

National Laboratory for Agriculture and the Environment

Laboratory Director: Jerry Hatfield

Soil, Water, and Air Resources

Research Leader: Doug Karlen

Dave Laird, soil mineralogy, biochar

Dan Olk, soil biochem, OM fractions

Tim Parkin, N₂O fluxes

Dick Pfeiffer, air quality, particulates

John Prueger, micromet, energy balance

Tom Sauer, CO₂ fluxes, SOC, soil evol.

Steve Trabue, air quality, odor

Jerry Hatfield, micromet, cropping sys.

Ames, IA

www.ars.usda.gov/mwa/ames/nlae

Agroecosystems Management

Research Leader: Tom Moorman

Brad Bearson, microbiologist (swine)

Cindy Cambardella, soil ecology

Dan Jaynes, drainage, NO₃

Tom Kaspar, cover crops, roots

Brian Kerr, swine nutrition

John Kovar, nutrient management

Sally Logsdon, soil hydrology

Rob Malone, soil/crop modeling

Jeremy Singer, cropping systems

Mark Tomer, watershed processes

Tom Weber, swine physiology

Cherie Ziemer, microbiologist (swine)

NLAE Agroforestry Research

- **Sauer**

- **SOC changes & soil evolution**
 - Nebraska shelterbelt
 - reforestation/afforestation in Iowa
- **Nutrient cycling – forage alley cropping w/ poultry litter (Arkansas)**
- **Hydrology – riparian tree water use (Iowa)**
- **Odor – vegetative buffers (field and wind tunnel)**

- **Tomer**

- **Watershed/landscape analyses**
- **Savanna restoration and water use**
- **Siting of conservation practices/land use**

NLAE Agroforestry Research

- **Cambardella**

- Above and below ground C partitioning (shelterbelt and reforestation study)
- Soil C dynamics in multispecies riparian buffer
- Fire/understory clearing effects soil properties (savanna restoration)

- **Olk**

- SOC characterization/fractionation (Costa Rica)

- **Kovar**

- Nutrient cycling and P uptake by riparian species

- **Logsdon**

- Water flux (surface and subsurface) at landscape scale

NLAE Resources & Needs

- **Resources**

- Broad field and lab capability in soil analysis, soil hydrology, water quality, and micrometeorology (energy balance, particulates, GHG fluxes)
- Bioenergy collaborations (Renewable Energy Assessment Project - REAP, biochar, ISU Bioeconomy Institute...)

- **Needs**

- Expertise
 - Silviculture
 - Biomass characterization (energy content...)
 - Tree growth modeling
- Woody plant tissue analysis
- \$!