Animal Waste and Irrigation Water Management

Clean Water Funds: 2010

Clean Water Grant	$16,500
Leveraged Funds*	$7,500
Total Project Budget	$24,000

*** Leveraged Funds include required 25% local match**

Targeted Water:
County or Watershed Wide

Project Sponsor:
Benton Soil and Water Conservation District

Partners:
Benton SWCD, Morrison SWCD, Benton County, Morrison County

Grant Period:
January 2010 - December 2011

Project Contact:
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Project Narrative

This project continues water plan activities from a 2007 Clean Water Legacy grant and initiates a multi-county project to restore hydrology and water quality in an impaired trout stream.

The first goal of this project is to reduce the impacts of animal manure and fertilizer on surface and groundwater by installing low cost feedlot improvements and targeted manure management planning. This unique style of manure management planning has become extremely popular with farmers and the outcomes of these projects will include phosphorus reductions of 2,286 pounds.

The second goal of this project will begin addressing several impairments in the Little Rock Creek watershed through voluntary implementation of conservation practices. Historic evidence shows that the Little Rock Creek supported trout since 1908. Fish surveys from the early 1990's show that the creek can no longer support trout, even when stocked. Little Rock Creek is heavily influenced by groundwater and groundwater modeling indicates that changes in flow are contributing to the biological impairment. Irrigation records indicate an increased amount of groundwater withdrawal, especially during the summer months. This project will reduce this impact by combining the efforts of Benton and Morrison SWCD's in helping landowners address irrigation water management in the Little Rock Creek groundwater recharge area.

Actual Outcomes

- Nutrient test plots: 24 landowners with 203 acres of test plots
- Reduced fertilizer use by 992 lbs of Phosphorus and 3,130 lbs of Nitrogen
- Technical assistance and calibration on 11 irrigation systems covering 737 acres

Because of this information, most landowners have made some adjustments to their nutrient management practices by changing the timing and/or rate of fertilizer and manure application.

Checking yields on a corn silage test plot

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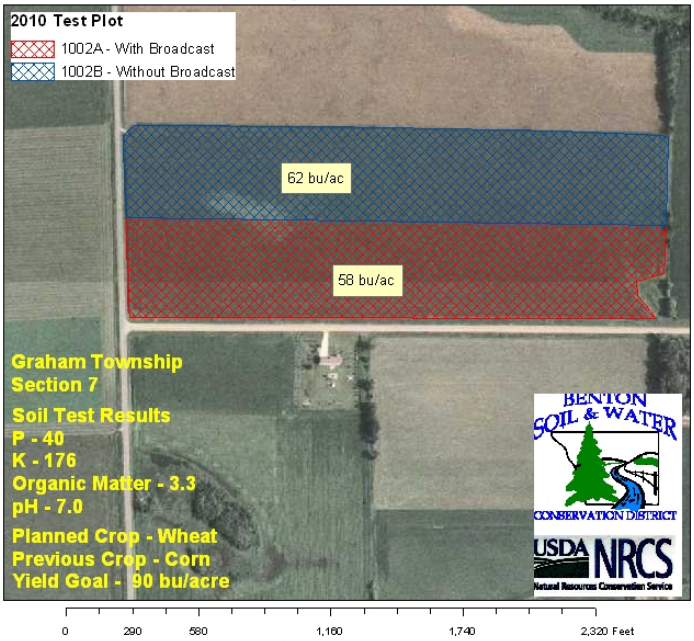
Bunker Hill Creek Farm Ag. Best Management Practice
Nutrient Management Test Plot Results



This plot will evaluate the use of broadcast fertilizer on wheat

Plot A - With Broadcast
Plot received 2.5 T/A of chicken manure and 10,000 gal/acre of dairy manure in the spring of 2009 and 10,000 gal/acre of dairy in the fall of 2009 and 125# of 40-0-0-5S this spring

Nutrient Source	Nitrogen	Phosphorus	Potassium
Legume Credit	0	0	0
1st Year Manure	75	56	162
2nd Year Manure	49	0	0
Fertilizer	50	0	0
Total	174	56	162
U of M Recommendation	170	0	0
Surplus	4	56	162

Plot B - w/o Broadcast
Plot received 2.5 T/A of chicken manure and 10,000 gal/acre of dairy manure in the spring of 2009 and 10,000 gal/acre of dairy in the fall of 2009.

Nutrient Source	Nitrogen	Phosphorus	Potassium
Legume Credit	0	0	0
1st Year Manure	75	56	162
2nd Year Manure	49	0	0
Fertilizer	0	0	0
Total	124	56	162
U of M Recommendation	170	0	0
Surplus/Shortage	-46	56	162

An example of a test plot information sheet that is given to the farmer. This sheet includes the yields after the plot was combined.

This test plot compares the effect of broadcast fertilizer of spring wheat. Both Plot received the same amount of manure while one plot received and additional 125# per acres of fertilizer while the other plot did not receive anything.

During the summer chlorophyll test was done once a week and tissue samples where taken when the plant where heading out.

When ready, the plots were combined and yields checked to see if the extra fertilizer affected the final yield. When combined the plot that received no fertilizer had the higher yield.

With the chlorophyll and tissue sampling results along with the yields, the farmer can decide the ideal fertilizer rated for his crops.