POTENTIALS FOR TWO CROPS OF OKRA (*Abelmoschus. esculentus*L. Moench) PER ANNUM IN UMUDIKE,SOUTH-EASTERN NIGERIA.

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Abstract.
Eight elite varieties of okra (*A. esculentus* (L.)Moench) were evaluated for yield and other agronomic traits in early and late cropping seasons of 2009 and 2010. The field experiments were conducted in a randomized complete block design with three (3) replications. The early and late plantings were done in May and August of each cropping season. The analysis of variance showed that plant height, number of leaves/plant, number of lateral branches/plant, number of pods/plant, pod length, average weight of pods/pant, 100 seed weight and fresh pod yield differed significantly ($P<0.05$) in each early and late cropping season. In early and late cropping seasons of 2009 and 2010, fresh pod yield recorded positive, strong and significant ($P<0.01$) correlation coefficient with vegetative characters and number of pods/plant and also associated positively, strongly but negatively with pod length, average-weight of pod and 100 seed weight. The varieties NGB/06/080, NG/SA/07/0081 and NG/SA/07/0522 recorded highest values for vegetative and reproductive traits as well as highest fresh pod yield/ha which ranged from 4128.19 to 4222.28 and from 3817.73 to 3971.99Kg/ha in 2009 early and late periods of the cropping season respectively. In 2010, the same varieties had average fresh pod yield of 4157.51 and 3903.43Kg/ha in early and late cropping seasons respectively. Since the fresh pod yields of the varieties were quite high in both early and late cropping seasons and were statistically the same, two crops of okra per annum will boost fresh pod production and enhance food security and well being of the okra farmers in Southeastern Nigeria.
Keywords: Okra varieties, performance attributes, temporal variability, humid tropics.

Introduction
Okra(*Abelmoschusesculentus*) is an important vegetable crop in tropical and subtropical parts of the world (Tindall 1983; Anonymous, 2010). It is a semi-woody, fibrous, herbaceous annual plant with an indeterminate growth habit (Chinatu and Okocha, 2006; Anonymous, 2010). In Nigeria Okra is a very important vegetable in terms of consumption and production area. It is cultivated under rain-fed or irrigation conditions (Katung,2007; Okocha and Chinatu, 2008).
Okra is used by different people in different ways. The immature pods are consumed as boiled vegetables; they are also dried and used as soup thickness or in stews (Yadev and Dhankhar, 2002). The green fruits are rich sources of Vitamins, Calcium, Potassium and other minerals (Lee *et al*., 1990). Okra seeds contain protein, lipids and ash. However, upon removal of the seedhull by grinding, higher percentage of protein, lipids and ash were recorded. Also substantial amount of saturated and unsaturated fatty acids were found in the ratio of 1:55, (Savello*et al.*, 1980).Due to unstable yield which are sometimes low,replacement of local and indigenous varieties/species that grow very tall, with high abortion rate and long life cycle of 8-9 months (Kehinde, 1999) with high yielding varieties of shorter life cycle (3-4 months) will improve yield.The indigenous okra varieties are predominantly cultivated by local farmers in Umudike. The objective of this study is to select okra varieties with short life cycle (3-4 months), suitable for Umudike environment to enhance the prospect of growing two crops of okra per annum, so as to make fresh okra pods available at a cheap price all year round.

Materials and methods.
Study site.
The field experiments were conducted during the early and late cropping seasons of 2009 and 2010 at the Research Farm of Michael Okpara University of Agriculture, Umudike (05^0 29^1 N, 07^0 33^1 E). Information on weather conditions is presented on Table1.
The top soil of the experimental site was sandy-loam. Soil samples collected from the study site before planting were analysed atSoil Science Laboratory, National Root Crops Research Institute, Umudike to determine the nutrient level of the soil. Nitrogen, Phosphorus, Potassium, Calcium and Magnesium were obtained using the Kjeldahl(, flame photometric, oxidation and atomic absorption spectrophometer) methods (Kjeldahl 1983), respectively, while organic matter was obtained using Walkley (1947) and Walkley-Black (Walkley and Black, 1934) methods, % sand, % silt, % clay and pH in water were obtained using the Bouyoucoshydrometer (Jackson,1962) and pH meter methods, respectively.

Experiment.
Eight varieties of Okra were used in the experiment. Seven (NG/SA/07/0516; NG/SA/07/0528; NG/07/0522; NG/SA/07/0546; NG/SA/07/0081; NG/SA/O7/0522 and NGB/06/080) were obtained from National Biotechnological centre, Ibadan while *Climson spineless* was obtained from Michael Okpara University of Agriculture and served as a check, since all the other varieties had never been evaluated inUmudike environment. Each experiment

was a randomized complete block design (RCBD) with three replications. A total of 24 plots each measuring 1.2M x 1.2M, with a distance of 0.6 separating the plots and 1.0M separating the blocks. Each plot had three rows. Each row was 1.2M long. The total experimental area was 13.8 x 5.6M^2.

Table 1: Meteorological information for Umudike, Nigeria (May – November) 2007 and 2008.

