

# On Farm Manure Sampling and Analysis for Improved Water Quality Progress Report – 9/1/2010

## Project Overview

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Priority Addressed: Nutrient and Manure Management

### **Outcomes:**

- Knowledge and awareness of local or statewide issues and concerns related to watersheds and nonpoint source pollution.

### **Project Overview**

**Audience:** The target audience for this project are livestock producers and their technical assistance providers across South Dakota, that are working toward improving water quality within their watershed by improving manure containment and application techniques.

**Project Activities:** This project will be completed utilizing existing staff of the Agricultural Nutrient Management Team (SDACD and NRCS) by providing on-farm technical assistance to 75 livestock producers for quality control to sample manure for testing, and use of the test results to develop a manure field application rate that protects water quality. The information gathered will then be used to develop a base line manure nutrient (N,P,K) content by livestock class that is applicable to other South Dakota livestock farms, and shared with an additional 5000 livestock producers and technical assistance providers through a fact sheet, workshop presentations, press releases, and additional on-farm technical assistance.

**Evaluation:** This project will be evaluated by the completion of the outreach (livestock producers, etc.), the completion of the fact sheet, and through an evaluation by partners of the value of the information gathered and presented.

**Project Period:** July 1, 2008 through August 31, 2010

**Amount Requested:** \$9,750.00

**Match:** \$17,775.00

**Total Project Cost:** \$27,525.00

**Applicant Signature and Date:**

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## Progress By Objectives and Activities: 9/1/2010

**The goal** of this project is to assist livestock producers improve water quality through proper manure application rates on 12,000 acres of land. To meet this goal, the following objectives and actions have been established:

**OBJECTIVE 1:** Provide on-farm technical assistance to 75 producers to determine manure application rates designed to prevent water pollution by bacteria and nutrients by June 30, 2010.

### **Progress:**

Assistance has been provided to 97 producers through 9/1/2010. These producers have developed nutrient management plans for their livestock manure systems and applied manure according to their plan on 7,395 acres.

**Activity 1:** By utilizing ANMT staff (NRCS and SDACD), provide on-farm assistance to 75 livestock producers with animal nutrient management plans that meet NRCS specifications to determine manure application rates through sampling (soils and manure) and/or through spreader calibration. Livestock producers will be assisted through this project to take two manure samples by staff to ensure proper sampling techniques, storage and shipping. Based on the soil testing, manure samples and equipment calibration assistance will be provided to establish a manure application rate. To properly implement a comprehensive nutrient management plan, it is imperative that accurate manure samples be properly collected and analyzed to determine actual content of nitrogen (N), phosphorus (P), and potassium (K). Prior experience has shown that without proper education, producers typically are not adhering to proper manure sampling techniques and therefore not obtaining accurate analysis results. Our intention is that by offering to pay for two manure samples, we will open the door for in depth dialog and education on proper techniques and management of nutrients. If a producer agrees to allow NRCS or SDACD personnel to conduct an on farm visit and jointly pull manure samples, we will then pay the cost of analyzing the samples.

**OBJECTIVE 2:** Develop a fact sheet and share the information gathered with 5000 livestock producers and/or service providers by August 1, 2010.

### **Progress:**

The fact sheet will be developed once the final data sets have been collected and analyzed. The greater the data sets used the more statistically correct the final number will be and therefore provide a more accurate average for producer use.

**Activity 2:** The ANMT and existing partners (DENR, SDSU, SDACD, etc.) will utilize the manure sampling data collected to establish a base line manure nutrient content by livestock class as appropriate, and develop a one page fact sheet. This one page fact sheet will complement the existing brochure on manure sampling.

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**Activity 3:** Provide the information gathered to 5000 livestock producers and technical assistance providers through distribution during on-farm visits, booths at farm group conventions, workshop presentations, and print media (newsletter/newspaper articles). This activity will be led by the project coordinator with assistance from the Lower James RC&D Council coordinator.

### MILESTONE TABLE ACCOMPLISHMENTS: 9/1/2010

Item	2008	2009	Progress 9/1/2010	2010	Project Total
Total Producers assisted in completing Manure Sampling and assisted with Nutrient Management plan implementation utilizing ANMT assistance.	25	35	97 (161% of 2008/200 9 Goal)	15	75
Number of Manure Samples submitted for Analysis from the 75 farms	50	70	161 (124% of 2008/200 9 Goal)	30	150
Development of the Fact Sheet using data gathered from manure samples			Develop At End of Grant		1
Outreach to livestock producers and service providers	150	1850	3,150 (63% of 2008/200 9Goal)	3000	5000

### Budget: (Non-Federal Match Only)

Category	319 I&E Funds 9/1/2010	Match 9/1/10	Total Budget Three Years
Manure Sample Analysis (150 @ \$65/sample)	\$5,414 (56% of total)		\$9,750
Producer Time and Expense for assisting with manure sample collection, manure spreader calibration, soil sampling, and developing a manure application rate. 75 producers @ 15 hours @ \$15/hr.		\$21,375 (127% of total)	\$16,875
Lower James RC&D Council Project Management/Administration: 60 hours @ \$15/hr.		\$600 (66% of total)	\$900
<b>Budget Totals: 9/1/2010</b>	\$5,414	\$21,975	

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## Response to your specific questions from Anne Lewis, Information and Education Project Director:

*Also, please summarize briefly your monitoring process. Specifically, please state:*

1. *Which parameters are being monitored?*

**Response:** Currently analyzing manure for Nitrogen (Organic and Inorganic), Phosphorus P205, and Potassium K20.

2. *The methods used (probes, lab samples, etc.)*

**Response:** Manure samples are manually collected to obtain the most representative sample possible. Samples are collected using spades, soil probes, sample buckets, and sample transport containers. Typical handling procedures are to agitate liquid manure enough to suspend solids. For piles or dry lots, sub samples from different areas and different depths of the manure pack are taken to provide a more representative sample. Sub samples taken from different tanks, trucks or spreaders are mixed together in a large pail to give a better representative sample to submit to the laboratory. Samples are placed in a plastic zip lock bag and securely seal the mailing box and stored in a refrigerator or freezer until shipment.

3. *Which labs are doing the analysis?*

**Response:**

Stearns DHIA Laboratories, Sauk Centre, MN – 158 Samples  
SDSU Olson Biochemistry, Brookings, SD – 1 Sample  
SD Department of Health, Pierre, SD – 2 Samples

4. *In what format is the data being stored? (spreadsheet, Access database)*

**Response:**

Manure analysis results are stored electronically (email archive) and also a hard copy is maintained in the ANMT office. An Excel database is being used to assemble and maintain relevant data.

*Initial findings:*

**Response:**

To date the project has been well received by producers, NRCS/CD field office personnel, and technical service providers. As originally hoped, by offering a small token such as this to producers it has allowed a dialog to begin on proper nutrient management, and in many cases is leading to more lasting relationships which will no doubt spawn results and improvements beyond those originally conceived during this project's inception.

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If you have any questions, please feel free to contact me.

Regards,  
Anne Lewis

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Anne Lewis  
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