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Thistle Control in Pastures

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If left uncontrolled, thick thistle stands can reduce grazing, result in less forage production, and ultimately, lower calf weaning weight. A single thistle plant can produce at least 4,000 seeds, which increases the chance for higher thistle populations in the pasture the following year. Consequently, management practices need to be conducted prior to flower formation for effective thistle control. Even if thistles didn't infest your pasture last year, now is an ideal time to ensure that thistles don't get out of control. New infestations are easier to manage than large-scale populations. And if your pasture was infested with thistles last year, now is the time to start scouting and preparing to managing them.

Although there are several different species of thistle in Florida (at least seven species), most are closely related and the control recommendations will not differ. While scouting, you may encounter tall thistle, Leconte's thistle, swamp thistle, Nutall's thistle, purple or yellow thistle, bull thistle, Virginia thistle, and possibly others. Although thistles can create problems for grazing, both mowing and chemical control can be effective control measures if conducted at the proper time.

Biology and Control

All thistles mentioned above are biennials, with the exception of Leconte's thistle, which is a perennial. Biennial plants are those that grow from seed in one year and produce seeds the second year. There are 3 distinct life stages defined that pertain to management of thistle. During the first year, the plant will grow as a rosette (a taproot with a cluster of leaves on or near the soil surface) (Figure 1). During the second year, a stalk elongates

(which is often referred to as 'bolting') from the rosette (Figure 2). The plant then flowers, reproduces, and dies. In Florida, the rosette growth stage occurs primarily during the winter months. Bolting occurs from late January through July, and flowering occurs from April through August. The variation of growth among individual thistle plants can make control a daunting task.

Figure 1. Example of a thistle rosette.



Figure 2. Example of thistles at the bolting growth stage prior to flowering.



Mechanical control

Preventing seed production is of utmost importance when attempting to manage thistle populations. Little can be done to effectively manage these plants if allowed to flower and produce seed before control occurs. While not very practical, rosettes can be manually removed by hand when small by cutting the plant below the soil surface to prevent regrowth. This is time consuming and only effective on very small infestations. Mowing thistles can be an effective strategy, but timing is critical. Clipping thistles later in the spring (April to June) is quite effective when the flower stalk is typically hollow (late bolting stage). The plant is not likely to regrow or produce seed if mowed at this time. However, mowing when plants are in the rosette stage (prior to flower stalk formation - bolting) is not effective and regrowth will occur. Therefore, mow only after rosettes have bolted, but before flowers are formed. Not to discourage mowing, but timing a mowing treatment can be difficult since thistles do not bloom at the same time. Finally, rising fuel costs may make mowing a non-economical thistle control method, especially when it may require multiple mowing treatments for optimum control.

Chemical control

Herbicides are often the most flexible and affordable option for thistle control in pastures. However, like mowing, timing is an important factor for many herbicides. Several commonly used pasture herbicides are highly effective on thistles, if applied early in the growing season (Table 1). Thistles in the rosette state are highly sensitive to herbicides and are easily controlled. However, delaying the application until after bolting can have a dramatic impact on effectiveness, particularly with Cimarron. When applied at flowering, all herbicides provide less than 90% control, except for Milestone. In this case, using a herbicide may or may not be warranted, as they can provide short-term control but will not be effective in long-term management. Yes, Milestone will control flowering thistle, but if seeds are already produced and the plant is beginning to die, mowing may be the best, temporary, option.

The importance of application timing cannot be over-stated. Thistles are normally not visually evident as a problem until flowers are produced. However, the plants are there in the rosette form long before flowers emerge, and early scouting should allow early detection and optimum control. Quickly scouting the pastures in late winter (January to March) will reveal the presence of thistles (rosette stage) and allow for an inexpensive herbicide application. If you wait until thistles flower, mowing and/or herbicide options are limited, less effective, and more expensive. Take the time to scout early, because it is the key to better and economical thistle control.

Herbicide	Rate	\$/A ^a	Thistle Growth Stages		
			Rosette ^b	Bolting ^c	Flowering
2,4-D	2 qt/A	6	90	85	40

Cimarron ^d	0.3oz/A	7	90	40	40
Weedmaster	2 pt/A	6	95	90	55
Remedy	2 pt/A	21	95	90	75
Pasturegard	3 pt/A	18	95	90	70
Milestone	4 oz/A	11	99	95	90

^aApproximate herbicide prices.

^bThe rosette stage is when the thistle forms a low-growing ring of leaves.

^cThe bolting stage is when the thistle forms a stalk and prepares to flower.

^dFor use in bermudagrass only.