

# 2013 Drainage Workshop

*Designing & Installing Subsurface  
Agricultural Drainage Systems*

**February 26-28, 2013**

University of Missouri's Bradford Research & Extension Center  
4968 Rangeline Road ♦ Columbia, MO

*From this ...*



*To This!*



# Workshop Agenda

## TUESDAY, FEBRUARY 26

### Noon Registration

### 1:00pm Afternoon Session

- ♦ Introduction to Drainage Water Management
- ♦ MU Drainage and Subirrigation (MUDS) Research Update
- ♦ Water Movement in Soils
  - Processes and Terminology
  - Important Soil Properties
  - Hydraulic Conductivity
  - Soil Water Concepts
- ♦ Engineering Standards and Specs
- ♦ Planning Considerations
  - Needs: Surface or Subsurface Drainage, Water Table Management, or Nutrient Management
  - System Layout and Outlet Locations
  - Utilities Determination - One-Call
- ♦ Subsurface Drain Design, Pipe Capacity
- ♦ Class Problem - Using Design Tables and Standards

### 5:00pm Adjourn for the day

## WEDNESDAY, FEBRUARY 27

### 8:00am Morning Session

- ♦ Planning Considerations
  - The Importance of an On-Site Evaluation of Soil Properties
  - Wetland Determination
- ♦ Hands-On Class Problems - Using Design Tables and Standards; Making a Topographic Map from Survey Points

### Noon Lunch Provided

### 1:00pm Afternoon Session

- ♦ Hands-On Class Problems - System Design
- ♦ Service Provider (TSP) Overview
- ♦ Pipe Installation Considerations

### 5:00pm Adjourn for the day

## THURSDAY, FEBRUARY 28

### 8:00am Morning Session

- ♦ Team Design Problem - Design a System, Using Field Topographic Map; Soils, and Other Information
- ♦ Presentation and Summary of Team Drainage Designs
- ♦ Nitrogen Treatment for Drainage Systems

### Noon Lunch Provided

### 1:00pm Afternoon Session

- ♦ Contractor/Industry/Farmer/University Panel Discussion
- ♦ Final Questions, Workshop Summary, Evaluation

### 3:00pm Adjourn

# Workshop Speakers

### Steve Baker

Owner; Springfield Plastics  
Auburn, IL

### Marty Comstock, P.E.

NRCS Agricultural Engineer  
Columbia, Missouri

### Deb Dickens

Executive Director  
Missouri Land Improvement Contractors Association  
Jefferson City, Missouri

### Matthew Helmers, Ph.D.

Associate Professor and Extension Agricultural Engineer  
Iowa State University; Ames, Iowa

### Buddy Hostetter

Owner; Hostetter Construction Co., Inc.  
Waverly, Missouri

### Clayton Lee

NRCS State Soil Scientist (Retired)  
Columbia, MO

### Kelly Nelson, Ph.D.

Research Agronomist  
Greenley Research Center  
Novelty, Missouri

### Dick Purcell, P.E.

NRCS State Conservation Engineer  
Columbia, Missouri

### Brandon Viers, P.E.

NRCS Civil Engineer  
Columbia, Missouri

## Why Should You Attend?

- For a hands-on education in the latest techniques involved with the design and installation of integrated water management systems, using research results from MU's Greenley Research Center.
- To gain more customers by increasing your skills to include the design and installation of subsurface drainage systems.
- To understand the environmental benefits of drainage water management.
- To discover the pitfalls and short-cuts of subsurface drainage installation ... before you get in the field.
- To take advantage of the opportunity to ask the experts about subsurface drainage design and installation.

# What Is A Drainage Workshop?

In Missouri, there is a rising demand for patterned, subsurface drainage systems. Developments in materials, the design process and installation equipment have fueled a new approach to an old agricultural management technique.

The Natural Resources Conservation Service (NRCS), Missouri Department of Natural Resources, University of Missouri (MU), and Missouri Land Improvement Contractors Association (LICA) have partnered to present these new developments in a workshop on integrated water management design and installation.

This is an outstanding program which will use both lecture and hands-on problems to cover the details of planning a subsurface drainage system, including engineering standards and specifications, design tables, sizing of pipes, drainage design, design of mains and laterals, drain tile spacing, and controlled drainage and subirrigation design principles.

Attendees will learn about the most current MU Drainage/ Subirrigation research results, and ancillary issues, such as underground utilities and potential wetlands concerns.

A panel discussion will give attendees an opportunity to get their questions answered by a local farmer using a subsurface drainage system, NRCS representatives familiar with the applicable standards, a LICA contractor who has installed many systems, a tiling industry representative, and University personnel with their research perspectives.

# Workshop Sponsors



**United States Department of Agriculture**  
Natural Resources Conservation Service



**Greenley Research Center**  
College of Agriculture, Food and Natural Resources



# Registration

The registration fee for this Workshop is \$30 per person. No on-site registration will be available. Space is limited to the first 50 registrants. Registrations with full, non-refundable payment must be received by **February 19, 2013**.

**Make check payable to:**

The University of Missouri  
1101 West High Street  
Jefferson City, MO 65109

**TO REGISTER BY PHONE OR FOR QUESTIONS:**

Call Debbie @ 573-634-3001

**Name of Attendees: (Please print)**

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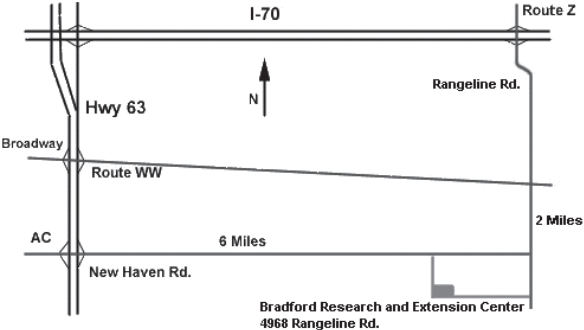
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**Company:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

# Meeting Location Information

**Bradford Research & Extension Center**  
4968 Rangeline Road  
Columbia, MO  
Ph: 573-884-7945



- | We will provide:            | You will need:  |
|-----------------------------|-----------------|
| ♦ Resource/Reference Manual | ♦ Notepaper     |
| ♦ Engineering Scales        | ♦ Pen or pencil |
| ♦ Lunches and breaks        | ♦ Calculator    |