It is not too late to apply nitrogen for 2001

Alfred M. Blackmer

Iowa State University, ablackmr@iastate.edu
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Abstract
Wet and cool weather has significantly delayed growth of corn this year. There are several reasons why it is important to recognize that this weather also extended the period for effective application of nitrogen (N). Much of the corn is still at a height that is suitable for normal sidedressing of N. The rainfall responsible for delayed planting and growth probably induced losses of N that normally would be used by the crop. The N-related limitations on yield potential for this crop may be greater than the N-related limitations found on nonfertilized soils in normal years.

Keywords
Agronomy

Disciplines
Agricultural Science | Agriculture | Agronomy and Crop Sciences

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Wet and cool weather has significantly delayed growth of corn this year. There are several reasons why it is important to recognize that this weather also extended the period for effective application of nitrogen (N).

It is not too late to apply fertilizer N this year

Much of the corn is still at a height that is suitable for normal sidedressing of N. The rainfall responsible for delayed planting and growth probably induced losses of N that normally would be used by the crop. The N-related limitations on yield potential for this crop may be greater than the N-related limitations found on nonfertilized soils in normal years.

Research during the past few years indicates that N-deficient corn often responds to fertilizer N applied as late as tasseling. Large yield increases have resulted from in-season fertilization to rescue crops after losses of fall-applied N. Yield penalties resulting from reasonable delays in N application seem to be much less than those associated with early season losses of fertilizer N.

It is most desirable to apply N before plants are 3 feet in height, but there is clear need to question the notion that nothing can be done if corn shows clear signs of N deficiencies after the plant is more than 3 feet in height. Indeed, research suggests that informed use of fertilization in late June and early July may be an effective way to increase average yields and profits for producers.

Wet springs determine the value of sidedressing

Most farmers recognize that switching from fall application to sidedressing would enable a substantial reduction in average rate of N fertilization without loss of yield. The critical issue, however, is the narrow time-window for sidedressing. A period of wet weather makes it difficult for producers to apply N and complete other necessary field operations. For this reason, wet springs are widely accepted as the primary reason for not sidedressing in Iowa.

The application of extra N to compensate for likely losses of early applied N has been widely accepted as a small cost for extra time in May and June. The true cost of gaining this extra time, however, has not been accurately assessed and agreed upon. The costs associated with yield losses resulting from greater-than-expected losses of N during spring rainfalls deserve special attention this year. Data from the past decade indicate that wet springs are a good reason for sidedressing N in Iowa.
Efficiency of N fertilization

Fall applications of N have long been promoted because they create a longer application season and thereby increase the efficiency of fertilizer storage facilities, transportation systems, and application equipment. Extension of the period for effective N fertilization into the growing season deserves attention as an alternative way to increase the efficiency of the system needed to deliver N to fields.

Equipment suitable for in-season fertilization is relatively scarce in Iowa. A major reason is that a short sidedressing season means that one applicator can cover relatively few acres. The short season is a problem whether the equipment is rented to several producers managing relatively small areas or whether it is owned by producers managing large areas. A short application season, therefore, limits the amount that can be invested in each applicator.

Applying nitrogen during cultivation minimizes losses of fertilizer N before plants grow.

High clearance nitrogen applicators extend the period of N application and offer new opportunities to improve N management.

The efficiency of the system that delivers N to fields needs to be clearly distinguished from the efficiency with which crops use the N after application. Nitrogen use efficiency by crops is the primary factor that influences profits for producers and amounts of N that escape from fields to the environment. Extending the application season into June and July increases the chances of developing systems that offer both efficient delivery of N to fields and efficient use of this N by crops.

Apply a few strips with extra N

It is still not too late to apply a few strips of extra N across a few fields of special interest to you. I suggest applying such strips across areas of well-drained soils where the corn currently looks great as well as areas of poorly drained soils where the corn does not look as green as it should. You can learn a lot by watching the effects of the fertilizer during the rest of the season.

This article originally appeared on pages 129-130 of the IC-486(16) -- July 2, 2001 issue.

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