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Corn Nitrogen Rate Calculator Web tool update

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Corn Nitrogen Rate Calculator Web tool update

Abstract

The Iowa N response trial database was updated this past week with 27 additional response trials from 2006 research: 18 trials with corn following soybean and nine trials with corn following corn. There are now 164 N response trials for corn following soybean and 77 trials for corn following corn. Being able to easily update the database with recent data is one of the many advantages to this dynamic database approach for corn N rate guidelines. Having new response trial data allows rapid updating with changing hybrid genetics, rotations, and climatic conditions.

Keywords

Agronomy

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences

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Corn Nitrogen Rate Calculator Web tool update

by John Sawyer, Department of Agronomy

Nitrogen (N) Response Trials Added

The Iowa N response trial database was updated this past week with 27 additional response trials from 2006 research: 18 trials with corn following soybean and nine trials with corn following corn. There are now 164 N response trials for corn following soybean and 77 trials for corn following corn. Being able to easily update the database with recent data is one of the many advantages to this dynamic database approach for corn N rate guidelines. Having new response trial data allows rapid updating with changing hybrid genetics, rotations, and climatic conditions.

With the updated database, calculated N rates have changed only slightly from last fall. The table below gives the N rate at the maximum return to N (MRTN) and the profitable N rate range from the updated calculator for several N:corn grain price ratios. You can work with any price of N and corn you wish when running the calculator. Output information includes the N rate at the MRTN, the profitable N rate range, the net return to N application, the percent of maximum yield, and the selected N fertilizer product rate and cost.

What is the Corn Nitrogen Rate Calculator?

It is a resource that aids N rate decisions for corn production and is helpful in determining the effect of fertilizer and corn price on application rates. The method for calculating suggested N rates is based on a regional (Corn Belt) approach to N rate guidelines. Details on the approach are provided in the regional publication Concepts and Rationale for Regional Nitrogen Rate Guidelines for Corn. This approach is being implemented by several states across the Midwest.

Resources for N Rate Decisions

The Corn Nitrogen Rate Calculator Web tool is located at <http://extension.agron.iastate.edu/soilfertility/nrate.aspx>. The regional publication [Regional Nitrogen Rate Guidelines for Corn](#) (PM 2015) can be ordered through any Iowa State University county office, on the Web through the [Iowa State University Extension Distribution Center](#), or by calling (515) 294-5247. For more information, see the [Iowa State University Agronomy Extension Soil Fertility Web site](#).

Table 1. Nitrogen rate guidelines in Iowa for different N and corn grain prices.

May 14, 2007

Estimating nitrogen losses -- early spring 2007

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Measuring the nitrogen status -- 2007

May 14, 2007

Corn response to supplemental nitrogen

May 14, 2007

Increasing the frequency of corn in crop sequences: Grain yield and response to nitrogen -- a research update

February 12, 2007

Nitrogen fertilization for corn following corn

February 12, 2007

Corn Nitrogen Rate Calculator Web tool updated

September 18, 2006

New publication offers rationale for nitrogen use in corn production

July 31, 2006

Price Ratio ¹	Corn Following Soybean		Corn Following Corn	
	Rate ²	Range ³	Rate ²	Range ³
\$/lb:\$/bu	----- lb N/acre -----			
0.05	145	126-169	205	183-234
0.10	124	108-144	181	161-201
0.15	110	94-126	158	142-179
0.20	97	83-113	145	128-160

¹Price per lb N divided by the expected corn price. For example, N at \$0.35/lb N and corn at \$3.50/bu is a 0.10 price ratio.

²Rate is the lb N/acre that provides the Maximum Return To N (MRTN). All rates are based on results from the [Corn N Rate Calculator](#) as of April 6, 2007.

³Range is the range of profitable N rates that provides a similar economic return to N (within \$1.00/acre of the MRTN).

John Sawyer is an associate professor with research and extension responsibilities in soil fertility and nutrient management.

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