

SOWTHISTLE

(*Sonchus arvensis*)

Description: Sowthistle, also referred to as perennial sowthistle, creeping sowthistle, field sowthistle, swine-thistle, milk thistle, field milk thistle, corn sowthistle, tree sowthistle, dindle, and gutweed, is a member of the Asteraceae or sunflower family.

Sowthistle is a deep-rooted perennial herb that has erect, hollow, ridged stems that can exude a bitter, milky juice. Stems are glabrous below, hairy above, branched near the top of the plant and can reach a height of 1 1/2 to 6 feet. Leaves are alternate, light green in color, vary in size, and have prickly edges, pointed lobes, and a clasping base. Upper leaves are smaller and fewer than basal leaves. Flowers, similar to a dandelion, are bright yellow in color, and can be 1 1/2 to 2 inches wide when in full bloom. The bracts beneath the flowers are green and bristly with sticky hairs that can aid in identification. The oblong seeds are dark reddish-brown and notably ridged and wrinkled with a soft white tuft of many fine, barbed hairs.

Plant Images:



Sowthistle



Rosette



Clasping leaf



Flower heads

Distribution and Habitat: Sowthistle is a native to Eurasia and is widely distributed in North America. Sowthistle can tolerate variable environments and can adapt well to wet areas with little soil disturbance. The plant is commonly found in cultivated areas, ditches, meadows, waste areas, sloughs, woods, lawns, roadsides, beaches, along rivers, and lake shores. Sowthistle is adapted to many soil types, but seems to prefer low, fine-textured loams. The plant will not thrive on dry, coarse-textured sand.

Life History: Sowthistle is a warm season, perennial plant that reproduces by seed and root system. Shoots and new roots begin to establish in April or May when the soil warms. Shallow roots develop one week after initial growth and adventitious root development begins approximately three to four

weeks later. Shoots are able to develop on spreading and vertical roots that form from root buds that overwinter and create the underground portion of aerial stems. Sowthistle generally flowers in July and continues through September. Seed production is highly variable, but typically an average of 30 seeds per flower head are produced. Seed viability is relatively low for sowthistle. Seeds usually do not survive longer than a year, but may survive up to five years.

History and Introduction: Sowthistle originated from Europe and western Asia. Sowthistle was first collected in the United States in Pennsylvania in 1814, and was probably introduced through contaminated commercial seed. New plants likely spread through the use of threshing machines and railroads, in the form of contaminated hay, crop seed, or packing materials. Sowthistle is now distributed across most of the United States and Canada. In North Dakota, sowthistle is widely distributed throughout the state with invasive populations likely in all counties.

Effects of Invasion: Sowthistle can have a negative impact on rangelands, pastures, wastelands, roadsides, cultivated fields, and disturbed areas. The plant can displace native plant communities by invading disturbed areas and undisturbed natural habitats. Sowthistle can cause economic losses in cropland due to reduced crop yields, increased cultivation, and herbicide costs. These economic losses can reduce land value; therefore, sowthistle is considered a noxious weed in many states.

Control:

Management objectives for sowthistle control should involve preventing seed production and reducing the reproductive capacity of the roots of the plant. Control methods should be combined into an integrated management system for the best long-term control of the plant. Management techniques selected are dependent upon a specific site and will be determined by land use objectives, extent of sowthistle infestations, desired plant community, and effectiveness and limitations of available control measures.

Mechanical - Tillage can be effective in reducing sowthistle stands, although success is dependent upon the timing and the type of tillage. Tillage breaks the roots into small root fragments and causes new shoot growth. Consequently, tillage effectiveness is dependent upon the amount of root breakage and depth of burial. Tillage at the seven to nine leaf rosette stage does seem to effectively reduce the reproductive capacity of the roots. Mowing would need to be repeated several times during the growing season to control stem growth, prevent flowering, and seed production. Mowing may actually stimulate new plant growth that forms from rhizomes, creating a denser stand of sowthistle. Burning likely will kill the top growth of the plant, but may have little effect on the roots and rhizomes. Further research is needed to determine the effects of prescribed burns for sowthistle control.

Chemical - Several herbicides are available for sowthistle control. The most common herbicides used are 2,4-D, dicamba, glyphosate, clopyralid, and picloram. Herbicides should be applied at the pre-bud or bud stage. Multiple applications of herbicide throughout the same growing season may increase control. Metsulfuron is also effective for sowthistle control. Herbicides should be used when mechanical control options are not applicable or on rangeland and undisturbed sites. Herbicide control of sowthistle is more effective when combined with other control methods.

Contact your local county extension agent for recommended use rates, locations, and timing.

Biological - Six insect biological control agents feed specifically on sowthistles. Five species have been found to reduce seed production by feeding on developing tissue within the seedhead. *Tephritis dilacerata*, a fly, develops in the head of the plant during the larval stage. A gall forms and larvae feed on tissue of the developing florets of the plant. *Cystiphora sonchi* also forms a gall on vegetative parts

of sowthistle. Both of these control agents have been released in Canada. No insect biological control agents are available in North Dakota for sowthistle control. There are a few pathogens that appear to be specific to Sowthistle in North America. Pathogens include, *Marssonina sonchi*, *Septoria sonchifolia*, *Septoria sonchi-arvensis*, *Bremia lactucae*, *Alternari sonchi*, *Coleosporium sonchi-arvensis*, and *Phylosticta sonchi*. *Chlorogenus callistephi*, aster yellow virus, has occurred on Sowthistle in Canada and the United States. *Meloidogyne incognita*, a root-knot nematode, has been reported in the United States.

Cattle and sheep will graze on new growth and roots of sowthistle in pasture, effectively weakening the plant and reducing infestations.

References:

- Bell, A. R., J. D. Nalewaja, and A. B. Schooler. 1973. Response of perennial sowthistle selections to herbicides. *Crop Sci.* 13:191-194.
- Butterfield, C., J. Stubbendieck, and J. Stumpf. 1996. Species abstracts of highly disruptive exotic plants. [Online]. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. Available: <http://www.npwr.usgs.gov/resource/othrdata/exoticab/extoicab.htm> (February 2005).
- Devine, M. D. and W. H. Vanden Born. 1985. Absorption, translocation, and foliar activity of clopyralid and chlorsulfuron in Canada thistle (*Cirsium arvense*) and perennial sowthistle (*Sonchus arvensis*). *Weed Sci.* 33:524-530.
- Lema, W. K. and C. G. Messersmith. 1990. The biology of Canadian weeds. 94. *Sonchus arvensis* L. *Can. J. Plant Sci.* 70:509-532.
- McWilliams, J. 2004. *Sonchus arvensis*. In: Fire Effects Information System, [Online]. U. S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed/us/database/feis>. (February 2005).
- Whitson, T. D., editor. 2000. Weeds of the west 9th Ed. Western Society of Weed Science, Newark, CA 94560. 630p.
- Zollinger, R. K. and R. Parker 1999. Sowthistles p. 336-349 In R. L. Sheley and J. K. Petroff. *Biology and management of noxious rangeland weeds*. Corvallis, OR: Oregon State University Press.
- Sowthistle, rosette, and clasping leaf photographs courtesy of Rod Lym, North Dakota State University, NDSU Extension Service.
- Flower heads photograph courtesy of Washington State Noxious Weed Control Board.