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).

Plan Fall Fertilizer Management to Limit Nutrient Losses

As the 2019 growing season winds down, attention turns to preparing fields for 2020, including assessing nutrient levels and planning fertilizer applications. Few operations on the farm have as much impact on economic profitability and environmental protection as nutrient management, and with the tools and technologies available today, few practices are as cost effective or easy to implement.

Nutrient management begins with intensive soil sampling, utilizing grid or zone sampling schemes to identify nutrient variability in the field. Managing fertility on an intensive basis is the key to maximizing the economic and environmental benefits of today’s technology. Areas of fields with deficient nutrient levels can be located and be brought up to sufficient levels, boosting yield potential. Identifying areas with excess nutrient levels offers the opportunity to reduce nutrient application rates in those areas, while still maintaining full yield potential. Modern variable rate application equipment can utilize the data layers generated by intensive soil sampling to precisely apply prescribed fertilizer rates on a sub-acre basis. Gains in crop productivity typically more than compensate for the additional costs of lab testing and high-tech fertilizer application equipment.

Planning nutrient applications with the weather in mind should also be a component of fall fertilizer management. Today, upwards of 80% of P losses are estimated to occur from 10% of the loss events, driven by high rainfall events. Surface applied nutrients that aren’t incorporated are at risk of losses during storm events. Over the course of a week to ten days, those nutrients bind with soil particles and become less mobile, but in the days following application, they can easily be washed off the soil surface. When weather forecasts call for the chance of high intensity storm events, nutrient applications need to be postponed. On fields with high runoff potential, nutrient applications and tillage incorporation should be planned when the forecast looks to be clear. Prioritizing fields for nutrient applications adds one more complicating factor to fall plans, but this simple step can have real impacts on nutrient loss.

The combination of intensive soil sampling, variable rate fertilizer application, and planning with the weather in mind are simple steps that don’t require major changes to farm practices, but can make a big difference in limiting nutrient losses.

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