Evaluate the Yield/Growth Performance of Four Varieties of Cassava in Delta State Polytechnic Ozoro, Nigeria

Nmor E. I., Ogboi Edward

Department of Agricultural Technology, School of Agriculture Delta State Polytechnic, Ozoro, Nigeria

ABSTRACT

This project was carried out in school of Agriculture Teaching and Research farm in Delta state polytechnic, Ozoro in Isoko North local Government Area of Delta state Nigeria. There are different types of improved varieties of cassava stem cutting. The need to determine the best yielding variety necessitated the study. Five varieties of improved cassava cutting obtained from, IITA Ibandan were planted in randomized complete block design replicated three times. They were planted at planting distance of 1m x 1m and planting depth of 15cm. At sprouting, the growth parameter measured were number of branches, number of leaves, number of nodes and number of internodes. Data were collected at interval of two weeks and data collected were subjected to analysis of variance [ANOVA]. The result in Table [1] revealed the average number of branches and the result show that N8082 had more average number of branches of 1,2, 2 and 2.7 as against TME 419 which had 1,1,1 and 1.3. TMS98/0505 had 1,1, 1.7 and 2.3, TMS 96/1632 had 1,1,1and 1.7 while TMS01/1412 had 1,,1,1.3 and 2.0. Table[2] show average number of leaves and it revealed that TME419 had more number of leaves of 12.0,15.0, 23.0 and 25.0 as against NR8082 which had 9.0,12.0, 20.0 and 23.0. TMS98/0505 had 8.0, 15.0, 18.0 and 22.0 while TMS01/1632 had 6.0, 10.0, 15.0, and 15.0. tms 01/1412 had 6.0, 13.0, 19.0 and 20.0. Table [3] show the number of nodes and it revealed that TME 419 had better nodes of 12.0,17.0, 23.0 and 30.0, as against NR8082 which had 9.0, 14.0, 18.0 and 22.0. TMS 96/1632 had 7.0,11.0, 16.0 and 20.0 while TMS 01/1412 had 7.0, 12.0, 18.3 and 24.0. Table [4] shows the number of internodes, and the results revealed that TME 419 had more number of internode of 15,19, 23 and 28 as against NR8082 which had 15,18,22, and 27. TMS 98/1632 had 6,10,14 and 20 while TMS 01/1412 had 9, 13,17, and 22. However there was significant difference among all the varieties it is therefore recommended that TME 419 should be cultivated in Ozoro and its environs so as to improve the profit margin of cassava farmers.

Keywords : Varieties ,Number of Branches ,Number Of Leaves Number Nodes And Number of Internodes

I. INTRODUCTION

Cassava (manihot spp) is an annual crop which belong to the family of euphobiacea. Some believed it generated from Europe, while others said it came from west Africa. Yam and cassava serve as a major source of carbohydrate after cereals like rice, maize, wheat e.t.c in Nigeria and other west Africa nation (Ziska et al, 2009). Cassava is one of the most important stable foods in human diet in the tropics is ranked as the sixth most important source of energy in human diet(FAOSTAT, 20O9). The edible parts are the tuberous root which are dark brown in color (Sarkiyayi and Agar, 2010). In Nigeria cassava is processed into different food items like garri which can be eaten raw, or soaked with fried fish, coconut, akara moimio or could be prepared into a popular dish known as eba, which could be served along side local soups like egusi(melon), okro, banga. Ogbonor e.t.c. cassava can also be fermented and prepared into a famous dish in the igbo speaking part of the country known as akpu or satana. It is also prepared into chi-

chi, abacha e.t.c. in Nigeria, Delta area, it is processed into a dish known as tapioca which is serve along with fried or dried fish or groundnut. In western Nigeria it is prepared into amala served with okro soup. The starch water from the prepared into amala served with okro soup. The starch water from the cassava is used as coagulant in the processing of rubber instead of the acetic acid. starch obtained from cassava is used as food in the Niger Delta area served along side with banga soup, it is also used for laundry purposes Adeniyi et al 2011 and Clat, 2009. Currently cassava serve as a major source of income to the farmers especially those in south and western Nigeria. Cassava is used for feeding of livestock. The use of cassava has increased since the ban of maize by the government. In Nigeria, a poultry feed trail shows that if cassava roots and leaves are combined in a ratio 4;1, the mixture could replace maize in poultry feed and reduce feed cost without a loose in weight gain or egg production (Alves,2000). If this finding is adopted by farmers and livestock feed producers, The amount of cassava used in livestock feed in Africa would increase

In Nigeria, cassava production has been characterized by dominant use of poor quality planting materials of disease prone to disease, local varieties with long maturity period and low yield (Hay Mathew 2009). In response to the situation in Nigeria, the international institute for tropical agriculture (IITA) , Ibadan ,in collaboration with national root crop research institute umudike have developed 40 high yielding disease resistant improved varieties , these varieties have the potential to raise the cassava productivity on farmers farm by up to 30-40 ton/ha .

