

Weed Biology & Management

Biology and Management of Hoary Alyssum (*Berteroa incana*) in Christmas Tree Production



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Hoary alyssum is one of the common weed species that can be found in the Christmas tree production fields (Fig 1.). It belongs to the mustard family (*Brassicaceae*) and is native to east-central Europe and western Asia. Hoary alyssum is an annual to short-lived perennial plant. This plant can vary in form depending on the soil type, nutrient availability, moisture, and even competition. These factors may cause the plant to be branched or unbranched or even rounded in form. Hoary alyssum grows well in dry soils with sparse vegetation. It is commonly found in disturbed dry areas such as along roads and railroads as well as in Christmas tree plantations, lawns, and pastures. It displaces native species, particularly in dry prairies and sand blowouts, where vegetation is sparse and scattered (Minnesota DNR, 2021). Hoary alyssum can be toxic to horses when they eat fresh plants in a pasture or dried plants in hay. This article will discuss how to identify and manage hoary alyssum in Christmas tree production system.

Biology of Hoary Alyssum: When hoary alyssum seeds first germinate, its leaves are in circular grouping (rosette) near the ground. The plants then send up stems. The stems are erect, stiff, and can reach up to 4 feet tall. There can be up to 10 stems per taproot with many branches near the top (Gower and Richardson, 2007). Stems have a grayish green appearance due to the presence of gray, star-shaped hairs. Basal leaves are hairy, oblong, and up to 3 inches long with smooth to slightly wavy margins and long stalks (Gower and Richardson, 2007). Stem leaves are similar, but they are alternate and smaller and gradually become stalkless. Leaves are also covered with gray and star-shaped hairs. Flowers are white (Fig 2.) and have four petals, but the petals are so deeply divided that they resemble eight petals and found in elongated clusters. Fruits are oval, hairy, grayish green seed pods with a short beak on the end. The seed pods are held close to the stems and the seeds are oblong, rough, and narrowly winged. Seeds are grayish to reddish brown in color. Reproduction is through seeds and root crowns.

Similar Species: Pale madwort (*Alyssum alyssoides*), desert madwort (*Alyssum desertorum*) and yellowtuft (*Alyssum murale*) are some similar species.

Series for Christmas Tree Production



Fig 1. Hoary alyssum growing in a Christmas tree production field. Photo credits: Debalina Saha, Dept. of Horticulture, MSU.



Fig 2. Hoary alyssum competing with Christmas tree during the establishment phase in dry sandy soil. The flowers of Hoary alyssum are white in color. Photo credits: Debalina Saha, Dept. of Horticulture, MSU.

Management of Hoary Alyssum

Non-chemical control: Mechanical control can be done by pulling or digging the plant by hand or with shovel. Regular, repeated mowing to a six-inch stubble height may reduce seed production when combined with irrigation and nutrient management to increase the vigor of desired Christmas trees. However, mowing alone will not eliminate hoary alyssum and can even spread seed pods. Equipment used for mowing should be washed and cleaned thoroughly after each use to reduce the spread of the seeds. Hoary alyssum thrives under dry conditions. Good irrigation management combined with nutrient management of Christmas trees can prevent hoary alyssum from spreading and help reduce infestations through plant competition. Regular scouting in the field is always suggested to identify the weed species at an early stage.

Chemical control: Chemical control includes application of preemergence and postemergence herbicides. Preemergence herbicides need to be applied either before germination of the weed seeds or just after the germination, when the seedlings are very small. Preemergence herbicides that are labeled for use in Christmas tree production and have shown good control of hoary alyssum include: simazine (Princep 4L),

flumioxazin (Sureguard 51WDG), hexazinone (Velpar 2L), and hexazinone + sulfometuron methyl (Westar 75 DG). Postemergence herbicides are applied at later stages, and they are most effective when applied to young actively growing weeds that have not reached their reproductive stages. 2,4-D (Defy amine 4; Turret 5.5L), triclopyr (Garlon 3A), and glyphosate (Roundup ultra 4L) are some of the postemergence herbicides that are safe for Christmas tree production and have provided very good control of hoary alyssum (Zandstra and O'Donnell, 2018). Growers should read the manufacturer's label of the herbicides before application and make sure the application timing is right and the herbicide is safe for the Christmas tree varieties.

REFERENCES:

Gower, S.A. and R.J. Richardson. 2007. An IPM pocket guide for weed identification in Christmas trees. Michigan State University Extension Bulletin E-2975: 61-62.

Minnesota DNR. 2021. Hoary alyssum (*Berteroa incana*). <https://www.dnr.state.mn.us/invasives/terrestrialplants/herbaceous/hoaryalyssum.html#:~:text=Biology,produces%20seeds%2C%20and%20then%20dies.&text=Hoary%20alyssum%20grows%20well%20in%20dry%20soils%20with%20sparse%20vegetation.,-It%20is%20commonly>. (Accessed 11/8/2021)

Zandstra, B. and J. O'Donnell. 2018. Weed control in Christmas trees. Michigan State University Extension Bulletin E3237. 