

Introduction

- Smutgrass (*Sporobolus indicus*) can quickly outcompete bahiagrass (*Paspalum notatum*) because of its:
 - aggressive growth
 - prolific seed production
 - rhizomatous growth
- Research is limited on controlling smutgrass in Georgia
 - integrated approach is required
- **Objective:** to test the interactions of multiple integrated pest management (IPM) strategies on smutgrass control in bahiagrass

Materials and Methods

- **Location:** UGA Alapaha Beef Station in Alapaha, GA
 - site consisted of Tifton-9 and Pensacola bahiagrass
 - initial smutgrass (average = 42%; range= 20-80%)
- **Experimental design:**
 - 3 x 4 factorial design with 6 replications
 - 6 x 15 ft plots with 3 ft alleys, 72 total plots (**Fig. 1**)
- **Treatment application:**
 - Fertilizer applied twice per season (April and July)
 - 50 lb N/ac (ammonium nitrate, 34% N) (N)
 - 50 lb N/ac + 50 lb K₂O/ac (potash; N+K)
 - Herbicide applied once per season
 - Indaziflam (PRE; Rezilon) at 4 oz/ac in April
 - Hexazinone (POST; Velpar) at 3.5 pt/ac in Aug.
 - PRE + POST herbicides (PRE + POST)
- **Treatment combinations:**
 1. Control
 2. N
 3. N + K
 4. PRE
 5. PRE + N
 6. PRE + N + K
 7. POST
 8. POST + N
 9. POST + N + K
 10. PRE + POST
 11. PRE + POST + N
 12. PRE + POST + N + K
- Plots were harvested every 4-6 weeks from April – Oct.
- Nutritive value was analyzed by NIRS
- Accumulated forage data were evaluated using repeated measures in PROC MIXED in SAS 9.4; means compared in LSMEANS procedure with Tukey–Kramer adjustment



Figure 1. Aerial view of research trial (July 2020)

Preliminary Results

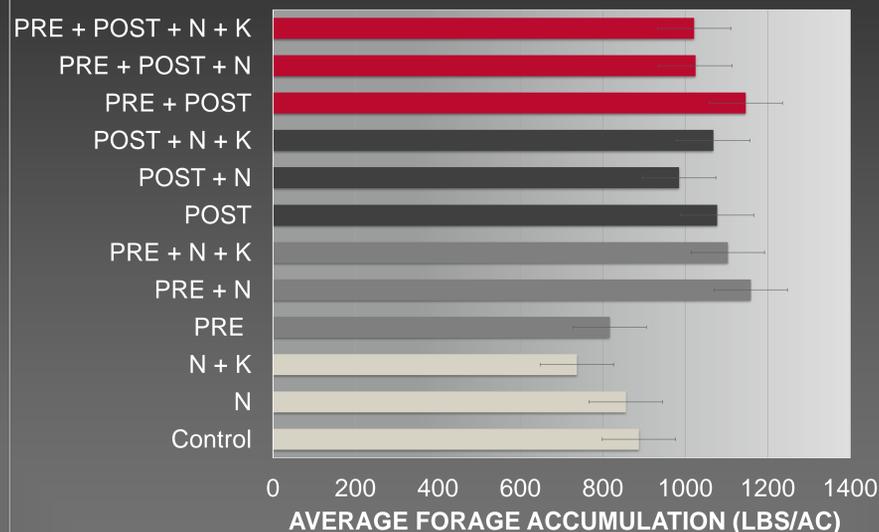


Figure 2. Impact of herbicide and fertilizer combinations on forage accumulation in bahiagrass. PRE: preemergent; Rezilon. POST: postemergent; Velpar. Bars represent standard error.

