

YELLOW STARHISTLE: Options for control

Yellow starthistle (*Centaurea solstitialis* L.), a member of the Sunflower family, is a **class-B** noxious weed in Franklin County, Washington. Yellow starthistle originated in the Mediterranean area and Asia. It spreads exclusively by seed, which may lie dormant for as long as 10 years. It causes "chewing disease" and death in horses.

Yellow starthistle is a winter annual herbaceous plant. Winter annuals germinate in the fall, over winter as seedlings, flower in the spring, then die in late spring as temperatures rise. Plants are gray-green to blue-green, grow from 6 in. to 5 ft. in height, and have deep taproots. Flowers are bright yellow with sharp spines surrounding the base, giving the plant a particularly menacing appearance and a painful response if touched. Stems and leaves are covered with cottony wool. Basal leaves are 2 to 3 in. long and deeply lobed. Upper leaves are short and narrow, with few lobes. Yellow Starthistle will grow wherever



Seedlings resemble a dandelion with deep lobed leaves.



Rosette leaves are typically deeply lobed to midrib, and appear ruffled.



Foliage is grayish-green, and the very strong stems have small "wings" on them.

reducing seed during one growing season, up to 75,000 seeds per one large plant. This weed is easily recognized by its bright yellow flowers and long sharp spines below each flower. The mature plant is gray-green in color and grows to a height of one to three feet. In early fall, adult yellow starthistle plants lose their leaves and dry to a silvery-gray skeleton, with cottony white terminal seed heads.



Yellow Starthistle is an invasive competitor to desirable plants in ranges and pastures. It can crowd out grasses where soil moisture is limited or where forage has been weakened by grazing. Where this weed is well established, its sharp spines may exclude livestock from grazing any grasses growing beneath the Starthistle plants.

Yellow Starthistle produces a toxin that can cause death in horses through an illness called "**Chewing Disease**," which makes it impossible for the animal to swallow. The sharp spines may also damage the eyes of cattle or other livestock attempting to graze around the plants.

downy brome (cheatgrass) grows. It germinates with fall or spring moisture and is capable of germinating and pro-

Key identifying traits

- Bright yellow **flower** heads.
- **Sharp spines** or thorns 3/4–1" long at base of flower heads.
- Grows 2-3 ft. tall, has grayish-green foliage and small "**wings**" on the **stems**.
- **Flower heads** are borne singly on ends of branches.
- Old plants or last year's skeletons have a **cottony white tuft** where flowers were.
- **Seedlings** resemble a dandelion with deep lobed leaves.



The bracts are armed with a stout, straw colored spine 1 to 2 inches long.



As the bright yellow flower begins to fade, the seeds inside are maturing.

Biology and ecology

- **Annual**—reproduces only by seed, which is 95% viable.
- **Invades** rangelands, roadsides, and other disturbed areas.
- **Thrives** in sunny sites—does not tolerate shade.
- **Toxic** to horses in large amounts, causes "Chewing Disease".
- **Flowers** June through October.
- **Bio agent**, *Eustenopus villosus* have been proven to be the most effective.



A Yellow starthistle infestation.

CONTROL MEASURES:

Prevention:

- Beware of contaminated fill dirt, hay and seed from outside your area.
- **Early detection** is vital to prevent invasion.

Biological:

- Biological agent *Eustenopus villosus* is available and effective at feeding on flower heads and buds.
- Sheep, goats, and cattle can graze on yellow starthistle in early spring, before the flower's spines develop. Goats will also graze plants in the spiny or flowering stages.

Cultural:

- Maintain a good competitive vegetative stand to help

prevent infestation.

Mechanical:

- Mowing is effective during the early flowering stage or when most buds have produced spines. However, it is only successful when no leaves are present below the level of the cut.
- Hand pulling can be quite effective.

Chemical:

- 2,4-D, Milestone, Redeem, & Tordon.
- For best results, use a surfactant.
- **Always Read** the label instructions before applying any herbicides. Use herbicides compatible with your goals.



Yellow starthistle favors disturbed sites like roadsides, ditches, waste areas, and overgrazed range-

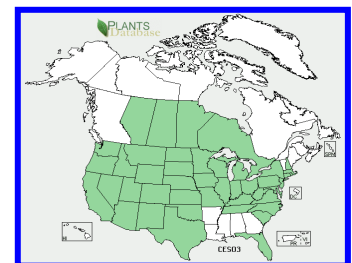


▶ **Yellow starthistle contains an unidentified compound that causes nigropallidal encephalomalacia or chewing disease in horses. The compound only affects horses and permanently damages the area of the brain that controls fine motor movements, including mouth and lip movements. Toxicity effects are cumulative. Horses must consume a 50-150% of an animal's weight in dry-weight plant material over a period of 1 to 3 months to produce symptoms. Because of its bitter taste, horses usually avoid grazing yellow starthistle. However, the disease can occur when horses are allowed to graze infested pastures, especially those that lack**

adequate amounts of suitable green forage, or are fed contaminated hay over a period of time. Once the toxicity threshold has been reached, symptoms occur rapidly. Symptoms include fatigue, lowered head, an uncontrolled rapid twitching of the lower lip, tongue-flicking, involuntary chewing movements, and an unnatural open position of the mouth. Without intervention, affected horses are unable to eat or drink and eventually die from starvation or dehydration.



Eustenopus villosus: This weevil is valuable because it attacks Yellow starthistle twice, the adults eat developing buds. Females lay eggs in older buds that remain, and the larvae that hatch, eat seeds before they mature. However, they only suppress yellow starthistle seed production by about 50%.



For more information contact the Franklin County Noxious Weed Control Board. 509-545-3847 fcwb@co.franklin.wa.us www.fcweedboard.com

Photos and references courtesy of: USDA Forest Service; NWCB, Written findings; Stevens County Noxious Weed Board, USDA-Agricultural Research Service; Invasive Plant Profile; Global Invasive Species Database; Rich Old, XID services. A BIG THANK YOU to Lincoln County NWCB for the use of their brochure.