



**DIVISION OF AGRICULTURE
RESEARCH & EXTENSION**

University of Arkansas System

EFFECTS OF AMINOPYRALID HERBICIDES ON FORAGE BERMUDAGRASS YIELD

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NEED & HYPOTHESIS

Need for Research:

- Weed control is a critical consideration in bermudagrass forage production.
- Aminopyralid herbicides are widely available and used for broadleaf weed control.
- Anecdotal evidence from county extension agents and producers suggest aminopyralid herbicides may reduce bermudagrass forage yield.

Hypothesis:

- High rates of aminopyralid-containing herbicides will reduce bermudagrass dry matter yield.

MATERIALS AND METHODS

The on-farm research site was conducted in a 'Greenfield' bermudagrass hayfield. The site had a dense stand of bermudagrass with limited weed pressure to ensure reduced variability due to non-uniform forage growth and the reduced yield that would have occurred if broadleaf weeds had been present. Soil test results indicated the soil pH, as well P and K, were optimum. Individual plots measured 10 ft. x 20 ft. Treatments were randomized using a complete block design with 4 replications. Treatments are included in Table 1.

Herbicide applications were made with a calibrated, pressured air backpacker sprayer with a 10 ft. spray width. To account for application accuracy, sprayer volumes were measured before and after application to determine actual active ingredient applied rates as compared to the intended rates.

A standard treatment was included that contained 2,4-D amine, dicamba, and metsulfuron (Brash plus metsulfuron) to determine any lost yield due the reduction of broadleaf weeds. Nitrogen was applied at 100 lbs./acre on June 16th, five days after the first hay cutting. Herbicides were applied June 24th, 13 days after the first hay cutting. Plots were harvested July 21st, 27 days after herbicide application.

The sample area was the length of the plot (20 ft.), cut with a 3.25 ft. wide sickle mower at a height of 3 in. Cut forage was raked and then weighed on site to determine the sample wet weight. Small grab samples (<1 lb.) were collected from the larger sample after weighing and were dried for 24 hrs. to determine forage DM of each sample. Dry matter yields were then calculated on a per acre basis.

Data was analyzed as a randomized complete block design with four replications using the Proc GLM procedure in SAS. Mean separation was accomplished by determining the least significant difference (LSD) among treatments.

Table 1. Aminopyralid treatments and rates

Trt. #	Treatment	Calibrated Rate per acre	Measured Rate per acre ¹	Calibrated aminopyralid (g/ac)	Measured aminopyralid (g/ac) ¹
1	GrazonNext HL	32 fl oz	35 fl oz	48 g	53 g
2	GrazonNext HL	24 fl oz	22 fl oz	36 g	33 g
3	Chaparral	1 oz	1 oz	15 g	15 g
4	Chaparral	3.3 oz	2.7 oz	50 g	41 g
5	Duracor	12 fl oz	10.5 fl oz	28 g	25 g
6	Duracor	16 fl oz	12.9 fl oz	38 g	30 g
7	Milestone	3 fl oz	2.5 fl oz	21 g	18 g
8	Milestone	7 fl oz	6 fl oz	50 g	43 g
9	Brash + metsulfuron	32 fl oz + 1 oz	26.5 fl oz + 0.9 oz	0 g	0 g
10	Control	—	—	0	0

¹ Mean value of 4 replications.

