

FOR IMMEDIATE RELEASE

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## Tile Drainage

On December 2<sup>nd</sup> from 10:00 a.m. to 1:30 p.m., K-State and Missouri Extension will host an online State Line Crops Conference where the topics of the economics of soybean fungicide and the grain markets will be discussed. However, the keynote speaker will be speaking on a topic you don't hear much about in this area, tile drainage. Please contact your local extension office if you are interested in joining us for this online conference.

Tile drainage is nothing new. Some forms of them have been around for hundreds of years, but field wide tile drains in the heavy clay flood plains of Southeast Kansas and Southwest Missouri are now becoming more common. ("Tile" here means subsurface plastic perforated pipe.) Field wide tile drainage have long covered certain areas of Minnesota, Iowa, Illinois, Missouri, and the rest of the Corn Belt, but they were less common here largely due to economics. This however is starting to change.

**Advantages:** Tile drainage is likely to improve a crop field if the field has a poor drainage class with a low slope and heavy clay soils. In this area, this class of hydrology is likely to be within the river flood plains. Only 2 to 5 percent of our total agricultural land is likely to benefit from tile drainage. While this is our most productive soils, this productiveness is highly variable from year to year and hard to work with during rainy years, often delaying timely field operations. Properly drained fields have added benefits such as minimizing soil compaction, better plant growth, less variability within the field, and consistency across the field. Despite being a few feet below the soil surface, tile drain increases water infiltration a small amount as well, which decreases surface erosion.

**Disadvantages:** The main disadvantage of tile drainage is, of course, the cost. A complete tile drainage system can cost up to \$1,000 per acre. It takes a lot of improved yield over time to compensate for the cost. Really, the benefits of tile drainage aren't so much financial as they are practical, just not dealing with inconsistent poorly drained soil effecting timely planting, spraying, and harvest. Many farmers around here don't tile the whole field either, to save money and concentrate efforts on the trouble areas.

Maintenance: Tile drains can last a long time if installed correctly, 30 years or more, and they don't take much management. Although, even properly installed tiles could need occasional cleanouts, usually at the outlet ditch, as the buildup of sediment can lead to blocking the whole tile. The tile outlet covers need occasionally cleaned out as well, and without them, rodents will build homes inside the tiles. An actively managed system will have an outlet slide that changes the water table by manually moving it up and down. The water table can be left higher during the winter to preserve nitrates and during a drier summer to keep water in the profile. This can only be done the flattest (less than 0.5% slope) fields.

Irrigation with tile drains: Tile drains can be back feed water and used as subsurface irrigation, making them work two jobs. It is less effective than a closely spaced true subsurface irrigation system, but the tiles system, if the field is flat enough, can push water into the root zone via a higher water table.

Tile drains in the environment: Environmentally, tile drains are a mixed bag and are regulated in some states. This is unlikely to happen here anytime soon because we likely won't ever have enough to be much concern. Tile drains do increase nitrate leaching from the soil with the water movement. However, they also reduce surface runoff, therefore sediment and phosphorus, to a degree. In the soggy northern states, tile drains have been used to drain ecologically important wetlands, but the few wetlands we have around here are already protected or used for waterfowl gaming. Despite the lower risks, any environmental impact of capital improvements needs to be considered.

If you would like to register for the upcoming online State Line Crop Conference, please give me a call at 620-724-8233.

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