

# LEM NEWS



Livestock Environmental Management Newsletter

Volume 3, Issue 3. October 2014

*Our thanks to the ND Corn Council and the 319 Watershed Program in Stutsman County for their support of the LEM and NM programs this summer. The opportunities allowed us and the help offered are certainly appreciated.*

## Greetings!

As we prepare for freeze-up, I'd like to reflect back on a successful summer for the LEM and Nutrient Management (NM) program here at the CREC. We stayed busy this summer with crop demonstration plots, analyzing and sharing data from our cropping systems project, managing the manure and mortality compost piles, and traveling to the North American Manure Expo and the Discovery Farms Annual Tour. Highlights of some of our adventures will be noted in this issue of LEM News.

With the lack of nice fishing days this summer, it's hard to believe that Fall is here. As hay gets hauled home and combines move down the road, it is time to start thinking about your nutrient management plan and your options for next year's crops and fertilizers. **If spreading manure as a fertilizer tops your list, I would like to help you calibrate your spreader. Calibration is a quick, simple process and I promise not to get in the way.**

As always, I welcome and appreciate your comments. Feel free to give me a call (701.652.2951), stop by the office, or send me an email ([mary.berg@ndsu.edu](mailto:mary.berg@ndsu.edu)) anytime. The LEM and NM programs wish you a safe harvest and productive fall season. —Mary



## In This Issue

- Tour Reports
- Manure Spreader Calibration
- Inspecting Your NMP Records
- NDSU Beef Cattle Winter Management Workshops

The 2014 North American Manure Expo offered practical demonstrations, classroom teaching, and the opportunity to interact with industry representatives and regulators.

Editing and layout: Linda Schuster, Carrington REC.



# Manure Spreader Calibration

Regardless of the lack of sunshine this summer, crops still grew and producers are working on getting kernels in the bin and bales hauled home before Mother Nature can inflict any (more) damage.

Following harvest, it's time to think about next year's crops and fertilizer needs. While purchasing a load of commercial fertilizer is the easy option, consider long-term options for your crop and soil needs. Many beneficial and valuable plant nutrients, especially for corn, are contained in fresh livestock manures and compost. Beside the nutrients, using livestock manure or compost will add a carbon source back to the soil as well as improve water-holding capacity, bulk density and biological properties. Research with corn and manure, posted previously on Center Points, can be found at [www.tinyurl.com/NDManureFertilizer](http://www.tinyurl.com/NDManureFertilizer).

## Know Your Product

The first step in using manure/compost as fertilizer is to sample it for nutrient content. Sampling technique and area commercial laboratory information can be found at <http://www.ag.ndsu.edu/lem/resources/manure-nutrient-sampling-and-testing>. Next, soil testing for nutrients is equally as important as testing manure. Soil sampling techniques and tips on interpreting soil test results can be found in this video: <http://tinyurl.com/soiltestingvideo>.



Having field crop history, manure and soil nutrient test results and future crop information will help you determine the amount of fertilizer (manure, compost and/or commercial) that needs to be applied. Two new calculators designed specifically for ND corn producers (ND Corn Nitrogen calculator found here: <http://www.ndsu.edu/pubweb/soils/corn/> and the ND Manure Corn Nitrogen and Phosphorus calculator found here: <http://www.ag.ndsu.edu/lem/manure-corn-n-p-calculator>) offer guidelines to assure that you neither under- or over-apply fertilizer, as either can have detrimental effects, be it on the checkbook or environment.

## Calibrate Your Spreader

Now that you know how much manure/compost to apply, it's time to calibrate the spreader, a simple process that can be done with items that are most likely already present on the farm. Two manure spreader calibration techniques with easy-to-follow worksheets can be found here: <http://tinyurl.com/manurespreadercalibration>. The following steps highlight how to calibrate a spreader using the sheet method. This method can be done with your personal spreader or a custom spreader.

### Materials:

- Sheet or tarp that measures 21.8 feet<sup>2</sup> (or any tarp as long as you know its area in ft<sup>2</sup>)
- 5-gallon bucket
- Scale

Weigh the bucket and sheet to get a tare weight. Lay the sheet and anchor it with rocks or stakes. Record your tractor gear, engine's revolutions per minute (RPM) and spreader settings.

