

# Weed Control

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## BIENNIAL THISTLES: Bull, Musk, Tall

### BULL THISTLE

[*Cirsium vulgare* (Savi) Tenore.]

Bull thistle is an aggressive, biennial plant of the composite family. It was introduced from Europe and is now found over a wide area from Newfoundland to British Columbia in Canada, and southward into a great portion of the United States. It is found to some extent in every Iowa county, commonly in overflow land, pastures, fence rows, on railroad embankments, ditch banks, and roadsides.

#### Description

Bull thistle produces a terrific amount of wind blown seed. The seed germinates and produces a first year or fall "rosette" with oblong, coarsely toothed leaves. When freezing weather begins, the



A closeup of the bull thistle flower and spiny leaves.

Prepared by Richard S. Fawcett and James E. Nelson, extension weed control specialists.



Mature bull thistle plants attain a height of 1½ to 6 feet, and are beset with a tremendous number of flowers.



Taken in September, this picture of a bull thistle rosette shows the stage of growth when spraying is especially effective.

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Fawcett, Richard S./Biennial thistles :



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rosette goes into a dormant winter stage and reactivates with warm weather in the spring, during April and May. During June the plant makes its greatest growth, producing a spiny-leaved, flowering stem 1½ to 6 feet in height, with prickly lobed leaf wings which extend down the stem. The leaves are pinnately cleft, pale, woolly or webbed beneath, green above, beset

with roughly pubescent stiff hairs. The lobes and ends of the leaves are armed with long, stout prickles.

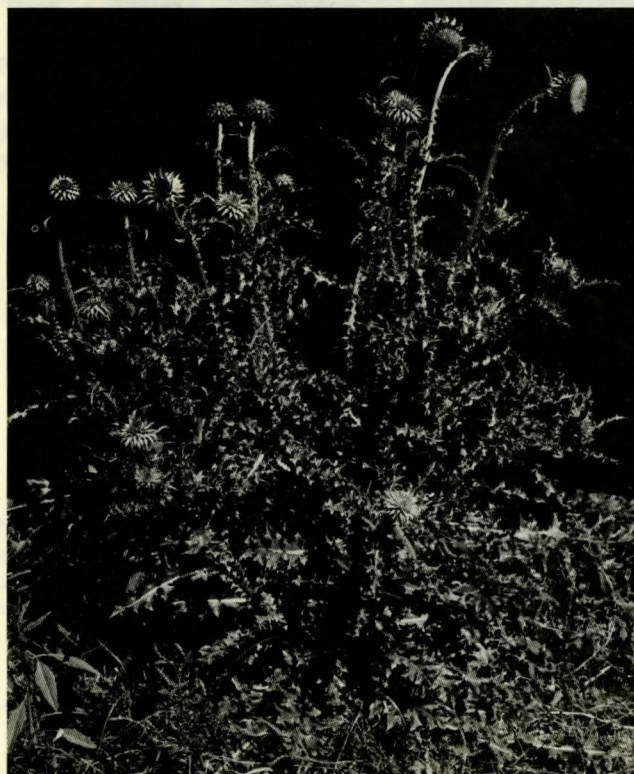
The plant blooms from June to September, with single or few flowers at the tips of short, prickly winged branches. The purple flowers are egg to sphere-shaped, 1½ to 2 inches in length.

## MUSK THISTLE

(*Carduus nutans* L.)

### Distribution

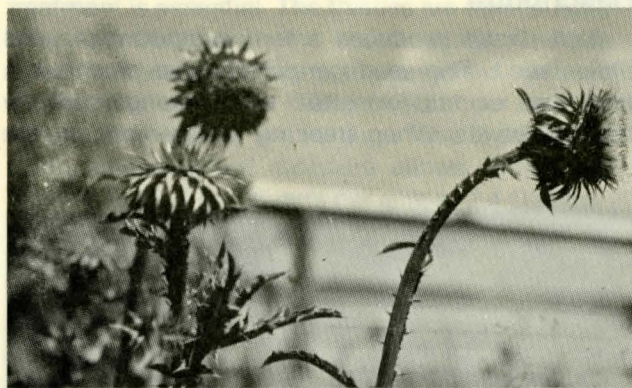
Musk thistle was originally introduced in the early 1900's from Europe, where it was grown as an ornamental. The plant is found in the eastern part of the United States, from New Brunswick and Quebec to Pennsylvania, Missouri, Nebraska, and Iowa. Musk thistle was first identified in Iowa in 1932. Iowa's most severe infestations occur in western counties, although the plant is beginning to appear in small numbers in many other parts of the state. Counts on 25 averaged-sized musk thistle plants showed a range of 15 to 82 blossoms per plant with an average of 34. Seeds in these blossoms ranged from 318 to 636 per head with an average of 508. This vast amount of seed is easily transported by wind, accounting for the rapid spread of this weed.



