

COMPARATIVE STUDY ON THE EFFECT OF ORGANIC AND INORGANIC FERTILIZERS ON MAIZE YIELD

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ABSTRACT: organic and inorganic fertilizers are the two broad classes of fertilizer. Their functional roles may be distinct and depend on various factors. In this work an independent T-test was used to compare the effectiveness of organic fertilizer and inorganic fertilizer on maize yield in Nigeria. The study arise as a solution approach to settle some debate among farmers the sue of organic and inorganic fertilizers in maize production. Data was collected from the Agricultural Research Institute in Tarauni Local Government area of kano state, Nigeria and analyzed statistically. The collected data were categorized into two, namely; (i) based on number of cobs per maize plant and (ii) based on the number of grains per maize cob from the two groups. The analysis has shown that inorganic fertilizers (NPK) produce higher maize yields than organic (farmyard manure) both in terms of number of cobs per plant and the number of grains per maize cob.

Problems, data, previous works

One of the major problems facing resource-poor small-scale farmers producing maize and traditional vegetables in Nigeria is a decline in soil fertility. Farmers attributed low yields of maize and traditional vegetables to a declining soil fertility as a result of continuous cropping, burning of crop residues and soil erosion. Improving the soil fertility can be achieved through the application of either synthetic or organic fertilizers. Therefore, farmers are faced with the decision to choose the most effective in producing high maize yields between the two fertilizers.

Methods

The study was conducted by collecting a secondary source of data from Agricultural Research Institute Tarauni. The data was based on two variables (i.e maize cob and maize grain). The first data collected was based on the number of cobs per maize plant that are solely grown with farmyard manure while the second data was collected based on the number of grains per maize cob that are grown using NPK fertilizers. 100 samples of both maize plants grown with organic and maize plants grown with inorganic fertilizers were taken randomly in both cases and the number of cobs on each maize plant is counted. 100 samples of maize cob is then sample for both the organic and inorganic fertilizer.

The statistical tool employed in the study is STUDENTS T-TEST (Two-independent samples test.)

Results and Conclusions

Our conclusion regarding this research is that inorganic fertilizers produce higher maize yields and prove much more effective than organic fertilizers, particularly the NPK. On average, maize yield and quality of maize is significantly affected by application or use of inorganic fertilizer. The highest number of grains per maize cob (organic) out of the 100 maize cobs is 424 the inorganic is 672 grains which is a significant difference between the two.