



Virginia: Phosphorus and Potassium Fertilizer Recommendation Variability for Two Mid-Atlantic Coastal Plain Fields

The objective of the study was to compare soil test results for phosphorus (P) and potassium (K) recommendations. Two fields were chosen and two grid sample sizes (0.82 acres and 2.05 acres) utilized. Also, sampling was done by soil type composites and by standard whole-field composite sampling. Two statistical models were developed to compare P and K soil test data and resulting fertilizer recommendations.

- Precision farming model
- Whole-field composite sampling model

The smaller grid (0.82 acres) resulted in more precise estimates of extractable K in only one field...with 67 percent of locations receiving appropriate K rates...but with no improvement for extractable P in either field when compared to the 2.05 acre sampling grid. Both improved precision for P and K, with a small-

er average misapplication rate, compared to the whole-field composite. Compositing by soil type was superior to the whole-field approach for estimating P and K levels and resulted in lower average misapplication...and a higher percentage receiving appropriate nutrient rates. It also approached the grid-sampling system precision of fertilizer recommendations for large in-field variation.

Researchers concluded that only when strong trends in extractable P and K exist would grid sampling be recommended over composite-by-soil-type sampling. [BC](#)

Source: Anderson-Cook, C.M., M.M. Alley, R. Noble, and R. Khosla. 1999. Soil Sci. Soc. Am. J. 63: 1740-1747. (This study was part of the Mid-Atlantic Cropping Systems Regional project partially supported by FAR/PPI.)



Iowa: No-Tillage Corn Hybrid Response to Starter Fertilizer

Researchers collected nine-site years of data from farms near four Iowa State University research farms, 1993 to 1995. Soil test phosphorus (P) levels were high at three of the four sites. Potassium (K) levels were medium for four of the nine site-years, so K was broadcast before planting. Plot size, starter fertilizer rates, and hybrids varied among sites. Crops were planted with and without complete starter fertilizer which was applied in a band 2 inches to the side and 2 inches below the seed. Corn was rotated with soybeans, and no-till cultivation was used. Planting dates varied depending on weather, but planting was completed before May 20 each year.

There were no starter-by-hybrid interactions. Starter fertilizer significantly increased early-season growth in four of eight site-years and grain yield in seven of nine site-years. Averaged across hybrids, starter treatments increased yields from 4 bu/A at one site in 1993 to 18 bu/A at another in 1995.

Authors concluded that test results suggest a complete starter fertilizer will likely be beneficial in no-tillage corn in the northern Corn Belt, even on soils where P and K are considered to be adequate. [BC](#)

Source: Buah, S.S.J., T.A. Polito, and R. Killorn. 1999. J. Prod. Agric. 12(4):676-680.