

Converting to alternative annual and perennial forage-based systems for sustainable grazing in semi-arid environments

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This is a Southern SARE funded 3-year project to develop sustainable grazing system in semi-arid environments

Objectives:

- 1 Determine the effects of cover crop/forage mixes, crop rotation, and perennial forage-based systems on overall production and soil function.
- 2 Evaluate over-seeding of annual forages in warm-season and cool-season perennial systems to expand sustainable grazing options and soil function.
- 3 Conduct economic analysis of above systems and evaluate social and economic barriers to adoption of alternative integrated crop-livestock systems to restore soil function in semi-arid environments. Document the cost of production and profitability analysis of adopting these integrated systems. Evaluate the adoption barriers highlighting economic and noneconomic considerations.
- 4 Measure ecological services on producer farms that have implemented alternative grazing systems and provide information to stakeholders through educational programs and on-farm tours of evaluated integrated crop-livestock grazing systems.

Project timetable

Year 1 (Apr 2022 – Mar 2023)

Objective 1

- Cover crop treatments were planted to 20 one-acre plots in June near Vernon, TX.
- The plots were grazed in September.
- A cool-season cover crop mixture was planted in November.
- Soil samples are submitted for PLFA.

Objective 4

- Two warm-season mixes were planted in June to 12 one-acre Plots at the farmer cooperator's field.

*16% Sorghum-Sudangrass, 12% pearl millet, 12% forage sorghum, 36% forage cowpea, 12% mungbean, 4% okra, and 8% sunn hemp. **Triticale, winter wheat, Austrian winter pea, hairy vetch and sweet clover. ***Planted in fall 2020.

Summer cover crop treatments

Summer fallow

Summer cover crop* (25 lb/ac)

Summer cover crop (50 lb/ac)

Rotation of wheat with cool-season cover**/forage crop

Summer dormant tall fescue***

Year 2 (Apr 2023 – Mar 2024)

- Continue to engage stakeholders, conduct on-farm soil health assessments, continue replicated research trials; begin to develop and deliver initial findings to stakeholders.

Year 3 (Apr 2024 – Mar 2025)

- Complete final on-farm soil health assessments, continue and complete replicated research trials, compile information and consider changes to conservation practices standards with NRCS
- Complete economic and consumer behavior analysis
- Conduct a bus tour (Fall 2024 or Spring 2025)

