

Bermudagrass a non-native forage grass planted across the southern USA. This grass often growing in the stand. In order to restore habitat for Northern bobwhites, many landowners desire to remove or reduce bermudagrass pastures. We conducted a randomized factorial block experiment, to examine four different bermudagrass removal treatments at two locations, College Station and Beeville. Treatments included overseeding with a cool season cover crop (hairy vetch), repeated Glyphosate spraying, mow + repeated Glyphosate spraying, and Imazapyr + repeated Glyphosate sprayings. Treatments were implemented in fall of 2015 and continued throughout 2016. Data collected twice annually included pin frames to measure canopy cover, and biomass was clipped in 0.25 m² frames. Herbicide treatments reduced Bermudagrass by >90% (P≤0.05) at all locations. The cool season cover crop treatment was ineffective at controlling Bermudagrass. The results from this experiment showed that control efforts including Glyphosate will continue to be collected at these sites for several years to determine long term efficacy of Bermudagrass control using these methods. Results will be useful to make recommendations to landowners desiring to restore habitat for Northern bobwhites and other wildlife dependent on bare ground and diverse plant communities.

Introduction

Bermuda grass is an invasive grass species that was introduces to the US from Africa for increasing forage production. However, Bermudagrass has been shown to be detrimental to bobwhite quail habitats. Landscapes dominated by invasive exotic grasses are potentially detrimental to northern bobwhite habitat because of the negative impact that these grasses may have on the diversity and abundance on native herbaceous vegetation. Also thick monocultures of exotic grasses have the potential to restrict movements and foraging abilities of young broods (Sands, 2007). Due to the detrimental effects of Bermudagrass in bobwhite quail habitats, the removal of Bermudagrass would help diversify and open up the vegetation, our goal is to eliminate Bermudagrass to restore favorable habitat for bobwhites.



Results

In all herbicide treatments the Bermudagrass dry biomass, was reduced in both locations. In both locations Bermudagrass biomass was slightly reduced in the cover crop treatments (Figure 1). In Beeville all herbicide treatments greatly reduced the canopy cover of Bermudagrass. In College Station the mow and glyphosate and imazapyr and glyphosate treatments were the only 2 that appeared to be successful (Figure 2).



Figure 2.Bermudagrass Canopy Cover in Removal Treatments in Beeville and College Station



TEXASTATIVE SEEDS Evaluation of 4 Different Bermudagrass Removal Techniques

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ABSTRACT

Methods

We conducted a randomized block experiment on the removal of Bermuda grass in bobwhite habitats. This experiment was replicated in two different sites: College Station (30.6280° N, 96.3344° W) and Beeville (28.4008° N, 97.7483° W). Both locations had Bermudagrass pastures managed for optimal forage production and grazing. The techniques used to eliminate Bermudagrass are listed below:

- Multiple Glyphosate Roundup PowerMax (48.7% glyphosate) was applied at 9 L/ha 4 times between 9/15 and 2/17 prior to planting
- Mow + Multiple Glyphosate Bermudagrass was shredded then Roundup PowerMax was applied at 9 L/ha 4 times between 9/15 and 2/17 prior to planting
- Imazapyr + Glyphosate Arsenal (27.8% imazapyr) was applied on 9/17/15 at 5.85 L/ha. Then Roundup PowerMax (48.7 Glyphosate) was also applied at 9 L/ha 4 times between 2/16 and 2/17 prior to planting
- Cool season cover crop- Vegetation was shredded and removed, and then a cool season cover crop, hairy vetch () was planted in November of 2015 and 2016.

Canopy cover, and dry biomass was collected in the fall of 2016 following the completion of all treatments





Discussion

In controlling or suppressing Bermudagrass our data showed that applying herbicide applications would in fact suppress Bermudagrass growth. Our results are similar to Bond et al. in the short term suppression of Bermudagrass through a single herbicides application (2005). Our study takes suppressing Bermudagrass a step further by applying glyphosate multiple times in order to eliminate resprouting Bermudagrass, multiple sources have also suggested in doing multiple applications in order to have complete control of Bermudagrass (Yelverton, McCullough, 2011). We took those suggestions and implicated them in our own experiment for greater results in controlling Bermudagrass. Other methods we used to suppressing Bermudagrass such as cool season cover crop, proved to be ineffective in controlling Bermudagrass.

counties of the state cooperating

The data from all three herbicide combinations all proved to be successful in suppressing Bermudagrass in the short term. We are planning on continuing to collect data on this project to evaluate the long term effectiveness of treatments because Bermudagrass has demonstrated the ability to revegetate areas quickly despite apparent control. The level of suppression we have achieved has allowed us to be able to diversify these previous monotypic stands.

Sands, Joseph P. 2007. Impacts of invasive exotic grasses on northern bobwhite habitat use and selection in South Texas. ProQuest Information and Learning Company

Bond, Bobby T. 2005. Efficacy of Herbicides to Control Bermudagrass for Enhancement of Northern Bobwhite Habitat. Proc. Annu. Conf. SEAFWA Yelverton, Fred. Bermudagrass Eradication in Cool-Season Turf McCullough, Patrick. 2011. Bermudagrass Control in Southern Lawns. The University of Georgia and Ft. Valley State University, the U.S. Department of Agriculture and



Conclusion

Works Cited