Invasive Chinese Fountain Grass Herbicide Control

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INTRODUCTION

- Chinese fountain grass was virtually unheard of in Northwest Arkansas until September 2023 after a concerned producer contacted the Boone County Extension Office about an unusual grass overtaking a pasture. A farm visit was made, and Chinese fountain grass *Pennisetum alopecuroides* was confirmed growing in Boone County. At the time of discovery, there was minimal information available over Chinese fountain grass. Missouri Extension had published a news article covering this invasive grass, but treatment appeared to be difficult, and options were limited. A research trial demonstration was established on-farm to further test treatment options.

OBJECTIVES

- Establish treatment options and determine if a viable control can be discovered.
- Use results to guide further research and producers battling this invasive species.

MATERIALS AND METHODS

- The research was conducted at a Bermuda grass/Fescue-based pasture site, located in Boone County. Site consisted of 22 treatment plots, replicated 3 times using a random block design for each site.
- Individual plots measured 10' x 25'. Buffer boundaries of 2' were left between individual plots. Individual plots were sprayed with a calibrated, pressured air backpack sprayer with a 10 ft. spray width applying 15 gallons per acre.
- Stand occupancy counts were taken prior to treatments on 10/26/23 to determine Chinese fountain grass presence.
- The fall treatment occurred on the same date, 10/26/23. First frost occurred on 10/29/23.
- Spring treatment date was 5/29/24.
- Plots were reevaluated six weeks after the spring treatment was applied on 7/11/24. Stand occupancy counts were retaken to determine Chinese fountain grass presence after treatments were applied.
- Data was compiled from stand occupancy counts from pre and post treatment groups to determine the percentage of Chinese fountain grass present as an average across the replicated three plot groups. Data was then graphed to show stand occupancy percentages of Chinese fountain grass from pre and post treatments.

Table 1. Fall/Spring treatments and rates

Trt. #	Treatment	Rate
1.	Pastora	1.5 oz.
2.	Plateau + Glyphosate	6 fl. oz + 16 fl. oz
3.	Plateau + Glyphosate	8 fl. oz + 24 fl. oz
4.	Plateau + Glyphosate	12 fl. oz + 32 fl. oz
5.	Control	None
6.	Diuron 4L	1.5 qt.
7.	Plateau	6 fl. oz
8.	Plateau	8 fl. oz
9.	Plateau	12 fl. oz
10.	Glyphosate	1 qt.
11.	Glyphosate	1.5 qt.
12.	Repeated mowings 21-28 day Intervals	3 in mowing height

- All herbicide treatments and rates were identical for fall and spring treatments.
- Treatments containing plateau contained 1.5 pts/acre of methylated seed oil
- All other herbicides contained 0.5% non-ionic surfactant

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RESULTS

- Once established, Chinese fountain grass is difficult to control. These treatment groups show the resilience of Chinse fountain grass. In the fall treatment groups, none of the herbicides used provided any real suppression of the plant. Glyphosate at 1.5 qt provided only a small suppression of Chinese fountain grass at 11%. Repeated close mowings also reduced levels by 30%. All other herbicides used increased the amount of Chinese fountain grass present.
- In the spring, treatments with glyphosate applications showed greater control than the fall. Glyphosate at 1 qt and 1.5 qt reduced Chinese fountain grass by 97%. Also, Plateau + Glyphosate at 6fl oz. + 16fl oz. reduced Chinese fountain grass by 90%. Plateau + Glyphosate at 12fl. oz. + 32fl oz. reduced Chinese fountain grass stands by 67%.

