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MUSK THISTLE...

- Its APPEARANCE, SPREAD and CONTROL
MUSK THISTLE

By J. D. Furrer, Extension Agronomist

Musk thistle is a major headache for many midwestern landowners.

It reduces forage yields by robbing moisture and plant food from palatable grasses.

Livestock refuse to enter heavily infested areas and will not graze close to the spiny plants.

In the past 20 years musk thistle has taken over thousands of acres of Nebraska pastureland. It has moved from the Kansas to the South Dakota border and as far west as Colorado and Wyoming. So far it hasn't invaded the Sandhill ranges -- but there's no ecological reason why it couldn't, especially on overgrazed ranges.

What It Looks Like

Musk thistle (Carduus nutans L.) is also known as nodding or plumeless thistle. It is a relatively new weed species in Nebraska. The deep reddish purple flowers are large and attractive. The head is solitary on the end of the stem and nods or hangs down as it grows in size. There may be 40 or 50 heads per plant.

Healthy plants in West Virginia have produced more than 40,000 seeds. In Nebraska, plants have been observed with more than 100 heads -- with some heads containing a thousand or more seeds.

The deeply cut (segmented) leaves are dark green with a light green midrib. There is a grayish-green area at the outer edge of each spine-tipped leaf segment. The leaves extend onto the stem giving it a winged or frilled appearance. The plant is relatively free of hairiness. Plant height varies between two and seven feet.
Note the large nodding flowers, light mid-rib of the leaves, and the continuation of the leaves onto the stems.

Musk thistle is a biennial weed and normally requires two growing seasons to complete its life cycle. However, it has performed as a winter annual -- seeds germinate and start growth in the late summer and bloom the following spring.

**Its Origin and Spread**

Musk thistle has been found in the United States for more than 50 years. In the early 1900s it was listed as a weed in Pennsylvania, the District of Columbia, and New Jersey northward to New Brunswick and westward to Iowa. It probably came from Europe where it was grown as an ornamental.

In 1932 musk thistle was identified in Iowa and a specimen was brought to a field day in Seward County for identification.

Extensive plant collections made in Nebraska during the late 20's and early 30's do not contain specimens of the species. According to Dr. Howard Reynolds, now at Fort Hays Kansas State College, who made a botanical survey of Richardson County in 1940-41, musk thistle was found near Dawson at that time.
In the mid-forties certain plumeless thistles were identified in northeast Nebraska. Professor Stevens of the University of Kansas wrote in the 1948 edition of *Kansas Wild Flowers*: "...of rare occurrence; roadsides, fields, pastures. Washington and Nemaha Counties (Kansas)."

These scattered reports, references, and collections indicate that sometime around 1945 to 1950 musk thistle emerged as a weed species of economic importance. By 1959 it was such a pest in eastern Nebraska pastures and waste areas that the Nebraska legislature declared it a noxious weed.

**Control with 2,4-D**

Some of the first work on musk thistle control was done in southeast Nebraska in November, 1957. One to two pounds of 2,4-D ester gave 75 to 100 percent control. Even though good control resulted from fall applications, a large number of new seedlings were present in the spring. Musk thistle has the ability to establish new seedlings during warm periods in late fall and early winter.

Recent work of the Agricultural Research Service and University of Nebraska shows that late September or October treatments with one pound of 2,4-D ester (1 qt. of the 4 lb./gal. material) gives control equal to or better than spring applications. If conditions are drier or cooler than normal 1 1/2 or 2 lbs. per acre will be needed.

Spring treatment with 2,4-D must be done before any sign of flower stalk elongation. Musk thistle is one of the earliest flowering thistles. The first blooms show around June 1 in the southern part of the state. Flower stalk lengthening begins about one month before bloom.

If spring treatment with 2,4-D is to be most effective, applications must be made between April 15 and May 1 along the Kansas-Nebraska border. Northward to the South Dakota border spray ten days later. From east to west there's further delay in plant development because of the higher altitude and average lower temperature.
Musk thistle in the rosette stage. Applications of 2,4-D are most effective during this stage -- either fall or spring.

Regardless of your location, make sure your spring treatments are applied before stem lengthening and rapid plant growth. Use one pound of 2,4-D ester per acre (1 qt. of 4 lb./gal. material) when growing conditions are favorable. Increase the amount of 2,4-D to 1 1/2 or 2 pounds if moisture supply is short or daytime temperatures are below 60° F.

You will have to spray more than once -- primarily because of the seed in the soil. Much of the seed germinates during the first year but some of it will germinate three to four years later.

Never let a plant go to seed. Cut scattered plants three to four inches below the surface or treat chemically. For spot chemical treatment use two to four tablespoons of 2,4-D per gallon of water and thoroughly wet all plants.
The importance of making 2,4-D treatments before the flowering stalk begins to lengthen cannot be over-emphasized.

**Cultural Control**

Musk thistle does not become troublesome in spring-planted crops. Badly infested fields that are tillable could be cropped for two to three years with row crops or spring small grain. Normally it doesn't bother in fall-sown wheat, rye, or barley but occasionally plants do set seed by harvest time. The Nebraska Crop Improvement Association has rejected wheat fields for certification because of the presence of musk thistle.

Grassland that is properly managed -- well fertilized and not grazed too closely -- is less subject to infestation.

**Remember!**

Musk thistle

*-- Is a terrific seed producer
*-- Spreads rapidly
*-- Occasionally acts as a winter annual
*-- Normally does not bother in cultivated fields
*-- Is troublesome in pastures and waste areas
*-- Must be sprayed before the flowering stalk begins to lengthen