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## Determining Fall Nitrogen Fertility Needs in Corn

### Amount

Most universities base Nitrogen (N) fertility recommendations on a target yield. The assumption is that the target yield is accurate and that the crop is removing what was supplied. Excess N can leave corn vulnerable to rapid growth, poor stalk quality and increased lodging, and delayed maturity. Whatever formula you use to determine N needs, your N levels after removing the crop should be low and levels from year to year should not be increasing.

### Type

Ammonium works best in the fall for 2 main reasons. First, it is usually the cheapest source of N available, and second, if applied when soils are cool (soil temp at 2-4" depth is <50°F), the N stays in ammonium form instead of converting to nitrate which is susceptible to leaching. If in doubt about keeping the ammonium from nitrifying, use N-Serve\* to stabilize the ammonium in the soil over the winter. Some areas have no choice about using a nitrogen stabilizer like N-Serve because of lighter soils. Furthermore, some areas are too sandy to do any fall fertilizing and must have broadcast in-season N applied to be at the lowest leaching risk.

### Timing

#### --Advantages to Fall Application

Fall application redirects resources from spring to fall to when you have time available. Fall application is good insurance against getting fertilizer in late due to bad weather in the spring. In some years, it also protect against rising fertilizer prices. Soil sampling is usually much easier in the spring when the weather pattern is warm and dry.

#### --Disadvantages to Fall Application

The time period from when fertilizer is put down to when the next crop needs it leaves the fertilizer vulnerable to the environment. Nitrification of ammonium to nitrate is possible, which then leaves the N in a vulnerable form which can be leached away from where the crop can use it.

\*N-Serve is a Dow AgroSciences product