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).

### Nutrient Management Planning for 2019 Starts with the 2018 Harvest

As crops are harvested across the state, planning the fertility needs for next year’s crop can begin in earnest. Soil sampling to analyze nutrient levels serves as the baseline data to plan nutrient management decisions, but today’s technology allows for many other data layers to be incorporated into those plans.

Intensive soil sampling programs such as grid or zone approaches allow for a detailed evaluation of nutrient levels across the field. Obtaining soil sample data on a higher resolution than the traditional whole field or 20 acre block samples enables much better management of areas with deficient or excessive nutrient levels. Increased nutrient use efficiency through increased grain yields and reduced fertilizer applications typically offset the costs of intensive soil testing and variable rate applications. Tracking soil nutrient levels over time is important as well. Fields should be on 3-4 year sampling schedules, ideally at the same time of the year and following the same crop each sample timing.

Incorporating data layers such as yield maps, in-season imagery, electrical conductive maps, or simply field elevation can allow for the delineation of management zones in fields. Yield maps in particular are useful for determining crop nutrient removal, better enabling fertilizer rates to match nutrient export. Calibrating combine yield monitors is important to generate quality data. Consult yield monitor user guides for calibration information, including factors such as vibration settings, header height stops and position offsets. If using a grain cart or weight wagon to calibrate the combine yield monitor, make sure those scales are calibrated as well.

In addition to managing soil nutrient levels, fall soil testing allows for the timely application of lime to manage soil pH levels. Soil pH has a strong influence on macro and micronutrient availability for crops and is a fundamental component of effective nutrient management. Modifications to soil pH, such as through the application of lime, are achieved by neutralizing soil acidity to raise soil pH, a chemical reaction that takes time in the soil. Lime applications can take more than six months to fully react in the soil, making fall applications preferable to get the maximum impact on spring crops.

Crop advisors and agronomy retailers are great resources to help collect and analyze the data that can go into nutrient management decisions. Contacting these resources to create a plan for how to best manage nutrients can help them begin collecting necessary data in order to make accurate, informed plans. Few management options have the demonstrated pay-back that nutrient management offers, with the environmental benefits to match.