



# Livestock Environmental Management News

Improving Water Quality and Nutrient Management in North Dakota

September 2013

Volume 2, Issue 3



## CNMP Conference Nov 18-20, Fargo

[www.ag.ndsu.edu/lem/multi-state-cnmp-conference-1](http://www.ag.ndsu.edu/lem/multi-state-cnmp-conference-1)



Make plans now to attend the 2013 Comprehensive Nutrient Management Planning Conference in Fargo, ND, November 18-20. The North Dakota planning committee is excited to host this year and the agenda is packed with a variety of topics focused around nutrient management.

*Who should attend this conference?* Any professional in the nutrient management world such as educators, researchers, applicators, consultants, regulators, government agencies, and even producers. Environmental management is a growing concern in the agricultural industry. We hope this conference gives professionals the chance to network and discuss current topics.

Registration: \$75 online at [www.tinyurl.com/CRECstore](http://www.tinyurl.com/CRECstore)

Hotel Reservations: A block of rooms is being held at the Best Western Doublewood Inn of Fargo until Nov 4th. Ask for the CNMP rate. (701) 235-3333.

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### CNMP AGENDA

#### Monday, Nov 18

Tour NDSU Livestock Research Facilities

#### Tuesday, Nov 19

**Monoslope and Slotted Floor Barns** *Shane Kjellberg, K<sub>2</sub>S Engineering Inc.*

**Vegetative Treatment Systems** *Jason Gross, University of Nebraska-Lincoln*

**Hoop Barns** *Tim Bickett, Hoop Beef Systems, LLC*

**Grazing** *Doug Landblom, NDSU Animal Scientist*

**Discovery Farms** *DF Producers Keith & Kent Bartholomay and the US Geological Survey*

**Producer Panel** *Tom Bresnahan, Bruce Gibbens, Jeff Lyons*

**State Updates** *Jeff Porter, NRCS Environmental Engineer*

**Social/Poster Session**

#### Wednesday, Nov 20

**Compost Benefits to Soil** *Chris Augustin, NDSU Soil Health Specialist*

**Sale Barn Compost** *Larry Schnell, Stockmen's Livestock Exchange*

**CNMP's** *Jeff Porter, NRCS Environmental Engineer*

**Producer Feedback**

**NMP Technologies**

### In this issue:

MN Discovery Farms 2

Nutrient Management Day 3

North American Manure Expo 3

Manure Spreader Calibration 4



## Brady Espe, ND Department of Water Quality



Greetings from the CAFO crew. Fall is upon us, a very busy time in the agricultural world.

This past August, the CAFO team attended a tour of three livestock farms in the Minnesota Discovery Farms program, similar to North Dakota Discovery Farms. The tour focused on three farms near Mankato, Willmar, and Sauk Centre. Each area featured distinct soils and landscapes, and each farm looked at impacts of surface water and drain tile discharge on state waters.

The first farm on the tour is a finishing hog operation with four barns thirteen hundred acres of cropland on the Minnesota River watershed. This watershed has lots of erosion along the river banks, and topography is similar to the Red River Valley of North Dakota. Soils are heavy clays and pattern tiling is in place. Fall tillage incorporates liquid manure application. The test area is in a field where surface runoff was eroding a channel. The landowner, in conjunction with local NRCS, developed a dike to prevent future erosion by slowing the flow and discharging the water through a culvert into drainage. The surface flow collection point and a free-flowing drain tile sampling point show lower nutrient and sediment losses than expected.

The second farm, east of Willmar, is a family operation consisting of four thousand acres of cropland and sixty-three turkey barns. Again, topography is flat, but the soils are not as heavy as in Mankato. Drain tile consists of surface inlet areas within the field, but many of these systems are being updated with current tile practices. The turkey barns produce enough fertilizer for eleven thousand acres. The family spreads manure on a third of their acres and incorporate by plowing, a common practice in this area. Drain tile routes to a pump station which discharges into a nearby lake. Initial sampling results were high in nutrients and sediment, so better methods to reduce impacts are being implemented. This site is also running a small trial to investigate impacts of not using nutrients for crop production; results are showing a major reduction in yields.

The final farm, located near Sauk Centre, is a two hundred head dairy, in located Stearns County, the county with the most dairies in Minnesota. The dairy has the least cropland of the three farms, and a rolling topography with numerous lakes. The project site has drain tile installed only in the valley or swales of the field and drainage outlets into a shelter belt on the farm. Surface water is directed to a culvert that carries runoff underground. Samples from the tile and surface water show higher nutrients and sediments losses than expected.

Sampling issues were common to all three sites as the projects were established. The collected data has proven useful to the producers who are hoping to learn more as the projects continue.

