

Tally tile gain vs. expense

TO tile or not to tile? For the right answer, consider the cost of installing tile vs. the expected yield response from draining a particular field, says Richard Cooke, University of Illinois ag engineer.

"There are situations where the best options are not to drain," he says.

To help you calculate the economics of tiling, Cooke has developed an online spreadsheet. It allows you to put in your own farm data and project the rate of return for tiling.

The drainage guide helps you look at different methods of profitability, calculate expected yield increase and project the payback period.

A final book version of the drainage guide should be available in 2006.

Here are a few more questions to ask as you calculate the bottom line on drainage:

■ *What kinds of yield increase would I need in order to pay for tiling?* "Do preliminary calculations," recommends Cooke. "Get some documentation of how your field yields with comparison to other fields. Sometimes the yield increase doesn't justify drainage."

■ *How do yields compare with*

Key Points

- A newly revised Illinois Drainage Guide is available online.
- Spreadsheet can help you determine if tile will pay.
- Consider soil types and distance to outlets.

neighboring drained fields? "If you have a neighbor who has drained soil, compare his yields to yours," he advises.

■ *What soil types are in my field?* Whether you should drain or not can depend on soil types. In particular, a few soils in the northern and southern parts of the state can have a problem with drainage.

■ *Where's the nearest outlet?* "If you have to travel a half mile to find an outlet and cross a couple roads, it may be too expensive," adds Cooke. Factor in additional installation costs if you have to run long mains or a bigger main on flatter slopes.

■ *Who will do the work?* To find a reputable drainage contractor, check with the Illinois Land Improvement Contractors Association [(217) 787-7260] and ask other farmers in your area for recommendations.

■ *Is the price fair?* Get two to



HEFTY START-UP: Laying tile requires a healthy machinery investment, says Jon Seevers, who runs a \$300,000 self-propelled, laser-guided tile plow.

three bids from contractors to make sure the person doing the work is competitive, recommends Cooke.

■ **View the drainage calculator, found in the updated Illinois Drainage Guide, online at www.wq.uiuc.edu/dg.**

Expert offers facts on tile

TILING is important for more reasons than just to carry off excess surface water; it improves subsurface drainage, promotes better soil structure and provides a better root zone environment for the crops. Good drainage also helps minimize soil compaction at planting and harvesting.

Tiling contractor Jon Seevers offers this quick Q&A to help improve your understanding of the relationship between soil, water and crop growth.

Q. At what point in the life of corn plants do roots stop growing?

A. Roots stop growing at tasseling. Drainage is most important until corn tassels.

Q. How deep can roots go?

A. In university lab settings, roots have been documented to grow 29 feet. In a well-tiled field, roots will go down to the water table.

Q. How much water does 1 inch of rain produce on 1 acre?

A. About 27,000 gallons of water.

Q. Drainage might work great in a wet year, but won't it stress crops in a dry year?

A. No. Good drainage encourages deep roots, giving crops better access to soil moisture in a dry year.

Good drainage gets crops off to right start

ROLLO Burnett is a "firm believer" that if he can't afford to properly drain his fields to be productive, he can't afford to own them.

Rollo has implemented an aggressive surface and tile drainage system on the 2,000 acres that he farms with his sons, Daniel and Christopher, in Massac County. Because their land is predominantly low and subject to flooding, the Burnetts have installed miles of drainage network, involving sumps and pumps to remove surface water as required to save their crops and maximize yields.

Good drainage is important year round, but the 30 days after planting is when it's especially critical, says Rollo. Well-drained fields help them get water off quickly, allowing the family to plant earlier and to get better stands. "Corn doesn't like wet roots, and neither do soybeans," adds Rollo.

Tile for top crops

Good drainage and water management helps them turn questionable land into highly productive land.

Three years ago, they bought a 300-acre farm that never yielded more than 125 bushels corn per acre. Before they planted their first crop, the Burnetts hired a professional tiling contractor to survey the field and install laterals on 30-foot centers. The closer tile spacings have paid off handsomely on these particular soils; the tiled ground has yielded 185-bushel corn for the past two years.

"I usually figure a seven-year payback on tile, but the last two years almost paid for tiling on the last farm," says Rollo.

The Burnetts have fields tiled on lateral spacings of 40, 50 and 60 feet. "Tile we put in 30 years ago still works well, but once you see the advantage of 30-foot tiling it doesn't satisfy me any longer," says Rollo.



SOLD: Tiling is a standard practice for Rollo Burnett, Metropolis. For the past two years, he has picked up an extra 60 bushels per acre of corn after new laterals were buried on 30-foot centers.

While narrower tile spacings appear to work great on claypan soils in southern Illinois, tiles on 30-foot spacings would be a "waste of money" in different parts of the state, points out Richard Cooke, a University of Illinois ag engineer. Recommended tile spacings vary according to soil types. However, the Burnetts are confident that tiling pays substantial yield benefits for them. As Rollo notes, "It's not how many acres you plant, it's how many bushels you raise on each acre that pays the bills. It costs me the same to produce 200-bushel corn as 125-bushel corn."

Special units save water

WOULDNT' it be great if you could save that excess water that your tiles drain away for later use when it's needed? That's the driving force behind 78 farm drainage management structures across the state, says University of Illinois ag engineer Richard Cooke. The timing and amount of drain water leaving a field can be managed so farmers can hold back water for use during drier periods of the growing season, he explains.

During the winter months, tiles can be closed so fields retain nitrates. During the year, 50% or more of the water that runs through tiles does so from November through March, says Cooke.

However, these structures only work in fairly flat fields, and can cost \$500 to \$800 each. One structure is needed for each 1.5 to 2 feet of change in elevation.

Two companies that sell these structures are Agri Drain (www.agridrain.com) out of Adair, Iowa; and Hancor Inc. (www.hancor.com), recently purchased by Advanced Drainage Systems, Hillard, Ohio.