Apply the manure over the sheet.

Weigh the manure-covered sheet in the bucket.

If your tarp measures 21.8 ft<sup>2</sup>, the weight of the manure in pounds is equal to tons/acre. If not, simply multiply the weight by 21.8 and divide that amount by the tarp area in square feet.

Do this 3 times or set up 3 separate sheets and use an average of the weights.



***I would like to help five (5) crop producers and/or custom manure haulers calibrate their manure spreaders this fall. If I could work with you please contact me at 701-652-2951 or [mary.berg@ndsu.edu](mailto:mary.berg@ndsu.edu).***

## Nutrient Management Day 2014

Producers, consultants, farmer educators and sunshine were all in attendance for the 2014 Nutrient Management Day that was held on August 12 at the NDSU Carrington Research Extension Center.

The morning session included topics based around composting: site selection, mortality management, proper composting techniques and turner demonstrations. Afternoon sessions focused on manure versus compost and how each acts as a crop fertilizer.

### Thank you:

- ◇ Jason Odenbach, Stutsman County livestock producer, for being the guest speaker for the mortality management discussion.
- ◇ Ryan Odenbach, 319 watershed coordinator, and Brandon Schafer, 319 watershed technician, for volunteering time and equipment all summer for the manure compost turner demonstration.

We appreciate your partnership with our program.

If you were unable to attend NM Day but are interested in the topics we covered, we encourage you to stop by the Center anytime during the year. Research and demonstration crop plots are now being harvested, but the compost piles are still being maintained. Contact [mary.berg@ndsu.edu](mailto:mary.berg@ndsu.edu) with specific questions about NM Day. —Mary Berg





**Brad Brummond,**  
NDSU Walsh County  
Extension Agent

# ‘Why Should We Soil Test?’

Growing up on a farm in Sargent County as the son of a Vocational Agriculture instructor, I studied agronomy in both 4-H and FFA. One of the most vivid lessons I learned was to soil test every parcel of ground, for every 4-H or FFA project, every year.

## HOW WILL YOU KNOW?

After reviewing the soil test results, decisions regarding what kind of fertilizer to apply and the application rates would be made. My father said, time and time again, “If you don’t know what you have in the field, how will you know when you meet the nutrient needs of your crop?”

Applying too much fertilizer wastes money, but too little will short the crop and, therefore, reduce yield potential. And some fields may not need any fertilizer at all. In the 1970’s, no one considered the nutrient-loading aspects of over-fertilization and the disastrous effects on rivers

and streams. The same economic reasoning still exists today but the ecological aspects of fertility are increasingly more important.

## UPDATED RECOMMENDATIONS

Dr. David Franzen, NDSU Extension Soils Science Specialist, has recently updated both the corn and wheat fertility recommendations. Gone are the days of cheap fertilizer when the default was to over-apply as it did not cost much. Franzen has calculated the response of fertilizer, the price of nutrients, the price of the crop and the expected optimal return to a pound of nutrient.

## ONLY ONE WAY TO KNOW

To use this new information effectively you must know what nutrient levels exist in the field. It is very expensive to over-fertilize but you also can not afford to be short. The soil test is the only way to know.

Most producers do not do their own soil sampling – usually, harvest runs past freeze-up and the opportunity is lost. However, professional firms will conduct thorough, accurate sampling and provide usable data at a reasonable price. With a good soil probe, though, it is possible to sample your own fields. NDSU Extension has published several excellent articles that provide guidance and instruction on this subject.

## START YOUNG

There is great value in teaching our youth to be good stewards and profitable farmers. I was on a land judging team in 4-H and I’ve have coached three state-champion land judging teams, with one 5<sup>th</sup> place national finish. Watching youth classify land, make fertilizer recommendations and recommend management practices to make the best use of the land is exciting! Give your children this learning opportunity by getting them on a land-judging teams. Some of them can make fertilizer recommendations off soil test data as early as even nine years old.

