Thistle, musk *(Carduus nutans)*

Musk thistle is an erect biennial with spiny leaves and stems that may grow as tall as 6½ feet. Musk thistle is one of the most common weeds of pastures, haylands, roadsides and noncrop areas and can be found throughout the United States.

Seedlings: Cotyledons are rectangular to oblong, about 7.5 to 15 mm long and 2.5 to 6 mm wide. Cotyledons occur with short or no petioles and have distinctive white veins on their upper surface. Young leaves are essentially hairless and immediately take on a rosette growth habit.

Leaves: During the first year of growth, a basal rosette of leaves forms with the first two true leaves being opposite and all other leaves alternate. During the second year of growth, the rosettes elongate and flowering stems are produced. All leaves that occur on the flowering stems are alternate. All leaves are dark green with light green to white midribs and veins. Leaves are lanceolate, deeply lobed and about 10 inches long by 4 inches wide. Three to five spines occur along the margins of each lobe, and each white or yellow spine is about 2 to 5 mm long. The leaf bases extend down to the stem, and the leaves become progressively smaller up the stem.

Stems: Erect, branched, with spines extending down the stem from the leaf bases.

Flowers: Single flower heads are produced at the end of branches. Flowers are 1¼ to 2 inches wide and are pink to violet or purple. Spiny bracts occur below the flower heads and are often purple-tinted.

Fruit: An oblong achene that is about 4 mm long. Achenes are tan to brown and have a white pappus attached.

Roots: Large, thick taproot that is hollow near the soil surface.

Identifying characteristics: Musk thistle is similar in growth habit and appearance to bull thistle (*Cirsium vulgare*) except that musk thistle mostly lacks hairs, whereas bull thistle has many hairs on the upper surface of the leaf blades. Additionally, the flower heads and bracts of bull thistle gradually taper to a point unlike those of musk thistle. Musk and bull thistle may also be confused with Canada thistle (*Cirsium arvense*), but Canada thistle has rhizomes and rarely takes on a rosette growth habit.

Musk thistle plants in the rosette stage of growth, as pictured, are most susceptible to herbicide treatment.

Thistle, musk *(Carduus nutans) continued*

Control: Timely mowing can reduce musk thistle seed production but is not likely to eliminate it. See Table 1 for a list of herbicides that provide effective control of musk thistle. Although a variety of herbicides provide similar levels of musk thistle control, the key to effective management is the timing of the herbicide application. Best control will be achieved when herbicides are applied to musk thistle plants in the rosette stage of growth. This can occur in the fall, as musk thistle seedlings germinate in late summer and take on an initial rosette growth habit by fall, or in the early spring. Musk thistle plants that are entering their second year of growth will begin to bolt and produce flowering stems by late spring, at which time the effectiveness of herbicide applications begins to decline. Although higher-volume spot-spray applications can still be effective, control of flowering musk thistle plants will be reduced with broadcast herbicide applications.

Spiny bracts are attached directly below musk thistle's pink to purple flower heads, distinguishing it from bull and tall thistle.

In the second year of growth, musk thistle plants bolt and produce erect, flowering stems.

The white feathery pappus attached to musk thistle seed aids in wind dispersal.

Musk thistle seedlings have rectangular to oblong cotyledons. The margins of the first true leaves are covered in spines.