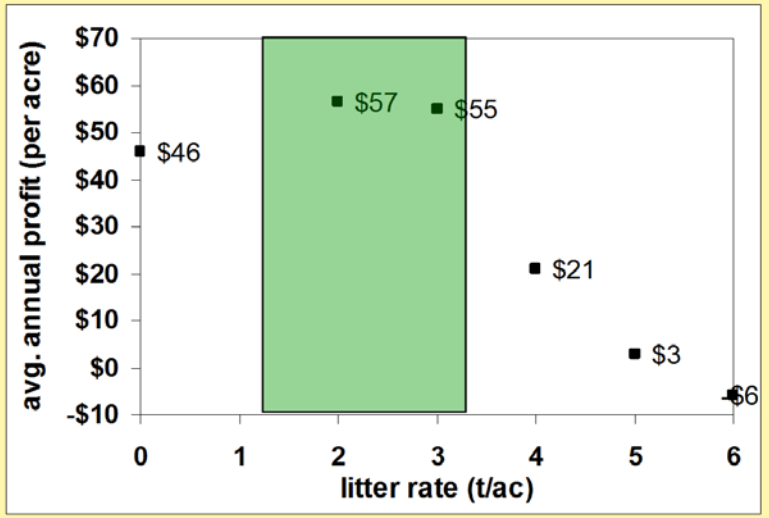
Current Research at the Riesel Watersheds (CEAP)

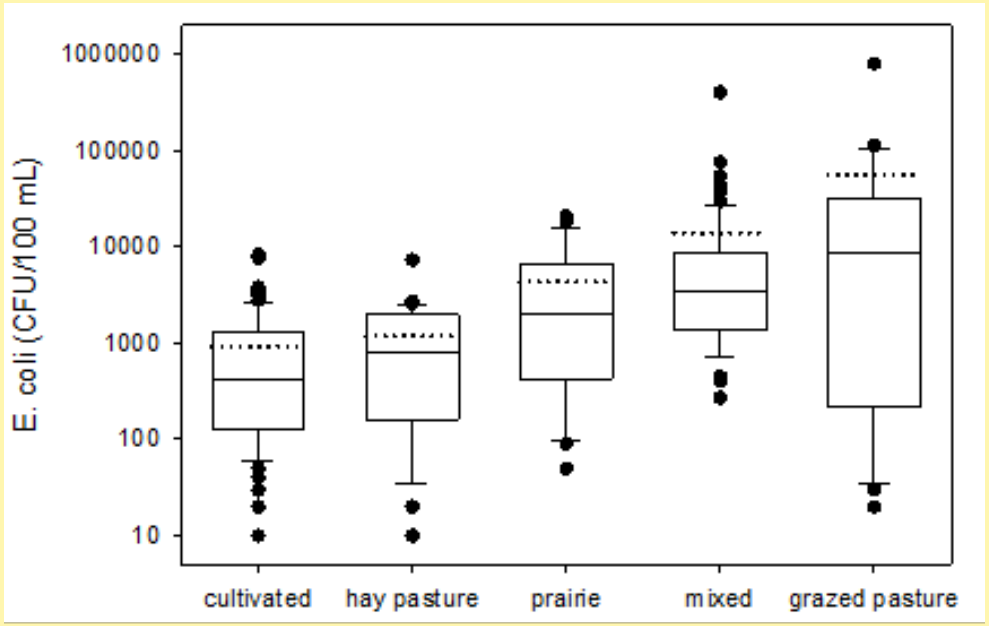
Effects of Applying Poultry Litter

- **Most comprehensive, long-term study in US on effects of poultry litter applied as a soil amendment and nutrient source for crop and forage production.**
  - **Completing evaluation of in-house windrow composting of litter prior to land application.**
  - **Next stage will involve integration of cover crops.**



