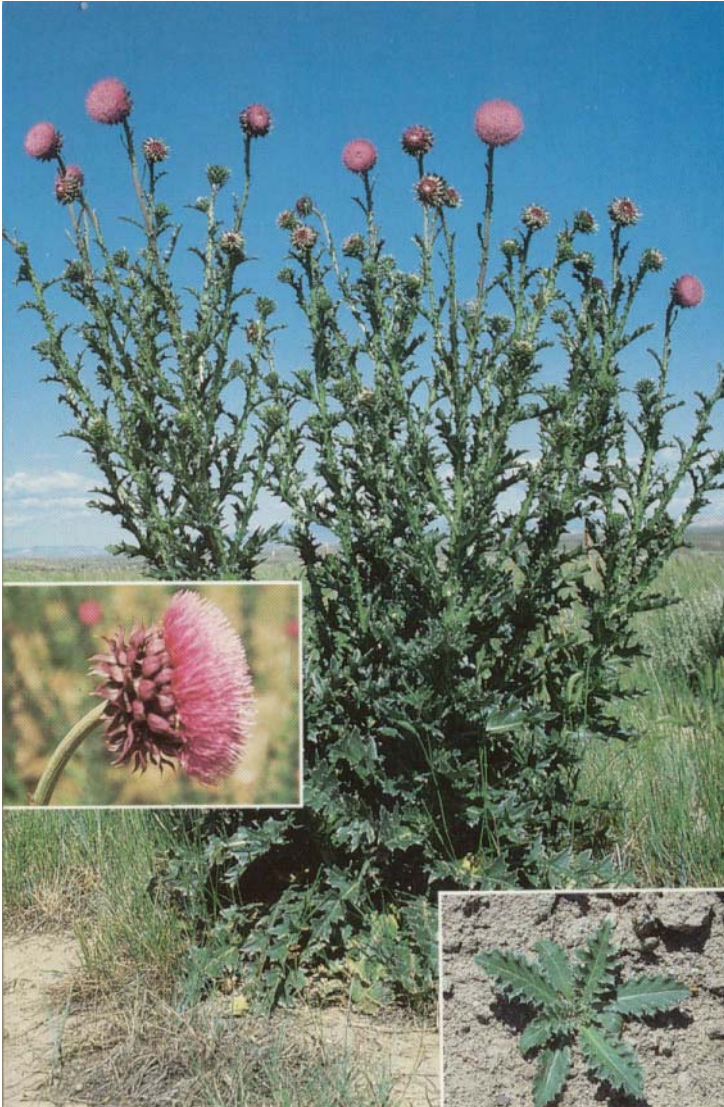


Noxious Weed: MUSK THISTLE (*Carduus nutans* L.)



Photos by Tom Whitson, Roy Reichenbach

Growth Habitat: Biennial, or winter annual, erect up to 7' tall. Freely branching. Rosette formed 1st year, flowering stem elongates 2nd year.

Leaves: Dark green with light midrib, hairless on both sides, long sharp spines.

Stem: Hairless

Flower: Solitary, terminal, nodding heads, 1-1/2" to 3" diameter, deep rose to violet to purple.

Roots: Fleshy taproot, hollow near ground surface.

Seeds: Can be in excess of 20,000 per plant with 1/3 of seeds viable. Most may germinate in first two years. Seeds may germinate after 10 years in soil.

Other: Reproduce by seed only.

Management:

Biological control - Musk thistle seed head weevil, *Rhinocyllus conicus*, deposits her eggs on the back of developing flowers. Larvae then bore into the flower and destroy developing seed. More effective if used with certain herbicides or mowing. Another weevil, *Trichosirocalus horridus*. Attacks the crown area of musk thistle rosettes and kills or weakens the plant before it bolts. It tends to be more effective than the seed head weevil.

Mechanical control - Can be removed easily by severing its root below ground with shovel, hoe or tillage. Mowing can effectively reduce seed output if plants are cut when the terminal head is in the late flowering stage. Gather and burn mowed debris to destroy any seed that has developed.

For more details on invasive weeds visit:

<http://www.coopext.colostate.edu/boulder/AG/aqweedsspecificweeds.shtml>

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Chemical Control – Several herbicides are registered in pasture, rangeland, and noncrop areas to control musk thistle. Tordon 22K (picloram), Curtail (clopyralid + 2,4-D), Banvel/Vanquish/Clarity (dicamba), 2,4-D, or Banvel/Vanquish/Clarity plus 2,4-D are commonly used. Apply these herbicides in spring or fall to musk thistle rosettes.

Apply Tordon at 0.5 to 1 pint per acre (A), Curtail at 2 quarts/A, Vanvel/vanquish/Clarity at 0.5 to 2 quarts/A, 2,4-D at 1.5 to 2 quarts/A, or Banvel/Vanquish/Clarity plus 2,4-D at 0.5 plus 1 quart/A. Cool temperatures (below 50 degrees F), particularly in fall, may adversely affect 2,4-D control of musk thistle; therefore, use 2,4-D in spring. Tordon is largely unaffected by cool temperatures. Banvel/Vanquish/Clarity can be adversely affected but less than 2,4-D. Banvel/Vanquish/Clarity can be adversely affected but less than 2,4-D. Banvel/Vanquish/Clarity plus 2,4-D works well in spring or fall. Apply any of these herbicides before musk thistle bolts or seed production still will occur.

Ally-Escort (metsulfuron) or Telar (chlorsulfuron) also can be used. Use Telar in noncrop areas only and Ally-Escort in pastures, rangeland or noncrop areas. Research from Colorado State University and the University of Nebraska shows that Telar or Ally-Escort prevents or dramatically reduces viable seed formation when applied in spring, up to early flower growth stages. The latest time to apply these herbicides is when developed terminal flowers have opened up to the size of a dime.

Apply Telar at 1 ounce/A or Ally-Escort at 0.5 ounce/A. Add a good agricultural surfactant at 0.25 percent v/v¹ to Ally-Escort or Telar treatments or control is inadequate.

¹Volume to volume, e.g., a ratio of 1 quart per 100 gallons of spray solution.

For more chemical control information go to: <http://www.coopext.colostate.edu/boulder/AG/agweedsspecificweeds.shtml>. For more information on noxious weeds go to: <http://www.ci.boulder.co.us/environmentalaffairs/ipm/index.htm> or <http://www.ag.state.co.us/dpi>

Colorado State University Cooperative Extension. Beck, K.G. Musk Thistle. Publication 3.012. 1998