## BIG PICTURE

Focus on the big picture when thinking about soil fertility. Take into account your nitrogen credits from previous crops and the needs of the new crop. Look at manure piles as a valuable source of free nutrients – spread manure to make this resource an asset and not an environmental problem. Checking the nutrient analysis of your manure is almost as important as soil testing so you know how much to spread to meet crop requirements and not over fertilize.

Soil science has come a long way over the past years, but one constant remains – the need to soil test. It’s one of the most cost-effective management tools we have. What my father taught me years ago was sound practice then, and even more important now, with advances in research and methods. -- Brad Brummond, NDSU Walsh County Extension Agent



Soil sampling is the only way to know your soil’s fertility.  
Photo credit Chris Augustin.



Various liquid manure agitators homogenize a lagoon at the North American Manure Expo near Springfield, MO.

## NAME Focus

The inaugural NAME was held in 2001 near Prairie Du Sac, WI when custom manure applicators wanted a show to exhibit side-by-side comparisons of agitation and spreading equipment. The NAME, now a traveling show, has been held in Wisconsin, Minnesota, Michigan, Ohio, Iowa, Pennsylvania and Nebraska. The NAME is the only trade show that focuses solely on manure and nutrient management, and caters to high-volume livestock producers (dairy, beef, pork and poultry), custom manure applicators, researchers, consultants and government agencies.

# What's in a NAME? 2014 North American Manure Expo

Springfield, MO hosted the 2014 North American Manure Expo (NAME) on July 8 and 9.

The first day of the 2014 NAME included agitation equipment demonstrations on a pasture-based dairy farm and a tour of the Southwest Clean Water Treatment Plant.

Everything from waste water entering the plant to clean water discharge, as well as biosolid application was covered during the tour. Nutrient management plans, field mapping and working with local land owners are all issues that the Plant deals with.

Day One concluded with a overview of the trade show grounds, where the manure business was front and center. From tires to crop planning to huge spreader displays, nutrient management was the highlight of the evening that

ended with an exhibitor appreciation dinner.

Day Two began with side-by-side liquid and solid spreader demonstrations and ended with educational sessions.

This year's NAME trip was unique for the LEM team — we were awarded an educational mini-grant from the North Dakota Corn Council that allowed one ND custom manure hauler to accompany us to Missouri. The Corn Council's goal was to expose a North Dakota custom manure applicator to this valuable and unique educational experience, thus helping crop producers meet production goals.

Jonathan Hofland of Hofland Agricultural Services, LLC, Reeder, ND joined us for the trip! New to the industry, this was Jonathan's first trip to the NAME.

Jonathan was able to visit with equipment dealers one-on-one after working demonstrations. He also had time to visit with haulers from other regions and discuss issues and solutions to problems.

Thank you to the ND Corn Council for allowing Jonathan to attend the NAME. The LEM program hopes to apply for another educational mini-grant so we can invite another ND custom manure hauler to the 2015 NAME in Chambersburg, PA on July 14-15, 2015.

Watch this website as information is updated and the program is finalized: <http://www.agannex.com/manure-manager/manure-expo>. —Mary Berg

## 2015 Tour Scheduled

Producers considering building or revamping their facilities should attend next year's tour, which will be held on June 16, 2015.

For more information contact Scott Ressler at the ND Stockmen's Association (701) 223-2522 or [sressler@ndstockmen.org](mailto:sressler@ndstockmen.org).



Over 250 people attended the 12th Annual North Dakota Stockmen's Association Feedlot Tour, seen here at Ellingson Angus near Saint Anthony. Photo credit Chanda Engel.



Keller's Broken Heart Ranch (Mandan) featured super-steel feedlot fencing with double guardrail bottom. Photo credit Chanda Engel.

