Thistle Control in Pastures and Hayfields

Thistles are common weed problems throughout Alabama. They often sneak up on producers each spring and can quickly take over a pasture. Their aggressive and spiny growth shades out grasses and clovers and deters cattle from grazing infested areas. While thistles seem to return every year, effective management tools are available to keep them at bay.

Q: What are the most troublesome thistles in Alabama?

Musk thistle or nodding thistle (*Carduus nutans*) is the most aggressive non-native thistle in Alabama. Yellow thistle, which is also known as horrible thistle (*Cirsium horridulum*), is native and is also abundant throughout much of the state. Milk thistle (*Silybum marianum*), another exotic, is occasionally found in Alabama as a pasture weed. Bull thistle (*Cirsium vulgare*) is very uncommon, and Canada thistle (*Cirsium arvense*) is extremely rare, if at all present. This publication will address musk, yellow, and milk thistles.

Q: How can I tell them apart?

Identifying thistles when they are in the rosette stage can be extremely difficult. However, the mature plants are easily distinguished. Musk thistle has large, nodding, solitary flower heads with wide, single spine-tipped bracts that curve upward. Flowers are deep rose to violet or purple and very rarely white. Stems are winged and spiny. Yellow thistle has large, clustered flower heads with spiny, feathery bracts that almost enclose each flower’s entire head. Flowers are yellow or reddish purple and rarely white. Stems are covered in fine hairs and hairlike projections. Milk thistle has very distinct green and white mottled leaves and solitary flower heads with stiff, spiny bracts that often curve downward. Flowers are purple, and the stems are hairless and not winged.

Q: Do thistles really affect spring forage production?

Yes. Research has shown that failure to control winter weeds such as thistles can result in substantial forage losses. A dense stand of thistles can also delay the spring transition to warm-season forage grasses.
Table 1. Effective thistle herbicides (*listed in alphabetical order*)

<table>
<thead>
<tr>
<th>Herbicide Product</th>
<th>Active Ingredient(s)</th>
<th>Product Rate</th>
<th>Timing</th>
<th>Generics Available</th>
<th>Product safe for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chaparral</td>
<td>Aminopyralid + metsulfuron</td>
<td>2 oz/A</td>
<td>Rosette to early bud</td>
<td>No</td>
<td>Bermuda¹</td>
</tr>
<tr>
<td>Cimarron Max</td>
<td>Metsulfuron + dicamba + 2,4-D</td>
<td>Rate 1</td>
<td>Rosette to early bolting</td>
<td>Yes</td>
<td>Bermuda¹</td>
</tr>
<tr>
<td>Cimarron Plus</td>
<td>Metsulfuron + chlorsulfuron</td>
<td>0.25 oz/A</td>
<td>Rosette</td>
<td>No</td>
<td>Bermuda¹</td>
</tr>
<tr>
<td>GrazonNext HL</td>
<td>Aminopyralid + 2,4-D</td>
<td>1.5 pt/A</td>
<td>Rosette to early bud</td>
<td>No</td>
<td>All grasses</td>
</tr>
<tr>
<td>Grazon P+D²</td>
<td>Picloram + 2,4-D</td>
<td>2 pt/A</td>
<td>Rosette to early bud</td>
<td>Yes</td>
<td>All grasses</td>
</tr>
<tr>
<td>Milestone</td>
<td>Aminopyralid</td>
<td>3 oz/A</td>
<td>Rosette to early bud</td>
<td>Yes</td>
<td>All grasses</td>
</tr>
<tr>
<td>Surmount²</td>
<td>Picloram + fluroxypyr</td>
<td>2 pt/A</td>
<td>Rosette to early bud</td>
<td>No</td>
<td>All grasses</td>
</tr>
<tr>
<td>Weedmaster</td>
<td>Dicamba + 2,4-D</td>
<td>2 pt/A</td>
<td>Rosette to early bolting</td>
<td>Yes</td>
<td>All grasses</td>
</tr>
<tr>
<td>2,4-D</td>
<td>2,4-D</td>
<td>2 pt/A</td>
<td>Rosette</td>
<td>Yes</td>
<td>All grasses</td>
</tr>
</tbody>
</table>

¹Chaparral, Cimarron Max, and Cimarron Plus are also labeled for use in tall fescue. However, temporary yellowing, seed suppression, and stunting may occur.

²Grazon P+D and Surmount are both RESTRICTED USE herbicides.

**Q: Can I control thistles with mowing?**

Limited control can be achieved with mowing. The optimal time for mowing is when thistles reach the late bolting stage when flower buds begin to emerge. However, new shoots will emerge from buds in the leaf axils below the mowing height and will flower and produce seed. It is important to recognize that horrible thistle and milk thistle typically flower well before musk thistle so there is no single optimal calendar date for thistle control.
Q: What about digging or hand pulling?

The best time to dig or hand pull thistles is when they have bolted but before they flower. It is not necessary to dig out the entire taproot. Cut it about three or four inches below the soil surface with a shovel, and pull it out. These thistles do not have creeping roots that produce new shoots.

Q: What about thistle control with herbicides?

Herbicide treatment can provide the most effective thistle control to maximize grass forage production. See table 1 for recommended treatments. Always read and follow the label before applying any herbicide.

Q: What is the optimal herbicide treatment timing?

Treat in the late winter or early spring when thistles are still rosettes to maximize spring forage production. While there are several herbicides that are effective on large bolted thistle, the spring forage response will be decreased the later you wait to spray. Large, bolted thistles in the spring can also delay the growth and early productivity of warm-season forage grasses.
**Q:** What about spraying later in the spring to gain some residual control of summer weeds?

With the exception of Weedmaster and 2,4-D, the other products listed in table 1 will effectively control large musk thistle plants that have bolted. However, these herbicides will not prevent seed production when plants are flowering at the time of application. To prevent seed production, herbicides need to be applied by the bud stage before flowers open. Thistles may take an entire month to die when sprayed at the bud stage. This application timing can provide some residual control of certain summer annual weeds including horseweed, bitterweed, and spiny pigweed. Spiny pigweed, however, will break through sooner than other annual weeds. Perennials such as horse-nettle will also be suppressed but will typically recover by midsummer.

**Q:** What about fall-timed herbicide applications for thistle control?

Fall applications are also extremely effective on thistle rosettes. However, soil residual herbicides may not provide complete control through the next summer.

**Q:** Can I spray and keep my clovers?

One of the biggest issues with pasture herbicides is that they are very effective clover killers too. With the exception of very low rates of 2,4-D (0.5 to 1.0 pt/A) applied in December or February, every other commonly used pasture herbicide will severely injure or kill clovers. However, these low rates of 2,4-D are not effective on established thistle rosettes. Additionally, waiting until after clovers seed before spraying is difficult to do as most thistles will have gone to seed before clover.

**Q:** What about thistle biocontrols?

Two musk thistle biocontrol insects have been distributed throughout much of Alabama. Both can have substantial impacts on thistle seed production. For more information on thistle biocontrol, see Extension publication ANR-1034, “Biological Control of Musk Thistle.”

**Q:** Any final thoughts?

Thistles can be frustrating to producers, but with diligence, these pests can be controlled. Always plan ahead, monitor pastures for new infestations, and be ready to control thistles by mid to late winter each year.

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*Stephen Enloe, Extension Specialist, Associate Professor, Crop, Soils, and Environmental Sciences*

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