

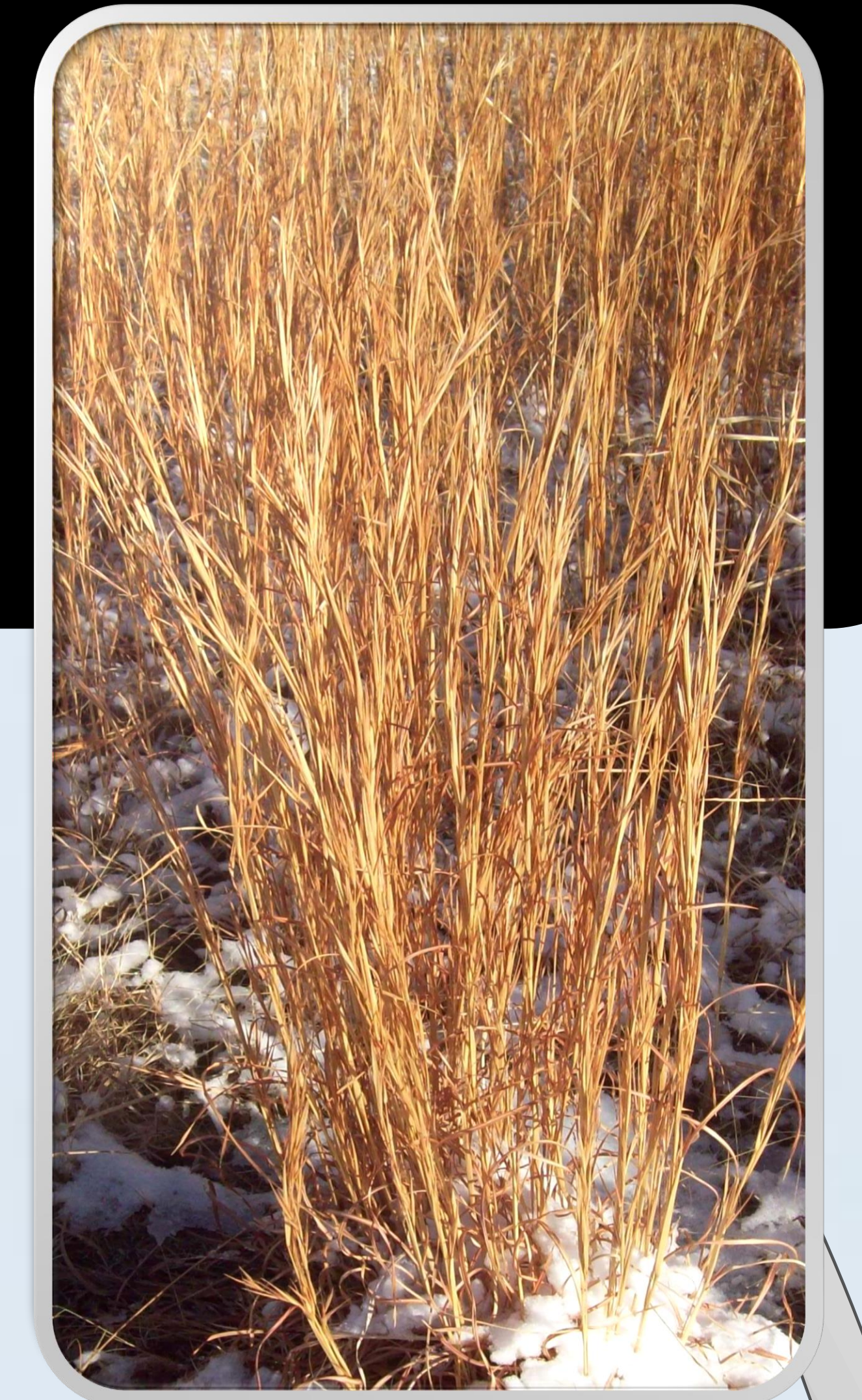


Oklahoma Broomsedge Bluestem Pasture Reclamation Research

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Problem: Broomsedge bluestem (*Andropogon virginicus*) is an opportunistic-indicator plant, colonizing areas where inherent soil nutrients or grazing management are less than ideal for desirable forage species. OSU research has proven Broomsedge competes effectively in low Phosphorus (P) or low pH soils. However, recent reports across Eastern Oklahoma have indicated something else is causing Broomsedge to proliferate, in some cases forming solid stands. In fact, some fields with above adequate P and neutral pH have exhibited Broomsedge infestations increasing to 25-50% ground cover in just the last few years.

