NDSU | DICKINSON RESEARCH EXTENSION CENTER

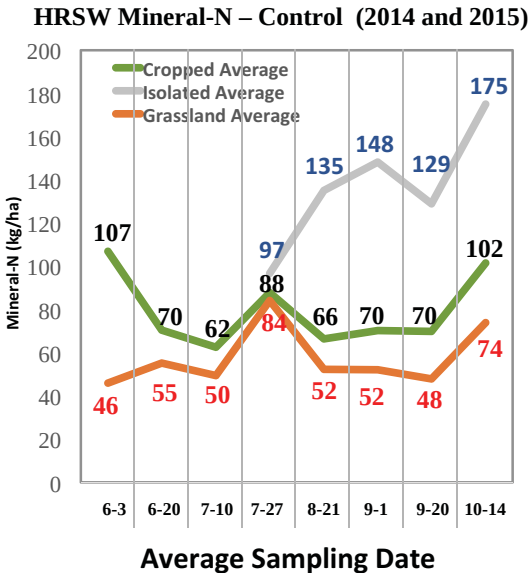
Soil: A Source of Life

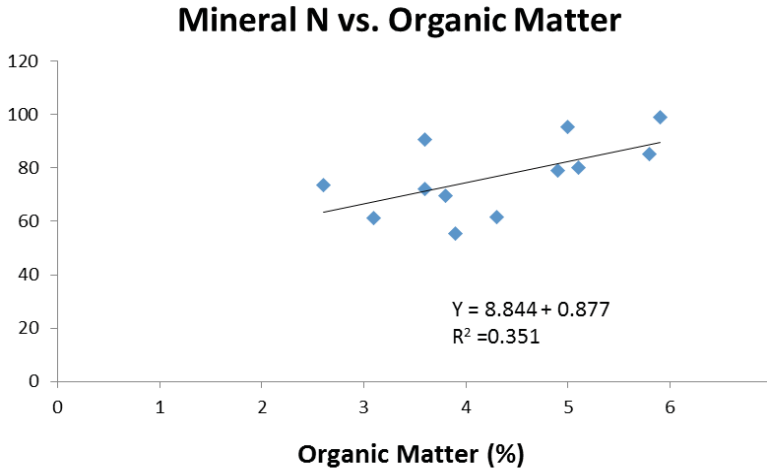
Our Responsibility:

Protect It!

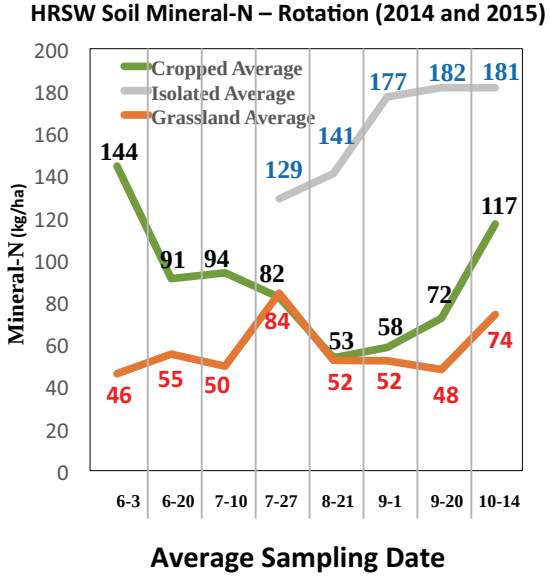
Prevent Erosion
Minimal soil disturbance
Increase soil organic matter
Keep a living root in the soil
Increase plant diversity
Integrate livestock
Increase soil nutrient cycling
Reduce fertilizer input
Forage for haying and/or grazing

Dr. Songul Senturklu and Douglas Landblom
Cow Efficiency Congess, September2, 2017