*In addition to day-to-day technical assistance and cost-share support activities, the NDSA has held tours for 12 years in different areas of the state to showcase feedlots that have taken the necessary steps in getting their operations into compliance and upgrading their facilities at the same time.*

## NDSA Hosts Record-breaking Feedlot Tour

The ND Stockmen's Association (NDSA) focuses on promoting feeding and backgrounding cattle in North Dakota. Whether you're finishing fat cattle in a full-fledged feedyard or developing bulls and heifers in a seedstock operation, chances are your operation could benefit from developing a fully contained, environmentally friendly feeding system.

More than 250 individuals interested in advancing their feeding systems attended the 12<sup>th</sup> Annual NDSA Feedlot Tour in southern Morton County in June. The tour showcased three feeding operations and three purebred operations.

Highlighting fencing, bunk lines, concrete pads, cattle handling facilities and holding ponds, this tour has been offered over the years to people who want ideas and suggestions to develop their own feedlots. Most importantly, the tour was an opportunity for families to showcase environmental compliance features that protect the environment and improve their operation's productivity.

All of the facilities shown on the tour met the requirements of the ND Health Department and the Environmental Protection Agency regulations regarding concentrated animal feeding operations. —Scott Ressler, ND Stockmen's Association.





All animal feeding operations permitted by the ND Department of Health in recent years had a Nutrient Management Plan (NMP) at one time. All too often, however, that plan was probably filed away in the dark corner of a filing cabinet shortly after development. All parts of the NMP should be kept up to date, but there are three very important pieces of information that NDDoH staff will ask for during every inspection.

1. **Manure spreading records.** This is as simple as “where, when and how much.” Most crop producers keep good records when applying commercial fertilizer, but they often overlook recording similar information when applying the nutrients from manure. Even if the tonnage of each load is unknown, keep track of the number of loads. Use the applicable sections from NDSU Extension publication NM-1306 *North Dakota CAFO Operators Record Book* to make sure you are keeping the required records.
2. **Soil nutrient test results.** Current soil tests really tell the story of how the manure nutrients are interacting with the crop. Sampling every year is recommended; however, soil tests are considered current if they were taken in the last three years (for all but the CAFOs).
3. **Manure nutrient test results.** A manure sample should be taken when the manure is applied. Most soil test labs also analyze manure nutrients, so contact your agronomist to find out if manure samples can be sent with your regular soil tests. For specifics on how to take a manure sample, refer to NDSU Extension publication NM-1259 *Manure Sampling for Nutrient Management Planning*.

Make sure that the field identification is the same for all three items. It does not matter if a field is listed as “Field 7,” “The NW ¼ of Section 12,” or “The Schmidt Place,” as long as the manure records and soil tests use the same identification.

If you have any questions about what records are required or what the information means, department staff would be happy to visit with you at your convenience. Please contact our office at (701) 328-5210. —*Jeremy Lang, ND Dept of Health*

## The Cattle Business is Booming!

With 500 lb. steer calves at \$1,250 and heifers not far behind at \$1,150 for the same weight, every animal is a valued part of the enterprise.

Average returns on a North Dakota cow calf enterprise are likely to be about \$500 per cow for this year. However, this figure does not include labor and management, nor quality of life for the cow calf producer. Looking a little closer at costs for a cow-calf enterprise, we see that winter feed costs remain at 50% of the variable costs of an operation, double that of summertime feeding costs.

Reducing winter costs in feeding, labor and management as well as insuring healthy calf vigor in the spring can add to a producer’s pocketbook and quality of life.

On November 12 and 13, we will discuss winter feeding and winter management practices at the Beef Cattle Management Workshop, offered by the NDSU Extension Service at four locations in ND.

On November 12, the Workshops will be presented at Ellendale and Medina. On November 13, we will be in Wing and Carson (please note: Carson is in Mountain Time, while all the others are Central Time).

Dr. Gerald Stokka, Extension Veterinarian, will discuss winter nutrition strategies for starting calves with high quality dam colostrum. Other presentations will cover living winter shelterbelts to hay bale management.

Each participant will also receive a binder with materials for future reference.

Please join us for an interactive series focused on winter beef cattle management for healthier spring calves. See the poster in this newsletter for more information on how to register.

