

March 27, 2009

To: Claire Hruby, Iowa Department of Natural Resources

From: Wendy Wintersteen, Dean, College of Agriculture and Life Sciences, Iowa State University

Subject: **Comments on Proposed Rule for Surface Application of Manure on Frozen or Snow-covered Ground**

In reviewing the proposed rule, it is worth noting that Iowa State University Extension does not include winter application of manure among Best Management Practices because the potential economic loss due to increased risk of nutrient loss and risk of impaired water quality. If winter application becomes unavoidable because of full or limited storage facilities, an early snowstorm or freeze, or for other reasons, ISU Extension and Iowa Department of Natural Resources already have a set of information or guidelines to minimize nutrient loss and environmental contamination.

The proposed rule focuses attention primarily on animal feeding operations that are required to have nutrient or manure management plans. It exempts operations with fewer animals that may, of necessity, be more likely to use and depend on winter manure application management. The proposed rule may heighten a perception that state regulatory standards are more about size of operations than improving water quality. Water quality should be size-neutral. The benefits of manure applied at agronomic rates are the same, no matter the size of operation.

We agree with the attention paid by the proposed rule to soil slope as related to manure application to frozen or snow-covered ground: the greater the slope, the more opportunity for runoff. However, the slope limits in the proposed rule allow for application of solid manure on slopes that are too steep (up to 14 percent) and are too restrictive for liquid manure (no application allowed even with slope of 0 to 2 percent). An excerpt from Iowa State University Extension's *Using Manure Nutrients for Crop Production* (PMR 1003, September 2008; a PDF of the publication is attached with this message) states:

"...Broadcasting manure onto frozen, snow-covered, water-saturated soils increases the potential for nutrient losses with rainfall or snowmelt runoff to surface water systems. If manure must be applied in these conditions, it should be applied on relatively flat land, slopes less than 5 percent, and well away from streams and waterways (see Iowa Department of Natural Resources rules on setback distances)."

At the steep slopes allowed in the proposed rule, there would be significant manure or nutrient loss with a high intensity rainfall. The proposed rule does not directly address established conservation practices that may be in place, such as terracing. It does so only indirectly through the stated P-Index requirements.

The proposed rule is quite complex and will be difficult to implement. For example, the proposed rule's specifics on snow and rainfall amounts and depths of frozen soil do not address the field variability found under winter conditions. With crop residues, it may be extremely difficult to reasonably determine when a field or field area has 1 inch of snow cover. Typically, an inch of snow contains little rainfall-equivalent moisture and poses small risk for runoff. Even a snow depth of 2 or 3 inches would result in little rainfall-equivalent moisture. The proposed rule prohibits application

“when rainfall exceeding 0.25 inches within 48 hours after the end of application period is more than a 50 percent probability as predicted by National Weather Service.” The amount, 0.25 inches, is a very light rain and would translate into a very low runoff risk.

It’s difficult to discern how a basis of scientific data and cost-benefit analysis for improved water quality informs the proposed rule. The proposed rule — with the proposed restrictions and a two-month period in late winter and early spring when no manure applications are allowed — may unintentionally bring about more widespread problems in the spring — when the probability of high intensity rainfall is highest. Delaying manure application until after April 15 also may increase the likelihood of soil compaction problems in thawed ground, compounding the risk of runoff in the spring.

I will repeat a comment made last year in information submitted on this issue to the Environmental Protection Commission: The proposed rule focuses attention on a single management practice amid highly complex systems of nutrient cycling, landscapes, climate and hydrology. With such complex interconnections, it can be difficult to separate the overriding impacts of short-term land management decisions from factors such as hydrology and uncontrollable events due to climate.

As I also stated last year, issues that would merit further analysis or new research include:

- What are the actual impacts of winter-applied manure on water quality?
- How extensive is the practice of winter manure application and what is the relative impact in relation to other processes that put water quality at risk?
- How effective are soil conservation practices or the proposed winter-time management rules or practices at reducing risks to water quality?
- What are the impacts on Iowa crop and livestock systems if flexibility to apply manure under late fall or winter conditions is restricted?

Thank you for your consideration.

Sincerely,



Wendy Wintersteen
Dean, College of Agriculture and Life Sciences

Attachments:

- *Using Manure Nutrients for Crop Production*, ISU Extension PM 1003, September 2008