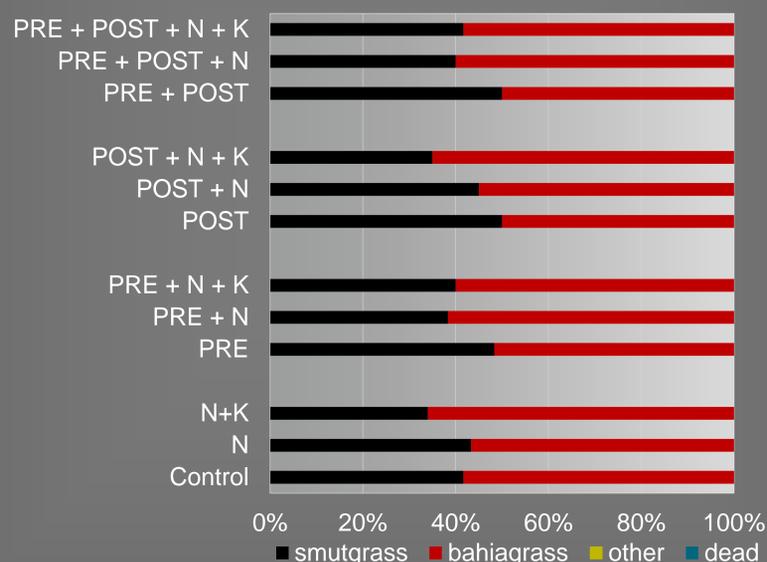


Figure 3. Visual rating of ground cover percentages reported in April. Other represents weed species other than smutgrass. Dead represents bahiagrass severely damaged by herbicide application. PRE: preemergent; Rezilon. POST: postemergent; Velpar.

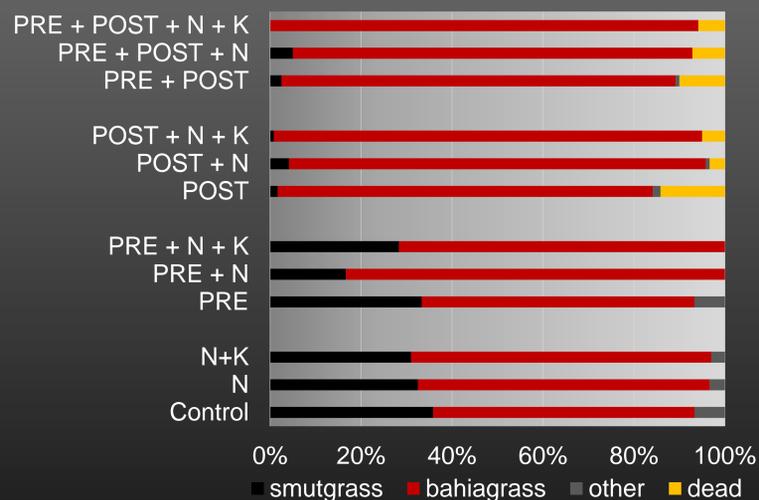


Figure 4. Visual rating of ground cover percentages reported in September. Other represents weed species other than smutgrass. Dead represents bahiagrass severely damaged by herbicide application. PRE: preemergent; Rezilon. POST: postemergent; Velpar.

Discussion

- There are no practical differences between treatments for forage accumulation (**Fig 2**)
 - This is likely attributed to greater weights of smutgrass compared to bahiagrass
- However, there were differences in visual ground cover at the end of season 1 (**Fig 3 & 4**)
 - Initial visual observations illustrate smutgrass ground cover averaged 40% at initiation (**Fig 3**)
 - Bahiagrass cover increased more when treatment combinations with POST herbicides were used
 - Treatment combinations with postemergent herbicides were most effective at reducing smutgrass cover
 - Preemergent herbicides alone were not effective
 - Other annual weeds and dallisgrass did appear later in the season
 - Dead bahiagrass was only found where post emergent herbicides were used
 - Including preemergent or fertilizer treatments results in less damage to bahiagrass
- There are no distinct trends in differences in forage nutritive values (results not shown)

Implications

- Overall, this research will provide guidance to producers integrating weed management strategies for controlling smutgrass in bahiagrass.
- Specifically, it will provide foundational knowledge for utilizing indaziflam for controlling perennial weeds in bahiagrass, a better understanding of the importance of fertilizer application with hexazinone.

Conclusions

- Preliminary results show that plots receiving PRE and POST herbicides in addition to N and K₂O resulted in an improved bahiagrass stand as timely weed suppression removed competition, while fertilizer provided essential nutrients for optimum growth to fill in bahiagrass stand gaps.
- This work will be repeated in a new area in 2021 and existing plots will be monitored for possible smutgrass return.

Contact Information & Funding

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