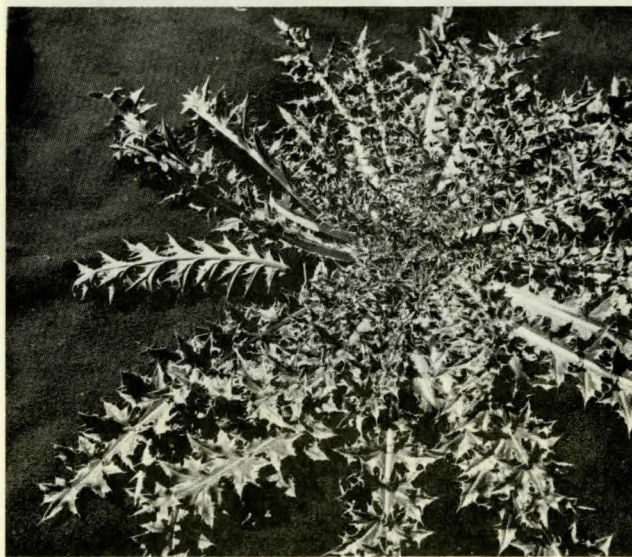
Some flowers are blooming on this musk thistle plant while others are still developing. This means a long period of seeding.

### Description

The name "musk" thistle refers to the sweet, almost sickening, odor of the blossom. It is sometimes called "nodding thistle" because of the large single, heavy heads which hang down and "nod" in the breeze. Musk thistle is a biennial, with large, single, showy purple flowers. The bracts (flower bud scales) are lanceolate (long) and the



Musk thistle heads are big and heavy, and display recurved bracts under the blossom.



This picture of a musk thistle rosette shows the stage of growth when spraying is especially effective.



outer ones are conspicuously recurved, giving the flower head a large appearance. The leaves are very spiny and noticeably decurrent, winged down onto the stem. The plant has a single tap root. It comes

back the second year from the overwintering crown but does not spread by means of underground, horizontal creeping roots. Plant height varies from 2 to 7 feet.

## TALL THISTLE

[*Cirsium altissimum* (L.) Spreng.]

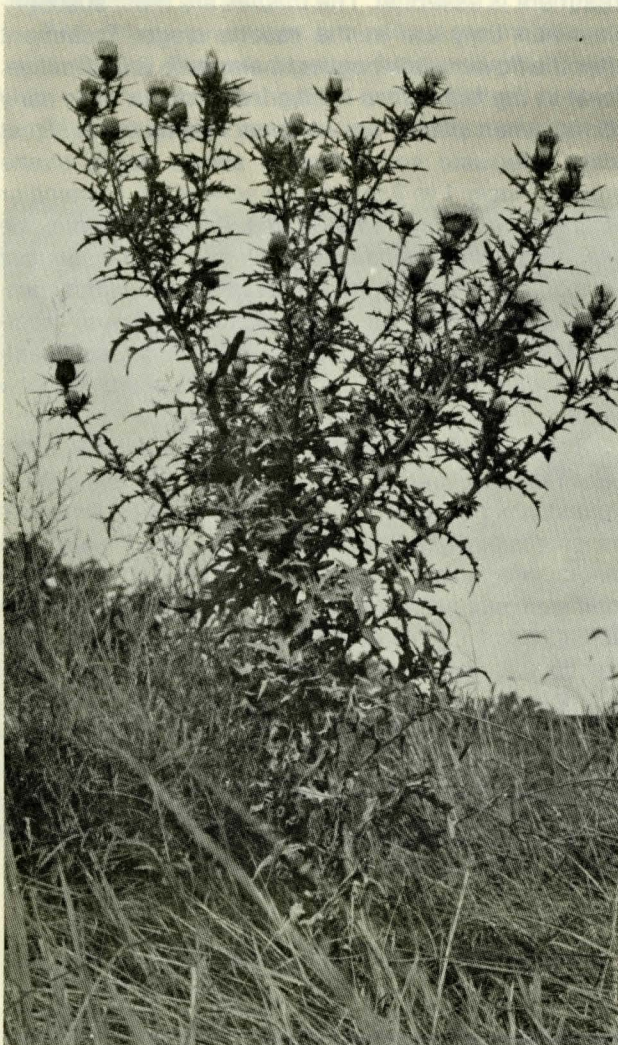
### Distribution

Tall thistle is a biennial found throughout Iowa in pastures, waste lots, overflow land, rich thickets, along river banks, roadsides and fence rows, and in woods and clearings. It ranges from Florida to Texas and northward to New York, Ohio, Michigan, Wisconsin, Minnesota, and North Dakota.

