



DECEMBER 2025

# Soil Health Management to Increase Climate Resilience and Farm Productivity

**An on-farm demonstration project engaging farmers in the Missouri River Basin (Kansas & Nebraska).**

## Project Background

Soil moisture and temperature are key drivers of agricultural production systems, dictating planting schedules, crop development, and timing of field work. This on-farm demonstration will integrate CropX soil sensors with the collection of soil health metrics to enable farmers to make in-season management decisions based on real-time soil moisture and temperature data. Results will address growing farm management concerns in areas challenged by extreme (abundance or deficit) precipitation events.

By comparing data collected on fields where soil health management principles have been implemented with data from adjacent conventionally managed fields, farmers will have the opportunity to better understand how management can influence water infiltration and holding capacity, soil trafficability, leaching potential, aggregate stability, and other soil properties critical to improving climate resiliency and reducing nutrient loss.



## Evaluation Approach

Fifteen paired (30 total) fields on similar soil textures and landscape position will be selected.

### Soil Health Management

Field should have been managed with soil health principles for three or more years.

### Conventional Management

The paired field will be conventionally managed, located adjacent to the soil health managed field.



## Soil Health Management Principles

- 1) Minimize Soil Disturbance
- 2) Maximize Soil Cover
- 3) Maximize Plant Diversity
- 4) Maximize Presence of Living Plants/Roots
- 5) Integrate Livestock

### Start Date

Farmer recruitment will begin December 2025, with the goal of finalizing all sites by February 1, 2026. Field visits will begin late February 2026, and on-farm data will be collected through Fall 2028.

### Farmer Responsibilities

- Complete a farm management survey of current and past practices
- Provide sampling and sensor installation access to farm
- Allow access to real-time sensor data with project director

### Farmer Incentives

- Annual stipend of \$2000 for three-years (\$6000 total)
- Annual soil health and routine soil analyses (including microbiology)
- Technical assistance throughout project
- Comprehensive final data summary
- Subsurface soil moisture and temperature probes (two per field) measuring at 6-inch and 12-inch depths
- CropX technology subscription for in-field, real-time data



**FOR MORE INFORMATION  
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## PARTNERS & SPONSORS



Extension



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