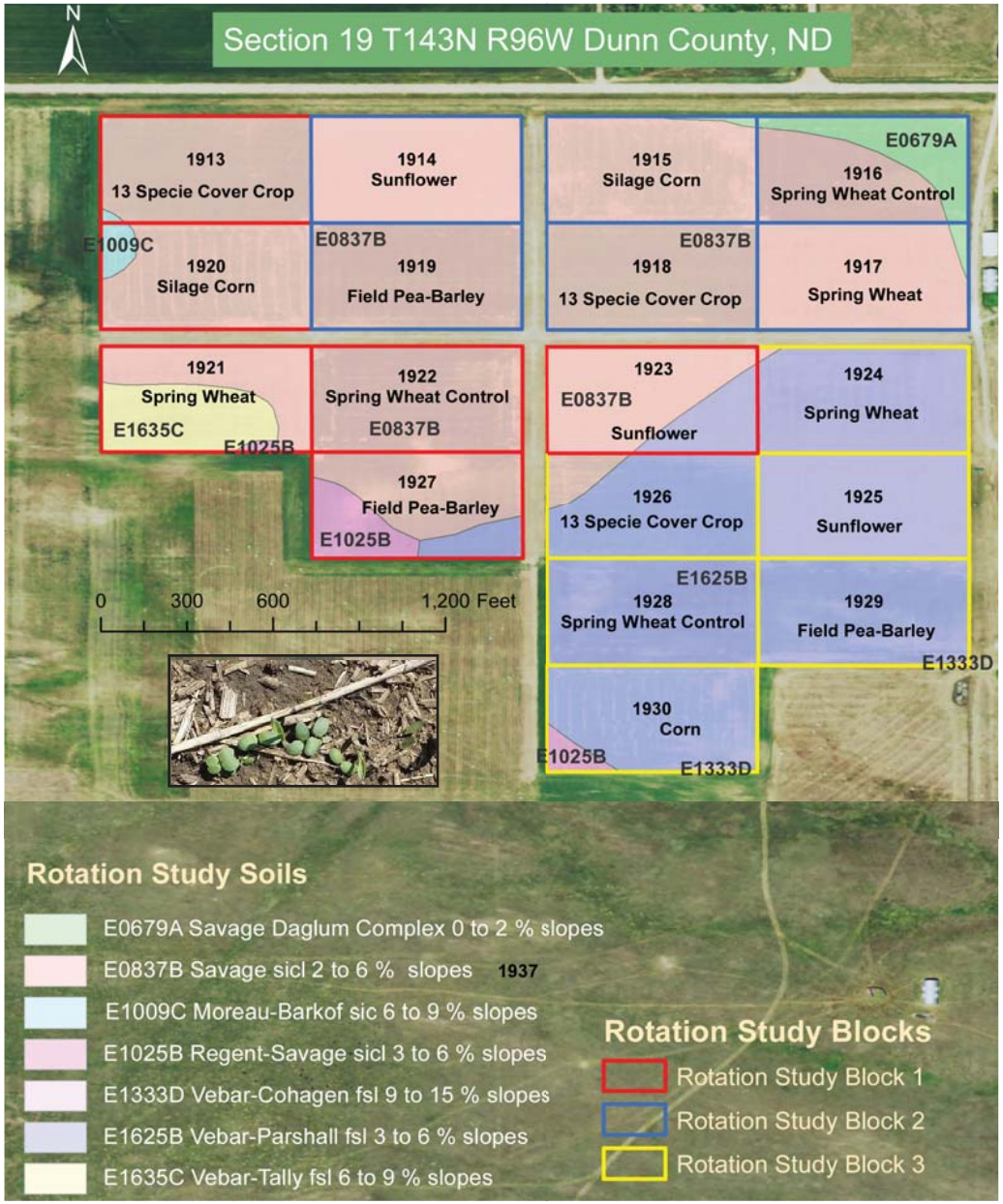




Available mineral Nitrogen increases as organic matter increases, making healthier soil for growing plants.



Cropland Production Systems



Map of diverse crop rotation + livestock grazing study (inset cover crop emerging Aug 2017). ***Graphic by Jon Stika.***

Diversity Through Rotational System Enhances Revenue

PRACTICES

No-Till Seeding and Planting
Maintaining a Living Root
Keeping Soil Covered

DIVERSE ROTATION

- Hard Red Spring Wheat
- Winter Triticale/Hairy Vetch
- 7-specie Cover Crop
- Corn Silage
- Corn Grain
- Pea-Barley
- Sunflower

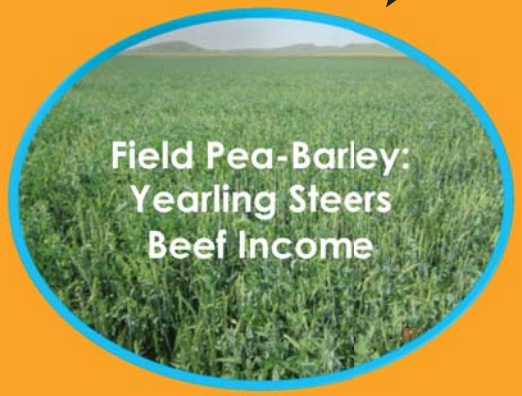
OUTCOMES

Enhance Mineral Nitrogen
Reduce or Eliminate Fertilizer
Weed/Pest/Disease Control
Improve Forage Production
Integrate Livestock Usage
Revenue Stream Enhancement