Theory: Based on a multi-faceted, agronomic view of pasture systems, it is the researchers' belief that stressful environmental conditions over the last 12 years such as: multiple spring freezes following early green up, droughts, as well as severe winter temperatures on dry soils have caused Bermudagrass dominated pastures to weaken. This has resulted in voids which the opportunistic Broomsedge plants readily colonize.

Research Justification: Traditional Broomsedge control recommendations have focused on proper fertility, grazing management and time. The latter component often taking 3-5 years for full effect. However, in light of current infestations on otherwise properly managed pasture, and some producers need to return pastures and hay meadows to full production immediately, a faster approach is desired.

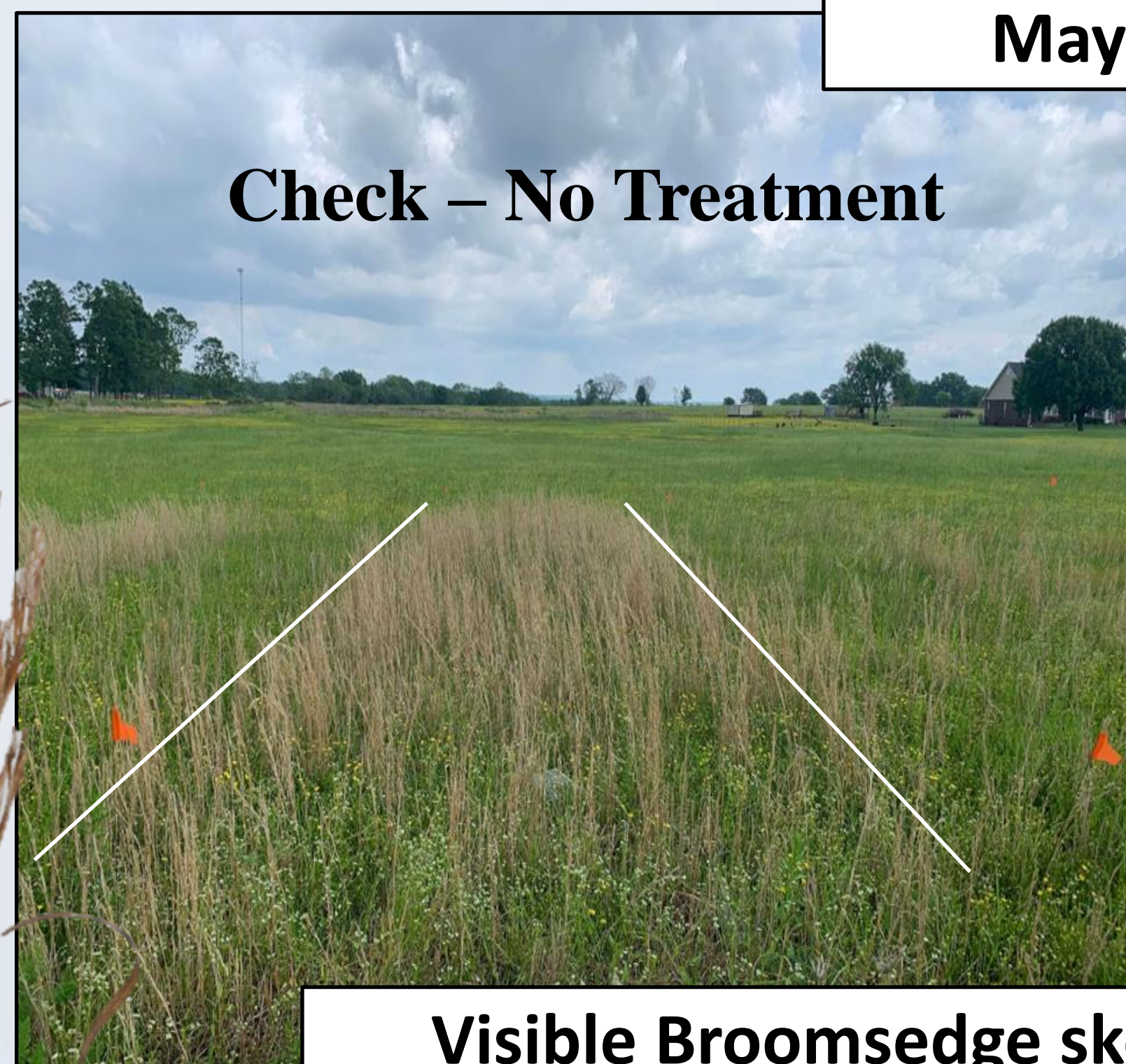
Hypothesis: Data reported on effective foliar herbicide applications for Broomsedge control in introduced pastures is lacking. An effective and economical herbicide option, coupled with sound management practices, could possibly restore original pasture composition and yields within a single year. Previous OSU research has shown a significant increase in Broomsedge control following applications of 1 oz. Pastora + 5 oz. Glyphosate versus 1 oz. Pastora alone. This indicates that even low labeled rates of glyphosate could be an effective and economical control strategy while remaining safe for Bermudagrass.

