

Improving Carbon Sequestration through Bale Grazing and Keyline Cultivation

This project addresses resource concerns of land that was conventionally farmed and depleted. Though bale grazing has created environmental and economic benefits, water management continues to be a challenge.

Keyline design was developed in the 1950s to address dwindling water supplies and soil erosion. The central idea from a water perspective is to capture water at the highest elevation and comb it out towards the ridges. The Keyline cultivator is a narrow tyne plow that loosens the sub-soil without inversion, transporting organic matter, from bale grazing and manure deposits, deeper into the soil. Water, air and organic matter feed microbiota which promotes carbon sequestration. The goals of this project include:

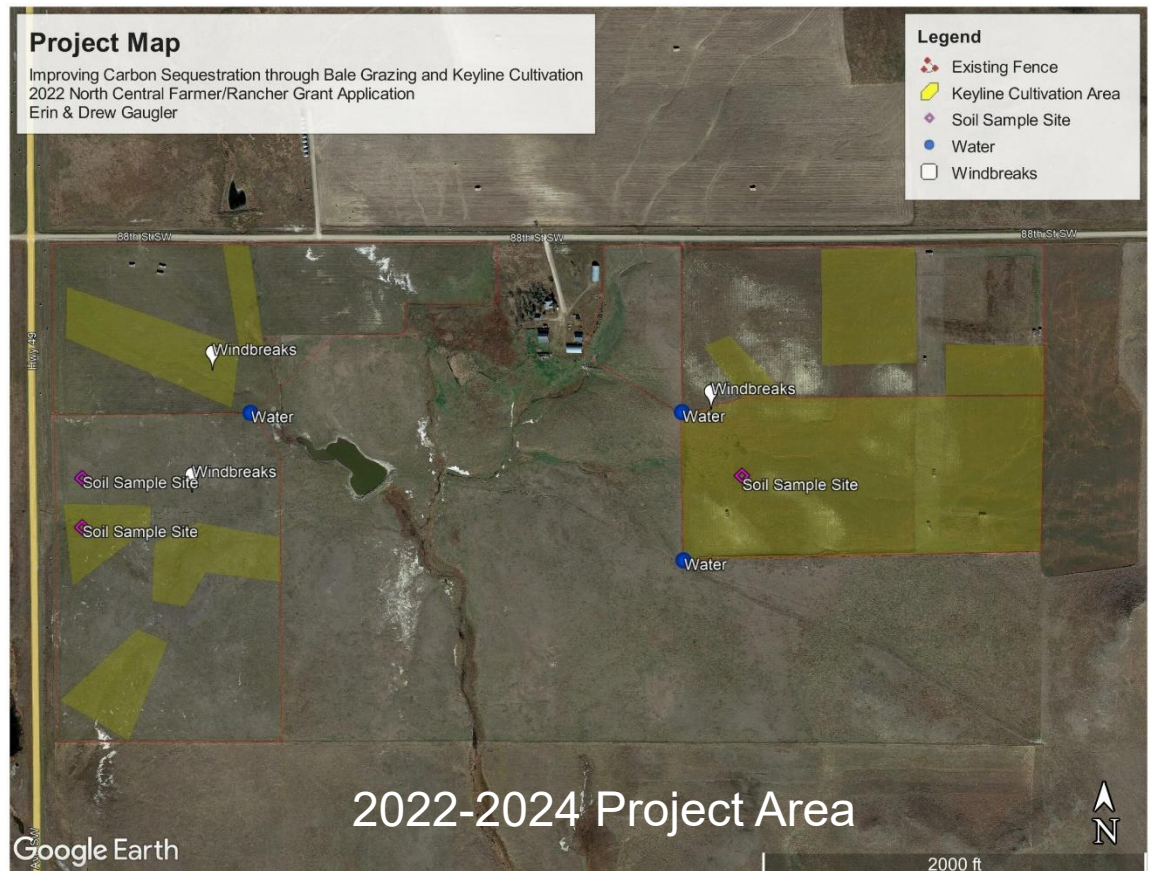
- Evaluate the usefulness of bale grazing and Keyline cultivation to improve carbon sequestration and increase market opportunities for producers.
- Improve water management and reduce runoff through Keyline pattern cultivation.
- Monitor impacts of bale grazing and Keyline cultivation to improve forage production.

MAIL BOX TOUR

Feel free to use the gravel roads to drive near the bale graze areas. If you'd like to tour through the fields, remember the following:

- If you open a gate, shut the gate.
- Electric fences are HOT.
- We are not liable for any injuries or damages while you are on the premises.

If you have any questions about the project, or would like a personal tour, please call 701-567-3201



WHAT IS BALE GRAZING?

Bale grazing is a method of providing feed to livestock during the winter months. Through this system, livestock are allowed access to bales previously placed on a field or wintering site. Producers can regulate feed intake by implementing a rotation through the grazing system with electric fence.

BENEFITS OF BALE GRAZING

- Animals feed themselves
- Tractor use is concentrated
- Less manure to manage in the corral
- Manure is spread across landscape and can improve future forage production
- Residual feed conserves soil moisture

Project Timeline & Report

DATE	PROJECT ACTIVITY
May 2022; 2023	Soil sample.
June – July 2022; 2023	Harvest hay on project site and on other hayland acres. Monitor forage production.
Aug – Nov 2022	Keyline cultivation. Observations made above and below the Keyline cultivated areas to document any changes to sheet and rill erosion after a runoff event.
Sep – Oct 2022; 2023	Additional hay hauled to project area. Portable windbreak panels set-up.
Oct – Nov 2022; 2023	Ultrasound.
Nov – April 2022/2023; 2023/2024	Distribute bales and set-up temporary fence for bale grazing rotations. Monitor body condition of livestock before, during and after bale grazing. Lightly harrow across Keyline areas.
May 2023	Soil sample. Self assessment. Labor and economic evaluation.