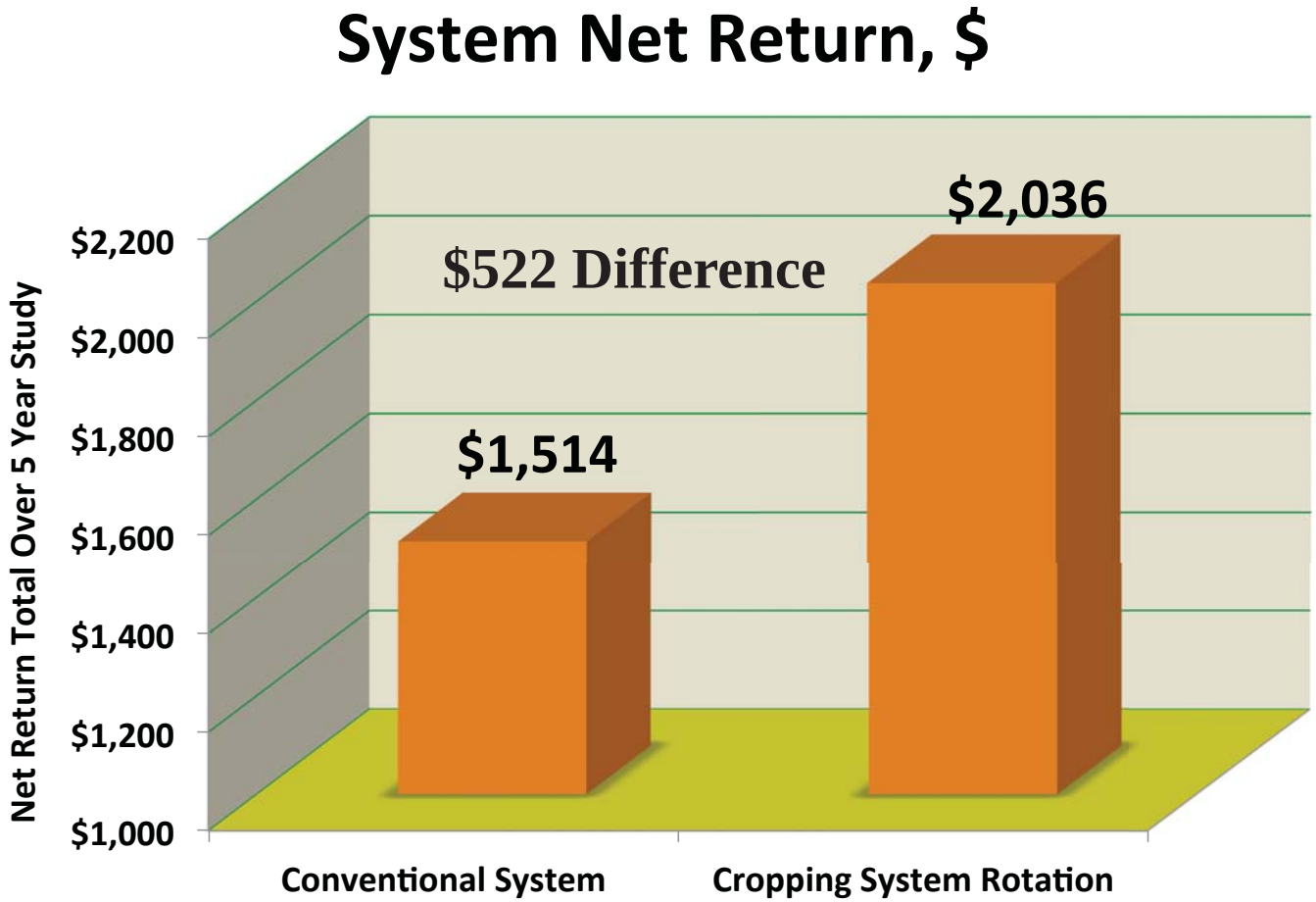
Crop Rotation

No Diversity

Diversity

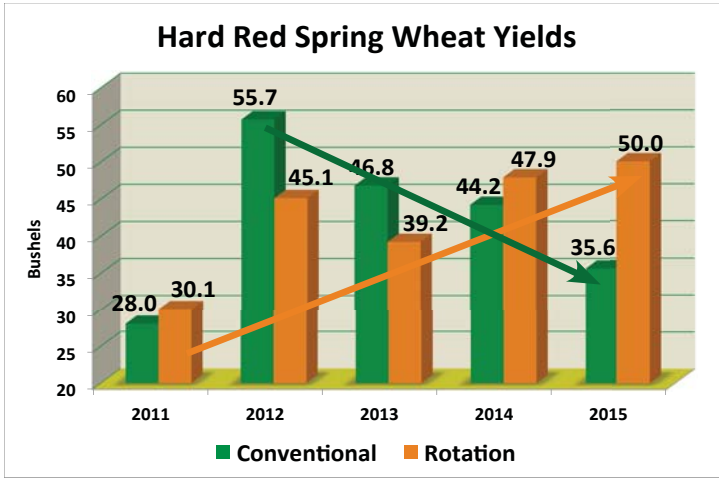


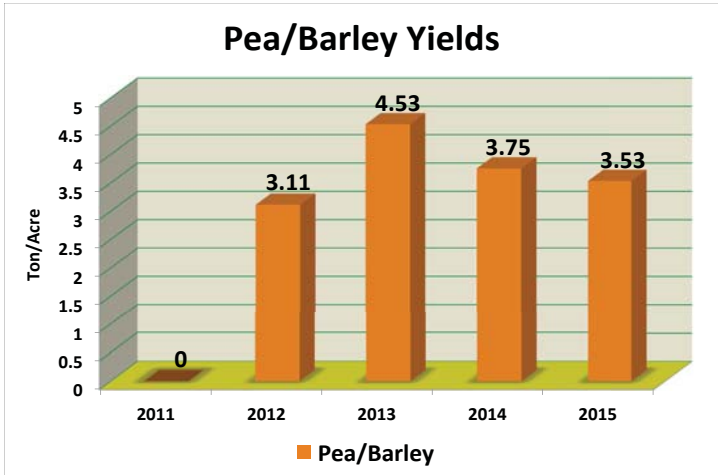