The introduction of improved varieties and agronomic practice into cassava production system consequently can increase yields per unit area by 40% (hillock et, al,2000). A survey conducted indicated that a lack of clean planting material was by far the most important problem in cassava production system, followed by low yield of fresh roots (Aina et,al,2007), moreover

rates of adoption and diffusion of the new varieties are slow because one cassava plant can only generate about 10 stem cuttings (Akinwale,et,2010). A total of 16 IITA improved varieties have been distributed to 32 countries and has performed well in Nigeria, Ghana, Cameron and Uganda there could be improvement in the yield of cassava if the farmer can take the opportunity of the availability of improved varieties of cassava , in addition cassava farmers in Ozoro and her environ has a favored climate for the cultivation of cassava. The varieties under investigation are TMS 30572, TMS 30555, BULK11/47, 3044/6/2 and bulk 122.

There are different improved varieties of cassava which the IITA has introduced into Ozoro and her environ, the need to determine the best yielding variety necessiated the study. The main objective is to screen the yield of five varieties of cassava in Delta state polytechnic Ozoro. The specific objective are to determine the following:

1. Number of leaves
2. Number of branches
3 Number of nodes
4. Number of internodes

II. MATERIALS AND METHODS

This experiment was carried out in school of Agriculture research farm in Delta state polytechnic, Ozoro in Isoko North local Government Area of Delta state- Nigeria. It lies between latitude 5^0 30° and 30° north 45^0 north and longitude 605E and 615E, lying immediately North of the costal swamp region of the West Niger Delta. The mean annual rainfall of the area in between 2,500mm to 3,000m and the mean annual temperature it ranges between 28^Oc to 30^Oc (Emakpor and Ogbio, 2001). Five varieties of cassava stem obtained from IITA Ibadan were planted into a randomized complete block design replicated three times. The cutting used for planting was 30cm long and were planted in a planting distances of 1m x 1m.

At sprouting, the parameter measured were number of leaves, number of branches, number of nodes and number of internodes. Data were collected at interval of two weeks and data collected were subjected to analysis of variance [ANOVA]

III. RESULTS

Table[1] shows that TME 419, had more numbers of leaves of 12.0, 15.7, 23.0 and 25.0,as against NR8082 which had 9.0, 12.0, 20.0, and 23.0. TMS 98/0505 had 8.0, 15.0, 18.0 and 22.0. TMS 96/1632 which had 6.0, 10.0, 15.0 and 15.0. TMS 01/1412 had 6.0,13.0,19.0 and 20.0. Table [2] revealed the average number of branches and it shows that NR8082 had more branches of 1,2,2,2,and 2.7, as against TME419 which had 1,1,1,and2.3. TMS96/1632 had 1,1, 1 and1.7 while TMS01/1412 which had 1, 1,1.3 &2. Table [3] shows the number of nodes and it revealed that TME419 had more numbers of nodes of 10.0,17.0,23.0 and 30.0 as against NR8082 which had 9.0,15.0,20.0 and 27.0. TMS 98/0505 had 9.0,14.0,18.0 and220, TMS96/1632 had 7.0,11.0,16.0 and 20.0, while TMS 01/1412 had 7.0,12.0, 18.3 and 24.0. Table [4] shows the number of internodes and the result revealed that TME419 had more internodes of 15,19,23 and 28 as against NR8082 which had 15,18,22, and 27. TMS 98/0505 which had 11,13,16 and18. TMS 96/1632 had 6,10, 14 and 20. TMS01/1412 had 9,13,17,22.and 15

Table 1. Number of branches of four varieties of cassava at 4-10 WAP.

