A field experiment to compare fertilizer responses of corn and sweet potatoes was laid down at the U.W.I. Field Station on River Estate Loam. At the harvest, yield and population data were recorded. From this data analyses of variance were carried out to investigate the fertilizer responses of each crop. The results from this experiment did not enable a clear picture of the fertilizer responses of corn or of sweet potatoes, on the soil type River Estate Loam, to be established. Nor could a relationship between the responses of the two crops be validly developed.