

N-rate calculator gets an update

THE nitrogen response database in the Iowa Corn Nitrogen Rate Calculator was recently updated. The calculator is an online decision-making tool from ISU Extension. With the updated database, the recommended N fertilizer application rate that you calculate for various situations has changed slightly from last year.

The results of nitrogen response research trials for 2009 have been added to the database. There are now 188 trials for corn following soybean and 89 trials for corn following corn in Iowa, says John Sawyer, Iowa State University Extension soil fertility specialist.

Being able to easily update the database with recent data is one of the many advantages to this dynamic database approach for providing nitrogen fertilizer application rate guidelines for corn, says Sawyer. Having new response trial data allows rapid updating of the N rate recommendations due to changing hybrid genetics, economics, crop rotations and climatic conditions.

With the updated database, calculated N rates have changed slightly from last year. The accompanying table gives the N rate at the maximum return to N, or MRTN, and the profitable N rate range from the updated calculator for several

Key Points

- ISU has updated the Iowa Corn Nitrogen Rate Calculator for farmers to use.
- Online tool helps farmers make better N fertilizer application rate decisions.
- With updated database, N rate guidelines have changed slightly from last year.

N:corn grain price ratios. You can work with any price of N and corn you wish when running the calculator, he says.

Output information includes the N application rate at the MRTN, the profitable rate range, the net return to N application, the percent of maximum yield and the selected N fertilizer product rate and cost.

What is this calculator?

The Corn Nitrogen Rate Calculator is a web-based tool at extension.agron.iastate.edu/soilfertility/nrate.aspx. 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

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

Price Ratio ¹	Corn Following Soybean		Corn Following Corn	
	Rate ²	Range ³	Rate ²	Range ³
\$/lb:\$/bu	----- lb N/acre -----			
0.05	148	134 - 166	199	184 - 215
0.10	128	116 - 142	180	167 - 192
0.15	116	105 - 126	163	151 - 176
0.20	104	93 - 115	150	139 - 160

¹ Price per lb N divided by the expected corn price. For example, N at \$0.40/lb N and corn at \$4.00/bu is a 0.10 price ratio. Corn held at \$4.00/bu for all price ratios.

² Rate 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 August 16, 2010 (<http://extension.agron.iastate.edu/soilfertility/nrate.aspx>).

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

Resources for N rate decisions

■ The Corn Nitrogen Rate Calculator Web tool is at extension.agron.iastate.edu/soilfertility/nrate.aspx.

■ The publication "Regional Nitrogen Rate Guidelines for Corn" (PM 2015) can be ordered through any ISU Extension county office, or on the Web through the ISU Extension Distribution Center at www.extension.iastate.edu/store, or by calling 515-294-5247. An electronic copy of the publication is available at www.extension.iastate.edu/Publications/2015.pdf.

■ The ISU Agronomy Extension Soil Fertility website is at www.agronext.iastate.edu/soilfertility.

and Rationale for Regional Nitrogen Rate Guidelines for Corn," PM 2015, available from ISU Extension. This approach and the Corn Nitrogen Rate Calculator are being used to help make N fertilizer

application rate recommendations by seven states across the Corn Belt: Iowa, Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin.

Source: ISU Extension