Methods: The study was flagged as 10 ft x 20 ft plots with 3 replicates in a randomized complete block design with all treatments applied on July 14, 2022. Fertilizer and lime treatments were applied in the form of Urea, Diammonium Phosphate, Potash and pelleted lime to a silt loam soil with poor moisture during drought conditions. Herbicide treatments, consisting of glyphosate 4 lb ai (GLY) and metsulfuron methyl (MSM) with and without liquid Urea-Ammonium Nitrate (UAN) were applied at 12.5 GPA. Visual control ratings were assessed at 35 DAT and 70 DAT by two researchers and averaged for data entry. Plots were assessed and pictures were taken at 10 MAT to determine actual Broomsedge population reduction and the recovery of desirable forages.

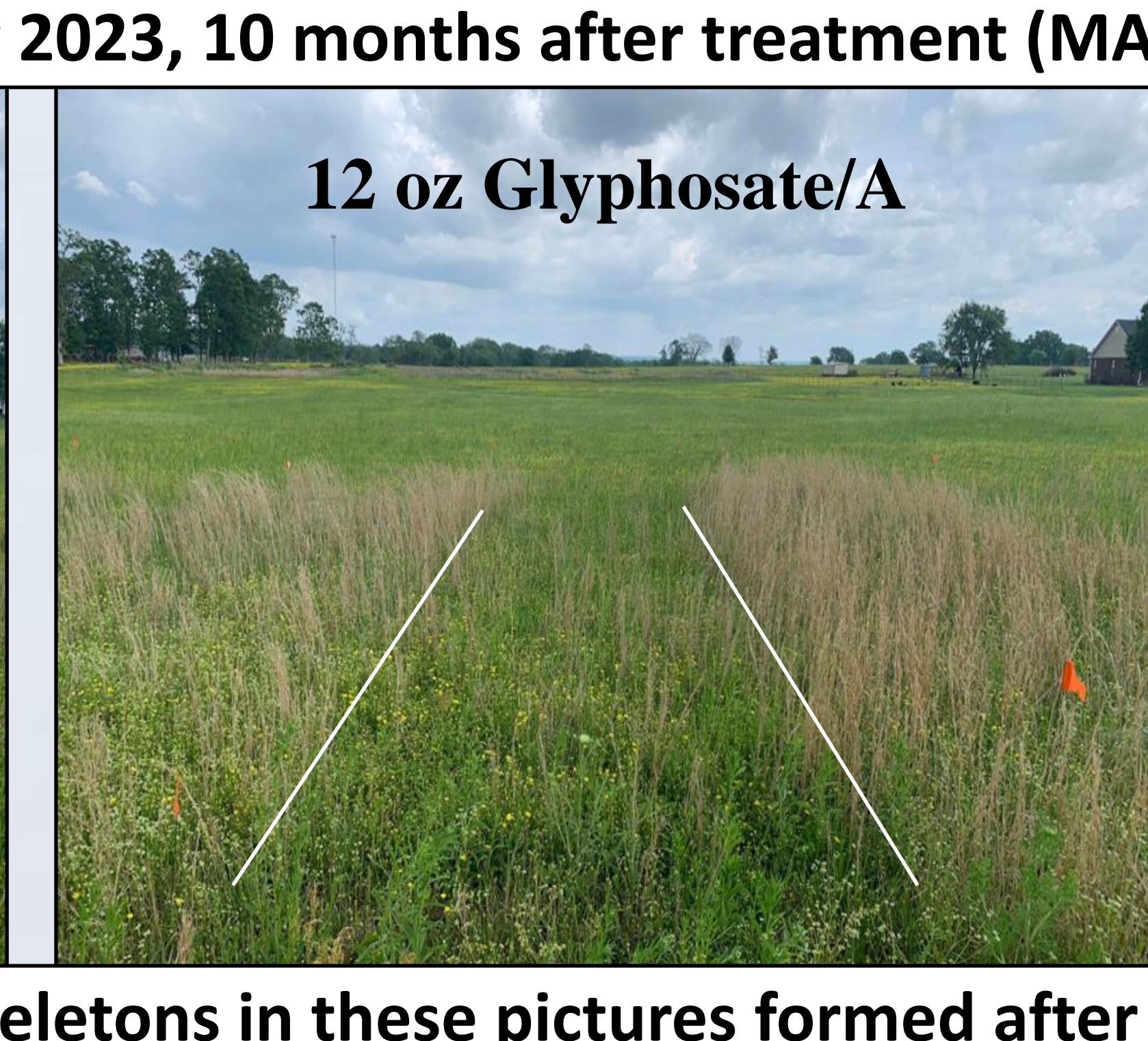
85% Initial Cover