An RSVP is appreciated as food is included. Hope to see you at one of the locations this November! —*Fara Brummer, NDSU Area Extension Specialist, Livestock Systems at Central Grasslands REC.*



# 2014 Discovery Farm Multi-State Tour & Meeting

*Discovery Farms was first formulated and implemented in Wisconsin in 2001 to address concerns that environmental and water quality regulations were inconsistent with profitable agricultural production. Similar concerns exist in North Dakota and other states around the country; today there are Discovery Farms in four states, and plans to bring Discovery Farms to two more.*

*A Discovery Farm is a working farm or ranch cooperating with the Program to demonstrate and evaluate the effectiveness of best management practices at reducing environmental impacts due to agriculture practices. Discovery Farms was designed to be a farm-led program, that partners with local, state and federal institutions to gather credible and unbiased water quality information from different farming operations, through edge-of-field runoff monitoring.*

The Wisconsin Discovery Farms Program (WDFP) was the host of the 2014 Discovery Farms Multi-State Tour and Committee Meeting, which took place September 9-11, in LaCrosse, WI. Representatives from states with operating Discovery Farms (MN, AR, ND, and WI) as well as individuals from states interested in starting Discovery Farms (IL and WA) had the opportunity to tour a watershed project conducted by the WDFP. Participants from other Discovery Farms programs collaborated, sharing successes and challenges faced in each state, with the goal of making the Discovery Farms programs stronger and more effective.

Enderlin, ND farmers Keith and Kent Bartholomay, cooperators with the North Dakota Discovery Farms program, were in LaCrosse representing the ND Discovery Farms Steering Committee, and I certainly appreciate them doing so.

The tour departed LaCrosse shortly after lunch on September 9, to visit WDFP monitoring sites in the Jersey Valley Watershed project. Our first stop was at Jersey Valley Lake, where WDFP co-directors Eric Cooley and Amber Radatz discussed work they are doing in the region.



Our second stop was at the Malin Farm, a 100-cow dairy that hauls manure daily, year-round, to support no-till practices. Monitored since 2010, the owner spoke about his WDFP monitoring site and the overall management of his farm, including how he handles the manure produced by his dairy operation.

Continuing on our tour, we drove by several monitoring sites around the Jersey Valley to reach the Herricks Farm, a century farm with two generations living onsite with 600 dairy cows. Owner Jack Herricks, who isn't monitored by WDFP, provided a tour of his operation and talked about practices like no-till and cover cropping that improve soil conservation and decrease soil erosion.

I would like to thank and congratulate the Wisconsin Discovery Farms Program crew for developing a productive 2014 Discovery Farm Multi-State Tour and Meeting.

The Arkansas Discovery Farms Program will be hosting the next tour and meeting in August of 2015. —Paulo Flores, Nutrient Management Specialist, Carrington REC.





Livestock and Poultry Environmental Learning Center presents



## WASTE TO WORTH

Attend the International Conference on Livestock & Poultry Environmental Quality at the Westin Hotel in downtown Seattle, WA March 30 – April 3, 2015.

The theme of the conference is ‘From Waste to Worth - Advancing Sustainability in Animal Agriculture.’ Join a national network of agricultural professionals for four days of technical sessions, tours, networking, and social events featuring the indigenous culture of Puget Sound. Oral, poster, panel, and workshop proposals addressing the general themes of air, water & soil quality, watershed management, climate change, and research & outreach will be part of the program.

To register for the conference, become a vendor or sponsor, and make hotel reservations visit [www.wastetoworth.org](http://www.wastetoworth.org) for more information.

