

Nutrient Economics: Storage, handling, transport and loss prevention
John Lory and Ray Massey, University of Missouri

Rising fuel, fertilizer and commodity costs have farmers renewing interest in getting the most out of manure. This presentation will discuss the impact of changing animal diets and fertilizer prices on manure value. We will then discuss the economics of increasing manure value in different manure management systems. Finally, we will discuss ways the fertilizer value of feeds should be integrated into feed management decisions.

Manure management impacts on water quality at the field and watershed scale.
Tom Moorman USDA-ARS

Research at the National Soil Tilth Laboratory has addressed the impact of swine production in the South Fork of the Iowa River and two contributing sub-basins which have different levels of swine production. We have monitored nitrate, phosphorous and *E. coli* in fields, tiles and streams. Potential sources of contaminants change over time and in response to rainfall events.

ARS Research update
John Gilley USDA-ARS

During my presentation I will describe studies that were conducted to identify "Water Quality Characteristics of Runoff from Land Application Areas". The goal of my research is to identify cropping and management practices that incorporate the use of manure as a valuable nutrient source and soil amendment without causing adverse environmental impacts.

VTS research update: what are we learning? Field experience update and Design principles to improve performance
Robert T. Burns, ISU

Iowa State University has monitored the performance of six Vegetated Treatment Systems (VTS) for controlling feed-lot run-off on CAFOs for the past 2.5 years. While this research is still on-going, this session will provide an update on the project results to-date. Additionally design modifications that have been made on the Iowa VTS sites to improve performance will be discussed.

Effects of Cattle Manure Handling and Management Strategies on Fate and Transport of Hormones in the Feedlot and the Field
Daniel Snow, University of Nebraska-Lincoln

The proposed research focuses on the occurrence, fate and transport of exogenous and endogenous hormones during management of cattle manure produced at four concentrated animal feeding operations through its application to crop land and conservation buffers. The objectives are to (1) quantify hormones in various stages of the manure pathway in cattle feedlots, (2) determine the effects of different handling practices of cattle feedlot wastes on the stability and availability of hormones, (3) determine the effects of different land application strategies on the fate and transport of hormones used in beef cattle production, and (4) determine if grasses from conservation buffers assimilate hormones. The central hypothesis is that hormones in cattle manure will persist and accumulate in soil, but the fate and transport of hormones will be affected by the waste management and handling strategies utilized. Five research tasks are: (1) to sample and survey four existing feedlots in Nebraska to determine the occurrence of hormones in the manure handling pathway over a climatic gradient; (2) to quantify fate of hormones as influenced by manure handling practices such as stockpiling, composting, and run-off retention basins; (3) to determine the effect of manure application strategies on hormone losses in run-off and erosion through the use of rainfall simulators; (4) to quantify hormones in select grass species in buffer strips fertilized by manure; and (5) to determine hormone fate and transport within irrigated soil systems.

Research update: assessment tools for seepage measurements
Kristen Baum KSU

An overnight water balance method for measuring whole-pond seepage rates from animal waste lagoons will be discussed. When compared to the 5-day water balance method, this method uses higher resolution depth recorders and eliminates the need for a floating raft.

Small Open Lot Experiences.
Christopher Henry, University of Nebraska-Lincoln and Mike Christian, KSU

Small Animal Feeding Operations can be challenging situations for both producers as well as compliance agencies. Such operations have historically been exempt from regulation. Kansas State University and the University of Nebraska-Lincoln both have programs aimed at minimizing the environmental risks from small AFO's. In this presentation, the challenges and problems experienced and the solutions developed to overcome the challenges and problems will be discussed.

Nutrient Planning
John Lawrence/Joe Lally, Iowa State University

We will share information on current nutrient plan implementation in the region, who's writing the plans, is there a certification requirement for the plan writer's, is plan writers training offered in the region? With the new nutrient values considered, is manure gaining interest as a marketable commodity, and is there standards for this activity? Restrictions for road travel ?

Nutrient Management Planning
Joe lally, Iowa State University

Heartland's Regional Model NMP....how does it measure up ? We'll describe the "Narrative" approach to planning using the Strategic and Annual concepts. How well does this meet the producers operational management and the publics' need to know?

Nutrient Management "Report Card"
Performance Measures "Working Group"
Joel DeRouchey, Kansas State University

Can you look at a NMP and determine if it has a chance of being successful as a nutrient management Plan? If so, what could be the questions to ask ?

ARS Research Update
John Gilley/Tom Moorman USDA-ARS, Nebraska/Iowa

The nutrient content of runoff from land application areas is influenced by manure application rate, residual soil nutrient content, length of time since the previous manure application, soil characteristics and runoff conditions. If the effects of these variables on nutrient concentration of runoff can be quantified, management practices can be implemented to allow the use of manure as a nutrient source and soil amendment without causing adverse environmental impacts.

EPA CAFO Rule

Allison Wiedeman, EPA R-7 assignment

Will discuss the status of the CAFO rule and when to expect its promulgation. Will discuss EPA Region 7's roll-out plans for outreach on the rule. Will also discuss plans ongoing at the Region to develop an Agricultural Outreach Strategy that will be aimed at strategically outreaching to various stakeholders over the ensuing years and will seek feedback during the Q&A session.

Nebraska's experiences assessing risk below storage structures.

David Miesbach, NDEQ

The NDEQ Groundwater Unit has been assessing groundwater data from hundreds of Large CAFOs in the state since 1997. Currently a study is being conducted at several of those facilities to determine what risk an impact to groundwater might have. This presentation will outline the work completed so far and address questions about this potential risk.

Robert Burns, Iowa State University

Compacted clay liners are designed to meet design seepage rates. The construction techniques and quality assurance implemented during liner installation are critical in determining the actual seepage rate achieved by a compacted clay liner. This session will address critical construction factors and required quality assurance implementation to ensure that the as-designed compacted clay liner seepage rate is met by the as-constructed liner. This session will assist you in identifying proper clay liner construction techniques in the field.

Bryan Woodbury, Ph.D.
USDA-ARS-USMARC

This presentation will focus on the development of precision management techniques to mitigate contamination to air, soil and water from beef feedlots. The presentation will discuss research on 1) land application of feedlot manure, 2) feedlot runoff to vegetative treatment areas and 3) techniques being developed to manage feedlot surfaces to limit contaminant loading to the soil, water and air environment.