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Upcoming Events:

CAFO Operators Workshop

Dickinson Research Extension Center February 29, 2012

Teddy's Grill, Edgley March 1, 2012

Dakota Farmers, Rugby March 2, 2012

For more information, contact Chris at 701-652-2951

Summer Management Tips

Happy New Year! So far, this winter has been a vast improvement from the previous few winters. One of my neighbors was even working a field in January. I don't think it was really needed, but he can tell stories of it 30 years from now.

Now is a good time to review your nutrient management plan and plan for the coming growing season. Planning starts with a soil test and manure test. Soil tests and manure tests eliminate the guess work of determining nutrients.

Using these numbers will help ensure that crop yield goals are met. If you have questions or would like assistance on this please give me a call.

The Manure Nutrient Sampling Project is still going on and we are

looking for various manure to sample this spring. This program allows me or one of my counterparts to sample your manure, send it to the lab for analysis, give the results to you, and assist you with determining application rates. We even pickup the lab fees! Producers involved with this project will remain anonymous. After we collect a number of manure samples, we will create a publication that covers nutrients found in various North Dakota

manures. Producers can then use this publication to help them with their nutrient management planning.

You may distribute this in any manner you see fit. If you would like to receive future copies, email me chris.augustin@ndsu.edu

Thanks for reading,

Chris

Manure Type	lbs/Ton														EC (1:2) dS/m
	Total N	Inorganic N	P ₂ O ₅	K ₂ O	Na	Ca	Mg	Zn	Fe	Mn	Cu	S	pH		
Cattle	11.79	0.7	5.0	8.0	0.9	12.4	4.4	0.06	4.6	0.27	0.02	1.7	8.4	1.86	
Sheep	9.52	0.6	9.3	9.4	1.5	25.2	9.0	0.12	6.9	0.58	0.02		7.7	1.54	
Compost	13.49	0.9	5.8	15.9	2.0	18.4	5.6	0.10	9.7	0.47	0.03	2.6	8.5	4.32	
lbs/1000 Gallons															
Dairy	18.1	10.8	8.2	12.8	6.6	11.4	5.4	0.10	0.8	0.15	0.13	2.2	7.6	10.34	
Swine	24.46	16.3	12.6	9.0	7.2	9.8	38.4	1.36	1.0	0.19	0.29		7.5	6.17	

Current tabulated results from Manure Nutrient Sampling Project.

Protect Cattle From Winter Weather

Winter on the northern Great Plains is a harsh environment for beef cattle.

During the winter, cattle increase their production of body heat in response to severe cold by increasing their heart rate, respiration and blood flow. This physiological response may result in lower gains and reduced feed efficiency, even with increased feed intake.

“That’s why good winter cattle

management practices are so important,” says Vern Anderson, animal scientist at North Dakota State University’s Carrington Research Extension Center. “These practices contribute to healthy, productive cattle and reasonable feed costs.”

Here are ways to mitigate the effects of winter on beef cow and feedlot cattle:

- Cattle adapt to cold during

a period of time. Provide adequate, good-quantity feed so animals can gain weight prior to severe weather if at all possible. Fat reserves are insulation and will provide extra energy during severe cold when feed may not meet the animals’ energy requirements.

- Wean calves before severe cold to reduce the cows’

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Protect Cattle From Winter Weather



Cattle utilizing bedding.

“Provide feedlot cattle with bedding. Frequent bedding with modest amounts will keep feedlot cattle and replacement heifer dry and clean...”



An insulated and heated watering system for cattle.

From page 1.

requirements and allow cows to gain condition.

Wean calves a few weeks before severe weather arrives if possible. This gives the calves time to adapt to new rations and gain weight and condition prior to winter weather.

- Provide feedlot cattle with bedding. Frequent bedding with modest amounts will keep feedlot cattle and replacement heifer dry and clean, which significantly improves gains and feed efficiency. Bed cows prior to and during calving. Cereal grain straw is preferable, but corn stover is acceptable.