Rotation Shows Revenue Opportunity

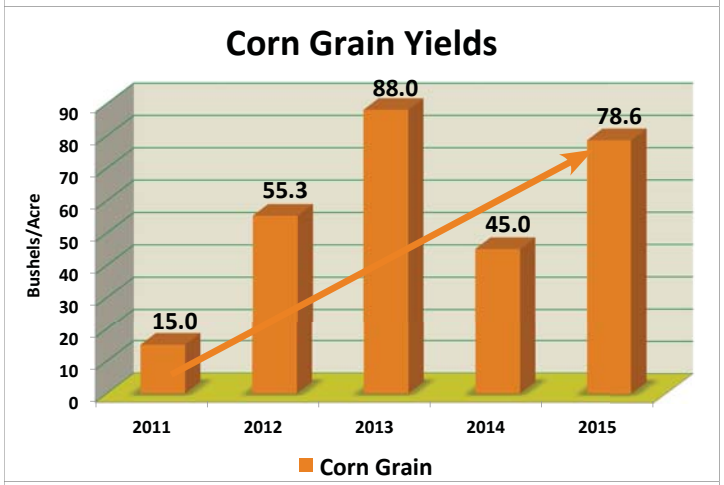


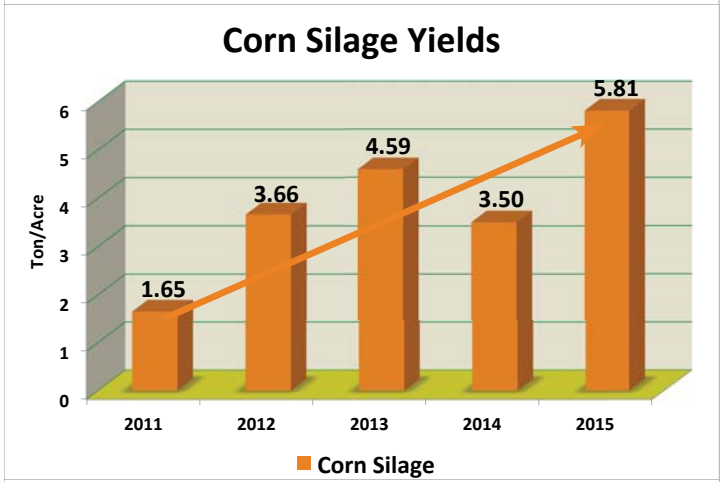
34% Increase In Revenue Stream By Using Crop Rotation System