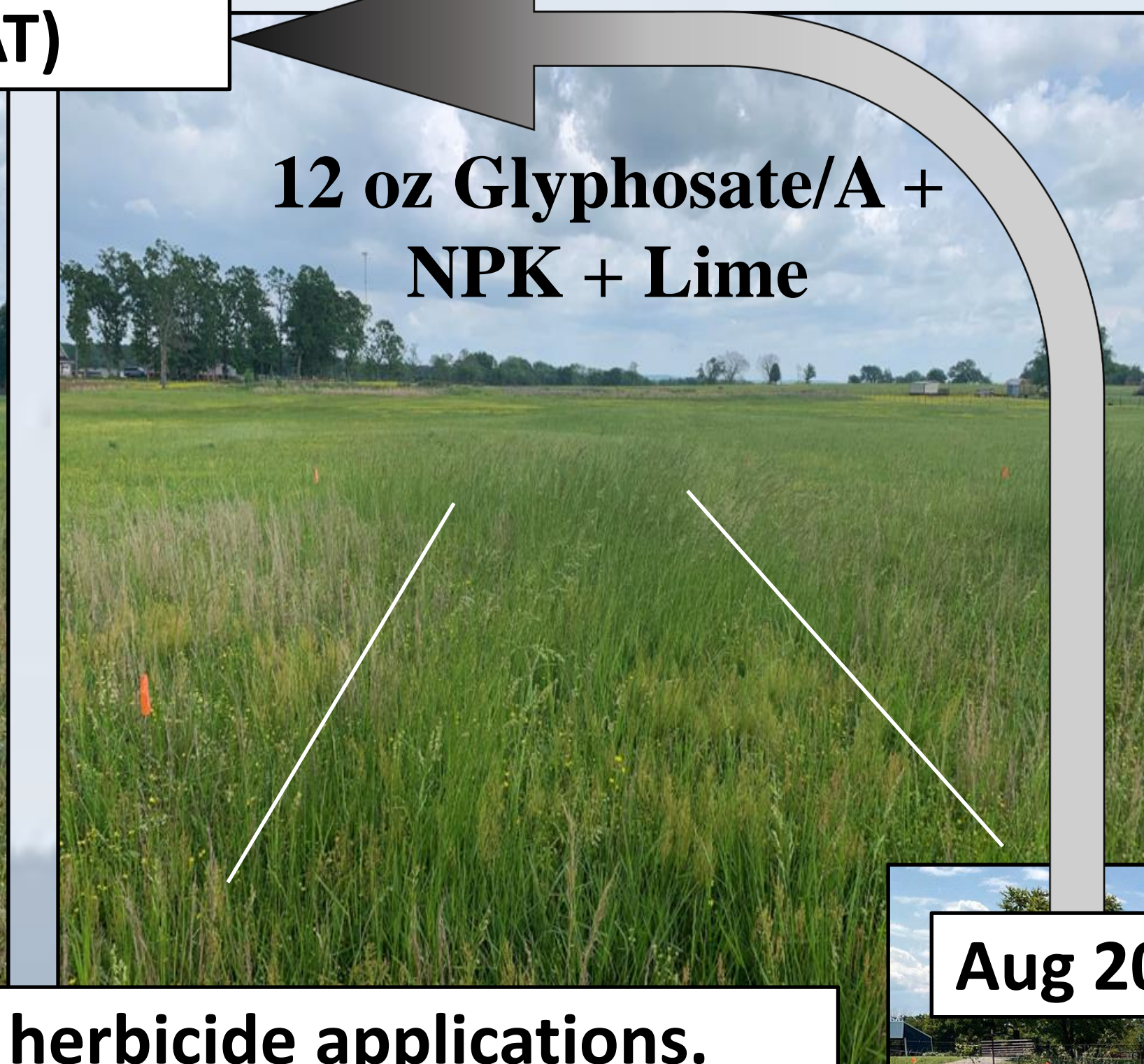
35 DAT Broomsedge Suppression



Check – No Treatment



12 oz Glyphosate/A



12 oz Glyphosate/A + NPK + Lime

May 2023, 10 months after treatment (MAT)

Visible Broomsedge skeletons in these pictures formed after herbicide applications.

Aug 2022



If you remove Broomsedge will other grasses return?

Implications for Oklahoma Producers?

- For severe infestations of Broomsedge (exceeding 50% ground cover) or where immediate recovery is warranted for hay, a labeled application of 4 lb. active ingredient glyphosate at 12 oz/Acre proved an effective and economical strategy while exhibiting minimal short-term Bermudagrass damage.
- Addressing proper nutrient requirements based on soil testing and following sound grazing principles are still a crucial step to give desirable forages the advantage.