- Keep feed bunks reasonably clear of snow, especially for feedlot cattle. If cows are fed on the ground, feed on a new or clean area every day to disperse manure and reduce potential health issues.

- Offer better-quality forage in cow rations during severe cold to help compensate for increased energy needs. Cold temperatures increase appetites, which increases the rate of passage through the digestive system, causing a decrease in feed's digestibility. Provide supplemental feed, such as coproduct feeds, for energy and/or protein if feeding low-quality forages.

- Avoid feeding very high-moisture rations because these feeds can freeze in the feed bunk, and intake may be reduced. Frozen feed takes more energy to thaw and digest.

- Sort cows by nutrient requirements and feed them according to need to optimize feed use. Sorting can reduce overfeeding of some animals and allow thin cows to gain

weight.

- Feed cattle late in the day during severe cold. The activity involved in eating and ruminating will increase the animals' heat production during the night. Feeding late in the day during calving may increase the number of calves born during daylight hours.

- Make sure animals have adequate amounts of clean, fresh water at all times. Water does not have to be warm.

- Be prepared for winter storms. Have snow removal equipment ready and in good repair. A backup generator may be advisable in case of power outages to maintain water pressure and heat sources, and run equipment to process feeds. Identify extra workers who can help during emergency situations. Remove snow from pens, especially in areas adjacent to feed bunks and water fountains, as time permits.

- Feeding animals inside a closed building isn't advisable unless ventilation is adequate and knowledgeable management, labor and bedding are provided. Ammonia concentrations from poorly ventilated structures can cause major air quality problems. High humidity and crowding can reduce the insulating ability of an animal's hair coat significantly. Diseases transmit more readily in humid, crowded buildings.

- Sort cows close to calving into more accessible pens so you can observe the animals and address any problems more easily.

- Enclose cattle trucks when shipping animals in severely cold weather. Make sure hospital pens and receiving pens for newly ar-

rived calves are especially well-protected from the effects of winter weather.

For more information on helping cattle survive winter weather, visit two new NDSU publications: “Winter Management of Feedlot Cattle,” at <http://www.ag.ndsu.edu/pubs/ansci/beef/as1546.pdf>, and “Winter Management of the Beef Cow Herd,” at <http://www.ag.ndsu.edu/pubs/ansci/beef/as1564.pdf>.

Vern Anderson
Animal Scientist
Carrington Research Extension
Center

Ellen Crawford,
NDSU Agriculture
Communication

There are various questions I get asked throughout the year. Here are some common questions and answers from colleagues found on extension.org.

Can Manure Be Applied on Frozen Ground?

Regulations on manure application on frozen soil vary from state to state. In most states, there is a restriction on manure application to frozen soil based on field characteristics such as slope of the field, ground cover, location relative to water, etc. For example, if the slope is greater than a certain threshold, then manure cannot be applied to frozen ground. If fields targeted for manure application are below the slope restriction, recent research has shown the greatest potential for manure or nutrient runoff when manure applications are made to frozen soil in late winter or early spring several weeks preceding snowmelt or spring thaw. The risk of manure or nutrient runoff when applications are made in early winter soon after freeze-up is much lower. However, it is not recommended to apply manure on top of snow at any time during the winter.

Ron Wiederholt
North Dakota State University

At a regulatory inspection, what is likely to be most scrutinized?

For a permitted AFO/CAFO (some states maintain AFO permits) inspections will focus on compliance with the permit provisions. Items of primary

concern will likely be: manure storage structure integrity and level records (freeboard), records of any discharges, land application records that reflect the Nutrient Management Plan (NMP), nutrient export records and physical evidence related to the previously described records. A variety of other issues or permit provisions will likely be addressed by inspectors, but primary concern will be those that demonstrate water quality has been protected through management defined by the permit and NMP. For non-permitted operations, there are generally no required records or management plans to verify, so inspections will largely be based on physical evidence of discharges such as over-application, over-topped or leaking storages, animal's direct access to surface water in confinement, or observable environmental damage.

