MEASURE AND MANAGE

Choosing a Preplant N Recommendation for Corn

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Applying nitrogen before planting is an option that producers may consider. The preplant window for Nitrate Nitrogen soil testing is quite narrow. The reliability of a preplant test is questionable as we are dealing with soils that have not yet reached sufficient temperature to maximize release of mineralizable nitrogen.

So how do we determine an optimum rate of nitrogen fertilizer application? Lacking any reliable calibration data for preplant N test we rely on the Ontario N calculator to guide us through the considerations for determining an optimum rate of application.
The first step is to determine an appropriate yield goal. It is suggested that the last 5 years of yield information is of value. Remove the lowest and highest yielding years and average the remaining 3 years, then add 10% to determine a reasonable level of yield. It is also important to use years where corn was planted around the same calendar date. Comparing late April and late May planting dates may skew the yield goals.

Next step is to work through the calculator choosing soil types, heat unit, previous crop etc to determine the final result.

If manure has been applied then subtract the appropriate credit from the final result.

Compare this to past application rates. If the result differs by more than 30 lbs of actual N from previous historical rates, consider trying the new rate in check strips. This will assist you in gaining confidence in changing your production system. The results of the trials will be valuable in calibrating the Ontario N Calculator to your farming conditions. The "situational awareness" that this creates forms the foundation for making knowledge based decisions to improve profitability in corn production.

The only draw back to this method of N recommendation is that the high yielding, productive fields may not be the most responsive fields. The characteristics that contribute to this are described as deep soil profile, good soil tilth, high quantity of plant available water, high organic matter and good structure. These characteristics are conducive to high rates of nitrogen release and may indeed have lower responses to applied nitrogen. Lower yield fields have less of these traits and may need more N to achieve even modest yields relative to yield goals. These are the reasons that may cause variable responses to the results of Ontario N Calculator.