cress is an aggressive plant that can form dense monocultures on disturbed habitats. Disturbances such as grazing, cultivation, and especially irrigation can promote the colonization and spread of the plant. Hoary cress can displace native plant species, thereby reducing bio-diversity and forage production. Wildlife habitat is also negatively affected by the plant.

Control:

Management objectives for hoary cress control should involve containing and controlling known infestations and preventing infestations from spreading to new areas. Initial establishment of hoary cress is frequently by seed, therefore control methods should be conducted during the seedling or rosette growth stage of the plant prior to seed production. Seeds of hoary cress can remain viable in the soil for approximately three years, therefore infestations should be monitored to prevent re-establishment. However, hoary cress can also regenerate from an extensive root system. As a result, control methods should be combined into an integrated management system for the best long-term control of the plant.

Mechanical - Digging can provide control for small infestations of hoary cress if the entire root system is removed. Digging should be conducted to completely remove the plant within 10 days of emergence throughout the growing season for two to four years to be successful. Hand pulling generally is not effective because the root system may not be entirely removed. Cultivation is the major factor for the spread of the plant because root fragments that are left behind can produce new plants. Cultivation can eradicate plants if cultivations are repeated frequently throughout the growing season for a period of two to four years. Mowing has had variable results. In some studies, hoary cress was able to survive repeated removal of top-growth for at least one growing season without a loss in plant vigor. After two consecutive years of mowing, a noticeable decline in plant vigor was observed. Other studies suggest, mowing can reduce biomass, seed production, and shoots produced. Plants that were mowed during flowering produced fewer viable seeds than plants that were mowed during bolting. However, mowing does not provide long-term control and should be combined with other control methods to be more effective. Burning may enhance the growth of hoary cress as it re-sprouts from rhizomes or seed

production. Little information is available on prescribed burning for hoary cress control. Further research is needed in this area.

Chemical - Herbicides can be used to control hoary cress, but success can be difficult. Metsulfuron, chlorsulfuron, MCPA, DCPA, dicamba, glyphosate, and 2,4-D have been used to control the plant. However, timing of herbicide application is important and herbicide re-treatment may be needed to provide the hoary cress control desired in a long-term management plan. Most studies recommend that herbicides should be applied at the bud or flowering stage when herbicides are translocated with carbon into the roots and rhizomes of the plants.

Contact your local county extension agent for recommended use rates, locations, and timing.

Biological - No biological control agents are available for hoary cress. Sheep will graze hoary cress in the early growth stages, but some reports state that cattle may produce tainted milk as a result of consuming the plant.

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Hoary cress photograph courtesy of Colorado State University Cooperative Extension - Natural Resources.

Rosettes photograph courtesy of T. Breitenfeldt, Montana War on Weeds, (mtwow.org).

Flowers and infestation photographs courtesy of JC Schou, Biopix.dk.