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(Note: This e-Update is a supplement to the e-Update of February 19, 2010. -- Steve Watson)

1. Estimating nitrogen needs for wheat in absence of soil profile N test

In the e-Update of Feb. 19, 2010, there is an article on nitrogen (N) topdressing for very late planted wheat. If producers do not have a specific fertilizer recommendation or information from a soil profile N test, they can use this chart to estimate their topdressing N needs -- based on the yield goal, the organic matter level of their soil, and how much N has already been applied to their wheat. The chart below provides an estimate of how much N will be needed for *the entire season* to reach various yield goals. Again, the values in the chart are not necessarily how much N should be topdressed, but approximately how much fertilizer N the wheat should receive for the entire season.

This chart is from the K-State publication "Soil Test Interpretations and Fertilizer Recommendations" MF-2586, available at:

<http://www.agronomy.ksu.edu/SOILTESTING/DesktopModules/ViewDocument.aspx?DocumentID=1813>

Wheat Season-long Nitrogen Recommendations In Absence Of Soil Profile N Test							
	Soil organic matter content (%)						
	1.0	1.5	2.0	2.5	3.0	3.5	4.0
Yield goal (bu/acre)	Lbs N/acre						
30	32	27	22	17	12	7	2
40	56	51	46	41	36	31	26
50	80	75	70	65	60	55	50
60	104	99	94	89	84	79	74
70	128	123	118	113	108	103	98

The recommendations in this chart assume 30 lb N/acre as the residual default value. The total N requirements presented include only "Yield Goal" and "Soil Organic Matter Adjustments," assuming profile N test not used.

To be more precise, K-State's recommendations state that N rates for wheat should also be adjusted for "Previous Crop," "Tillage," "Grazing," and "Other Appropriate N Rate Adjustments," according to the following formula:

$$\text{N Rec} = (\text{Yield Goal} \times 2.4) - (\% \text{ SOM} \times 10) - (\text{Profile N}) - (\text{Other N Adjustments}) + (\text{Previous Crop Adjustments}) + (\text{Tillage Adjustments}) + (\text{Grazing Adjustments})$$

- N Rec= nitrogen recommendation in pounds per acre.
- Yield Goal= realistic yield goal in bushels per acre.
- % SOM= percent soil organic matter. Each one percent SOM provides 10 lb of N (%SOM x 10). Soil samples (0-6 inch depth) should be analyzed for SOM level.
- Profile N= profile nitrogen test (0-24 inch depth) in lb N/acre.
- Other N Adjustments= Additional N application such as manure.
- Previous Crop Adjustments=

Previous crop	Adjustment
Corn, Wheat	0 lb N/acre
Sorghum	+ 30 lb N/acre
Sunflowers	+ 30 lb N/acre
Soybeans	0 lb N/acre
Fallow:	
Without Profile N Test	- 20 lb N/acre
With Profile N Test	0 lb N/acre

- Tillage Adjustments= for no-till system an additional 20 lb N/acre. No adjustment for conventional tillage.
- Grazing Adjustments= 40 lb of N per 100 lb beef weight gain per acre.

Example:

Expected yield = 40 bu/acre

% SOM = 2%

Profile N = 40 lb/acre

Other N Adjustments = no manure or additional N source

Previous Crop = sorghum

Tillage = conventional

Grazing = no grazing

$$\text{N Rec (lb/acre)} = (40 \times 2.4) - (2 \times 10) - (40) - (0) + (30) + (0) + (0)$$

Total seasonal N recommendation (lb/acre) = 66 lb N/acre

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2. Instructions for soil sample collection and mailing

In the e-Update of Feb. 19, 2010, there is an article on timing of soil sampling for profile nitrogen ahead of row crop planting this spring. If producers plan to do the sampling themselves and use the K-State Soil Testing Laboratory, the following provides specific information on soil sample collection methods and mailing instructions.

* To take a sample, you will need a sampling tube, auger or spade, and a clean pail. (If you're also having the soil analyzed for zinc, be sure to use a plastic container to avoid contamination from galvanized buckets or material made of rubber.) You will also need soil sample containers and field information forms from your local Extension office or fertilizer dealer.

* Draw a map of the sample area on the information sheet and divide your fields into uniform areas. Each area should have the same soil texture, color, slope, and fertilization and cropping history.

* From each area, take a sample of 20-30 cores or slices. Mix thoroughly in a clean container and fill your soil sample container from this mixture. For available nitrogen, chloride, or sulfur tests, a subsoil sample to 24 inches is necessary.

* Avoid sampling in old fencerows, dead furrows, low spots, feeding areas, or other areas that might give unusual results. If information is desired on these unusual areas, obtain a separate sample from the area.

* Be sure to label the soil container clearly and record the numbers on the soil container and the information sheet.

* Air dry the samples as soon as possible for the available nitrogen test. (Air drying before shipment is recommended, but not essential, for all other tests.) Do not use heat for drying.

* Fill out the information sheet obtained from your Extension office, or download a sheet from www.ksre.ksu.edu/agronomy/soiltesting

* Take the samples to your local Extension office for shipping. Samples may also be sent directly to the lab by placing them in a shipping container or wrapping in heavy paper. Information sheets should be included with the package. Label the shipping container and tie securely. Mail the package to:

Soil Testing Laboratory
2308 Throckmorton Hall
Kansas State University
Manhattan, KS 66506-5504

A listing of the types of soil analysis offered, and the costs, are available on the web site mentioned above. For more information on the proper procedures for the Soil Testing Laboratory, see K-State publication MF-734 at:

<http://www.ksre.ksu.edu/library/crpsl2/MF734.pdf>

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These e-Updates are a regular weekly item from K-State Extension Agronomy and Steve Watson, Agronomy e-Update Editor. All of the Research and Extension faculty in Agronomy will be involved as sources from time to time. If you have any questions or suggestions for topics you'd like to have us address in this weekly update, contact Steve Watson, 785-532-7105 swatson@ksu.edu, or Jim Shroyer, Research and Extension Crop Production Specialist and State Extension Agronomy Leader 785-532-0397 jshroyer@ksu.edu