### North Dakota Nutrient Reduction Strategy Update

The Agriculture and NPS Workgroup met on June 17 and the summary of the meeting can be found here: [https://www.ndhealth.gov/WQ/SW/Z6\\_WQ\\_Standards/Nutrient\\_Management/3\\_AG\\_NPSGroup/AgricultureWorkgroup\\_MeetingSummary\\_Final-072214.pdf](https://www.ndhealth.gov/WQ/SW/Z6_WQ_Standards/Nutrient_Management/3_AG_NPSGroup/AgricultureWorkgroup_MeetingSummary_Final-072214.pdf). All the workgroups have either met or have a meeting scheduled this fall except the Education and Outreach group, which will meet after plans and strategies are in place. Information about other workgroup meetings can be found here: [https://www.ndhealth.gov/WQ/SW/Z6\\_WQ\\_Standards/Nutrient\\_Management/Nutrient\\_Management.htm](https://www.ndhealth.gov/WQ/SW/Z6_WQ_Standards/Nutrient_Management/Nutrient_Management.htm). Feel free to contact [mary.berg@ndsu.edu](mailto:mary.berg@ndsu.edu) or [mell@nd.gov](mailto:mell@nd.gov) with specific questions.

## Easy as 1-2-3...

The Carrington REC has a weekly blog with updates on what’s happening now and information on coming events. Read online at [www.ag.ndsu.edu/CarringtonREC](http://www.ag.ndsu.edu/CarringtonREC) or subscribe to receive a weekly reminder and quick link.



Subscribing is as easy as 1-2-3:

1. Send an e-mail to [Listserv@listserv.nodak.edu](mailto:Listserv@listserv.nodak.edu)
2. Leave the subject line of the email blank
3. In the body (not the subject line) of the e-mail enter the following:  
**SUB NDSU-CARRINGTONREC-CENTERPOINTS yourfirstname yourlastname**

OR: Simply send a regular email to [Mary.Berg@ndsu.edu](mailto:Mary.Berg@ndsu.edu).

### Contact Us —

#### NDSU Carrington REC

663 Hwy 281 NE | PO Box 219 | Carrington, ND 58421

Phone 701-652-2951 | [Mary.Berg@ndsu.edu](mailto:Mary.Berg@ndsu.edu)

Visit us on the web at [www.ag.ndsu.edu/CarringtonREC](http://www.ag.ndsu.edu/CarringtonREC)



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# Beef Cattle Winter Management

Nov. 12-13, 2014

## Wednesday, Nov. 12

- **Ellendale**  
Fireside Restaurant  
10 a.m. to 3 p.m. Central time
- **Medina**  
American Legion  
4 to 9 p.m. Central time

## Thursday, Nov. 13

- **Wing**  
The Wing Theatre  
10 a.m. to 3 p.m. Central time
- **Carson**  
Fairgrounds  
3 to 8 p.m. Mountain time

### Please RSVP to the respective Extension office

- |           |  |
|-----------|--|
| Ellendale | Breana Kiser<br>(701) 349-3249, ext. 2 |
| Medina    | Penny Nester<br>(701) 475-2632         |
| Wing      | Tyler Kralicek<br>(701) 221-6865       |
| Carson    | Jackie Buckley<br>(701) 667-3340       |

## Agenda

- **Building Colostrum Quality During Winter Feeding**  
Gerald Stokka, NDSU Extension Veterinarian-Livestock Stewardship
- **Alternative Winter Feeding Strategies**  
Mary Berg, Area Extension Specialist/Livestock Environmental Management,  
Carrington Research Extension Center
- **Shelterbelts as Living Windbreaks**  
Craig Stange, Natural Resources Conservation Service
- **BCS in the Cow Herd**  
County Extension Agents
- **Feeding for Energy**  
Chanda Engel, Research Specialist,  
Carrington Research Extension Center
- **Water Management**  
Karl Hoppe, Area Extension  
Specialist/Livestock Systems,  
Carrington Research Extension Center
- **Vaccine Handling  
and Storage**  
Lisa Pederson, Beef Quality Specialist,  
Dickinson Research Extension Center
- **Hay Bale Management**  
Fara Brummer, Area Extension Specialist/Livestock Systems,  
Central Grasslands Research Extension Center

### Registration

\$15 per person on  
or before Nov. 1

(\$25 per person if received after Nov. 1)

BQA: \$15/operation  
certification or  
recertification fee

4 ARPAS CEUs  
available

Individuals with disabilities are invited to request reasonable accommodations to participate in NDSU-sponsored programs and events. To request accommodations, please contact Fara Brummer at (701) 424-3606 by Nov. 1, 2014, to make arrangements.

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