

WHICH CORN NITROGEN FERTILIZATION RATE TOOLS PERFORMS THE BEST IN THE MIDWEST?

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ABSTRACT

Publicly-available nitrogen (N) rate recommendation tools are utilized to help maximize yield in corn production. These tools often fail when N is over-applied and results in excess N being lost to the environment, or when N is under-applied and results in decreased yield and economic returns. Performance of a tool is often based on the specific soil and weather conditions of a growing season. Research is needed to determine which tools are the most effective at recommending economical optimal N rates (EONR) under varying soil and weather conditions. Research on N response plots is ongoing to evaluate publically-available recommendation tools across eight Midwest states. This presentation will summarize 2014 research. Two sites from each state, resulting in a range of historically productive sites, were used to evaluate differences in soil and weather environments. Treatments included N applied all at planting with rates ranging from 0 to 280 lbs N/ ac in increments of 40 lbs N/ ac. Additional treatments include 40 lbs N/ac applied at planting with 40 to 240 lbs N/ ac applied at sidedress in increments of 40 lbs N/ac and two treatments with 80 lbs N/ac applied at planting with 80 or 160 lbs N/ac applied at sidedress. Yield results were used to calculate EONR for each site and each tool was compared to EONR. Tools to be compared include pre-plant soil nitrate test, pre-sidedress soil nitrate test, maximum return to N test (MRTN), and the Maize-N crop model. Analysis will include looking at tool performance by site-specific soil and weather environments to understand the universality of each tool.

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