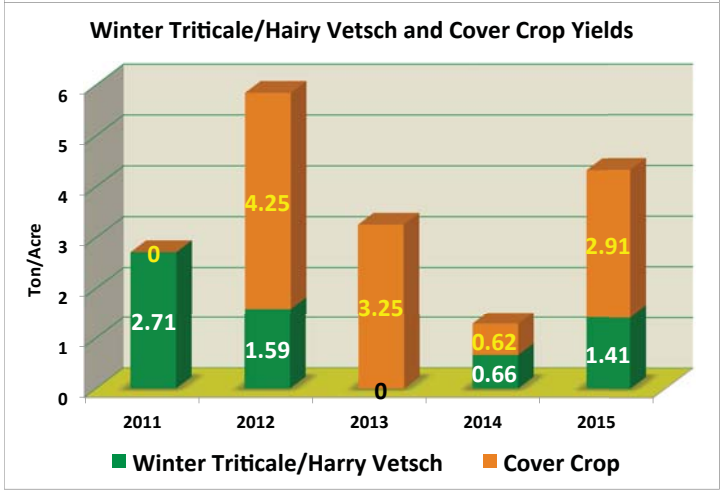
Production Results Of Crops In Rotation

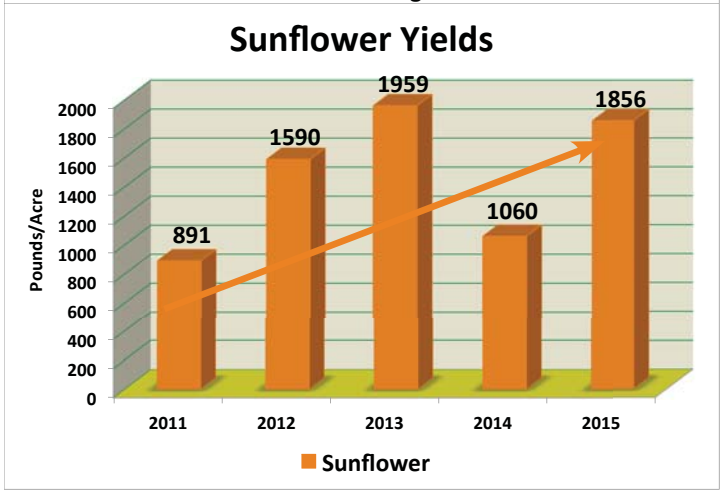






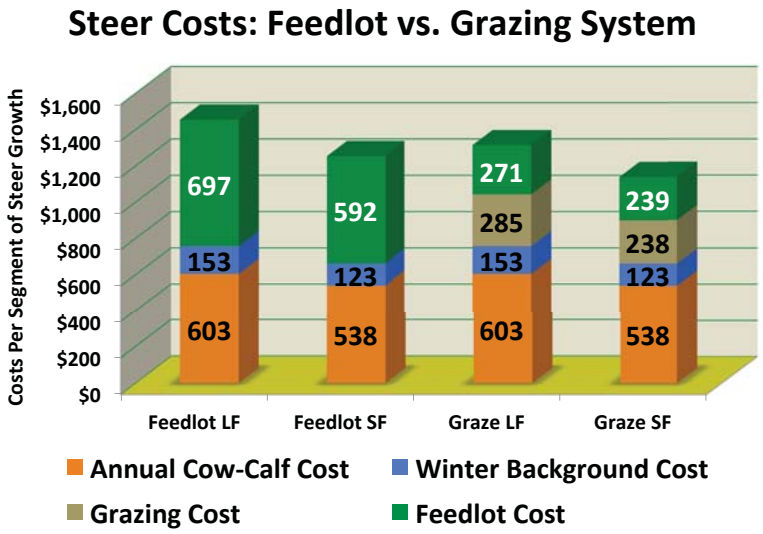


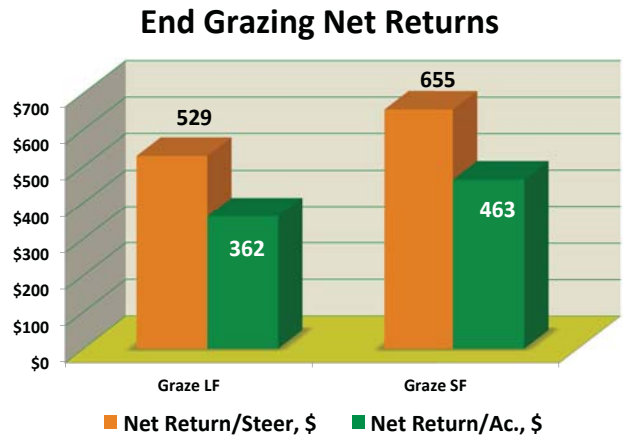


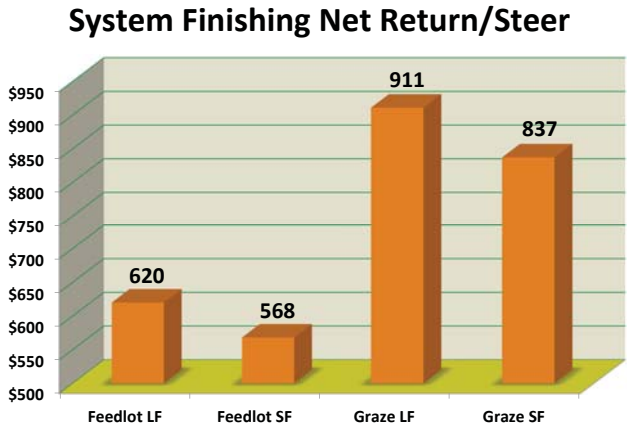


Beef: Added Diversity for Soil Use

Researching conventional and non-conventional grazing management methods for large and small frame yearlings.



