



Dyer's Woad

Isatis tinctoria



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Overview:

Dyer's Woad is a winter annual, biennial or short-lived perennial in the mustard family that is native to southeast Russia. It was introduced to the eastern United States in the 17th century as a source of indigo dye and as a medicinal herb.¹ Dyer's Woad failed to naturalize in the east but became established in the drier regions of Utah, Idaho, Wyoming, California, Oregon, Nevada and Montana. There is some evidence to suggest that it also entered the western U.S. as a contaminant of alfalfa seed.²

Once introduced, Dyer's Woad can spread rapidly. A single infestation in Montana increased from 0.8 to 40.5 ha in two years.³ Annual losses in crop yield and range production of \$2 million are attributed to the plant in northern Utah.¹

Plants of Dyer's Woad can produce as many as 10,000 seeds per year.⁴ The fruits contain a water soluble compound that inhibits germination and root growth of its own seedlings and those of competing plants until leached away by rainwater. The result is

that large numbers of viable seeds may enter the seedbank waiting for favorable moisture levels to occur.¹

Habitat:

Dyer's Woad thrives in light sandy to gravelly soils and will even grow in rocky soil.⁵ Unlike other mustards, it does not require disturbance to become established. Infestations often begin along roadsides or in gravel pits and then spread into crops, rangeland and open forests.⁴ Seeds from plants growing along waterways can float downstream and become established on sandbars or riverbanks.⁶

Identification:

Stems: Erect, somewhat woody, ranging in height from 60-120 cm⁴, and often heavily branched in the upper portion.⁷ Often 5-8 stems will emerge from a single crown.²

Leaves: Rosette leaves are stalked and elongated, with the widest portion near the tip.⁶ Margins range from smooth to slightly

hairy.⁸ They are bluish-green and covered with soft hairs.² Key identifying features are the distinct cream-colored midrib and powdery white film on the upper leaf surface. Upper stem leaves are alternate, clasping and hairless.⁷

Flowers: Tiny yellow flowers (3mm in width) are located in dense, flat-topped racemes.⁷ Each flower has the four petals in a cross-shape characteristic of the mustard family.

Fruits and Seeds: Fruits are purplish-brown, tear-drop shaped, winged and pendulous.² Each seedpod produced one or two brownish-yellow, cylindrical seeds.⁵

Prevention:

Early recognition and immediate action are the most important control measures for Dyer's Woad. Once detected, hand-pulling can be very effective. For best results, plants should be removed by flowering and the area checked once again 2-3 weeks later for any that might have been missed.⁶ Plants in flower should be bagged and burned when fully dry.⁵

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Control:

Grazing: Dyer's Woad is unpalatable but not toxic. Cattle refuse to graze it which enhance its spread in pastures or rangeland.¹ Sheep readily consume the shoots up to flowering and thus may be suitable for control in these areas.

Mechanical: Cultivation of the rosettes prior to bolting and flowering can eliminate newly established populations.² Mowing is less effective due to the woody stems and the ability of the plants to resprout from the crown.⁹

Chemical: Dyer's Woad in the U.S. has been effectively controlled with the use of specific herbicides.^{2,5} Currently no selective herbicides are registered for use on Dyer's woad. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: Literature and field surveys have revealed several biological control candidates however testing was discontinued in 2008 due to lack of funding¹⁰.



Seed Pods

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Seed Pods

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Seeds

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