

Sandbur IPM Field Demonstration



EXTENSION

Erin Hubbard, Ag Extension Educator, Pontotoc County, Oklahoma State University
 Michael Trammell, Southeast Area Agronomist, Oklahoma State University



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Introduction

Sandbur is a persistent and economically damaging weed in Oklahoma forage and grazing systems. Its sharp burs injure livestock, reduces forage quality, and spread easily through contaminated hay, equipment, clothing, and animals. In September 2024, a regional request from a graduate student for sandbur samples prompted county educators across Oklahoma to collect specimens for a species-distribution project. This effort revealed a broader need for producer education and long-term management strategies in Pontotoc County, where sandbur infestations have intensified due to poor fertility, overgrazing, and reliance on ineffective, one-time control attempts.

Objective

To demonstrate integrated pest management (IPM) strategies for sandbur control by evaluating the combined effects of fertility management and herbicide treatments, while increasing producer awareness of sandbur ecology, multi-year control requirements, and sustainable pasture management practices.

Materials and Methods

- This demonstration trial was established on a private property in Ada, Oklahoma.
- The study used a split-block design with fertility as whole plots and herbicide treatments as subplots with 3 replications. Plot size was 5 x 20 feet.
- Soil samples were taken early spring for fertility recommendations.
- Herbicide treatments found in **Table 1**, included both pre- and post-emergent herbicides to evaluate their performance under contrasting fertility conditions.
- Herbicide treatments were applied by using a CO₂ pressurized backpack sprayer.
- Weekly evaluations included sandbur control (%), seedhead suppression (% burs), and bermudagrass cover (%).

Table 1: Applied Treatments and Application Parameters

Treatment	Rate	2025 Date Treated	2026 Date Treated
Fertilizer 13-13-13	Applied based off of Soil Report	May 29, 2025	---
Control (Untreated)	---	---	---
Prowl H ₂ O	4 pts/A	Mar 24, 2025	Feb 27, 2026
Rezilon	3 oz/A	Mar 24, 2025	Feb 27, 2026
Glyphosate (RUWM) + Prowl H ₂ O	8 oz/A + 4 pt/A + NIS	Mar 24, 2025	Feb 27, 2026
Glyphosate (RUWM)	8 oz/A + NIS	Apr 28, 2025	---
Pastora	1 oz/A + NIS	Apr 28, 2025	---
Pastora + Glyphosate (RUWM)	1 oz/A + 5 oz/A + NIS	Apr 28, 2025	---

Review and Discussion

Results highlighted the synergistic benefits of integrating fertility management with herbicide applications. Fertility treatments improved bermudagrass competitiveness, enhancing herbicide effectiveness and reducing sandbur pressure. The demonstration also underscored the limitations of pre-emergent herbicides on weak, biennial sandbur species increasingly observed in southern Oklahoma counties. Producer engagement was high, reflecting a strong demand for research-based guidance and multi-year IPM planning.



Figure 1. Newly germinated sandbur with bur attached.

Weekly evaluations included sandbur control, seedhead suppression, and bermudagrass cover. (C) Initial bermudagrass presence was low due to long-term sandbur dominance and nutrient depletion. (D) However, plots with successful sandbur suppression showed encouraging bermudagrass recovery as the season progressed.

Impact Response

The public sandbur demonstration workshop was held on September 16, 2025 featuring a 30-minute educational session on sandbur ecology, trial design, herbicide timing, sanitation, prevention, prescribed burning, and grazing management. Twenty producers attended, including participants from outside Pontotoc County. One pesticide CEU was offered to pesticide applicators. The event provided participants with control methods that reduced reliance on ineffective pesticide practices by promoting targeted, research-supported strategies and emphasizing the importance of integrated, multi-year control.



Figure 3. On September 16th, a sandbur demo was provided for the public. (A) We provided a 30-minute educational session covering sandbur ecology, trial design, herbicide timing, and control managements. (B) We then moved to the field where we showed the demonstration plots.