RESULTS & DISCUSSION

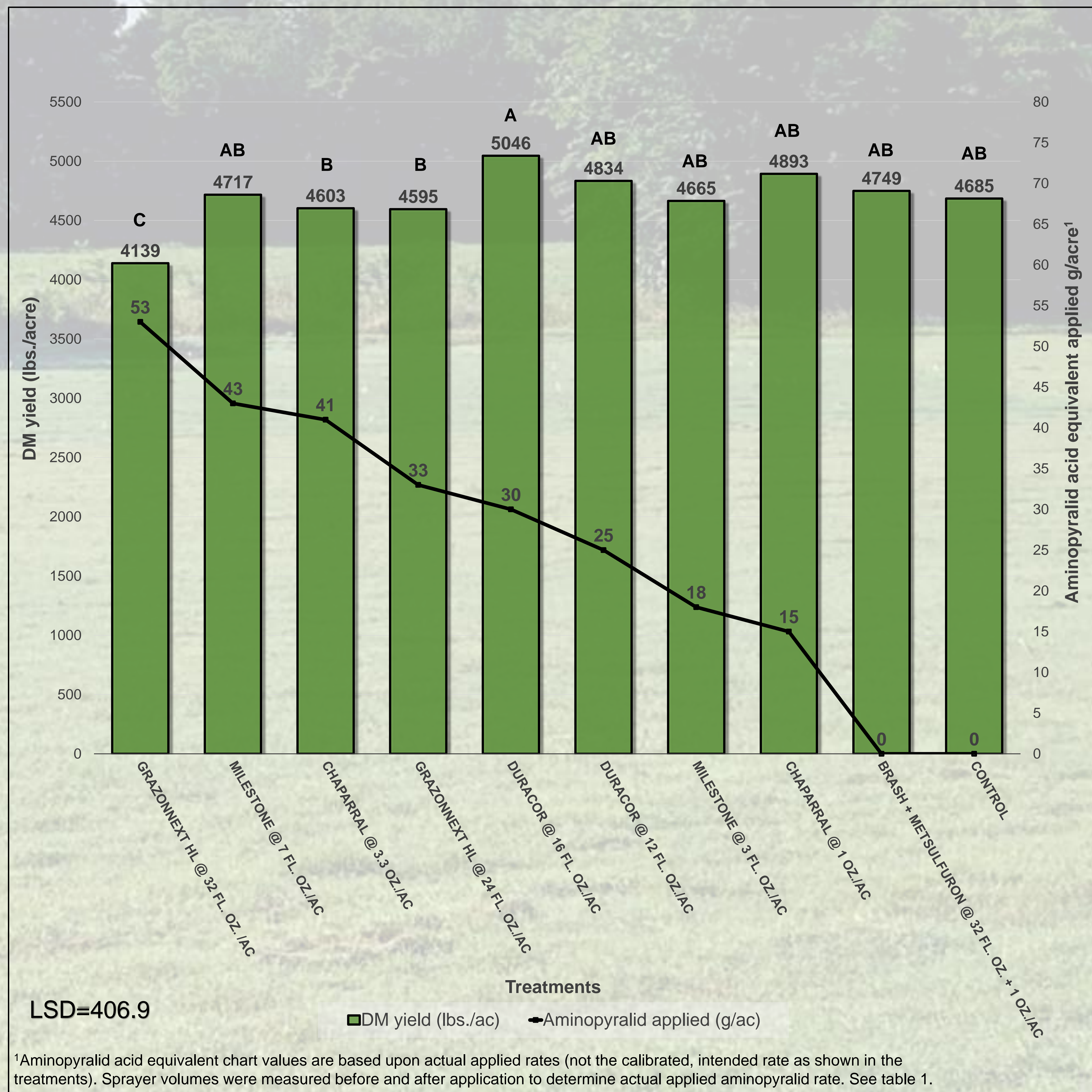
Yield response varied among the treatments. The 32 fl oz/acre rate of GrazonNext HL reduced yield by 12% compared to the standard or control treatments (P<0.05). The forage yield did not differ between the control and all other treatments (P<0.05). Means with the same letter are not significantly different (Chart 1).

*Due to variability in application accuracy, the high rate of GrazonNext HL measured 35 fl oz/acre, 1 fl oz/acre over the maximum per application labeled rate – the equivalent of an additional 1.5 g of aminopyralid per acre.

Implications

- Further research is needed on other bermudagrass cultivars and in other environments.
- With the potential for high aminopyralid rates to affect bermudagrass yield, sprayers should be properly calibrated.
- Weed populations should be at a threshold that necessitates an herbicide application.
- Use lower rates of aminopyralid if efficacy is the same for a particular weed species.
- Choose an alternative herbicide to aminopyralid if satisfactory control can still be achieved.

Chart 1. Effects of aminopyralid herbicide applications on bermudagrass yield



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