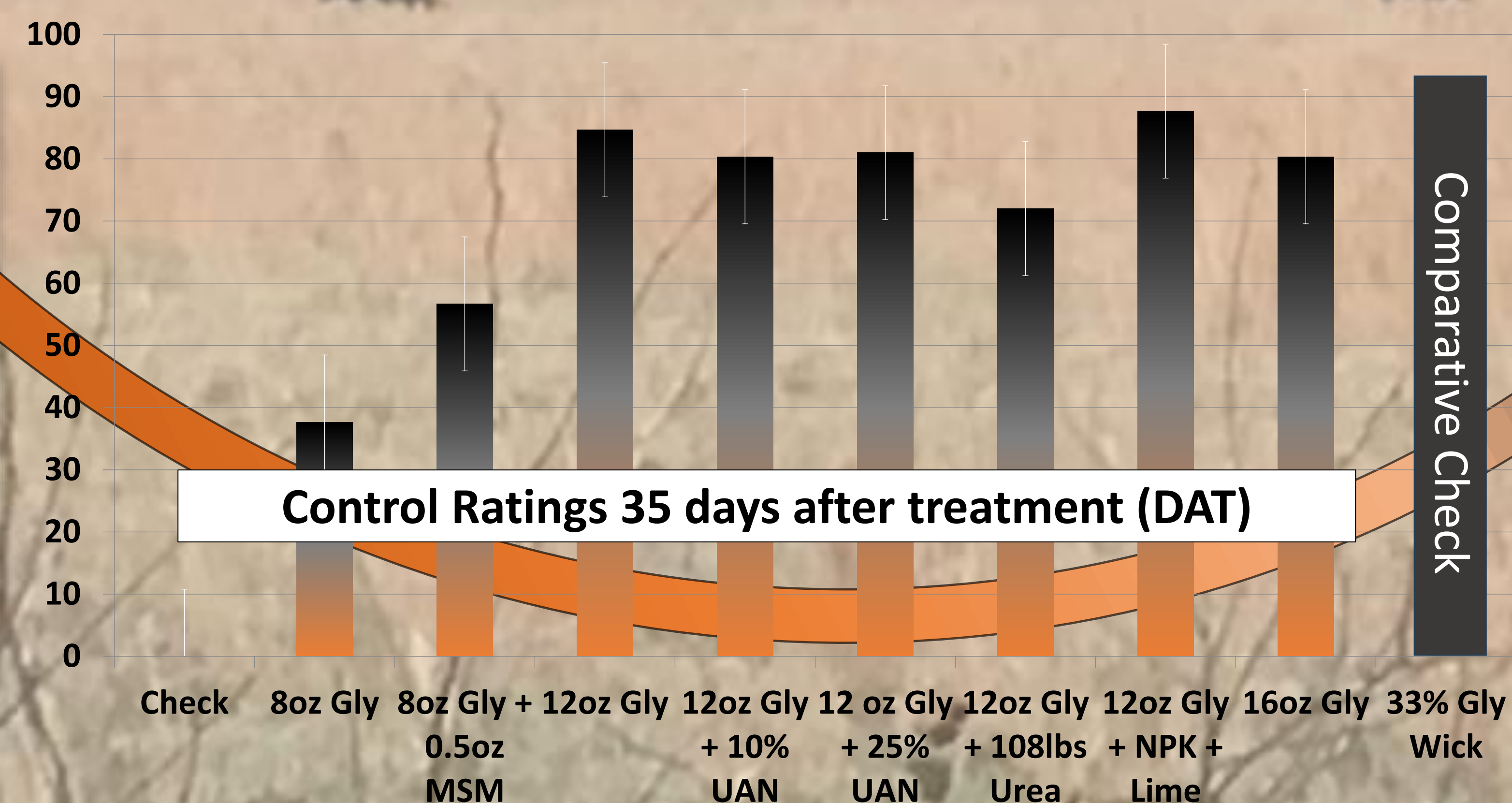
EXTENSION

Acknowledgements:

Appreciation is extended to Bradford Ranch, Adair County, OK for hosting this trial.



A producer field day was held on September 29, 2022 to share the preliminary results of the research and answer questions regarding Broomsedge.



Results: By 10 months after treatment (MAT), all herbicide treatments, singularly or in combination with fertility, significantly reduced Broomsedge populations. The greatest reduction in Broomsedge population was observed in the application of 12 oz of glyphosate per acre + required N, P, K and lime. This is attributed to high levels of root kill of perennial Broomsedge plants as well as an increase in competition from desirable forages.