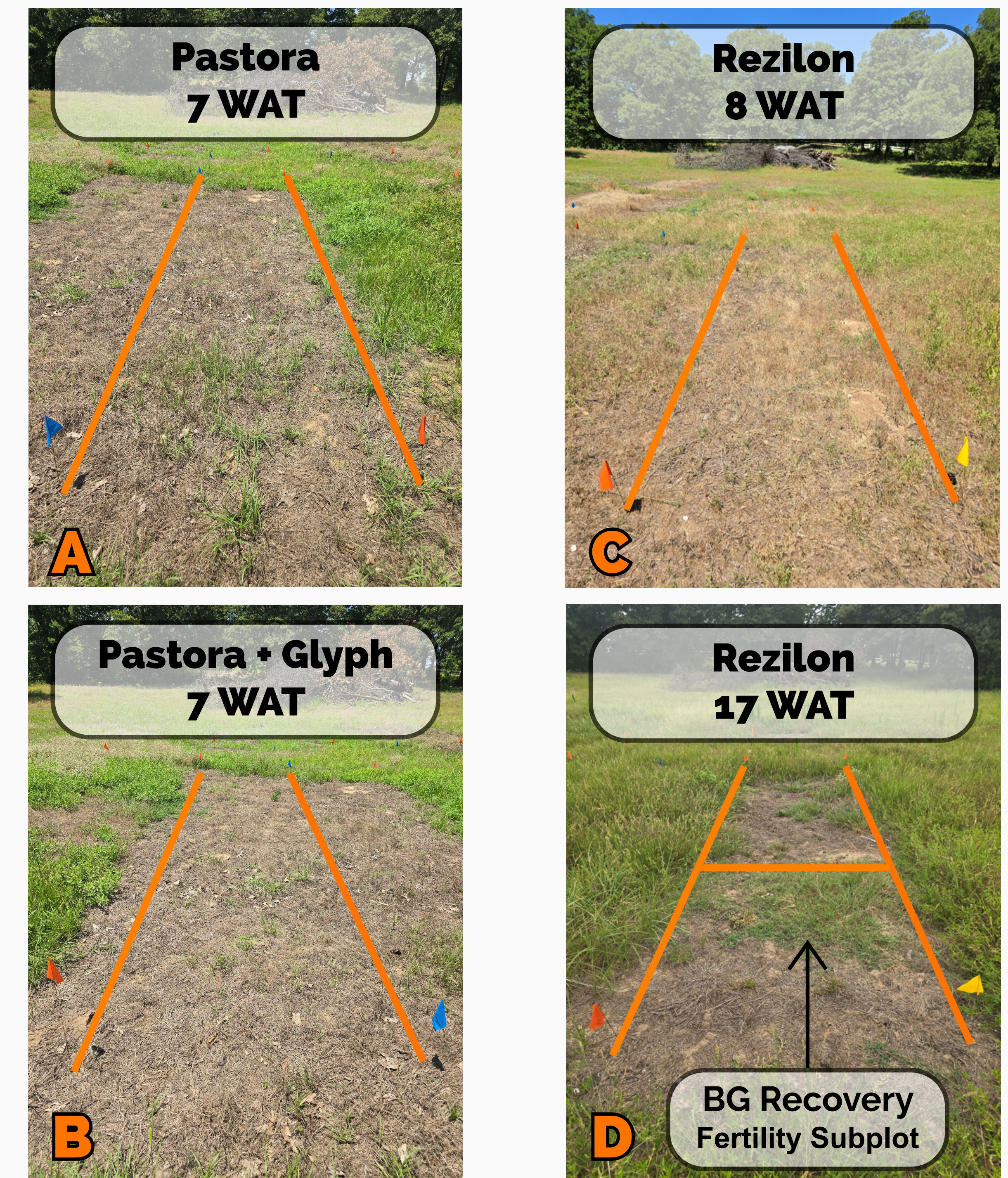


Figure 2. Sandbur Demo plots with weeks after treatment (WAT) results. (D) Bermudagrass recovery appearing in Fertility subplot after 17 WAT.

Conclusion

- The 2025 demonstration improved producer understanding of sandbur biology and long-term management needs.
- Producers showed a better understanding about herbicide timing applications, and how pre-emergents have little to no effect on weak, biennial sandburs.
- Integrated fertility and herbicide strategies showed clear advantages for bermudagrass recovery and sandbur suppression.
- A second year of the trial (2026) will evaluate cumulative treatment effects and strengthen long-term recommendations.
- Continued research and education will reinforce that sandbur control requires sustained multi-year IPM commitment.

