

Spatial variability of pineapple yields on tropical peat.

ABSTRACT

The spatial variability of pineapple yields from a one-hectare field located on a tropical peat was quantified. In situ yield measurements were recorded based on 0.6×25 -m rectangular grids. A total of 60 geo-referenced yield records were obtained. Recording points were spaced 8×18 m. Yield data were subjected to semivariogram and kriging analyses. The average pineapple yield was 93.3 kg per grid with a CV of 13.7%. The spatial structure of pineapple yields was fitted using an exponential function with a total variation (sill) of 137.6, a random variation (nugget) of 49.3, and an effective range of 38.1 m. Based on the nugget to sill ratio, pineapple yields showed a moderate spatial dependence. A map comprising measured and interpolated yield values showed that 31% of the field had yields close to the field average, 36% had yields above the average, and 33% with yields below the average. These results suggest that site-specific management of pineapple is necessary.

Keyword: Spatial variability; Pineapple; Tropical peat