



Spring 2004, No. 6

### DON'T OVERLOOK THE POTENTIAL OF STARTER THIS SPRING

**The benefits of placing a portion of the crop's fertilizer needs in a concentrated band near (starter) or with the seed (pop-up) at planting have long been recognized.** Phosphorus, potassium, nitrogen, and other nutrients placed as starter or pop-up at planting often result in early season response that translates to yield increases and greater profit in the production of corn and other crops. Some of the specific potential benefits of starter are:

- Accelerated early plant development, resulting in increased competition with weeds, decreased erosion due to quicker soil cover, and earlier harvest .
- Reduced grain moisture at harvest.
- Improved nutrient and water use efficiency.
- Increased yield and crop quality.

**Several factors affect response to starter or pop-up fertilizer.** Soil conditions that increase the likelihood of response include cool soil temperature at planting and root growth restrictions such as soil compaction, soil acidity, and soil salinity. The response to phosphorus and potassium is expected to decrease as soil test levels increase. However, other factors like soil temperature or compaction may overshadow the effect of soil test level. In other words, the use of starter may be profitable where early cool, moist soil conditions prevail, even though soil test phosphorus and potassium levels are high. For example, a recent 3-year Kansas study showed that 5 pounds of  $K_2O$  per acre included in a starter increased yield by an average of 11 bushels per acre in a soil that tested very high in potassium.

**Another important factor in considering the potential of starter fertilizer is residue level and degree of tillage.** High levels of crop residue increase the potential of a profitable response to starter due to prolonged cool, wet spring soil conditions. Also, with reduced tillage, stratification of immobile nutrients such as phosphorus and potassium is increased, resulting in a greater potential for response to subsurface banding, especially for potassium.

**When starter is applied in a 2x2 (2 inches to the side and 2 inches below the seed) placement, the chance of injury and stand reduction from salt damage is negligible.** However, where fertilizer is applied as a pop-up in-furrow with the seed, care should be taken to avoid seedling injury, stand reduction, and yield loss. The amount of fertilizer that can be used depends on fertilizer source, crop, row width, and soil moisture. For example, South Dakota State University recommends for corn in 30-inch rows no more than 10 pounds of nitrogen plus  $K_2O$ , up to 100 pounds per acre of material as 0-46-0, and no urea.

**The use of starter fertilizer is an effective management practice that is based on sound agronomic principles.** However, in most cases it should not be used as the sole fertility program. The best approach to starter is to view it as a catalyst for a crop that will have adequate and balanced available nutrients in the soil rooting volume as the season progresses. So, as you make plans for the spring season, don't overlook the potential benefits of a starter fertilizer application.

—WMS—

For more information, contact Dr. W.M. (Mike) Stewart, Southern and Central Great Plains Director, PPI, P.O. Box 6827, Lubbock, TX 79493. Phone: (806) 795-3252. E-mail: [mstewart@ppi-far.org](mailto:mstewart@ppi-far.org).