

## Revision of Wheat Nitrogen Recommendations

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**N**orth Dakota State University has a long history of recommending the following nitrogen (N) formula for wheat production: 2.5 lbs. N per bushel of yield goal minus previous crop credits and residual soil nitrate-N levels. This recommendation is based on a large but rather old database that does not consider today's N prices or modern technology. NDSU is currently working on a research project to build a modern database using field trials to revise wheat N recommendations that should result in greater farm profitability.

The project began with field trials in 2006 and will continue in the future with the goal of having at least 30 site-years of data. It may be possible to use this database to develop N recommendations for wheat based on N fertilizer and wheat prices, production regions in the state (differing climates and soils), tillage system, and soil organic matter. Wheat yield goals may not be associated with the future N recommendations.

The Carrington Research Extension Center is working with Dave Franzen, Extension soils specialist, and other NDSU Research Extension Centers on this project. Trial sites across the state are selected with generally low residual nitrate-N; and variable tillage systems, climates and soils. N fertilizer is applied at several rates and wheat yield and quality are measured.

The Carrington Center conducted three trials in 2006 and two trials in 2007 to contribute to this wheat N database. The following table provides general information about the trials:

**Table. Wheat Nitrogen Trials.**

Location	Previous Crop	Trial information				Trial results <sup>1</sup>	
		Tillage System	Organic Matter (%)	Soil N (lb N/acre) at 0- to 24- inch depth	N Application Rates (lb N/acre)	Grain Yield	Grain Protein
<b>2006</b>							
Carrington	wheat	minimum till	3.4	44	0, 45, 90, 135, 180	NS	*
Carrington	wheat	minimum till	2.2	90	0, 45, 90, 135, 180	NS	NS
Harvey	soybean	conventional	2.2	80	0, 15, 30, 45	NS	NS
<b>2007</b>							
Carrington	soybean	no-till	2.7	47	0, 30, 60, 90, 120	*	*
Wishek	wheat	no-till	4.3	94	0, 30, 60, 90	*	*

<sup>1</sup>NS = not statistically significant; \* = significant at 0.05.



**Liquid N, June 2007.**