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## ISU'S NEW NITROGEN FERTILIZER RECOMMENDATIONS FOR CORN: A STEP TOWARD SITE-SPECIFIC MANAGEMENT

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Iowa State University released new nitrogen (N) fertilizer recommendations for corn in May of 1997 (Pm. 1714). These recommendations are intended to help Iowa corn producers obtain the economic and environmental advantages of moving toward site-specific management of N.

The new recommendations encourage all producers to use the late-spring test for soil nitrate and the end-of-season test for cornstalk nitrate on some of their fields each year. These tests give site-specific feedback that producers can use to evaluate and improve N management on their fields. It is assumed that many producers will find it profitable to pay for this testing as part of crop management programs.

The new recommendations do not call for any immediate change in rate of N application, time of N application, method of N application, or form of N applied. It is assumed, however, that most producers will find that it is to their advantage to make gradual changes in N management based on the feedback they obtain from the soil and stalk tests. The new recommendations give producers the option of making such changes.

When all fertilizer N is applied before crop emergence, estimates of N fertilizer needs are given as ranges because research shows there is substantial variability in optimal rates of N fertilization. Optimal rates vary with prices for corn and fertilizer, time of fertilizer application, method of fertilizer application, amount and composition of plant material left by the previous crop, uniformity of fertilizer application, soil organic matter content, weather conditions during the six months prior to fertilization, potential impacts on environmental quality, and other factors. The ranges acknowledge that it currently is not possible to provide simple formulas that give appropriate weight to the relative importance of each factor when selecting a rate that should be applied for any particular field.

The idea of giving producers a range of N rates to choose from is not new. ISU's previous recommendations, for example, allowed producers to select their own yield goals, which essentially allowed them to select from a range in rates of N fertilization. A major problem with this method is that expected yield level is not a major factor affecting optimal rates of N application; focusing attention on yield goals makes it difficult to recognize and address the most important factors affecting optimal rates of N application. These include time of application, method of application, and weather.

ISU's new recommendations are intended to help corn producers discover the most important factors affecting optimal rates of N fertilization on *their* fields. The new recommendations encourage on-farm evaluation of N management to guide improvements in this management. This higher level of management should be considered an essential first step in any movement toward site-specific management of N.

### Additional information

Blackmer, A.M. and A.P. Mallarino. 1994. Cornstalk testing to evaluate nitrogen management. PM-1584. Iowa State University, Ames.

Blackmer, A.M. 1995. How much do soybeans leave for corn? p. 49-53. *In Proceedings of the Integrated Crop Management Conference*. 29-30 Nov. 1995. Iowa State University, Ames.

Blackmer, A.M. 1995. Losses of fall-applied N. p. 55-59. *In Proceedings of the Integrated Crop Management Conference*. 29-30 Nov. 1995. Iowa State University, Ames.

Blackmer, A.M. 1996. Check for losses of fall-applied nitrogen. *Integrated Crop Management Newsletter*. 10 June.

Blackmer, A.M. 1997. New nitrogen fertilizer recommendations for corn. *Integrated Crop Management Newsletter*. IC-478-R1. 5 May.

Blackmer, A.M. 1997. Using new technologies to assess nitrogen fertilizer needs. *Integrated Crop Management Newsletter*. IC-478-R2. Special Precision Ag. Ed.

Blackmer, A.M. 1997. Check N levels in manured cornfields in June. *Integrated Crop Management Newsletter*. IC-478-R3. 19 May.

Blackmer, A.M. 1997. Inconsistencies in results of soil nitrate testing. *Integrated Crop Management Newsletter*. IC-477-R4. 26 May.

Blackmer, A.M. 1997. What about yield goals? *Integrated Crop Management Newsletter*. IC-478-R5. 2 June.

Blackmer, A.M. 1997. N recommendations addressing weather. *Integrated Crop Management Newsletter*. IC-478-R6. 9 June.

Blackmer, A.M. 1997. What about N credits following soybean? *Integrated Crop Management Newsletter*. IC-478-R7. 16 June.

Blackmer, A.M. 1997. Nitrogen availability from organic fertilizers. *Integrated Crop Management Newsletter*. IC-478-R8. 23 June.

Blackmer, A. M. 1997. What about credits for nitrogen supplied by animal manures? *Integrated Crop Management Newsletter*. IC-478-R9. June 30 and July 2.

Blackmer, A. M., 1997. Test cornstalks for nitrate this fall. *Integrated Crop Management Newsletter*. September 17.

Blackmer, A.M. R.D. Voss, and A.P. Mallarino. 1997. Nitrogen fertilizer recommendations for corn in Iowa. Pm-1714. Iowa State University, Ames.