



## **NEWS COLUMN**

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### **Strip-tillage recommendations**

URBANA – As harvest comes to an end, some growers will shift their focus to strip-tillage. Fabian Fernandez, University of Illinois Extension specialist in plant nutrition and soil fertility, offers a few thoughts on applying nitrogen, phosphorus and potassium with strip-till this season.

#### **Nitrogen applications with strip-till**

Although nitrogen applications with strip-till can be done, Fernandez normally doesn't suggest this process for two reasons. First, when soil conditions are adequate for strip-till operations, soil temperatures are typically too warm to apply nitrogen. He said combining these activities can save time, but it's important to wait until soil temperatures four inches below the surface are 50 degrees Fahrenheit and falling.

“Doing the application earlier represents too large of a risk of nitrogen loss to make it worth it,” Fernandez said. “The use of strip-till does not justify changing the current recommendations for fall nitrogen application. A potential drawback of combining anhydrous ammonia application with strip-till is that by the time conditions are adequate for fall nitrogen applications, the soil might be getting too wet for strip-till.”

The second reason he does not recommend combining strip-till and nitrogen application is because of the potential for seedling injury from free ammonia. He said this concern is greatest when anhydrous ammonia is spring-applied in the strips. Although injury may not occur every year, he considers this practice riskier than applying nitrogen in the row middles or some other way to increase the distance between the seedlings and concentrated nitrogen band.

#### **Phosphorus and potassium applications with strip-till**

Under no-till systems, slowly mobile nutrients such as phosphorus and potassium are typically broadcast-applied in the surface, Fernandez said. This application technique creates a vertical stratification of these nutrients with higher concentrations in the surface compared to the subsurface.

“This stratification can have negative effects if the high-nutrient surface becomes too dry or if the roots of the crop are not actively growing in that fraction of the soil volume,” he said. “Strip-

tillage offers more flexibility than no-till since it is easy to combine deep placement of nutrients with the tillage operation to make the soil berms.”

Combining these activities helps spread the work load and can result in fewer trips across the field. However, just because fertilizers can be placed deep with this tillage system, it does not mean that deep placement is required.

In fact, Fernandez said studies currently under way in Illinois, and in other places, have shown that deep placement of phosphorus and potassium typically does not improve grain yield or pay for the added costs of the operation. Also, band application of fertilizers can make it more difficult than broadcast placement to obtain a representative soil sample to determine fertilization needs.

“Shallower placement of dry phosphorus and potassium fertilizers in the strip can have a starter fertilizer effect that can be more cost-efficient than application of liquid starter fertilizers,” he added. “In wet springs, better growing conditions in the strip can also reduce the need for starter fertilizers.”

For more information on the pros and cons of strip-tillage, read *The Bulletin* online at [bulletin.ipm.illinois.edu/](http://bulletin.ipm.illinois.edu/).

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