



Asotin County Noxious Weed Control Board

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Yellow Starthistle *Centaurea solstitialis*

Description: Yellow starthistle is a winter annual that germinates in the fall when moisture conditions and temperatures are optimal. This member of the sunflower family can reach three feet or more in height. The yellow thistle-like flower has yellowish spines around the flower head. Fine woolly hairs cover the stem and leaves giving it a dull green appearance. Leaf bases extending downward give a winged appearance to the stems. Up to 150,000 seeds may be produced in a single plant. Two types of seeds develop in the flower head. The plumed seeds are dispersed by wind or other disturbances. Plumeless seeds remain in the seed heads until the heads fall apart. These seeds typically grow close to the mother plant. The taproot extends further into the soil than other annuals and often out-competes spring plants for moisture and nutrients.

Habitat: Yellow starthistle can germinate in semiarid and subhumid rangelands. The plants do especially well in deep silt loams on south slopes. However, it can also grow in shallow rocky soils. This adaptability allows it to grow on poor quality rangeland, edges of cropland, idle farmlands and pastures, roadsides, railways, and recreational areas. Although the majority of yellow star seeds germinate in the fall, they may germinate at any time during the year.

Mechanical: Since yellow starthistle is an annual, handgrubbing and tilling is an effective method of control. The prevention of seed production for three years will dramatically reduce the infestation. (90% of the seeds remain viable for 3 years, but the remaining 10% may remain viable for up to 15 years.)

Biological: *Chaetorellia australis* (peacock fly) can produce up to three generations per year. The larvae feed on the developing seeds. Although this fly is found throughout the county, it is more numerous closer to Asotin and Clarkston possibly as a result of an earlier blooming alternative host, bachelor button (*Centaurea cyanus*) being present. *Urophora sirunaseva* (gall fly) is present in smaller numbers than *Chaetorellia*. *Urophora* larvae not only feed on the developing seeds, but the gall formation in the seed heads reduce the density of the seeds. *Bangasternus orientalis* (bud weevil) was released in the late 80's. The feeding larvae can reduce seed production by 50-60%. It's presence is readily noticed by small black specks (eggs) on the stems. It is wide spread throughout the county. *Larinus curtus* (flower weevil)

has been introduced in the county but has not established itself except at higher elevations. The Weed Board is using grant monies to disperse more of these weevils. Nez Perce Biocontrol has found that this weevil can be an effective agent in Idaho. *Eustenopus villosus* (hairy weevil) was introduced into Asotin County in the late 90's. This weevil is our most promising biocontrol. Adult feeding destroys a high percentage of developing buds. Additionally, larvae feeding can reduce seed production by 100%. This aggressive weevil will out-compete *Bangasternus*. The Weed Board cost shares this weevil up to \$200.

Fire: Control fires have been used in California. Tentative results point to multiple mid summer fires being successful at reducing yellow star infestations.

Cultural control: Yellow starthistle infestations have been reduced by careful grazing practices. Crude protein ranges from about 10% at the rosette stage to about 12% at bolting stage. It is sensitive to competition for light, therefore grasses and other forbs can limit plant density. Well timed grazing by goats, sheep and cattle can reduce weed density. Grazing during the bolting stage (prior to spine production) favors grasses. Since yellow star generally recovers from grazing, it is necessary to regraze the area 1 to 4 times at about two week intervals. Grazing in the rosette stage favors yellow star development. Because of the possibility of domestic sheep and goats transmitting the *Pasturella* bacteria to bighorn sheep, WDF&W should be contacted prior to using any multi species grazing management in order to incorporate any safe guards.

Fertilizer: Control of some weeds benefit from the application of fertilizers to augment the growth of competitive vegetation. BLM (offices in Cottonwood, ID) has had negative success with nitrogen fertilizer treatments. However, in other studies the addition of phosphorus has shown promise.

Chemical: These chemical recommendations are for noncropland areas and are summarized from the "Pacific Northwest Weed Management Handbook - 2003". These recommendations are not intended to be a complete resource guide. Label requirements need to be followed for restrictions, concentrations, timing, and nontarget interactions. Chemical control can be effective, but must be maintained for several years to exhaust the seed bank. In the rosette stage, yellow starthistle can be killed with herbicides. Plants in the flowering and seed production stages tend to be more resistant. Resistance to picloram has been reported.

- **2,4-D LV ester:**
Rate; 1 lb ae/A in 50 gal of water
Time; Apply before flowering
Remarks; Foliage must be thoroughly wet.
Caution; Avoid drift to sensitive crops
- **Picloram:** (Tordon)
Rate; 0.25 to 0.375 lb ae/A

Time; Apply in spring when plants are still in rosettes through bud formation.

Remarks; At the suggested rate, treatment will not damage perennial grasses. Treatment at the bud stage can reduce weed seed viability by 95-100% in the year of application.

Caution; Most formulations are restricted-use herbicides. Do not contaminate water. Do not use in diversified crop areas. Potatoes, beans, tomatoes, grapes, and many other broadleaf crops are sensitive.

- **Chlorsulfuron:** (Telar)

Rate; 1.125 oz ai/A (1.5 oz product/A)

Time; For best results apply to young, actively growing weeds.

Remarks; For suppression only. Do not apply to frozen ground.

Constantly agitate while mixing in spray solution. Add 0.25% v/v nonionic surfactant to the spray mixture. Apply with ground equipment in at least 10 gal/A carrier. Rate selection is based on weed species and soil texture.

Caution; See label for tank-cleaning instructions. Do not use on sensitive crops or allow spray to drift onto sensitive crops.

- **Clopyralid + 2,4-D amine:** (Curtail)

Rate; 1 to 5 quarts/A Curtail

Time; Apply after majority of rosettes have emerged but before bud formation.

Remarks; Lower rate for in-crop cereal grain application, higher rates for fallow, postharvest, and CRP applications. See label for specifics. With CRP applications, for established grass only. Apply in enough total spray volume to ensure good coverage.

Caution; Consult label for crop rotation restrictions before using product. Several crops may be injured up to 4 years after application.

- **Triclopyr + clopyralid:** (Redeem R&P)

Rate; 1.5 to 2.5 pints product/A

Time; Apply from rosette to early bolt stage when starthistle is actively growing.

Remarks; Add a nonionic surfactant at the surfactant manufacturer's recommended rate. Apply in at least 10 gal/A water by ground.

Caution; Do not apply more than 4 pints product/A per year. Do not allow drift to desirable vegetation. Note label restrictions on overseeding or reseeding.

- **Clopyralid:** (Stinger or Transline)

Rate; 0.09 to 0.375 lb/A (0.25 to 1 pint/A). Labeled rates vary with crops.

Time; Apply after majority of rosettes have emerged but before bud formation.

Remarks; Best applied to actively growing weeds. See labels for registered sites.

Caution; Consult label for crop rotation restrictions before using these products. Several crops may be injured up to 4 years after application.

Distribution: Except in the southwest corner, yellow starthistle is found on rangeland throughout Asotin County.

ACNWCB Policy: Yellow starthistle will be controlled on a complaint basis County wide when the complainant is an adjoining neighbor. On parcels less than 10 acres, yellow star will be considered controlled when no seed production occurs. On parcels greater than 10 acres, a written complaint must be filed with the Asotin County Weed Board. The Board will consider each complaint on an individual basis.

1/6/04

