

Yellow Starthistle *Centaurea solstitialis*

Yellow starthistle, a native of the Mediterranean region, arrived in this country in 1869 as a contaminant in alfalfa seed. It is a strong invader of disturbed areas, rangelands, and roadsides and thrives in areas of summer drought. A yellow starthistle invasion will reduce biodiversity by choking out native plants. It also is poisonous to horses, causing a usually fatal nervous condition called chewing disease. Yellow starthistle favors deep, well-drained soil, full sunlight, and an annual rainfall between 10 and 60 inches.

Description

Yellow starthistle is a winter annual, maturing at heights of 24 to 72 inches (Figure 1). A rosette of deeply lobed leaves up to 8 inches long forms after seed germinates in the fall (Figure 2). Yellow flower heads develop at the tips of branched stems from late spring until fall. Flower heads bear stiff, sharp thorns about 0.75 inch long (Figure 3). Each seed head produces from 35 to 80 seeds. The seeds cannot disperse via wind, so they need help to move more than a few feet from the parent plant. Human activity such as off-road vehicle and pedestrian travel, cattle grazing, and road and power line maintenance contribute greatly to the plants' rapid and long-distance spread.

Management options

Biological, chemical, and mechanical methods are available for managing yellow starthistle. For this reason, an integrated weed management plan, including tactics to prevent the spread of yellow starthistle outside

infested areas, is recommended. For example, when driving, walking, or moving livestock through infested areas, inspect and clean clothing, vehicles, and animals to remove any seeds before continuing on into uninfested areas.

Biological control

Six biological control insects have been released in the United States for yellow starthistle control:

- The seed head weevils *Bangasternus orientalis*, *Eustenopus villosus*, and *Larinus curtus*
- The seed head gall flies *Urophora jaculata*, *Urophora sirunaseva*, and *Chaetorellia australis*

Of these, five became established and three (*B. orientalis*, *U. sirunaseva*, and *E. villosus*) are widespread. Also, the accidentally introduced seed head gall fly, *Chaetorellia succinea*, has a strong affinity to yellow starthistle and is found almost everywhere yellow starthistle grows.

All these insects attack the seed head of yellow starthistle, effectively limiting the number of seeds the plants are able to produce. Current research indicates the insects have reduced seed yield by at least 50 percent.

The rust fungus *Puccinia juncea* var. *solstitialis* was released in California in 2003. It is too early to know whether this rust will establish and eventually cause high mortality of yellow starthistle in the wild. Several more fungi and insects are being tested for introduction into the United States.

Chemical control

Note: Before you apply herbicide on forest land, you must file a "notification of operations" with the Oregon Department of Forestry at least 15 days in advance.

The following information about herbicides is only a brief summary; consult your local Extension agent or Oregon Department of Agriculture representative for



Figure 1.—Mature yellow starthistle.



Figure 2.—Yellow starthistle rosette. Photo: Dan Sharratt, Oregon Department of Agriculture.



Figure 3.—Yellow starthistle flower and spines. Photo: Greg Winans, Tri-County Weed.

specific recommendations for your situation. Read and follow the herbicide label carefully. Before spraying over or around seedlings, ensure the chemicals pose no hazard.

Postemergent herbicides such as 2,4-D, clopyralid, glyphosate, and aminopyralid or triclopyr provide good control when applied early to seedlings. Treating during the rosette growth stage provides better control than later application.

Preemergence herbicides such as atrazine, sulfometuron, and hexazinone applied before seeds germinate are effective, although the long germination period requires a lengthy residual activity. Make applications before a rain, which will move the material into the soil. If plants have already emerged, it may be best to combine a post- and preemergent herbicide for effective control.

Any herbicide treatment program should rotate among chemicals to prevent developing herbicide-resistant strains of the weed.

For details on chemical control, refer to the current edition of the *PNW Weed Management Handbook* and to *Herbicide-resistant Weeds and Their Management*, PNW 437. Both are available from OSU Extension <http://extension.oregonstate.edu/catalog/>

Mechanical control

Mowing is effective during the early flowering stage or when most buds have produced spines. However, it is

Use pesticides safely!

- Wear protective clothing and safety devices as recommended on the label. Bathe or shower after each use.
- Read the pesticide label—even if you've used the pesticide before. Follow closely the instructions on the label (and any other directions you have).
- Be cautious when you apply pesticides. Know your legal responsibility as a pesticide applicator. You may be liable for injury or damage resulting from pesticide use.

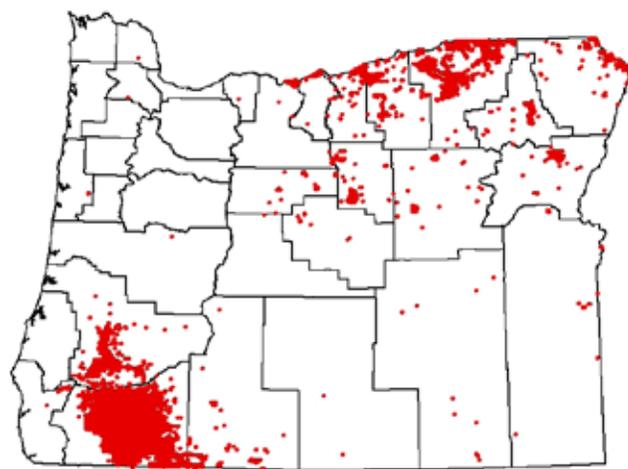


Figure 4.—Yellow starthistle distribution in Oregon. Map: Weedmapper.

successful only if no leaves are growing below the level of the cut.

Grazing

Sheep, goats, and cattle can graze yellow starthistle in early spring, before the flower's spines develop. Goats also will graze plants in the spiny or flowering stages. Grazing reduces biomass and seed production.

For more information

Oregon Department of Agriculture, Plant Division, Noxious Weed Control.

<http://oregon.gov/ODA/PLANT/WEEDS/>

Weedmapper, a collaborative project of Oregon Department of Agriculture, Oregon State University, U.S. Bureau of Land Management, and U.S. Forest Service. <http://www.weedmapper.org/>

California Department of Food and Agriculture, Encycloweedia.

<http://www.cdffa.ca.gov/phpps/ipc/weedinfo/>

University of California Pest Management Guides, Yellow Starthistle.

<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7402.html>

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