SOIL AND SITE FACTORS RESPONSIBLE FOR YIELD VARIATIONS IN TWO SOUTHERN ILLINOIS FARM FIELDS

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Abstract

Yield variability within a field is largely influenced by the soil physical, chemical, and topographic features of that field. On-farm field research studies were conducted from 1997 through 1999 on two southern Illinois farm fields (one in Jefferson County and the other in Pope County) with varying soil physical, chemical, and topographic features to determine which factors most influenced crop yield variability. Each location was GPS-gridded utilizing a grid cell size of 0.45 acres. Detailed topographic data, soil cores for detailed soil classification, soil samples for chemical and physical parameters, electromagnetic induction readings, and depths to clay layer and fragipan were collected from each grid cell center. Georeferenced yield monitor data was collected from both locations in 1997 and 1999. Final grain yields at both locations were most likely affected by the unseasonably hot temperatures and droughty conditions in the mid- to late summer than any other factor. Pearson correlation coefficients were largely non-significant for the parameters observed. Some of the studied parameters correlated well with elevation but did not manifest themselves in the final grain yields obtained.

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