

Agronomic Performance of Cucumber (*Cucumis sativa*) in a Humid Tropical Rainforest Zone of Nigeria

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Abstract: The study investigated the agronomic performance of cucumber (*Cucumis sativa*) in humid rainforest zone of Nigeria. The experimental design was randomized complete block design. Analysis of Variance (ANOVA) was used to analyze data collected for the study. Results revealed that the emergence of cucumber crop was relatively enhanced by the fertile status of the soil and the performance was a function of early appearance of flower which also determined the average yield. Based on the findings of the study, it is suggested that seed viability should be taken into account when cultivating cucumber. Combined application of organic and inorganic fertilizers will enhance yield.

Key words: Agronomic performance, cucumber (*Cucumis sativa*), humid tropical rainforest zone, Nigeria

INTRODUCTION

The importance of Agriculture in Nigeria cannot be overemphasized. This is despite the country's overdependence on crude oil. According to Ajayi and Banmeke (2005) since the vast majority of the poor in Africa depend on agriculture, increasing food production is among the principal means of combating poverty and malnutrition in Africa. To a great extent, Agriculture still sustains the generality of Nigerians. Fruits and vegetables have become very indispensable to Nigerians. About 50% by weight of the food taken in the tropic each year consist of plant products such as vegetable, fruits (Briah, 1991; Eniola and Fawole, 2007). The diversity in the appetite of Nigerians for fruits and vegetables is without doubt large. This is because fruits and vegetables that were consumed by only the elites in the past is gaining prominence among the common people now. One of such is Cucumber. Cucumber (*Cucumis sativa*) is a vegetable crop grown in the Carribean, Malaysia, Indonesia, Central, East and West Africa and tropics in general. This vegetable crop belongs to the family *Cucurbitacea* and it is said to have originated from tropical Asia and Africa (Tindall, 1968). It is propagated by seed (George, 1985). Cucumber is adapted to warm climates but will grow at lower temperature than melon. The growth threshold temperature of cucumber is around 15°C and growth is at its optimum at 80-95% relative air humidity. Water requirement is high and soils should be well drained with a high organic content. Sandy loams with a pH of 5.5-6.7 are generally suitable for early maturing crops (Onwueme and Sinha, 1991).

Cucumber is an annual vegetable has become an important food crop in Nigerian homes. It is eaten raw as a dessert, an appetizer, snacks and also in salads, cooked with rice, etc. It is widely cultivated for production of its edible fruit and leaves, the fruit varies in size and shape, the seeds are many, flat, oval with pointed ends. Cucumber is cultivated in commercial quantity in Nigeria, especially in areas like Jos in Plateau State. However, in the rainforest zones like Omoku in Rivers State, Nigeria which is a fast urbanizing community, Cucumber is relished for its diverse use in many dishes. The cultivation of cucumber is still at its infancy. This study therefore, determines the performance of cucumber a humid tropical rainforest zone of Nigeria.

MATERIALS AND METHODS

The experiment was cited in the teaching and research farm of the Federal College of Education (Technical), Omoku, Rivers State, Nigeria between April and June. The area is characterized by high rainfall in the rainy season and heavy sunshine on the dry season. The soil in the experimental site is sandy loam. The total experimental area was 84.65 m² (16.93×5 m). The area was cleared, ploughed, harrowed and marked out for planting. The experiment was Randomized Complete Block Design (RCBD) with single row arrangement. The treatments were the different plots in the replication-plots, one to 6 per replication giving a total of 18 plots from 3 replications. Pointsett variety of cucumber was used in the experiment. Two seeds were sown at a depth of about 5 cm with a spacing of 75×75 cm giving a total of 14 stands per row.

Other plots 2-5 were given adequate doses of fertilizers (organic and inorganic) but the control plot (Plot 1) was not give this treatment. Weeding was done manually with hoe for two consecutive times. Types of weed observed to be prevalent on the plot were stubborn grass (*Eleusin indica*), guinea grass (*Panicum maximum*) and giant star grass (*Cynodon* sp).

Emergence was determined 6 days from the planting date. The total number of emerged plants or stands were counted randomly as against the total number of stand planted and this was expressed in percentage. Appearance of pod was determined by counting from the date of planting to the date in which pod was observed in the various plots. Harvesting was done manually by hand picking the matured ones and cutting with knife and weighed.

RESULTS AND DISCUSSION

Results from Table 1 shows that mean days to appearance of flower was highest for plots 1 and 5. This is followed by plots 2 and 3. However, plot 4 revealed the lowest with 33 days.

Table 2 shows that appearance of pod in plot 3 took longer number of days (44 days). Plot 5 took 43 days while plot 1 took 42 days. However, plot 2 and 4 took 40 days, respectively.

Results from Table 3 shows that mean yield of cucumber in plot 5 was 238.33 kg. Mean yield of cucumber as observed in plot 1 was 380 kg and a relative increase

was observed in plot 3 (403.33 kg). In plot 2 mean yield was observed to be 500 kg and in plot 4 a remarkable increase to 660 kg was observed.

From the analysis of the experiment, there were relative difference in number of days to the appearance of flowers in the treated plots. This could be attributed to the fact that availability of nutrients in the soil shortened the vegetative growth period of crops by inducing early flowering and maturity. The differences on the appearance of pod could be attributed to three factors namely soil, climate and viability of seeds. The climatic conditions of the experimental area were very conducive and the soil structure and fertility favoured the growth of cucumber. It was observed that yield of cucumber was encouraging obviously because of the available favourable conditions therein. The analysis of the results of the experiment revealed that the performance of cucumber in a humid tropical environment is based on the appearance of pod to the yield and increase in pod appearance led to increase in yield.

CONCLUSION

The study on agronomic performance of cucumber in a humid environment revealed that the emergence of the crop was relatively enhanced by the fertile status of the soil and the performance was a function of early appearance of flower which also determined the average yield. Based on the findings of the study, it is suggested that seed viability should be taken into account when cultivating cucumber. Combined application of organic and inorganic fertilizers will enhance yield.

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Table 1: Mean days to appearance of flower

Treatment	Mean days to appearance of flower
Plot 1	35
Plot 2	34
Plot 3	34
Plot 4	33
Plot 5	35

Table 2: Mean days to appearance of pod

Treatment	Mean days to appearance of pod
Plot 1	42
Plot 2	40
Plot 3	44
Plot 4	40
Plot 5	43

Table 3: Mean yield

Treatment	Yield (kg)
Plot 5	238.33±173.37a
Plot 1	380.00±233.88 a
Plot 3	403.33±159.48 a
Plot 2	500.00±419.40 a
Plot 4	660.00±264.24 a

Means in the same column followed by the same alphabets are not significantly different