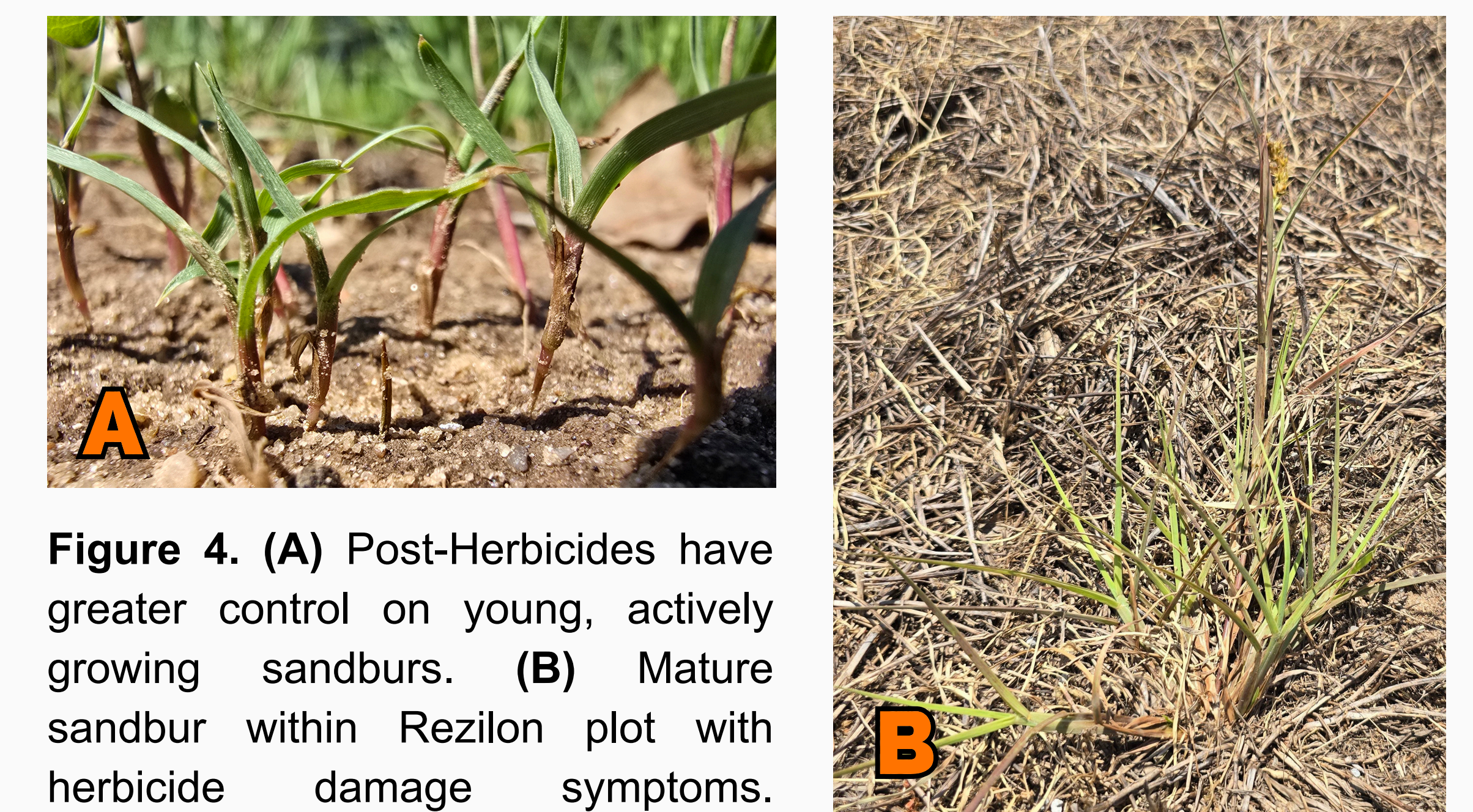


Figure 4. (A) Post-Herbicides have greater control on young, actively growing sandburs. (B) Mature sandbur within Rezilon plot with herbicide damage symptoms. Suspected weak, biennial sandbur.