

## Manure Management I, Nitrogen

**Manure Application Planning** is a complex process of determining how to most economically distribute manure from a livestock operation on cropland while protecting the environment. This workshop is the first in a four-part comprehensive educational program on manure management and is the result of a collaborative effort by the University of Minnesota, the University of Minnesota Extension Service, the Minnesota Pollution Control Agency, the Minnesota Natural Resource Conservation Service, the Department of Agriculture, and the Minnesota County Feedlot Officers Association.



This first workshop in the four-part series will provide critical information on nitrogen considerations in manure management planning

Upon completion of Manure Management I the participants will

- Understand the basics of manure management terminology;
- Have a thorough understanding of the nitrogen cycle and the impacts on manure nitrogen use and crediting;
- Be able to assess the crop nitrogen needs and past nitrogen credits on a given field;
- Determine a manure application rate for a given field based on nitrogen;
- Have an understanding of the latest research results concerning nitrogen crop nutrient requirements and manure nitrogen availability;
- U of MN nitrogen recommendations;
- Have a practical understanding of the economics of manure application and the risks and benefits of using manure nitrogen.

### Who Should Attend?

This workshop series is designed specifically for consultants and technical staff involved in the writing or review of manure management plans. Farmers intending to write their own manure plans are also encouraged to attend any or all of this series. The three workshops in this series build on each other. This is the first of the workshop series.

### Course Instructors

David Wall, Senior Hydrologist, Minnesota Pollution Control Agency  
Kevin Blanchet, Manure management Specialist, University of Minnesota Extension Service  
Bob Koehler, Extension Specialist, University of Minnesota Extension Service  
John Moncrief, PhD, Department of Soil Water and Climate, University of Minnesota

To register: <http://www.manure.umn.edu/workshops>  
or call 1-800-646-2282

For more information on the course content contact David Schmidt at 612-625-4262 or [schmi071@umn.edu](mailto:schmi071@umn.edu)

MANURE MANAGEMENT AND AIR QUALITY (MMAQ)  
EDUCATION PROGRAM  
WORKSHOP SERIES

## Detailed Course Agenda Manure Management I, Nitrogen

The course will be hands-on with participants asked to work examples throughout the day in order to reinforce the ideas and information being taught.

### **Introduction, Acknowledgements, and Agenda**

#### **Nitrogen in Waters – Environmental Impacts**

How does it get there  
Environmental effects  
Introduction to N-Cycle and how it relates to water quality issues  
Primary areas of concern  
Regulations that affect nitrogen management

#### **Manure Sources of Nitrogen**

Nitrogen generation from livestock (in raw waste)  
Calculating nutrients available for crop production  
Environmental effects on nitrogen concentrations in manure  
Manure testing: Importance, sampling methods (solid and liquid), analysis options and reading manure test results

#### **Manure Nitrogen: Theory and Fact Regarding Availability and Transformation**

Understanding N-cycle and manure management  
Effects of manure application timing, soil moisture, etc., on N mineralization, volatilization, leaching, availability.  
Current research validating theory of availability and loss  
New U of MN recommendations

#### **Crop Nitrogen Recommendations, Applying the Theory**

What are the primary sources of nitrogen for crops? (Soil organic matter, past legumes, past manure, crop residue, etc)  
What affects how much nitrogen a crop needs? (Crop type, expected yield, organic matter, previous crop, etc.)  
Using new U of MN recommendations in manure management planning

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