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NDSU EXTENSION SERVICE

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New Name, Same Game

Greetings!

As was mentioned in the April 2012 edition of Nutrient Management News, a change has occurred at the Carrington Research Extension Center (CREC). In September, we (Emily Kline and Mary Berg) started our positions as Livestock Environmental Management Specialists. Much of our last 2 months have been spent out in corrals collecting manure samples for nutrient analysis. Make sure you check out the article on page 2 explaining how to get your manure tested for free! We will start sampling again in the spring.

We hope this fall finds you ahead of schedule with all your crops harvested, manure tested and spread, soil sampled and the livestock ready for winter. If you have any questions regarding manure management, composting or record keeping, please don't hesitate to contact us. We'd be happy to assist!

Tailwater recovery ditch at soybean and rice farm in Arkansas. Photo courtesy of Andrew Sharpley.

Mary and Emily

Arkansas Discovery Farms Tour

On September 18-20, a small contingent of North Dakota Discovery Farms project participants attended the Arkansas Discovery Farms tour. The tour started in Little Rock and focused on the area around Stuttgart. The area we spent the most time in was called the Grand Prairie area where the primary crops grown are rice, cotton, corn and soybeans.

The main monitoring focus of the Arkansas Discovery Farms is on the dynamics of the irrigation water used in their flood irrigation systems. Most of the producers try to recapture and recycle the irrigation water from their fields. The concerns being investigated focus on irrigation efficiency and nutrient constituent loading to the water. They have been collecting data just this year so it was too early in the process for any data discussion but we did get to see their equipment installations.

We also had great conversations with their host farmers and since none of our group had much previous exposure to cotton or rice production, we learned a lot. The Stuttgart area is also famous for duck hunting in the flooded fields and forests. We got a chance to visit a duck lodge and learn how they are managing their water and timber resources as well.

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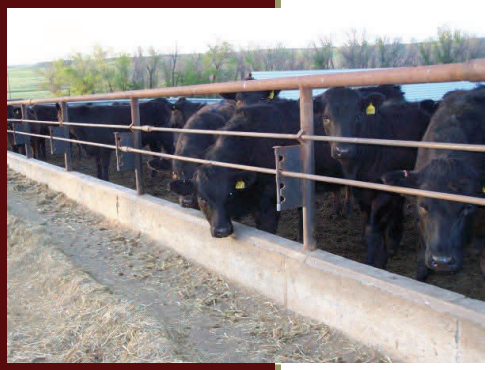
Commentary From the CAFO Corral



Cattle in a feedlot.

"When applying manure for nutrient utilization, it is important to record three main points: where, when and how much manure was applied."

Animal feeding operations that have been permitted by the North Dakota Department of Health are required to have a Nutrient Management Plan. Sometimes the plan is thrown in the cabinet file, but most producers do a good job of following the plan and keeping it up to date with their operations. There are three important pieces of information that department staff will look at during the scheduled routine inspections.

1. Manure spreading records. When applying manure for nutrient utilization, it is important to record three main points: where, when and how much manure was applied. Most crop producers keep good records when applying commercial fertilizers, but keeping records for manure application is often overlooked. NDSU Extension put together a publication, NM-1306 *North Dakota CAFO Operators Record Book*, which has applicable sections for recording this information.

2. Soil nutrient test results. Soil tests that are up to date show the interaction between the nutrients in the manure and the crop. It is recommended to sample soil every year but soil tests every three years are considered up to date.

3. Manure nutrient test results. If manure application is planned, a manure sample should be taken. Most soil test labs also analyze manure samples. So contact your agronomist to find out if the manure samples can be sent with your regular soil tests. NDSU Extension put together a publication, NM-1259 *Manure Sampling for Nutrient Management Planning*, which describes the specifics on how to take a manure sample.

Make sure that the field identification is the same for all three items. It does not matter if a field is listed as "Field 4," "The SW ¼ of Section 18," or "The Nelson Place," as long as the manure records and soil tests use the same identification. With the end of harvest taking place, it is never too early to be planning ahead for next year. The required tests and records will give you an idea of what you need to apply for a successful crop next year.

If you have any questions about what records are required or what the information means, feel free to contact Department of Health staff and we would be happy to visit with you. Our office can be reached at (701) 328-5210.

Jeremy Lang
Environmental Engineer
ND Department of Health

Manure Sampling Project

Manure Spreader.

NDSU Extension livestock environmental management specialists are still collecting data to help producers use manure as fertilizer.

Mary and Emily will go to farms and sample livestock manures for nutrients at no cost to the producers. They will also share information about how to determine agronomic manure application rates.

Manure can be collected from various livestock species, ages and diet types. Manure samples can be collected in the spring or fall and funding is available through fall 2013. The data collected will be reported in a publication describing beneficial nutrients in North Dakota manures. Cooperating producers will remain anonymous.