## Upcoming Events

### September

- \* 26-28 ND Stockmen's Association Annual Convention and Trade Show, Bismarck
- \* 27 NDSU Extension Service Master Gardener training begins at various sites across ND or online

### October

- \* 3-4 SD Women in Ag Conference, Keystone
- \* 25 North Dakota/Minnesota Agri-Women Harvest of Knowledge Conference, Ramada Inn, Grand Forks

### November

- \* 18-20 Multi-State Comprehensive Nutrient Management Conference, Fargo

### December

- \* 3-4 ND Agricultural Association Northern Ag Expo, Fargodome, Fargo
- \* 4 Commercial Pesticide Recertification, Fargo



## Nutrient Management Day

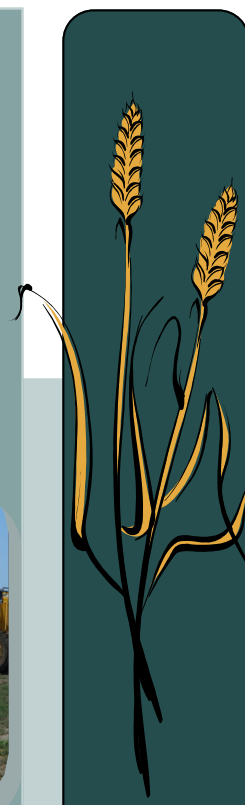
Mary Berg

The 2013 Nutrient Management Day (formerly Compost Day) was held at the Carrington Research Extension Center (CREC) in mid-August. Attendees from North and South Dakota explored various nutrient management topics.

The day started with discussions and live demonstrations on containment pond management, mortality management, and composting manure at the CREC livestock unit. The diverse group of livestock and crop producers made for great conversation.

The afternoon session was held indoors to escape the summer sunshine. Formal presentations about manure's benefits to soil and the role that micro-bacteria play in the composting process were featured.

If you were unable to attend Nutrient Management Day you can view the presentations here: <http://www.youtube.com/user/NDSUCREC>.



## North American Manure Expo 2013 ~ Canada



*"Getting it right, precision manure application" was the focus of this year's North American Manure Expo, held at the University of Guelph Arken Research Station in Guelph, Ontario, Canada.*

*The day before the conference we toured local dairy farms. The first stop featured a new anaerobic digester system on a 165-head dairy farm. Electricity generated by the digester is currently sold back to a local power company, but the dairy operator hopes to soon produce enough energy to power the dairy farm and still sell excess electricity to the power company.*

*The next two dairy stops featured different types and brands of lagoon pumps demonstrated side by side.*

*Our final stop of the day was Husky Farm Equipment, a family-owned manure handling equipment manufacturer and custom laser cutting service. We stood on their assembly line and watched their state-of-the-art laser cutters at work.*

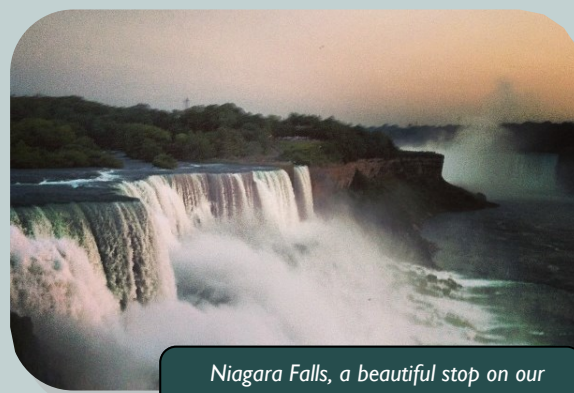
*The Expo itself was filled with over 50 speakers, vendors and demonstrations. Speakers from University of Guelph and from across the United*

*States and Canada discussed manure as a fertilizer, avoiding soil compaction, and incorporating manure.*

*One demonstration featured a lineup of over 20 different solid manure spreaders. Merits of each were discussed, then one load of manure was spread. Later, a group of liquid manure injectors were similarly compared. A composting demonstration featured state of the art compost turners and screeners.*

*The Expo had more to offer than what this article summarized, and was worth the miles to attend. More information is available at [www.manureexpo.org](http://www.manureexpo.org).*

*We look forward to the 2014 Expo in Springfield, Missouri on July 9. We hope to offer travel and lodging scholarships to custom haulers, applicators, composters, technicians and other manure professionals. If you're interested please contact us or watch for more information in our spring newsletter. -Emily Kline*



Niagara Falls, a beautiful stop on our way to the 2013 Manure Expo

**LIVESTOCK ENVIRONMENTAL MANAGEMENT**

**Improving Water Quality and Nutrient Management in North Dakota**

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**Manure  
Spreader  
Calibration**

Manure spreader calibration saves money for producers and applicators while protecting the environment from excess nutrients. Calibration also provides data to determine how much manure is actually being applied.

A well-maintained truck applies manure at consistent rates, assuming the same average speed and rpm each time.

What varies is the manure, not only from farm to farm, but from pen to pen. Animals, diets, bedding materials, and moisture content differ from one pile or pen to the next.

One way to calibrate is the sheet method: anchor a 21.8-square-foot sheet, record tractor speed and spreader settings, and then apply manure by driving over the sheet. Weigh the contents; the number of pounds of manure on the sheet number of tons per acre are being applied. For example, if the manure weighs 30 pounds, then the current application rate is 30 tons per acre.

If a scale is available, a second way to calibrate is to simply weigh a loaded spreader before spreading, and then an empty one after.

Determine how many acres that spreader covered and divide by the differences in spreader weights.

For more information check out [www.ag.ndsu.edu/lem](http://www.ag.ndsu.edu/lem) or our Manure Spreader Calibration Publication NM-1418.