### Description

Tall thistle is the tallest of the biennial thistles,

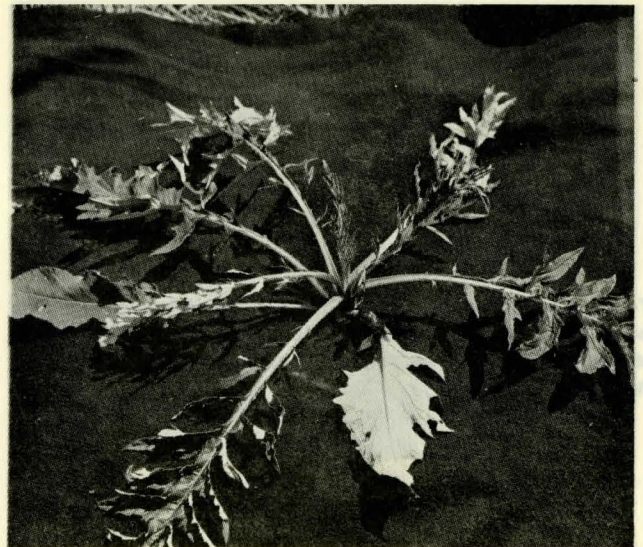
sometimes reaching a height of 5 to 8 feet. Upright and sparsely branched, its leaves are undivided, oblong-ovate to narrowly lanceolate, wavy toothed, or wavy feathered, with weak marginal and terminal prickles. The leaves are white, woolly and pubescent beneath, and green, glabrous and rough above. The flower head bracts have a dark glandular line on the back and end in a prickle. The flowers are usually rosy purple, but white flowers are occasionally found.



This tall thistle plant is about 4 to 5 feet high.



Tall thistle plant, flower, and undersurface of the leaf which shows a woolly, silvery appearance



Tall thistle rosettes show a lot of variation in growth. This one is in about the right stage for spraying in either the fall or spring.



## OTHER BIENNIAL THISTLES IN IOWA

The exact identification of many species of thistles is difficult. There may be some natural crossing and resultant plants show intermediate characteristics. The most common biennial thistles have been mentioned, but there are some additional species which are important. None of the thistles mentioned below are commonly found, although all of them occur in Iowa.

1. **Curled thistle, or Plumeless thistle** (*Carduus acanthoides*), has been collected in limited amounts in all parts of the state. It behaves either as a biennial or annual.

2. **Iowa thistle** [*Cirsium iowense* (Pammel) Fern] may be another "form" of tall thistle mentioned previously, since the two are very similar. It behaves as a biennial or perennial.

3. **Flodmans thistle** [*Cirsium Flodmani* (Rydb) Arthur] (*Cirsium Canesuns* Nutt) is a typical biennial thistle, woolly on both sides of its leaves, but less so on top.

4. **Wavy leaved thistle** [*Cirsium undulatum* (Nutt) Spreng] is similar to Flodmans thistle, but is coarser with large heads. Another variety of this is also found.

5. **Field thistle** [*Cirsium discolor* (Muhl) Spreng] has deeply divided leaves, behaves as a biennial and a perennial.

6. **Swamp thistle** (*Cirsium muticum* Michx) is a biennial found sparingly—mostly in northern Iowa—with a soft, hollow, flowering stem. Its thin leaves are attached directly to the stem, and are green above, hairy beneath, and deeply divided.

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## CONTROL

### Cultural Control

Biennial thistles are killed by tillage and cannot compete with crops such as small grains, corn or soybeans. Normally they are only a problem in pastures, lawns and noncrop areas such as roadsides. Planting infested areas to crops for several years will control thistles.

If only a few plants exist in pastures or similar areas, hoe or spade them out. This prevents seed production and spread of the weed. Biennial thistles depend on seed production. Close mowing at least twice a season will prevent all seed production. Mowing is preferable to spraying if legumes or other desirable broadleaf plants are present in the area. This method is especially good in pastures and roadsides where cultivated crops cannot be grown.

### Chemical Control

Biennial thistles can be effectively and economically controlled with 2,4-D. However, timely treatment is essential. The thistles are most susceptible when they are in the rosette stage. Treatment after the flower stalk begins to elongate is ineffective. Treat in the fall before killing frosts occur or in early spring when plants are in large rosette form. Treat when adequate soil moisture allows active thistle growth. Apply 1 to 2 quarts per acre of 2,4-D amine or ester (4 lb/gal acid equiv.). The higher rate may be needed for musk thistle. A tank mix of 1 quart per acre of 2,4-D plus ½ pint per acre of Banvel may provide superior control of musk thistle. These treatments are selective and do not harm grasses. Treatments will need to be repeated annually to kill new seedlings as they germinate.

Tordon 22K is registered for use in Iowa (24C State Label) to control musk thistle in permanent grass pastures. Tordon 22K has sometimes provided musk thistle control superior to other treatments, especially when treatment is made under adverse weather conditions (dry or cool) or after stem elongation has begun. Apply 6 to 8 ounces per acre (3/8 to 1/2 pt/A) when musk thistle plants are in the rosette stage of growth or before flower stalk elongates over 2 inches above the leaves in the spring or in the fall prior to soil freeze-up. Aerial application is **prohibited**. Be sure to follow all label precautions to prevent drift onto susceptible broadleaf plants or onto fields where broadleaf plants will be grown, since injury can occur due to foliar uptake or root uptake of the herbicide.

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