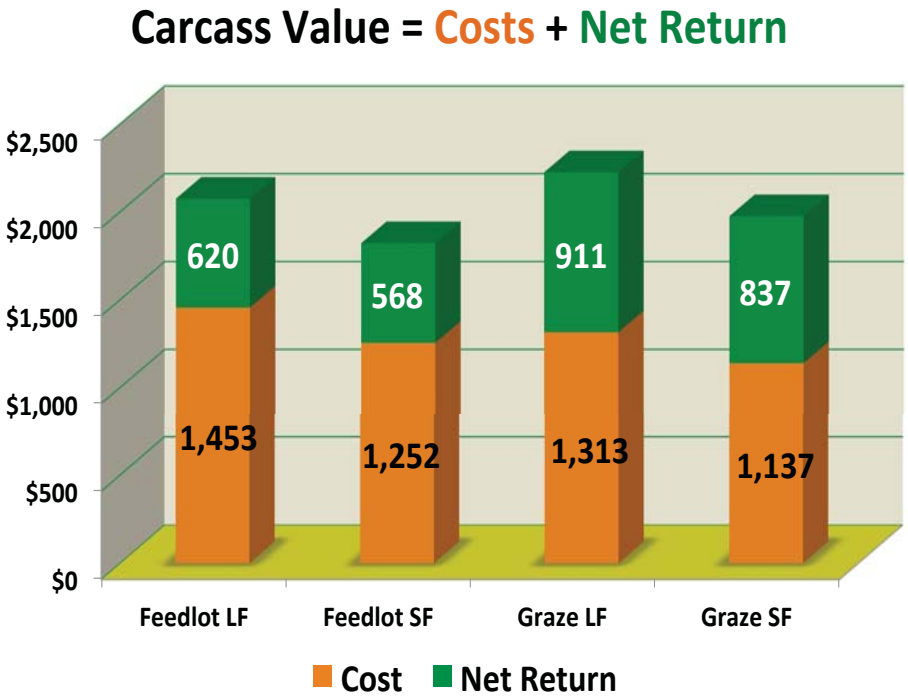




Grazing system vs. conventional feedlot system

46.9% increase in revenue stream for large framed steers

47.4% increase in revenue stream for small framed steers



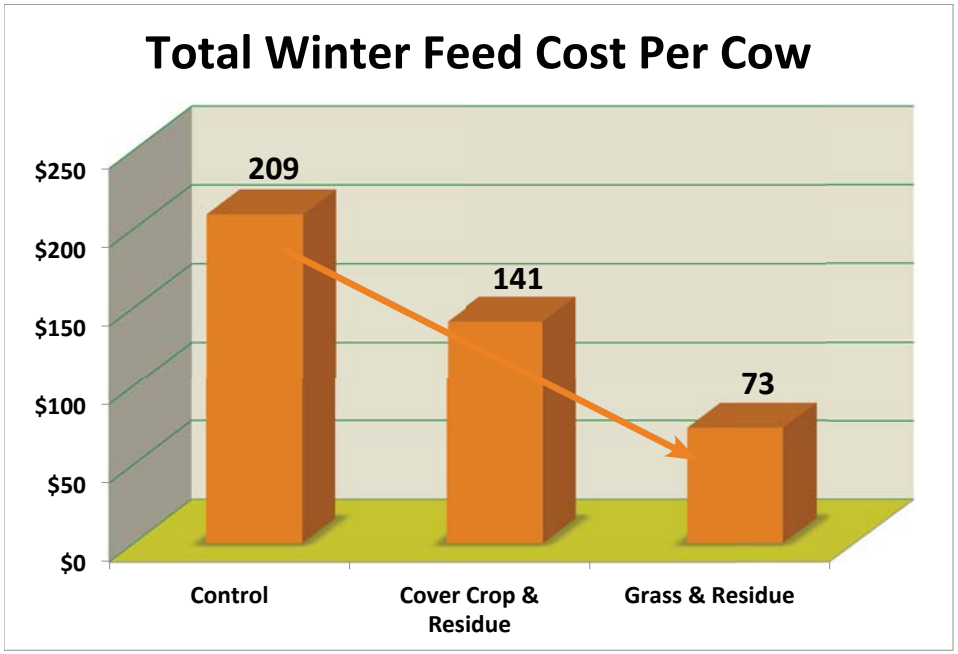
Beef Cattle Wintering Questions:

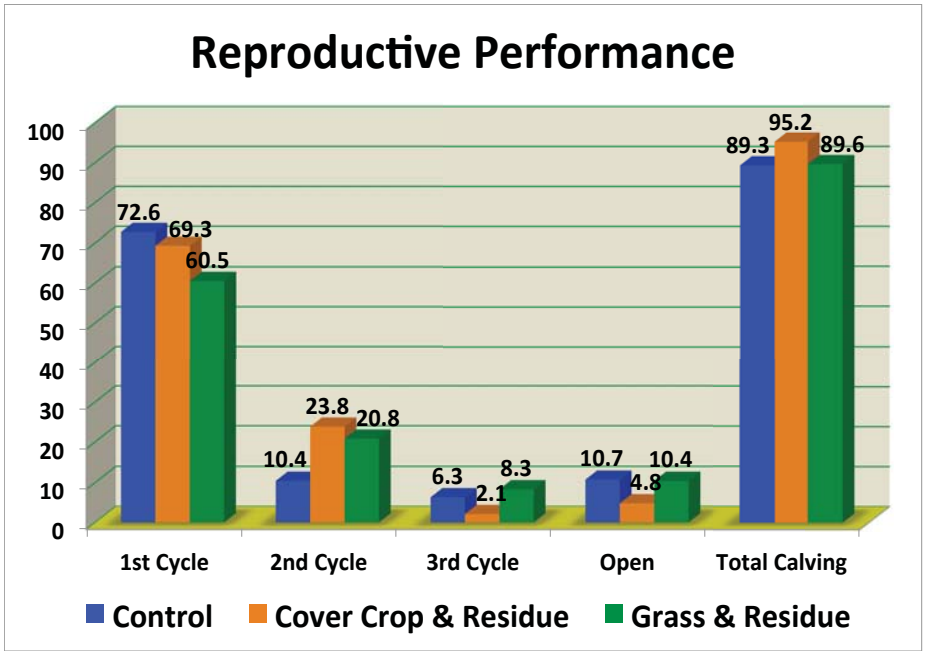
Are Your Cattle Working For You?

