

## AGRI-BUSINESS STEWARDSHIP

# NEWSLETTER

*Brought to you by the Michigan Agri-Business Association  
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The objective of this document is to provide you with current and helpful information regarding water protection, and the Michigan Agriculture Environmental Assurance Program (MAEAP).

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### **Drain tile, water management systems should be tailored to local conditions**

Across Michigan, modern solutions have given producers new tools to manage water and control saturation levels in fields. Tile drainage systems reduce saturation in the upper soil profile, and have played a large role in reducing soil erosion over the last several decades. In addition to understanding the benefits of these systems, it's important to properly install them as we better understand their potential impacts on water quality.

Today, water that leaves agricultural fields is filtered through the soil rather than running off the surface, reducing the losses of nutrients and sediments. The improvements in soil aeration provided by tile drainage systems have increased yields as well, adding to farm profitability.

Emerging technologies continue to offer improvements in drainage tile. Modern systems are better designed and installed. Professionally engineered systems utilize proper size and slope tile, while global positioning systems allow for precision placement of tile. These factors combine to make today's tile drainage systems more efficient.

The technological capabilities of these systems continue to increase as well. Blind inlets increase the filtering abilities of tile drains, while still moving excess standing water quickly. Inline water level control structures and water gates can now adjust the total field water table, fine tuning drainage for specific field conditions.

The role of tile drain systems in water quality challenges is complex, but nutrient losses through these systems are a concern. While the phosphorus (P) levels in tile drain water have traditionally been considered below harmful levels, we're finding that even these low levels of P can impact water quality. At the same time, tile drains reduce surface erosion and increase cover crop productivity, lowering both particulate and dissolved P runoff losses. Additional research should continue to help increase our understanding of the relationship between drain tile and water quality.

The water table adjustments that drain tile provides can dramatically increase crop productivity, reduce surface erosion, and improve cover crop biomass. Like all productivity gains in agriculture, technological advances continue to be developed and will continue to make tile drainage a key component in the preservation of our water resources.



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