



INVASIVE ALIEN SPECIES

Yellow Starthistle (*Centaurea solstitialis*)

SK Provincial Designation: Prohibited

Overview:

Long-lived winter annual that spreads by seed. It invades native plant communities, reducing biodiversity, and wildlife habitat & forage. It is replacing important forage vegetation and reducing rangeland values. Ingestion by horses may result in a fatal nervous disorder known as "chewing disease." Metabolism of chemicals in yellow starthistle produces a toxin which causes death of nerve centers in the brain controlling normal eating & drinking. Only horses are affected and there is no cure.

Habitat:

Native to the Mediterranean & North Africa, it prefers dry, full exposure or south facing sites receiving 25 to 150 cm (10-60 inches) of annual precipitation. Usually found below 2100 m (7000 feet). Can even establish dense infestations on rocky, shallow soils. Develops a long taproot to access underground moisture that allows the plant to survive periods of drought. Yellow starthistle is shade intolerant.



Yellow starthistle flower (photo by Peggy Greb, USDA Agricultural Research Service, Bugwood.org)

Identification:

Stems: Erect, branching, rough, up to 1 m tall, forming a bushy looking cluster. Entire plant is grayish to blue-green and covered with fine, white, cottony hairs.

Leaves: Lower leaves are deeply lobed, upper leaves have an entire margin and become smaller towards the top of the plant. Leaf bases extend down the stem forming a fringe.

Flowers: Small yellow flowers clustered in a head to resemble a single flower, solitary at ends of branches, sharp yellowish spines up to 2 cm long extend from below the flower head.

Seed: Seeds are tan with brown mottling and about 3 mm long. Both plumed and un-plumed seeds are produced.

Prevention:

The weed is spread readily in hay and on vehicle undercarriages. The pappus of plumed seeds is barbed and will adhere to clothing, hair and fur. New infestations often result from yellow starthistle-contaminated seed mixes.

Control:

Grazing: Sheep, goats, and cattle graze on yellow star-thistle in the bolting stage but, before the flower's spines develop. Goats will eat the plant even in the spiny stages. Grazing reduces biomass and seed production. Overgrazing will reduce the ability of other vegetation to recover and shade out the starthistle. **Invasive plants should never be considered as forage.**

Cultivation: Generally, star-thistle is not a problem in frequently cultivated areas. Deep ploughing (18 cm) will be adequate control.

1 Always follow the product labels. Pesticides should only be applied by certified pesticide applicators. The use of pesticides in any manner not published on the label or registered under the *Minor Use of Pesticides* regulation constitutes an offence under both the *Federal Pest Control Products Act* and provincial acts in Saskatchewan. For the latest information on pesticides for agricultural use in Saskatchewan, please consult the provincial *Guide To Crop Protection*, produced annually by the Saskatchewan Ministry of Agriculture.



ABOVE: Yellow starthistle (photo by Charles Turner, USDA Agricultural Research Service, Bugwood.org)

BELOW: Yellow starthistle close-up (photo by Steve Dewey, Utah State University, Bugwood.org)



Mechanical: Plants can be pulled, hoed, tilled or mowed before bloom. Mowing is effective when the plants are tall, branched and in the early flowering stage. Mowing too early will result in plants blooming below the cutting height. Controlled burns are successful if repeated for 3 consecutive years.

Chemical:¹ Glyphosate, triclopyr, clopyralid or picloram applied while plants are young and in the rosette stage are effective. Consult your local agricultural representative or Certified Pesticide Dispenser for more information.

Biological: Six biological control insects have been released in the United States for yellow starthistle control. Of these, five have established and three are widespread. An accidentally introduced fly has a strong affinity to yellow starthistle and is found almost everywhere yellow starthistle occurs. All of these insects attack the seed head of yellow starthistle, effectively limiting the number of seeds the plants are able to produce. Current research indicates that the insects have reduced seed yield by at least 50%. A rust fungus was released in California in 2003.