

# 2006 Agriculture and the Environment Conference

Research and educational program results that address Iowa's water resources

**March 7, 2006**  
**Scheman Building**  
**Iowa State University**  
**Ames, Iowa**

## Conference Program

8:00 AM Registration desk opens, poster setup, and refreshments

**Morning Plenary Session** *Benton Auditorium*  
*Moderator: Gerald Miller, College of Agriculture, Iowa State University*

8:55 Welcome and opening remarks

9:05 **Potential and limitations of tillage and nitrogen management to reduce nitrogen leaching losses from row-cropped land**

• *Gyles Randall – University of Minnesota*

Nitrate losses from row-cropped agricultural land can be substantial and can have a profound effect on ground and surface water quality. This presentation will outline nitrogen and tillage management practices available to farmers that can influence the degree of nitrate loss. The potential for these farmer-controlled practices to reduce nitrate losses as well as the practical limitations for success will be discussed.

9:35 **Potential and limitations of tillage, manure and fertilizer management to reduce phosphorus losses in surface runoff from row-cropped land**

• *Larry Bundy – University of Wisconsin*

Management practices such as tillage and fertilizer and manure applications can have important effects on phosphorus losses in runoff from cropland. This presentation will discuss the relationships between management practices and phosphorus losses and describe available tools for assessing the risk of these phosphorus losses in crop production.

10:05 **Critical and inter-connected roles of altered hydrology and land use/management in water quality, crop production and soil sustainability**

• *James Baker – Iowa State University*

Current nutrient impairments of waters in the Corn Belt are not mainly due to mismanagement of fertilizers and manures, they are due in large part to landscape and land-use changes which involve subsurface drainage, and annual crops which require nutrient inputs. In this presentation, the roles of hydrology and nutrient properties in determining nutrient losses will be discussed in conjunction with management practices that impact not only water quality, but also potentially crop yields and soil quality/organic matter.

10:35 Break and poster viewing

## Concurrent Sessions

11:00 **Benton Auditorium**

**Demonstration of In-Season Nitrogen Management Strategies for Corn Production** - *John Sawyer, John Lundvall, Jennifer Hawkins – Iowa State University.*

This presentation will share results of ongoing field demonstrations hosted by Iowa producers. The demonstrations compare traditional single preplant or early sidedress N application rates to pre/in-season split application, with decisions for in-season N application based on results of plant N stress sensing through use of hand held chlorophyll meters. Corn yield response is used to compare effectiveness of each N management strategy.

This conference is sponsored by Iowa State University College of Agriculture, Iowa State University Extension, Iowa Department of Agriculture and Land Stewardship-Division of Soil Conservation, and the USDA Natural Resources Conservation Service.

## **167-171 Scheman**

### **CSP: The Iowa Experience**

*Jim Gillespie and Tom O'Connor – USDA/NRCS.*

A panel discussion on the current status and experiences of participants in the Conservation Security Program from the perspective of state level coordinator Tom O'Connor, Area Program Specialist Kristy York, and an enrolled ag producer Kurt Johnson.

## **175-179 Scheman**

### **Demonstration of performance-based management strategies to improve water quality - Chad Ingels – Iowa State University**

The development and demonstration of performance-based incentives to encourage watershed project participation in three northeast Iowa watersheds will be discussed. Three primary performance measures will be explained and early watershed results will be presented.

11:35

## **Benton Auditorium**

### **Agronomic and Environmentally Sound Utilization of Nutrients in Poultry Manure - Antonio Mallarino – Iowa State University**

## **167-171 Scheman**

**CSP: The Iowa Experience** (continuation of 11:00 AM presentation)

## **175-179 Scheman**

### **The status of CRP and the options available - Brian Peterson – State Grassland Specialist, USDA/NRCS, and Mark Licht – Iowa State University.**

Over the next couple of years roughly a million acres of CRP contracts will expire. It will be important to make informed decisions about the future use of that land. This session will explore re-enrollment options as well as the various options for conversion to production agriculture and the importance of conservation compliance in doing so.

12:05 PM Lunch - Second floor lobby, Scheman Building

*Remarks from Jack Riessen, Iowa Water Center board member.*

## **Afternoon Plenary Session** *Benton Auditorium*

*Moderator: Dean Lemke, Division of Soil Conservation, Iowa Department of Agriculture and Land Stewardship*

1:00

### **Conservation systems role in sustaining productivity and soil quality**

*Mahdi Al-Kaisi, Mark Licht – Iowa State University*

Conservation systems play a significant role in sustaining soil productivity. Additional benefits of conservation systems can be realized in overall soil quality improvement. The presentation will cover the value of conservation systems in sustaining soil productivity and improving soil quality.

