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Research Paper

EFFECTS OF SEED SIZE ON THE GROWTH AND YIELD OF CUCUMBER (CUCUMIS SATIVUS L.)

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ABSTRACT **Cucumbers are used widely in a wide variety of diets. Due to the continuous realization of the importance of the fruit in our diets, and the overwhelming importance of cucumber's health fits along with the skincare, there is an increasing demand for the product in Nigeria. Therefore, there is a need for optimum production of the fruit through the maximization of its seeds. This experiment was carried out to examine the effects of seed sizes on the growth and yield of cucumber *(Cucumis sativus)* for six weeks. Cucumber seeds were separated into different sizes which are 1cm, 0.9cm, 0.7cm, 0.5cm, and the 1cm seed size of cucumber was chosen as the control. The experimental design used was Randomized Complete Block Design (RCBD). The vegetative parameters measured were plant height, stem girth, number of leaves, leaf area, no of fruit, fruit weight, fruit length, and fruit girth. The plants which are of 0.9 cm size of seeds had the highest plant height, the highest number of stem diameter, the highest number of leaf production while plants which are of 0.7cm had the largest leaf area, the highest number of fruit, and the highest fruit weight. It is therefore recommended that any size of seed ranging from 0.7 to 0.9 cm can be used for the production of cucumber especially in the study area**

KEYWORDS :diets,skincare,Block Design

INTRODUCTION

Cucumber (Cucums sativus L) which is one of the monoccous annual crops of the cool climate (thoa 1998 Best 2000). According to Shetty and Whenner (2002a) as well as Arunkumar *et al*., (2011a) the fruit of cucumber, which is soft and succulent is consumed raw (salad) or cooked with other vegetables. The nutritional composition of cucumber fruit per 100g edible portion is carbohydrate (3%), protein (1%), total fat (0.5) and dietary fibre (1%) (USDA. National Data Base 2014). The fruit is a veritable source of vitamins such as vitamins A.C.K.F among others, minerals such as magnesium, potassium, manganese, phosphorus, calcium and zinc as well as a number of phytonutrients (carotene. B, xamtherin B and leutin) which add and enrich the diet of people living in the tropical regions (Vimale *et al*., 1999). The crop is grown worldwide and according to Tatiloglu 1993, it ranks fourth in the list of economic vegetables in Asia after tomato cabbage and onion.

Cucumber rarely grows luxuriantly in infertile soils, hence its level of susceptibility to poor soil fertility manifests in the form of low fruit yield, bitter and misshapen fruits that have little marketability value (Belay et al., 2001). Eifediyi and Remison (2010) in their various studies on nutrient requirements of cucumber reported that cucumber responds positively to organic, inorganic or combined nutrient applications for optimum growth and productivity. However the nutrient requirement of the crop vary depending on soil type, native fertility, previous cropping and cultural practices. Crop varieties in different seasons or environments react differently to a range of climate conditions, soil characteristics and technical practices (Singh and Ram, 2012) in the humid topics characterized by bimodal weather conditions, cucumber production is gaining increased attention and its cultivation cuts across the seasons vary, hence demands attention aimed at improving its productivity.

Generally, cucumber produces male and female flowers separately on the same individual plant (monocecious) though some may produce bisexual flowers (Perl Treves., 1999). This implies that sex expression in the plant is subject to regulation by a number of environmental factors such as photoperiod, temperature and plant hormones (Yamaski et al, 2005, Wehner and Guner, 2004)). The objective of the study is to determine how different sizes of Cucumber seeds will affect the growth and yield of each of the seed sizes of cucumber.