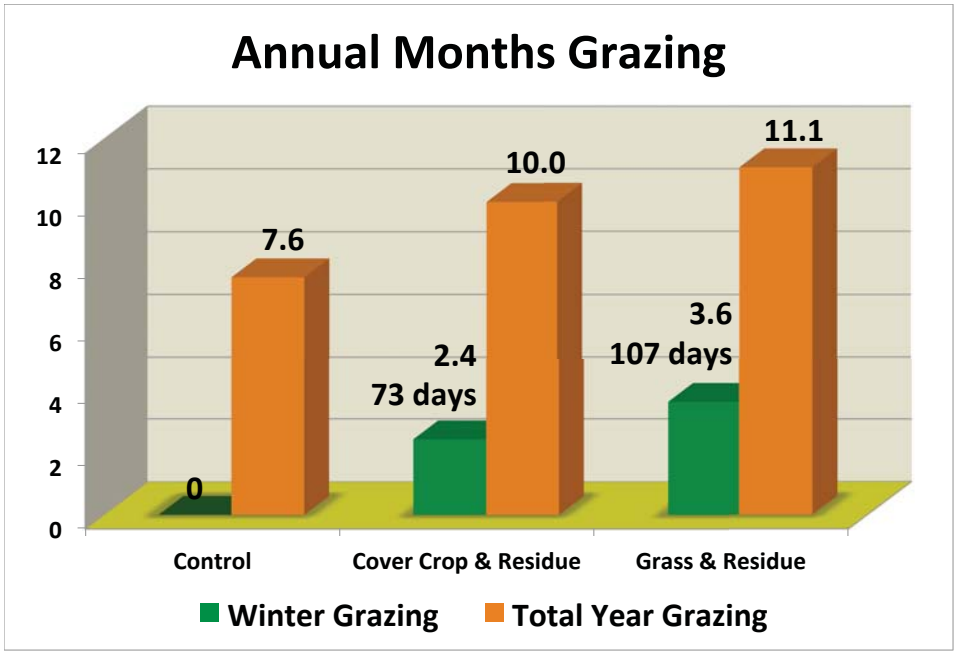
OR

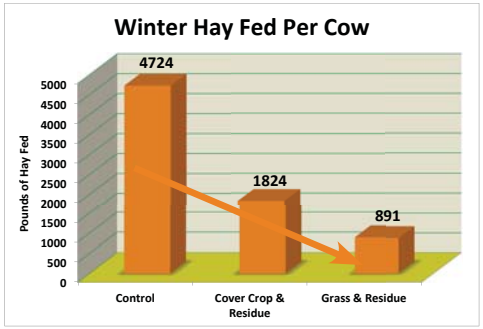
Are You Working For Your Cattle?

