
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).

Soil testing provides a basic, effective method to protect and improve water quality

While many practices are encouraged to improve water quality, and research on the topic continues, one of the most basic and effective tools for producers to improve nutrient management is soil testing.

Soil testing is not a new practice. Scientific laboratory testing of soils to determine their nutrient status has been in place since the 1940's. The testing procedures have improved greatly since then and today are integrated into fertilizer application recommendations intended to maximize crop production, while limiting environmental impact. Determining soil nutrient levels and applying fertilizer at the recommended rate is one of the impactful economic and environmental management steps a producer can take.

This is because advanced soil testing enables producers to fully understand the needs of particular fields and more closely follow the "4R" principles. Maintaining phosphorus nutrient concentrations at a level high enough to ensure optimal plant growth, but below the level at which losses typically occur is a key management practice – and to do so, anyone applying fertilizer must know the soil profile ahead of application.

The emergence of GPS and precision agriculture techniques in the last twenty years has allowed producers and agronomists to conduct far more accurate soil testing than in years past. With modern technology, we can increase the resolution of soil test maps, take soil samples from unique zones in a field or predetermined quadrants, and apply the recommended rate of fertilizer to each area using variable rate application equipment based on the measured nutrient levels. The use of this technology enables producers to apply fertilizer where it does the most good, as opposed to applying in areas where nutrient losses could be possible.

Michigan is already testing a high percentage of farm ground. Around 90% of farmland is soil sampled in Michigan, with over two-thirds of that ground using intensive soil sampling methods. Increasing the adoption of intensive soil sample methods is a critical first step when it comes to increasing the amount of farmland using variable rate fertilizer applications. Still, the adoption of these technologies is greater in Michigan than other areas in the Great Lakes Basin. In Ohio, only around 30% of farmland utilizes using variable rate technology to apply fertilizer.

As the fall harvest season winds down, working with producers to soil sample fields, preferably with intensive sampling methods, can be an important step in protecting water quality. Farmers and agronomy retailers should closely evaluate the latest soil sampling technology and asking how it can be employed to optimize fertilizer applications on the farm.



**Developed and Paid for by
Nitrogen and Pesticide Fees.
Distributed by the Michigan Agri-Business Association**