Material and methodology

The experiment was carried out within the premises of Federal College of Forestry, Jericho, Ibadan, Oyo State, Nigeria. The following are the materials that were used in the execution of the project: *Cucumis sativus* seeds which are of sizes 0.5cm, 0.7cm, 0.9cm and 1cm respectively, hoe, cutlass, vernier caliper, stick for stacking, ruler, pegs. Cucumbers seeds were purchased from the Institute of Agricultural Research and Training (IAR&T), Moore Plantation, Ibadan, Oyo State, Nigeria. The land used was cleared with cutlass and hoe and the grass cleared was packed, four ridges were made with the aid of a hoe. A sample of the soil was taken to the Forestry Research Institute of Nigeria for soil physiochemical analysis while cucumbers seeds were separated into four different sizes which were 0.5cm, 0.7cm, 0.9cm and 1cm seed. The seeds were planted and arranged such that there were four treatments which were replicated four times with two seeds in each replicate making 32 in all, the readings were taken two weeks after planting. Staking was done after the 4th week of planting. Subcultural practices like watering and weeding were carried out on all the treatments.

The experiment was carried out using a randomized complete block designs (CRBD) and was replicated four times.

RI	R2	R3	R4
T4	T1	T2	T3
T3	T2	T3	T4
T2	T3	T1	T2
T1	T4	T4	T1

Treatment 1 (T1):Control 1cm seed size of cucumber

Treatment 2 (T2): 0.9cm seed size of cucumber

Treatment 3(T3):0.7cm seed size of cucumber

Treatment 4 (T4): 0.5cm seed size of cucumber.

The parameters taken after two weeks of planting are as follows: plant height, stern girth, number of leaves, leaf area, fruit production and fruit weight. Analysis of Variance (ANOVA) was used to analyze the data collected at 5% level of significance.

Results and Discussion

Table 2 shows the effect of different seed sizes on the height of cucumbers. At 2 weeks after planting T3 had the highest value followed by T2, T4 and T1, at 4 weeks after planting T3 also had the highest height followed by T2, T1 and T4 respectively. At the 6th week after planting, T2 had the highest plant height followed by T1, and where T3 and T4 had the lowest. The result also shows that there were no significant difference among the treatment in the 2nd and 4th week after planting.

Table 3 shows the effect of different seed size on stem diameter of cucumber. It showed that at 2 weeks after planting, T2 had the highest stem diameter followed by T4, T3, where T1 had the lowest diameter. At 4th week after planting, T2 also had the highest figure followed by T4, T3 and T1 respectively, also at 6th week after planting, T2 had the highest stem diameter followed by T3, T1, and T4. It was also observed that there was no significant difference among the treatment in the 6th week.

Table 4 shows the effect of different seed size on leaf production of Cucumber. At 2 weeks after planting, T2, T3, and T4 had the same highest value of three leaves each. At 4 weeks after planting, T2 had the highest value followed by T4, T3, and T1. It also shows that there was significant difference in the treatment at 4 weeks after planting. At 6 weeks after planting, T2 gave the highest leaf production also followed by T4, T3 and T1, there was also significant difference in the treatment in the 6th week.

Table 5 shows the effect of different seed size on the leaf area of cucumber. A t 2nd week after planting, T3 had the highest leaf area followed by T1, T2, and T4. The result also shows that there was significant difference in the treatment at 2nd week after planting. At 4th week after planting, T3 had the highest leaf area followed by T2, T4 and T1 and it was observed that there was no significant difference in the treatments. Also at 6th week after planting, T3 had the highest value followed by T2, T4 and T1 respectively also there was no significant difference in the treatments.

Table 6 shows the effect of seed size on the fruits harvested. There was no significant difference in the number of fruit, but there was significant difference on the weight of fruit harvested. T3 gave the highest number of fruit, followed by T4, T2 and T1. In the fruit weight, T3 gave the highest weight followed by T2, T4 and T1 respectively

CONCLUSION

The plants which are of 0.9 cm size of seeds (T2) had the highest plant height, the highest number of stem diameter, the highest number of leaf production while plants which are of 0.7cm size of seeds (T3) had the largest leaf area, the highest number of fruit and the highest fruit weight. It is therefore recommended that any size of seed ranging from 0.7 to 0.9 cm can be used for the production of cucumber especially in the study area.

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