

**A LITTLE BIT COUNTRY
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New Nitrogen Recommendations Based on Economics

During the Wheat Show held last February, Dave Franzen, NDSU Extension Soils Specialist, explained the new recommended nitrogen rates for spring wheat and durum. The new rates are the result of research in North Dakota since 1971. Archived data represented about half of the data and field research from 2005-08 represented the other half of over 100 site-years of nitrogen rate studies.

The new recommendations divide the state into three sections. Fields or parts of fields (those managed using site-specific technology) are categorized as low, medium or high productivity. The new recommendations discourage growers from using a yield prediction. Growers will need to look at this yield history to choose a productivity category.

USDA has published a handout which will help growers choose appropriate tables to determine appropriate nitrogen rates. This is available at no cost and can be found on our web page. From the tables, growers choose the expected wheat price and the nitrogen cost. The table rate will not always result in maximum yield but it will provide maximum grower profit.

Soil test nitrate is then subtracted along with previous crop N credits. Through the data analysis found that plots in long-term no-till required less N than conventional till plots. Therefore, there is a 50 lb N/acre credit for long-term no-till. Due to extra N required during the first 5 no-till years, a 20 lb/acre addition is included in short-term no-till fields.

Although organic matter up to 5.9% was important in defining relative productivity within a field, there was no need for an organic matter N credit. For fields 6% organic matter or greater there is a 50 lb N/acre credit for each full percentage organic matter greater than 5%.

The grower is left with an N rate. However, this N rate is not the final N rate. There are other considerations before a final decision on rate is made; protein characteristics of the intended variety, less than optimal N application methods, excessive straw from the previous season, soils with de-nitrification issues, and grower experiences and common sense.

An easy method of determining rate is through the new North Dakota Nitrogen Wheat Calculator, available on our web page at www.ag.ndsu.edu/williamscountyextension.

Growers can easily go through the process in less than a minute.

The new recommendations are heavily research based, economics based, with logical considerations for tillage system, previous crop and residual soil nitrates. The growers are also being credited for common sense in making any additional adjustments to the preliminary value.

The NDSU Soil Testing Laboratory has updated its soil test reports to reflect changes in the new process of determining nitrogen rates. When a recommendation for any variety of wheat is given, the phosphorus and potassium fertilizer recommendations are still shown, however, there is no longer a nitrogen recommendation generated by the laboratory. To obtain a recommendation, growers will need to access the wheat nitrogen calculator. Reports are now automatically e-mailed if there is a valid address.