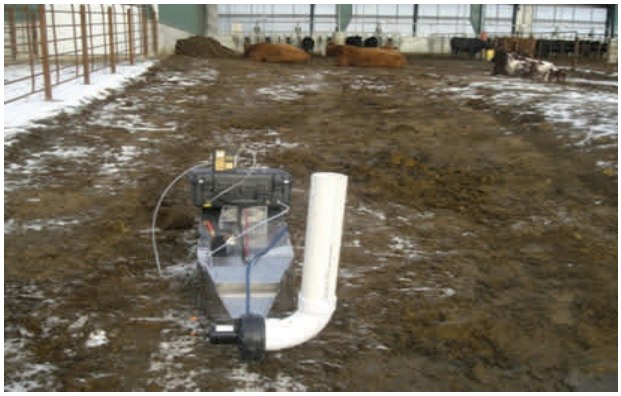
For more information or to enroll in this program, contact Mary (Mary.Berg@ndsu.edu) or Emily (Emily.M.Kline@ndsu.edu) at (701) 652-2951.

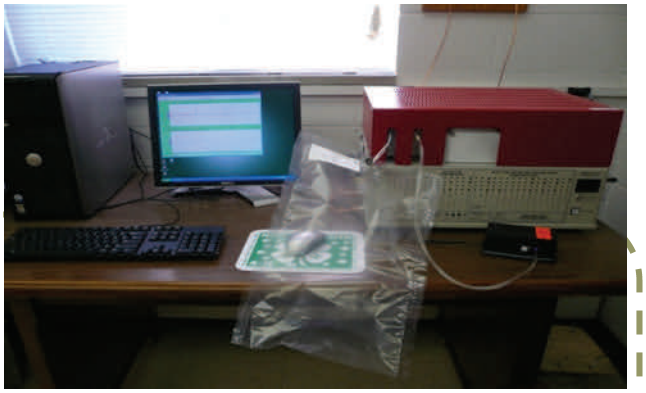
Research Activities

Dr. Shafiqur Rahman is an Assistant Professor in the Department of Agricultural and Biosystems Engineering at North Dakota State University. Dr. Rahman's research program focuses on air and water quality resulting from livestock facilities and land application of manure. Currently, he is conducting research on greenhouse gas emissions measured from feedlot pen surfaces in collaboration with Dr. Vern Anderson at the CREC. The effect of pen surface being bedded vs. not-bedded on greenhouse gas emissions and nutrient content are being studied. Additionally, effects of different treatment technologies such as ozonation and nano-technology in mitigating ammonia, hydrogen sulfide and greenhouse gas emissions are on-going in laboratory settings.

Performance of vegetative filter strips in mitigating run-off nutrients and pathogens and the importance to water quality are another area of focus for Dr. Rahman's research program. Finally, production of biogas is being conducted by dry anaerobic co-digestion of feedlot manure and agricultural wastes.

Shafi Rahman
Assistant Professor





Portable wind tunnel (above) and greenhouse gas chromatography (below) used to measure greenhouse gas emissions. Photos courtesy of Shafiqur Rahman.

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All four of the states that are currently operating discovery farms projects, North Dakota, Wisconsin, Minnesota and Arkansas had a good contingent of attendees. There is also a lot of interest by other states in adopting discovery farm projects, which was apparent by the fact that Missouri, Louisiana and Tennessee were also represented at the tour. In all, there were about 30 people on the tour and besides visiting the Arkansas producers, the attendees got to know each other and learn about water quality issues in the other states.

Ron Wiederholt
Nutrient Management Specialist

> "Most of the producers try to recapture and recycle the irrigation water from their fields."

Cotton field in Arkansas.

Meet the New Number Ones in the Number Two Business!

⇐ Emily Kline

⇐ Grew up in St. Anthony, ND

⇐ Resides in Hurdsfield

⇐ Formerly, Agriculture Extension Agent in Sheridan County

⇐ Mary Berg

⇐ Grew up in Driscoll, ND

⇐ Resides in Carrington

⇐ Formerly, Graduate Research Assistant at University of Wisconsin-Madison

Soil Sampling is the Foundation of a Nutrient Management Plan

Sampling and testing soil for nutrients before purchasing costly fertilizers or paying for manure hauling costs is crucial and will save you money. You can over apply nutrients that can cause an environmental issue or under apply nutrients, leading to reduced yields and costing you money.

Soil testing can be done almost any time of the year. It is most commonly done in the fall after harvest or in the spring prior to planting. The important thing to remember about soil sampling is to be consistent on its timing, as nutrients can change throughout the year.

Sampling a field can be as simple as taking 20 samples randomly across a field, mixing them in a 5 gallon bucket, and filling a sample bag with a subsample. Usually you sample two different depths, 0-6 inches and 6-24 inches. The 0-6 inch depth is tested for nutrients such as nitrogen, phosphorus, potassium, and others (if you choose to do so). While the 6-24 inch depth is normally tested only for nitrogen since it is a soil mobile nutrient.

Many agronomy businesses offer soil sampling services. Soil testers in North Dakota include, NDSU Soil Testing Lab 701-231-8942 and AGVISE Laboratories 701-587-6010. You may also contact Chris Augustin, Soil Health Specialist 701-857-7682, if you have questions on soil sampling.

Chris Augustin
Soil Health Specialist

Soil Sampling. Photo courtesy of Chris Augustin.