Thomas Bass
Montana State University

Will feeding distillers grains increase nitrogen excretion from feedlot cattle?

It depends on the level of inclusion of distillers grains in the ration. Essentially, producers need to monitor the incoming protein (i.e., nitrogen) concentration of the distillers grains and ensure that they adjust other protein sources, such as oilseed meals and urea, to ensure that they are not feeding more protein than is required by the animal.

This is possible at lower inclusion rates of distillers grains, but as inclusion rates exceed 20% of the dietary dry matter, there will be more protein (and therefore nitrogen) than the

animal needs, which will most likely be excreted from the animal, primarily in the urine.

Shawn Archibeque
Colorado State University

How will feeding wet distillers grains with solubles change phosphorus inputs into my feedlot operation?

Wet distillers grains with solubles (WDGS) can vary substantially in their nutrient composition. However, average concentrations of phosphorus in WDGS is 0.83% of dry matter, while corn grain has an average phosphorus concentration of 0.31%. Therefore, it depends on how much corn is displaced by the WDGS in the ration. For example, if a ration is formulated to contain 10% WDGS in place of corn, then there would be 1.04 lb more phosphorus per ton of feed. University of Nebraska researchers have demonstrated that typical corn-based finishing rations with no WDGS meet the phosphorus requirements of the animals. So the additional phosphorus from WDGS will likely be excreted in the manure. This is important to note when developing a nutrient management plan as the increase in phosphorus could mean that the manure will need to be spread over a larger number of acres. For more information, see the Iowa State University publication Use of Distillers Grains in Feedlot Diets: Impact on Phosphorus Excretion.

Shawn Archibeque
Colorado State University



ND Department of Health completing a CAFO inspection.

“the additional phosphorus from WDGS will likely be excreted in the manure...”



A sample jar of distillers grain.

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The last few years have been interesting to say the least for producers in North Dakota. Snow filled winters and wet springs have resulted in full runoff ponds. Producers have been using various irrigation systems to utilize the runoff water and nutrients by land applying. Land applying pond effluent is more than just spraying water. Soil water infiltration rates and nutrient requirements need to be considered. The three main types of irrigation systems producers are looking into are:

- Center Pivots
- Traveling Guns
- K-Line Systems

Center pivot systems have become a permanent solution for producers across the state. Producers have utilized the runoff water on fields ranging from 10 to 130 acres in size. The water is transferred from the pond to the center pivot by means of an engine and pump setup. In order to keep most of the solids out of the system, a self cleaning screen is installed on the end of the floating intake located in the pond.

Traveling gun systems are being used as temporary fixes for producers across the state. Some county Soil Conservation Districts in North Dakota have purchased traveling gun systems to rent out to producers. The system is designed to get more water out in a shorter period of time. Water is applied to the field by means of a large end gun. The end gun is mounted on a cart that is attached to a hose and reel setup. As the engine and pump at the pond runs, the reel pulls the end gun across the field at a constant rate. The travel speed of the end gun can be adjusted for various application rates.

The K-Line system is a new option for producers that could serve as a permanent solution. Originating in New Zealand, producers in Nebraska have had

success using the system. The operation is a low pressure system designed to apply the water at a slow, efficient rate that minimizes runoff and increases infiltration. The design consists of oversized sprinklers, with flow rates ranging from 2.2 to 5.0 gallons per minute, spaced approximately 50 feet apart and installed into custom engineered polyethylene tubing. The sprinklers are protected by heavy duty, impact and abrasion resistant pods. The engine and pump setup is smaller in size. The pump is connected to a riser that serves as the pivot point in the field where the irrigation is desired. The system can be moved by simply hooking onto the end of the system with an A.T.V. and pulling it to the next setting.

If you have any questions on the systems described above, please contact us at www.ndhealth.gov/WQ or give the North Dakota Department of Health, Division of Water Quality a call at (701)328-5210.

Jeremy Lang
North Dakota Department of Health



A K-Line irrigation pod applying containment pond effluent on hay land.

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