1:30

### **Conservation systems: Effects of manure application on drainage water quality**

*Matt Helmers, Peter Lawlor – Iowa State University*

With the increased use of manure as a nutrient resource for crop production there are increased questions about drainage water quality in areas where manure is applied. This session will present information from various studies on the impacts of manure application on drainage water quality.

2:00

### **Energy price change impacts on selection of conservation systems**

*Jim Jensen – Iowa State University*

U.S Agriculture has become very fossil fuel energy intensive. The impacts related to higher energy prices are changing the cost structure of agriculture and could eventually lead to short and long term changes in the way farmers operate."

2:30

### **Nuturing changes in conservation systems over the next 5 years**

*Jackie Comito, Steve Padgitt – Iowa State University*

What changes are ahead in who is managing farmland and deciding conservation practices? Learn about the transitions likely to occur and how tillage practices and plans and conservation attitudes differ between those likely to continue and those likely to exit farming in the next few years. Discussion comes from a 2006 survey of Iowa farmers.

3:00

Break and poster viewing

## Concurrent Sessions

### 3:30 **Benton Auditorium**

#### **Subsurface Drainage and Nitrate-Nitrogen Leaching from Fifteen Years in North-Central Iowa - Matt Helmers – Iowa State University**

A drainage water quality study near Gilmore City, IA has been ongoing since 1990. Three different phases have been conducted investigating the impacts of nitrogen rate and timing on drainage water quality. This session will summarize the results relative to volume of subsurface drainage and nitrate leaching from this study.

### **175-179 Scheman**

#### **Grazing Management Effects on Sediment and Phosphorus Loading of Pasture Streams by Stream Bank Erosion and Manure Deposition - Dan Morrical, Jim Russell – Iowa State University**

Because excessive forage removal, hoof traffic, and fecal deposition along stream banks may be associated with uncontrolled grazing of riparian areas, the effects of management methods that alter the temporal and spatial distribution and activity of grazing cattle on stream bank erosion and manure deposition need to be evaluated. The data to be discussed in this presentation are the preliminary results of a study conducted at the Rhodes Research Farm evaluating the effects of three systems (continuous grazing with full access to a stream, continuous grazing with access restricted to stabilized crossings, and rotational grazing with stream access limited to managed grazing of the riparian paddock) on stream bank erosion; forage ground cover, height, and mass; manure distribution, and cattle distribution.

### 4:00 **Benton Auditorium**

#### **Panel Discussion: Producer perspectives for adopting conservation systems - Moderator: Jackie Comito – Iowa State University. Panelists: Rick Juchems, Jerry Crew, and Robert Pridie.**

The Iowa Learning Farm project's goal is to improve Iowa's water quality through increased use of conservation systems by exchanging ideas, knowledge, data, and experiences among producers, educators, scientists and other stakeholders. This panel brings together four ILF cooperators to discuss the conservation systems on their operations, specifically the management and conservation techniques being demonstrated as a part of this multi-year project. They will share their insights into the social variables influencing conservation decisions and explore ways to further foster a conservation ethic among producers in Iowa.

### **175-179 Scheman**

#### **Conservation adaptation history and water quality in two CEAP watersheds, Jasper County, Iowa - Keith Schilling – Iowa Geological Survey, Iowa Department of Natural Resources**

The 10-year Walnut Creek Watershed Monitoring Project was completed and project results are presented. The project evaluated water quality changes resulting from large-scale land use change, including conversion of row crop land to native prairie at the Neal Smith National Wildlife Refuge in Walnut Creek watershed as well as conversion of former CRP land back to row crop in a paired, control watershed.

### 4:30 **Benton Auditorium**

#### **Panel Discussion: Producer perspectives for adopting conservation systems - (continuation of 4:00 PM session)**

### **175-179 Scheman**

#### **Using plants for field-scale conservation - Jeremy Singer – USDA-ARS National Soil Tilth Laboratory**

A discussion of ecosystem services provided by cover crops and living mulches with examples from Iowa research.

