

## Other Fertility Trials

The other soil fertility trials relate to one of four areas: starter fertilizers, banded phosphorus and potassium, sulfur, and "biologicals." PFI trials in 1990 did not close the book on any of these subjects, but they continued to build on past work.

Response to starters was erratic. Of four with-and-without starter trials, only one showed a significant yield benefit.

**Dick Thompson** and **Todd Hartsock** carried out multiple-treatment starter trials. Dick compare dry starter, liquid, and none. The yield differences, shown in [the table](#) on pages 23 and 24, were statistically significant. Even before the yield difference, the liquid starter cost about \$8 more per acre. In a separate trial, Thompson evaluated three rates of the dry starter, but the yields were similar.

Todd Hartsock compared similarly priced dry and liquid applications, no starter at all, and both together. Dry came out ten bushels on top, with liquid yielding better than no starter at all. In these trials the advertised availability of liquid nutrients seemed to be less of a factor than the difficulty of getting sufficient product on the field at a reasonable cost.

Cost is important with any fertilizer. **Harlan Grau** and **Al Hagensick** each ran two trials with deep banded P and K. Hagensick saw no yield effect of a spring injected band requiring a separate trip across the field. Harlan Grau did harvest an extra nine bushels of corn where he deep banded phosphate and potash in the fall of 1989, but the increase did not pay for the fertilizer and application. Soybeans did not respond to a two-year-old band applied for the '89 corn. [See table.](#)

Sulfur has been a much discussed nutrient in 1990, and some farmers are buying a sulfur fertilizer out of curiosity. Fertilizers like ammonium sulfate and ammonium thiosulfate acidify the soil and contribute some nitrogen in addition to the sulfur. Some of these other properties may be responsible when yield increases are observed. While **Al Hagensick**, **Hal Bumgarner**, and **Mark Mays** found no significant yield change in their trials with sulfur fertilizers, **Tom Frantzen** obtained a significant yield increase in both of his trials - even though his soil already tests high in sulfur and is on the acid side.

Several cooperators tried out biological products of different kinds. These contained combinations of microbes, enzymes, and micronutrients. None of them panned out in yield or profit. They were associated with significantly lower yield in two trials. **Steve Leazer** compared a package of biological products (recommended by a consultant) to his customary starter, and he included a control treatment of neither material. The control yielded significantly better than the biological package, with the customary starter in between. The biological costs \$20 per acre more than the starter.