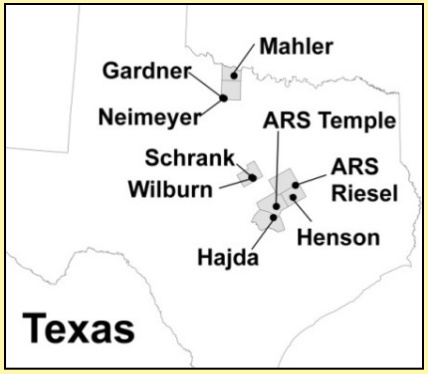
E. coli runoff

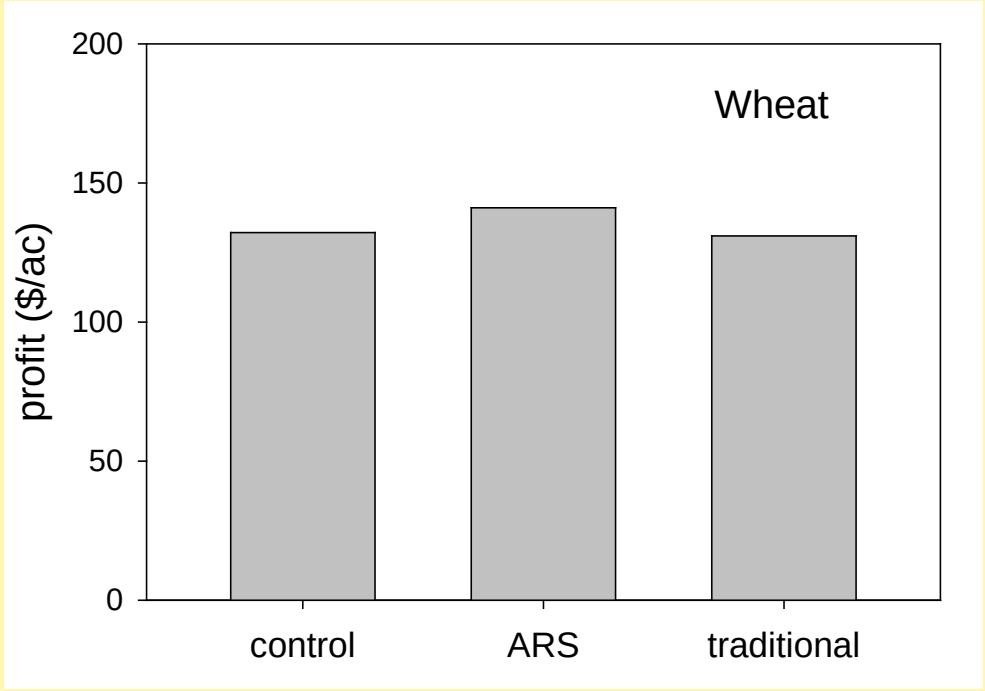
- **Collected *E. coli* at edge-of-field sites to understand management impacts and potential sources.**
  - **Working with EPA, TSSWCB to evaluate necessity of refrigerated sample storage in the field.**



Optimizing Fertilizer Application

- **Enhanced soil test method determines <u>all</u> sources of plant available N, P with “natural” extractant and tests of soil biology.**





Soil Health - Cropland, Pasture

Carbon is key.

Microbial Activity

Solvita 1-day CO_2

Soil Fertility

75th Anniversary Open House and Designation Ceremony, September 23, 2013

USDA United States Department of Agriculture

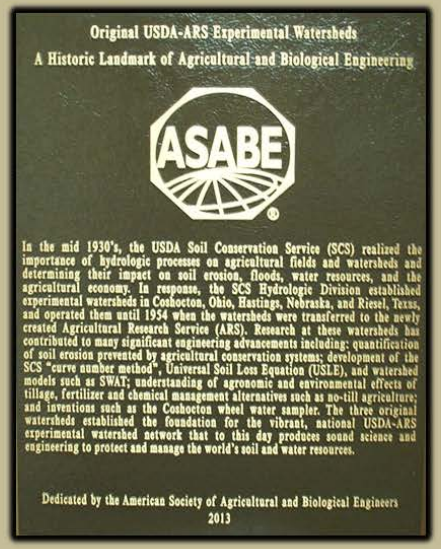
Agricultural Research Service

Riesel Watersheds, Riesel, Texas *Since 1937*

A Historic Landmark of Agricultural and Biological Engineering

This study compares typical grazing with an alternative system designed to improve soil health and increase profitability. Soil, water quality, and economics are being compared for "South Ranch" with grazing oats on tilled land with inorganic fertilizer, hay feeding in winter, separate herds, and best pasture grazing; and "North Ranch" with pasture over seeding, multi-species cover crop on tilled land, organic fertilizer, and one herd planned grazing rotation. Partners include: Texas GLCI, USDA-NRCS, Texas A&M AgriLife, Dixon Water Foundation, and GANS Lab.

Scientists from across U.S. utilize Riesel Watersheds for research on land use effects on C and N cycling, global change impacts on rangeland vegetation, air quality impacts of rural land uses and a new clean coal power plant in Riesel, agro-environmental effects of soil cracking, and soil biogeochemistry. Riesel Watersheds are also used for undergraduate and graduate courses (Baylor, Texas A&M, Texas, Duke, TSTC).



For more information see
www.ars.usda.gov/spa/gswrl
or contact Daren Harmel 254-770-6500.
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Past research at the Riesel Watersheds contributed vital information to the 20th century conservation farming revolution along with fundamental understanding of the agronomic and environmental effects of various agricultural practices now used worldwide. Current hydrology and water quality research is evaluating the impacts of conservation practices on runoff quantity and quality for the national CEAP project and *E. coli* runoff as affected by land management. Partners include EPA, TSSWCB, TWRI, Texas A&M AgriLife, and USDA-NRCS.

Most comprehensive, long-term research program in U.S. on the impacts of land application of poultry litter. Since 2000, ARS in cooperation with Texas A&M AgriLife, TSSWCB, and the Texas Poultry Federation, has evaluated soil microbiology, water quality, on-farm economics, and nutrient cycling and are currently evaluating the reduction of bacteria runoff and odor emission by in-house windrow composting litter prior to land application.

The Riesel Watersheds are committed to conducting sound science and engineering to protect and manage the nation's soil and water resources for future generations.