VARIETIES	4	6	8	10
NR8082	1	2	2	2.7
TME419	1	1	1	1.3
TMS98/0505	1	1	1.7	2.3
TMS96/1632	1	1	1	1.7
TMS01/1412	1	1	1.3	2.0
FCAL			4.8	6.2
FTAL			3.8	

Table 2. Average number of leaves of four varieties of cassava at 4-10 WAP

Varieties	4	6	8	10
NR8082	9.0	12,0	20.0	23.0
TME419	12.0	15.0	23.0	25.0
TMS98/0505	8.0	15.0	18.0	22.0
TMS96/1632	6.0	10.0	15,0	15.0
TMS01/1412	6.0	13.0	19.0	20.0
FCAL	93.0	54.0	122.5	123.7S
FTAL	3.8			

Table3. Average number of internodes of four varieties of cassava at 4-10WAP

VARIETIES	4	6	8	10
NR8082	15	18	22	27
TME419	15	19	23	28
TMS98/0505	11	13	16	18
TMS96/1632	6	10	14	20
TMS01/1412	9	13	17	22
FCAL	88.0	45.1	38.3	40.6
FTAB	3.8			

Table 4. Average number of nodes of four varieties of cassava at 4-10 WAP

VARIETIES	4	6	8	10
NR8082	9.0	15.0	20.0	27.0
TME419	10.0	17.0	23.0	30.0
TMS98/0505	9.0	14.0	18.0	22.0
TMS96/1632	7.0	11.0	16.0	20.0
TMS01/1412	7.0	12.0	18.0	24.0
FCAL	1.5	4.8	4.1	4.2
FTAB	3.8			

IV. DISCUSSIONS

Table[1] revealed that TME 419 had more number of leaves and there was significant difference among the five varieties , table [2] shows the average number of branches and it revealed that NR8082 had more number of branches than other varieties however, there was significant difference among the five

varieties . table [3] shows the number of nodes and the result revealed that TME 419 had more number of nodes. Table [4] show the number of internodes and it revealed that TME 419 had more number of internode however, there was significant difference among the five varieties.

V. CONCLUSION/ RECOMMENDATION

The results revealed that TME419 variety performed better in terms of number of branches ,number of leaves, number of nodes and number of inter nodes. The result also shows that there was significant difference among the four varieties throughout the experimental period .It is therefore recommended that variety TME419 should be cultivated in Ozoro so as to boost the profit margin of the cassava farmers in that area.

VI. REFERENCES

[1]. Adeniji, O.T, Odo, P.E and Ibrahim, B. (2011). Genetic relationship and selection sin

[2]. Aina, O.O, Dixon,A.G.O. and Akinrinde E.A. (2007).Genetic variability in cassava as it influences storage root yield in Nigeria. Journal. Biol. Sc 7 : 765-770

[3]. Akinwale, M.A, Akinyele, B.O, Dixon, A.G O and Odiy, A. C. (2010).Genetic variability among forty three cassava genotpes in three agro- ecological Zones of Nigeria. journal of Plant Breeding and crop Science. Vol. 2 (5).pp.104-109.

[4]. Alves, A.A.C. (2000).Cassavs botany and physiology: In Hilock, R.J. Thresh., J.M. and Bellotri, A.C. (Eds).Cassava. biology, production and utilization. Pp.67-89.

[5]. Bioversity International , CLAT.(2009).Key access and utilization description for cassava genetic resources. Bioversity international. Rome, Italy, international center for Tropical Agriculture.

[6]. FAOSTAT.(2009).Food and A gricultural Commodities production; Available on line:http/Fastatt.fao.org.(accessed 26 March,2011).

[7]. Hay Ford, Mathew Adoa.(2009).Growth, Yield and quality of cassava as influenced by taramend 21, poultry manure and inorganic fertilizer. Master of Agronomy Thesis. School of Graduate Studies .Kwame. Nkrumal university of Science and Technology.(KNUST).Kumasi

[8]. Hillock, R.J. Thresh, J.M. and Bellot ,A.C. (2000).Cassava, biology, production and

[9]. Indices for cassava root yield in Adamawa state Nigeria. Africa journal of Agriccltural Research. Vol.(13),pp 2931-2934hnology. Adepoju, O.T and Nwangwu, J O. (2010) .Nutrient composition and contribution of noodles (abacha) and local salad from cassava (Manihot spp)to nutrient intake of Nigerian consumers . Africa journal of Food Science 4(7). Pp. 422-42.

[10]. Nassar, N.M.A. and Sousa, M.V.(2007).Amino acid profile in cassava and its interspecific hybrid.Genet.Mol.Res.6.(2); 292-297.

[11]. Sarkiyayi .S. and Agar, J.M.(2010).Comparative analysis on the nutritional and anti-nutritional content of the sweet and bitter cassava varieties. Advance Journal of Technology .2(6):328-334.

[12]. utilization. New York, CABI publishing

[13]. Ziska,L,Runwn,G.B.,Tomeccek,M.,prio,S.A.,Tor bet, H.A. and Sicher ,R.(2009). An evaluation of cassava ,sweet potato and field corn as potential carbohydrate source for bioethanol production in Alabama and Mary land BIOMASS AND BIOENERGY.33:1503-1504