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Corn Nitrogen Recommendations

With fertilizer dollars at a premium in 2022 corn budgets, now is a great time to take a second look at where those dollars are going – and why. Since nitrogen is synonymous with corn yield, it's a great nutrient to start with.

There are a number of different ways to determine the optimum N rate. K-State Soil Testing Lab recommendations are based on yield response curves gleaned from in field nitrogen evaluations. They are regularly reviewed and updated as necessary based on changes in nitrogen use efficiency and other research findings.

The foundation is a yield goal times a factor of 1.6. For example, that means a 150 bushel per acre yield goal would require a base nitrogen rate of 240 pounds per acre – much higher than the nine tenths to one and a quarter pounds per bushel we usually estimate? The reason is likely found in the other ‘adjustments’ that factor in to most recommendations.

We account for organic matter based on the expectation of mineralization during the growing season accounting for 20 pound of available N per acre for each one percent soil organic matter in the surface six inches. The average soil organic matter in Kansas is two percent. In the absence of an organic matter test, we therefore credit for 40 pounds of N.

That leaves the N recommendation at 200 pounds per acre – and more adjustments to come. A profile nitrogen test is a great idea, but in the absence of the two-foot deep samples recommended to get an accurate number, we estimate (conservatively) a minimum of 30 pounds per acre of N available in the profile. That drops the number to 170 pounds of N per acre.

If manure is applied, we'll give credit for values provided, as well as other credits for irrigation water, etc... Another credit comes from the previous crop. In corn/soybean rotations, the previous crop soybean crop gets credit for 40 pounds of N from rapid residue decomposition. The final recommendation: 130 pounds of N required to attain a 150 bushel per acre yield goal – or just under nine tenths of a pound of nitrogen per bushel of yield.

How/when N is applied can effect nitrogen use efficiency, too, with practices like delayed/split applications potentially increasing efficiency even more than ‘average’. That means no one nitrogen recommendation fits every operation – and why a periodic review is a good idea for optimum use of your fertilizer dollars. Contact me if you want to take a closer look.

Conservation Trees from the Kansas Forest Service

Tis the season for low-cost tree/shrub seedlings from the Kansas Forest Service. Available to purchase for conservation purposes, plants are one to two years old varying in size from eight to 18 inches. Bareroot and container grown (higher survival/quicker establishment) seedlings are available with orders accepted through May 1 and shipped in mid-March.

Approved uses include windbreaks, wood lots, wildlife habitat, timber plantations and educational or riparian (streambank) plantings (no ornamental landscape planting allowed). Each single species unit consists of 25 plants. Three special bundles (quail, pheasant, or eastern pollinator bundle) are also available, along with tree planting accessories like tree tubes and weed barrier fabric. For details or an order form, visit: <http://kfs.mybigcommerce.com/> or request a copy from any District Office.