
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.

As nitrogen (N) application decisions are finalized for the 2017 growing season, producers should be considering how best to match nutrient availability with crop demand. Nitrogen can be one of the more difficult nutrients to manage in corn due its potential mobility in the soil, numerous loss pathways, and relativity late season demand by the corn crop. The multitude of modern tools and techniques to manage N placement, form, timing and rate can ensure that applied N is present and available for crop uptake, maximizing economic returns and mitigating environmental impacts.

Nitrogen exists within a dynamic system, requiring management systems to be uniquely created based on agronomic practices and site conditions. Tailoring the system based on potential loss mechanisms is important. Nitrate forms of N may be lost due to leaching or denitrification, while urea forms can be lost through volatilization. No single form of N is better than another, but each needs to be managed depending on its characteristics.

Matching availability with demand is essential to optimize production. Early season N availability is important for ear shoot development, kernel number and potential kernel size, but less than 20% of the total required N is taken up by the corn plant before the V8 growth stage. If N is applied before planting, more than two months can pass before the corn crop begins to require N in large quantities.

Today, there are more options than ever to manage N. In-season N applications have long been used to better match N availability with crop demand. Delayed applications can account for weather and crop yield potential, allowing for rate adjustments. New application strategies now permit rapid, precision-placed N up to and beyond tasseling. Delayed-release fertilizer products provide similar benefits by protecting N from urease activity, denitrification, and volatilization processes. The increased cost of these technologies can often be offset by eliminating a later in-field operation or reducing application rates.

Utilizing the latest tools and technology to optimize N management is essential to maximize profitability and mitigate environmental impact. When developing nutrient management plans, consider the use of in-season applications or delayed-release products to improve corn N management for the 2017 growing season.



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