

RESPONSE OF MINIMUM-TILL CORN TO STARTER FERTILIZER AND ACA¹

K.B. Ritchie, R.G. Hoefl, L.C. Gonzini, J.J. Warren, and E.D. Nafziger²

ABSTRACT

Starter fertilizer containing N and P often increases grain yield under no-till management, but yield responses to starter have not been consistently observed under conventional tillage. Experiments were established in 1996 and 1997 at six sites varying in latitude, soil type, fertility, and crop rotation to evaluate the effect of starter fertilizers on corn grown under high-residue minimum-till systems. In one experiment, a factorial combination of 3 N, 2 P, and 2 K rates placed in a 2X2 band was evaluated. In addition, surface applications of 12.5 and 25 lbs N/acre of UAN dribbled near the seed furrow were compared to 2X2-banded starter treatments. In a separate experiment, S, Zn, or ACA was added to starter fertilizer containing 25 lb N and 30 lb P/acre. ACA was only evaluated in 1996. In 1996, starter fertilizers containing both N and P consistently increased early-season plant growth at five sites, and grain yield was significantly increased at three sites. There were no significant yield differences between banded and surface-applied starter N. Sulfur added to starter fertilizer increased plant growth at one location, but neither S, Zn, nor ACA increased yield response to the starter fertilizer at any location. In 1997, early plant growth was increased by starter fertilizer containing 25 lbs N and 30 lbs P/acre at all six sites. Banded N increased plant growth more than did surface-dribbled N. Visual effects of starter fertilizer on early plant growth were more obvious in 1997, and yield results from 1997 will be presented.

CONCLUSIONS

- Starter fertilizers containing N and P may be effective in reduced-tillage conditions
- 25-30-0 starter better than 12.5-30-0
- 25-30-0 not improved by S, Zn, or ACA at these sites
- Banding starter N more effective than surface applications

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² Graduate Assistant, Professor, Research Assistants, and Professor, Dept. of Crop Sciences, University of Illinois, Urbana, IL 61801

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