

Drainage Water Management Field Day -- Davis Purdue Ag Center September 24-25, 2004

Sponsored by Purdue University & Indiana Land Improvement Contractors Association

What is drainage water management?

A water control structure can be installed in a drain to reduce drainage outflows and allow farmers to have more control over drainage. **Drainage water management** is the practice of installing or removing boards in the water control structure to raise the outlet to various depths, keeping the water table depth at a more beneficial level for yield and water quality while allowing field operations. The boards are:

- Installed after planting and spring field operations to store water that could be used by the crop in midsummer and potentially boost yields. (Figure 1)
- Removed so the drain can flow freely before field operations such as planting or harvest. (Figure 2)
- Installed again after harvest until early spring to limit drainage outflow and to reduce nitrate loss. (Figure 1)

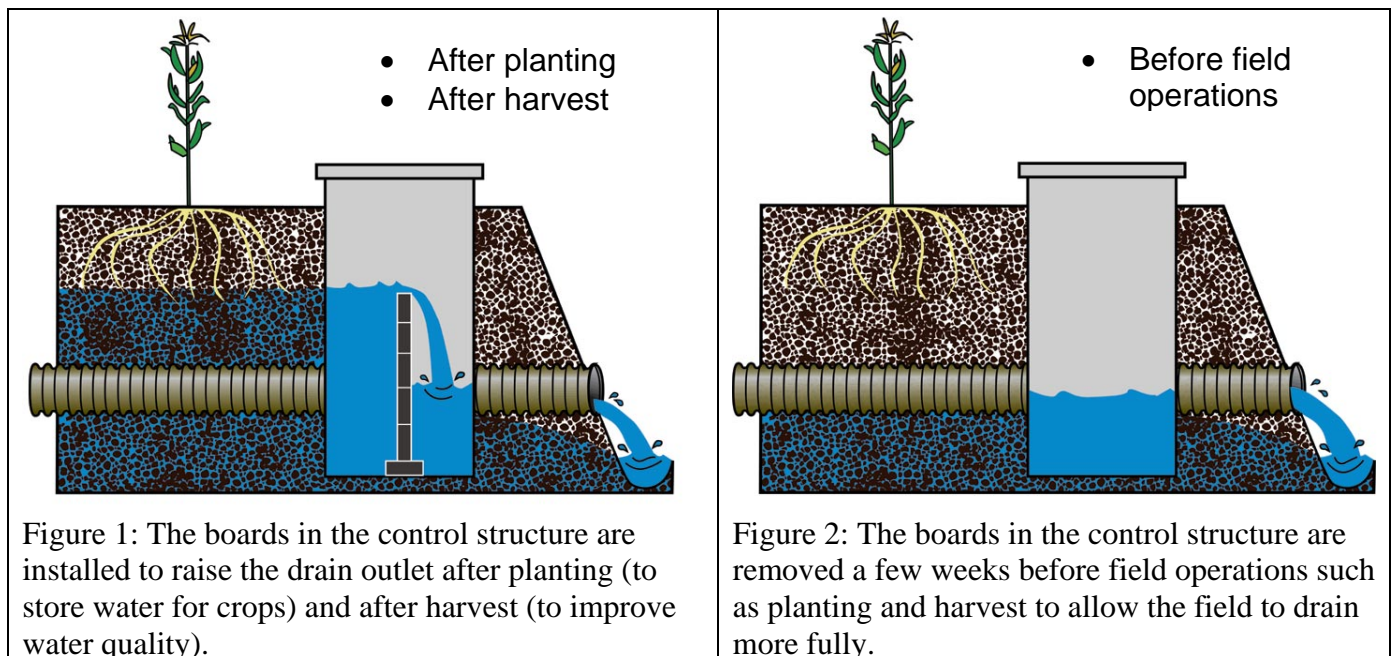


Figure 1: The boards in the control structure are installed to raise the drain outlet after planting (to store water for crops) and after harvest (to improve water quality).

Figure 2: The boards in the control structure are removed a few weeks before field operations such as planting and harvest to allow the field to drain more fully.

Why is this drainage water management research site being installed at Davis PAC?

The drainage system being installed today will allow Purdue University researchers to study the impacts of the practice at Davis Purdue Agriculture Center. Researchers are also installing similar studies on several private farms in western Indiana. At all sites, impacts of drainage water management will be studied by comparison to a similar site that does not have the practice. These studies will allow us to better understand the impacts of drainage water management on:

- Yield benefits and profitability
- Soil quality and earthworms
- Nutrient dynamics
- Water quality

What makes a field suitable for drainage water management?

Although approximately 50% of agricultural area in Indiana is drained, only some of this area is suitable for drainage water management.

1. The practice is most suitable on fields with a pattern tile system.
2. The field should be flat (generally less than 1% slope) so that one control structure can manage the water table within 1-2 feet for 20 acres or more.
3. You must be able to manage the drainage without impacting adjacent landowners.
4. If a new drainage installation is being planned for a field, drains should be designed to run along the contours, so each control structure can control the maximum possible area of the field.

Cost-share funding may be available

The USDA NRCS Environmental Quality Incentives Program may provide funding for the practices 554 Drainage Water Management, and 587 Structure for Water Control. For more information, talk with your local District Conservationist or Beth Clarizia, Agricultural Engineer. (See below for contact information.)

For more information

Drainage water management is a new practice in Indiana, and many questions still need to be answered. For more information, contact the following resource people, or visit the Web sites listed.

Purdue University

- Dr. Jane Frankenberger, Agricultural and Biol. Engineering; frankenb@purdue.edu, 765-494-1194
- Dr. Eileen Kladviko, Soil Scientist, Dept. of Agronomy, kladviko@purdue.edu; 765-494-6372
- Purdue University Drainage Web Site: <http://www.ecn.purdue.edu/safewater/Drainage/>

Indiana Land Improvement Contractors Association

- Rhonda Neiswinger, Executive Director, can provide information on INLICA contractors in your area; 812-939-2156; rneiswinger@ticz.com
- John Hack, President, 765-538-2998, jslhack@aol.com

USDA Natural Resources Conservation Service

- Beth Clarizia, Agricultural Engineer; beth.clarizia@in.usda.gov; 765-290-3200, ext. 321
- Drainage Water Management conservation practice standard for Indiana: http://efotg.nrcs.usda.gov/references/public/IN/drainage_water_mgt.pdf
- Structure for Water Control conservation practice standard for Indiana http://efotg.nrcs.usda.gov/references/public/IN/structure_for_water_control.pdf

Other universities and agencies

- The **University of Minnesota's "Drainage Outlet"** Web site provides information on drainage-related topics, including a forum called "Ask Dr. Drainage". <http://d-outlet.coafes.umn.edu/>
- The **Ohio State University's Agricultural Drainage Water Management** Web site at <http://www.ag.ohio-state.edu/~agwatmgt> provides information and links to the Ohio Agricultural Water Management Guide and other resources
- **Agricultural Drainage Management Systems Task Force:** USDA agencies, state agencies, and land-grant universities are working together to promote improved drainage management. <http://www.ag.ohio-state.edu/~usdasdru/ADMS/ADMSindex.htm>