

AGRI-BUSINESS STEWARDSHIP NEWSLETTER

*Brought to you by the Michigan Agri-Business Association
through a grant from the Michigan Agriculture Environmental Assurance Program.*

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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).

During periods of heavy rainfall, agronomic management is amplified

Rainfall events over the past several weeks underscore the importance of managing agronomic systems to deal with increasingly variable weather. The tremendous volume of precipitation seen in Central Michigan and the Saginaw Valley in late June overwhelms the ability of any system to adequately handle heavy rainfall, but numerous other examples of heavy precipitation where several inches of rain has fallen in a short period of time have been observed across the state this season.

Erosion is the primary concern from extreme rainfall events. Reducing the velocity of water movement across the soil surface is the key to minimizing erosion losses. Grass waterways placed in natural depressions are effective means to prevent the most severe soil erosion. Practices that retain surface residue in the field, such as reduced tillage or cover crops, and further protect against surface erosion by slowing water movement to limit soil particle movement while encouraging infiltration.

Surface residue also works to that adsorbs the force of raindrop impact, preventing the breakdown of soil aggregates, which will help alleviate soil crusting. Avoiding surface crusting from heavy rainfall helps in the days following storm events as well. Soils that maintain good aggregate structure will see greater evaporation, drying the top soil profile and helping alleviate saturated conditions. Getting oxygen to crop roots is essential to optimal plant growth. Saturated soils can lead to denitrification losses, creating the potential for nutrient losses.

The timing and placements of nutrients can be tailored to minimize losses from heavy rainfall. Incorporating nutrients into the soil profile reduces the risk of surface movement of fertilizer particles or the erosion of stratified nutrient layers. Delaying application timing from pre-plant to in-season application can further limit loss potential by not exposing nutrients to conditions where they might be lost. Better tailoring nutrient rates to crop requirements is also a benefit. In areas with reduced yield potential, decreased nutrient application costs can help the bottom line. The risk of performing field operations on wet soils exists, which is another factor for consideration.

The use of foliar fertilizers to alleviate temporary nutrient deficiencies should also be considered in post-flood conditions. Prolonged saturated soil conditions can render some micronutrient unavailable for plant uptake. In these cases, foliar fertilizers can be an effective management option. Tissue testing to determine specific nutrient deficiencies is recommended.



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