

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

May 9, 2008

To: David Petty, Chair, Environmental Protection Commission

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

Subject: **EPC general discussion May 13 on regulation of application of manure on frozen ground**

At the May 13, 2008, meeting of the Environmental Protection Commission, the General Discussion agenda item includes "regulation of application or placement of manure on frozen ground." I am providing the attached articles written recently by Iowa State University faculty in hopes that they may prove to be informative scientific background as the Commission discuss this issue. Attached are five documents (PDFs) on the following topics:

- A layperson's general summary on ammonia and ammonium measurements in Iowa waters
- A recent assessment of ammonia in Iowa streams
- Two recent articles on ammonia in surface waters posted on ISU Extension's Integrated Crop Management News website
- Excerpts of guidelines from extension publications on winter application of manure and nutrients

Much of the recent attention focuses on a single management practice, the spreading of manure on frozen ground. In the attached articles, one message that comes through is that nitrogen cycling in Iowa's landscapes and water systems is complex, as is the sourcing of nitrogen and effects on aquatic life. As with all such complex relationships, it can be difficult to separate the overriding impacts of climate and hydrology with short-term land management.

In my recent discussions with faculty, the following issues were identified as those meriting further analysis or possibly new research:

- What are the actual point and nonpoint sources of ammonia and ammonium found in Iowa waters? How can they be accurately documented to determine the scope of problems and provide correction solutions?
- What are the impacts of winter-applied manure on water quality? How effective are winter-time management practices that aim to reduce the risks to water quality? If winter conditions demand a management practice, what additional guidelines would reduce risks to water quality?
- What are the impacts on Iowa crop and livestock systems if flexibility to apply manure under winter conditions is restricted?

Thank you for your consideration of this information from our Iowa State University scientists and Extension specialists as you discuss this issue. Please let me know if you have questions or comments.

Sincerely,



Wendy Wintersteen

Dean, College of Agriculture and Life Sciences

Cc: Wayne Gieselmann, Iowa Department of Natural Resources

Rich Leopold, Iowa Department of Natural Resources