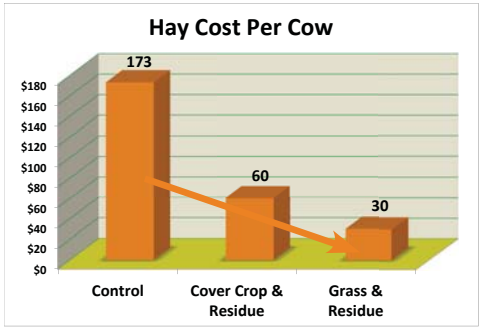
Beef Cattle Wintering

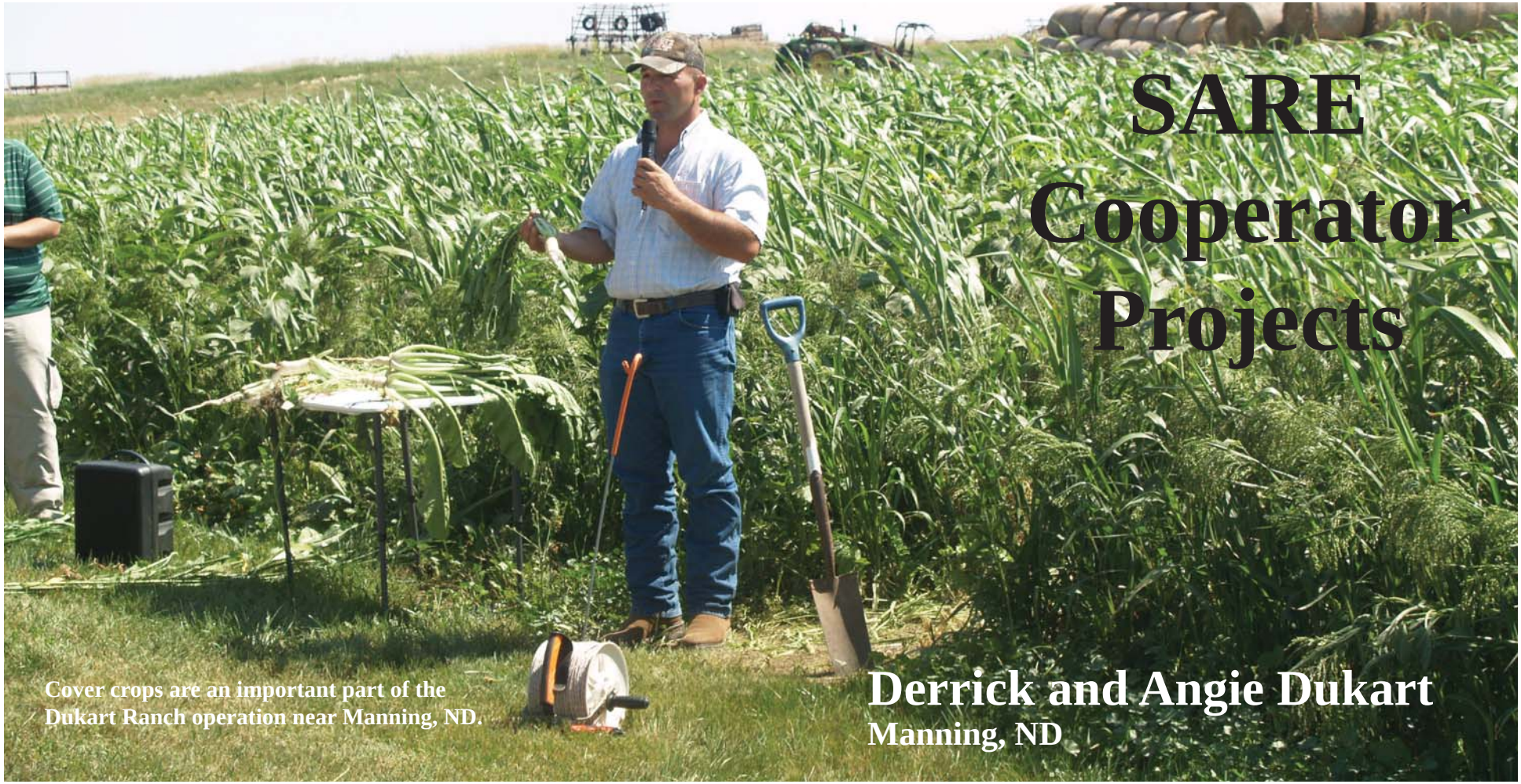












SARE Cooperator Projects

Cover crops are an important part of the Dukart Ranch operation near Manning, ND.

Derrick and Angie Dukart
Manning, ND

Field Size = 26 acres

Seeding Information

Seeded June 16 at 35 lbs/acre

Mix of Cowpea, Soybean, Mung Bean, Vetch, Red Clover, Pearl & Proso Millet, Sorghum Sudan, Nitro Radish, Winfred Hybrid Turnip, Sunflower and Oats

Cost = $30.00 per acre; Seeding depth ~ ¾ inch

Harvest/Field Usage

Dry matter per acre = 2.3 ton/acre

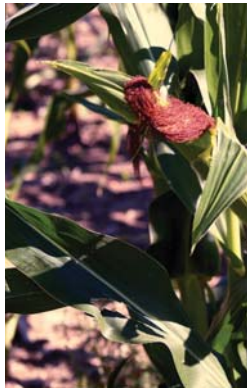
Nov. 26-Dec. 5: 254 coming 3rd trimester cows turned onto field

December 29: 150 head of bred heifers and young cows grazed for 7 day before starting to feed hay and silage. Practice of feeding hay and silage on this piece of ground continues.

Following Year:

Grain corn yield of 128 bushels with 51 pounds of nitrogen left in the profile.

Similar management will continue on a larger scale.



SARE Cooperator Projects

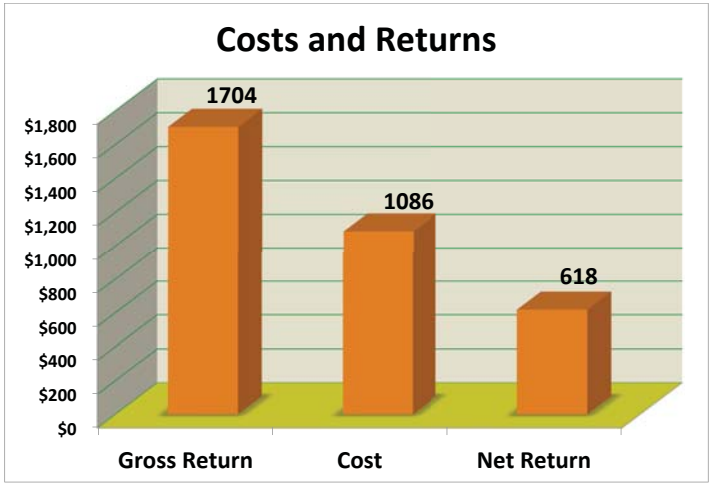
Lucas and Jolene Hoff retooled wintering setup, using weaned calves to harvest corn.

Lucas and Jolene Hoff

Richardton, ND

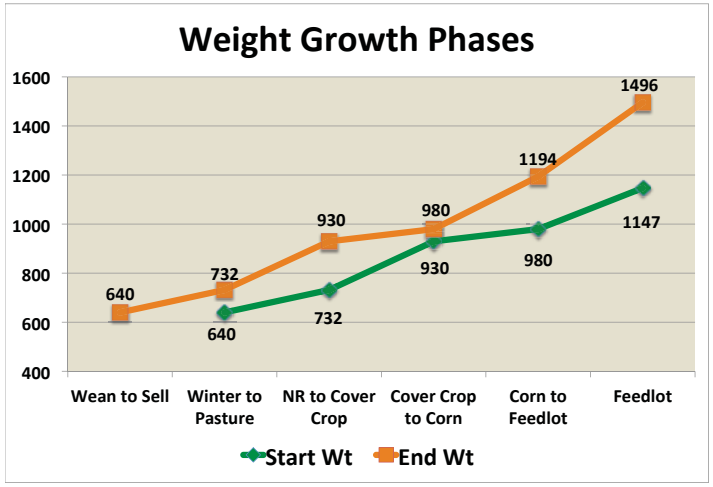
Lucas Hoff

Is it more profitable to harvest corn for grain or have calves harvest corn?



Data from 2012-2015 showed more actual cash profit with cattle grazing corn.

Next step was retained ownership program. Graphs show returns and growth.



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