Corn Response to Phosphorus Fertilizer Placement Differs by Yield Potential

Multiple years of phosphorus fertilizer application may be needed before the agronomic and environmental effect of phosphorus fertilizer placement and application rate become noticeable.

In an article recently published in *Agronomy Journal*, researchers report on the long-term effects of phosphorus fertilizer placement on corn under a strip-tillage system, including broadcast and deep-band phosphorus fertilizer applications in combination with starter fertilizers.

The team found a significant effect of phosphorus fertilizer rate and placement on plant phosphorus uptake, grain P concentration, and yield over the course of this study but particularly after multiple years of treatment application. The combined use of starter fertilizers with deep-band and broadcast fertilizer contributed to greater plant phosphorus uptake and grain phosphorus content. However, the use of starter fertilizers contributed to greater yields only at one location.

This long-term evaluation of phosphorus fertilizer placement showed that deep-band phosphorus placement seldom resulted in higher yields compared with broadcasting. However, for high-yielding systems, the split application of phosphorus with a fraction of the fertilizer applied as starter fertilizer at planting increased the average grain yield.


Growing Kenaf for Fiber Production

Kenaf (*Hibiscus cannabinus*) is a promising crop for producing natural fibers that can be used in making a number of industrial products. The bast fibers produced by the crop are similar in properties to those of hemp and can be used in applications where fiberglass and other synthetic fibers are currently being used.

It a recent study published in *Agronomy Journal*, researchers evaluated agronomic practices for growing kenaf in Iowa, which has a more temperate climate than areas where it is typically grown. They grew two cultivars, Taining 2 and Whitten, planted at two populations in two row spacings and fertilized with five rates of nitrogen fertilizer. The results showed that kenaf is well adapted to the growing environment and that fiber composition can be influenced by management practices.

Though variety selection made a difference, yield was not affected by population, row spacing, or nitrogen fertilization. The authors concluded that kenaf produces competitive yields of fiber when grown in Iowa and has excellent potential as a source of biorenewable fiber.


Kenaf (*Hibiscus cannabinus*). Source: Howard F. Schwartz, Colorado State University, Bugwood.org.

Corn with no P fertilizer application for 10 years (left) and 80 lb/acre of P<sub>2</sub>O<sub>5</sub> before corn (right).