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).

**Improve nitrogen management in corn by considering in-season applications or delayed-release products.**

With last year’s historically wet planting season still a recent memory, implementing management practices that minimize the impacts of extreme weather are essential. Combined with the recent plunge in crop prices, optimizing the use of nutrients and other crop inputs is especially important for farmer profitability in 2020. Nitrogen can be one of the most difficult nutrients to manage in extreme conditions, due to its potential mobility in the soil, numerous loss pathways, and relatively late-season demand by crops. Modern fertilizer formulations and application equipment allow for ever-improving management options and are key to optimizing nutrient use efficiency.

Retaining N fertilizers in forms less susceptible to loss is important to limit those losses. Urea forms will convert to ammonia, followed by ammonium in the soil. Nitrogen in an ammonia or ammonium form, which can also be applied as anhydrous ammonia or urea ammonium nitrate solution (UAN), has a relatively low loss potential. Once soil temperatures exceed 55F, however, nitrification processes will convert ammonium to nitrate in just a few weeks. Nitrates are susceptible to multiple loss pathways, so delaying conversion of N fertilizers to this form until later in the growing season is an effective means to limit losses. A variety of nitrification inhibitor or delayed-release N fertilizer products are available through a farmer’s agronomy retailer and offer cost-effective options to ensure N applications remain in the soil to meet crop needs.

Shifting N application timing until later in the season has long been a strategy to limit N losses. In corn, improved equipment capabilities in recent years allow for delaying those application times from a V4-V8 crop stage timing until V12-VT timings. With more than 80% of corn N demand coming after the V8 crop stage, delaying application timings until later in the season can allow for better synchrony between N demand and N supply.

Utilizing the latest tools and technology to optimize N management is essential to maximize profitability and mitigate environmental impact. Crop advisors are valuable resources for growers in formulating N management plans tailored to specific site conditions. As the 2020 growing season kicks off, producers are encouraged to consult agronomy retailers to best manage N fertilizers.