### 5:00 Conference adjourns

## Poster funding statements

1. Iowa Department of Agriculture and Land Stewardship - Division of Soil Conservation
2. Integrated Farm and Livestock Management Program (IFLM)
3. Natural Resources Conservation Service (NRCS) - Iowa
4. Iowa Department of Natural Resources
5. Cooperative State Research, Education and Extension Services (CSREES)
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9. Altria Group
10. U.S. Environmental Protection Agency
11. Iowa Department of Natural Resources - Section 319 program
12. Iowa Soybean Association
13. McKnight Foundation
14. Environmental Systems Research Institute
15. The Rathbun Lake Special Project is a partnership of the following individuals, agencies, and organizations: Participating landowners in the Rathbun Lake Watershed; Iowa Department of Agriculture and Land Stewardship's Division of Soil Conservation; Iowa Department of Natural Resources; Iowa State University; US Army Corps of Engineers; US Environmental Protection Agency; USDA Farm Service Agency; USDA Natural Resources Conservation Agency; Appanoose, Clarke, Decatur, Lucas, Monroe, and Wayne Soil and Water Conservation Districts and Counties; Iowa Farm Bureau at the state and county levels; and Rathbun Regional Water Association.

## Posters and displays

1. **Division of Soil Conservation Overview**  
*Elaine Ilvess, Division of Soil Conservation, Iowa Department of Agriculture and Land Stewardship*<sup>1</sup>
2. **Iowa Learning Farm: Educational Concept for Promoting Conservation Systems**  
*Mark Licht - Department of Agronomy, Iowa State University*<sup>1,2,3,4</sup>
3. **Addressing Iowa's Water Quality Concerns**  
*Shawn Richmond, Division of Soil Conservation, Iowa Department of Agriculture and Land Stewardship*<sup>1</sup>
4. **Raccoon River Watershed Monitoring: E. Coli and Emerging Contaminants**  
*Barb Duff and Dennis Hill - Des Moines Water Works*
5. **Rathbun Lake Special Project: A Model Approach for Water Quality Protection**  
*Aaron Pickens - Rathbun Land and Water Alliance*<sup>15</sup>
6. **Performance Measures to Evaluate Water Quality Accomplishments**  
*John Rodecap, Gerald Miller, and Susan Brown - Iowa State University*<sup>8</sup>
7. **Capacity for Water Resources Research, Education and Extension**  
*Richard Cruse, Gerald Miller and Susan Brown - Department of Agronomy, Iowa State University*<sup>7</sup>
8. **Building Capacity for Water Decision Making in the Heartland**  
*Gerald Miller - Iowa State University*<sup>7</sup>
9. **Geographical Information Systems Analysis of Fish Kill and Manure Spill Data**  
*Anne Wiegand - Izaak Walton League of America – Agricultural Program – Fish Kill Advisory Network*<sup>13, 14</sup>
10. **Partnerships and Public Connections in Solving Water Quality Issues in Camp Creek**  
*Kristen Garrett Corey and Tim Terrill - Department of Sociology, Iowa State University*<sup>6</sup>
11. **Relationship between Soil and Runoff Phosphorus for Three Typical Iowa Soils**  
*Brett L. Allen, Antonio P. Mallarino, and Mazhar U. Haq - Department of Agronomy, Iowa State University*<sup>3, 12</sup>
12. **Dye Tracing Subsurface Water Paths in the Yellow River Watershed**  
*Paul Berland - Northeast Iowa Resource Conservation and Development, Inc.*<sup>9, 10, 11</sup>
13. **Upper Iowa River Watershed Project: Targeting Critical Areas for Water Quality Improvements using GIS**  
*Nels Rasmussen - Northeast Iowa Resource Conservation and Development, Inc.*<sup>10, 11</sup>
14. **Partnering for Clean Water**  
*Harry Ahrenholtz and Chris Jones - Agriculture's Clean Water Alliance/Des Moines Water Works*
15. **Iowa Watershed Improvement Review Board**  
*Jerry Neppel, Division of Soil Conservation, Iowa Department of Agriculture and Land Stewardship*<sup>1</sup>
16. **Making Strides in Watersheds**  
*Vince Sitzmann, Division of Soil Conservation, Iowa Department of Agriculture and Land Stewardship*<sup>1</sup>
17. **Corn yield response to reduced rates of spring-applied nitrogen**  
*Gaylia C. G. Ostermeier, Bradley W. Van De Woestyne, Alfred M. Blackmer, and Antonio P. Mallarino - Iowa State University*<sup>12</sup>

### .... and justice for all

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