Chart 1: Fall treatment plots of Chinese fountain grass control

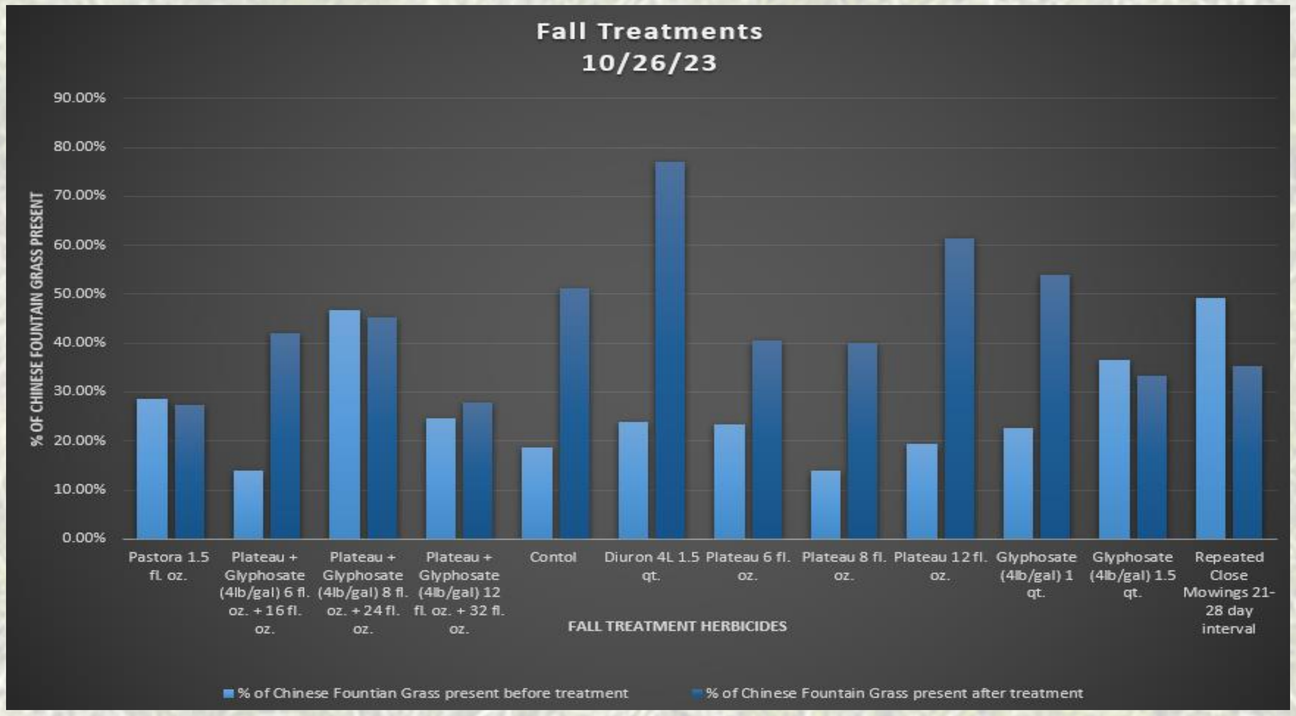
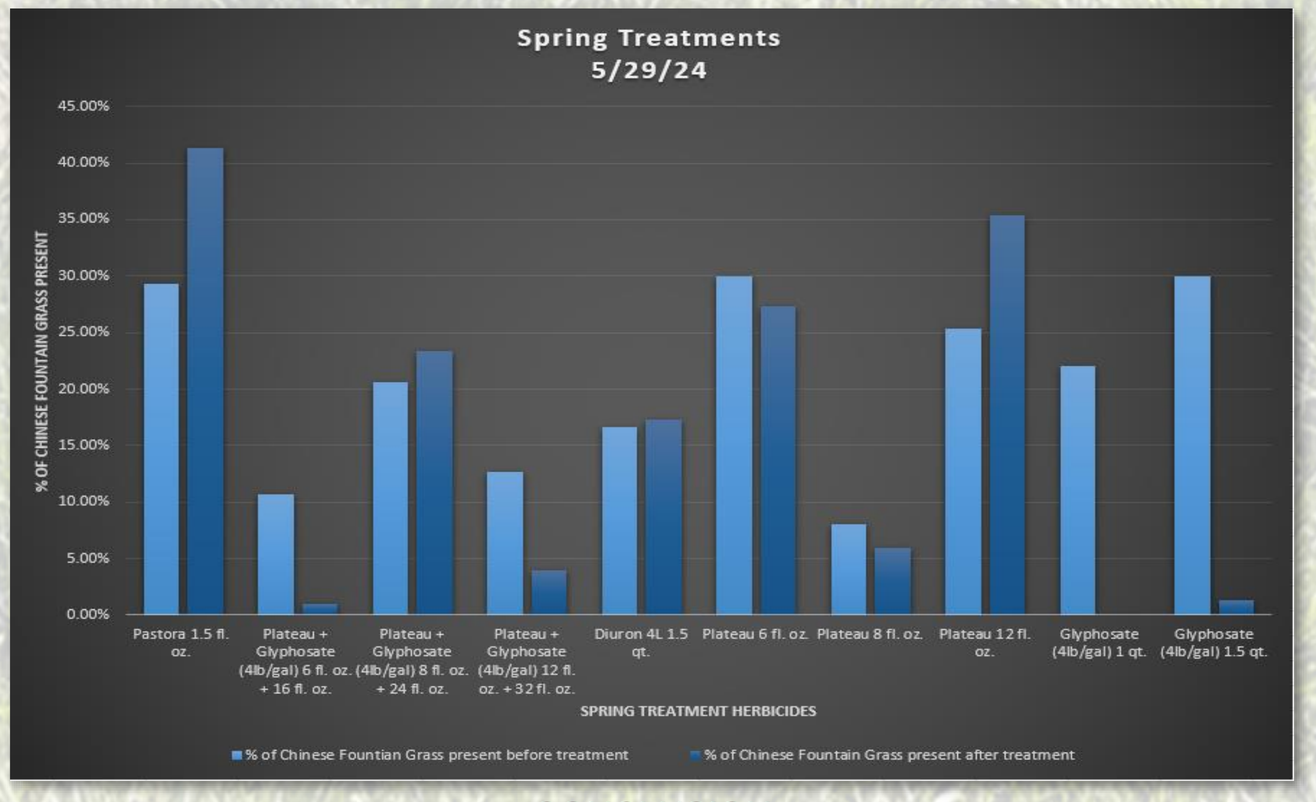


Chart 2: Spring treatment plots of Chinese fountain grass control



CONCLUSION

- As the results show, Chinese fountain grass is difficult to control. Glyphosate applications before the plant transitions into a reproductive state show the best control. After the plant establishes seed heads, control is minimal. Currently, prevention is our best tool to use against Chinese fountain grass. Spring applications of glyphosate used in this trial did control Chinese fountain grass, but also eliminated both Bermuda and Fescue forage bases, opening plots up for numerous pasture weeds. If located before plant has fully overtaken a field, like the one used in this research trial, then spot spraying applications with glyphosate during the spring and summer will provide control with minimal forage damage. Mowing did slightly reduce Chinese fountain grass, but it did not prevent the plant from producing seed heads going into the fall, so it is not a viable control option. Grazing with livestock also proves to be ineffective as livestock avoid grazing this plant due to the course waxy texture of the leaves.