2009	Maximum	Minimum		
Months	**Average Monthly Rainfall(mm)**	**Average Monthly temperature (^{0}C)**	**Average Relative humidity (%)**	
May	**396.132.4**	**23.0**	**75.0**	
June	**237.5**	**31.5**	**22.5**	**77.5**
July	**300.9 29.9**	**22.3**	**82.5**	
August	**287.429.4**	**22.4**	**83.0**	
September	**205.330.3**	**23.0**	**79.0**	
October	**305.330.4**	**22.5**	**77.0**	
November	**23.7**	**32.022.266.0**		
December	**00.0**	**34.6**	**22.4**	**60.5**
2010				
May	**138.5**	**32.2**	**24.277.0**	
June	**427.0**	**30.1**	**23.682.3**	
July	**310.2**	**29.6**	**23.0**	**81.6**
August	**376.729.5**	**23.0**	**82.8**	
September	**303.3**	**29.5**	**22.8**	**82.0**
October	**349.0**	**30.822.8**	**82.2**	
November	**77.8**	**31.0**	**23.4**	**79.3**
December	**6.4**	**32.7**	**21.8**	**62.1**

Source: National Root Crop Research Institute Meteorological Station, Umudike

Table 2: Physico-chemical properties of soil at Umudike (Southeastern Nigeria) experimental site in 2009 and 2010.

	Soil analytical data		
Parameter	**2009**	**2010**	**Method of analysis**
Organic matter	**1.94%**	**2.90%**	**Walkleyand Walkley- Black methods**
Total N	**0.05%**	**0.06%**	**Kjeldahl Method**
Av.P	**0.96 mg/kg**	**11.01mg/kg**	**Flame photometric**
K	**0.12%**	**0.13%**	**Oxidation**
Ca	**3.10(cmol/Kg)**	**2.95(cmol/Kg)**	**A. A. S.**
Mg	**1.40(cmol/Kg)**	**1.40(cmol/kg)**	**A. A. S.**
% Sand	**81.80%**	**80.11%**	**Hydrometer**
% Silt	**6.80%**	**7.60%**	**Hydrometer**
% Clay	**12.20%**	**12.40%**	**Hydrometer**
pH(H_2O)	**5.26**	**5.58**	**pH Meter**

PH= Plant height, NL/P= Number of branches per plant, NLB/P= Number of lateral branches per plant, NF/P= Number of flowers/plant, NP/P= Number of pods/plant, WP= Weight of podsWP= Weight of pods LP=Length of pods, SW=Seed weight, FPY=Fresh pod yield.

In 2009 and 2010, the seeds of okra varieties were sown three per hole at a spacing of 0.6M x 0.6M between and within rows. The seeds were planted on 14th May and 7th August for early and late periods of the cropping seasons respectively in 2009 and 2010. Plants were thinned down to one (1) per stand, three weeks after seedling emergence, giving a population of approximayely27,778 plants/ ha.Mixed fertilizer, NPK (15:15:15) was applied at the rate of 200kg/ha as described by Ekpete, (2000), 4 weeks after planting. Weeding was done annually using hoe at three (3), six (6) and nine (9) weeks after planting. Karate (*Lambda cyhadrothrin*, containing 25g of *Lambda cyhadrothrin* per litre) brand of insecticide was applied at the rate of 800ml/ha to control

Podagricaspp attack. Harvesting was done when the tip of pod was observed to break easily when pressed with the finger tip (Usman, 2001).

Data analysis.
Data were collected on the following attributes, plant height, number of leaves/plant, number of lateral branches/ plant, number of flowers/plant, number of pods/plant, weight of pods, pod length and fresh pod yield/ha. All data were statistically analyzed using the analysis of variance (ANOVA), and the Least Significant Difference (LSD) was used for mean separation ($P<0.05$) following the process of Obi (2001). Correlation analysis between fresh pod yield and other agronomic traits considered were also determined.

Results and Discussion.The average monthly temperature and relative humidity range recorded over the trial period of two years were considered optimal for the growth and development of okra,(Oyelu, 2002; Katung, 2007; Anonymous, 2010). Total Nitrogen and exchangeable Potassium were low while available Phosphorus was of medium level in both years. Organic matter content was low, while pH in water was slightly acidic (Table 2).The application of compound fertilizer (N.P.K) was to raise the nutrient status of the soil. The results of the experiments are presented on Tables 3, 4, 5, 6, 7 and 8. Plant height varied from 65.0 to 125.6 and from 60.0 to 122.6cm in 2009 early and late cropping season. It also varied from 65.2 to 128.1 and from 59.4 and 122.5cm in early and late cropping season of 2010 respectively. The analysis of variance (ANOVA) showed that plant height was significant ($P<0.05$) in both early and late cropping season. Least significant difference (LSD) was used in separating the heights (Tables 3 and 4). Plant height correlated positively, strongly and significantly ($P<0.01$) with fresh pod yield, (Tables 5, 6, 7 and 8) in early and late cropping season of each year.

Table 3: Performance of 8 Varieties of *A. esculentus* under Umudike conditions in 2009 Early and Late cropping seasons.

Varieties:	NG/SA/07/0516		NG/SA/07/0528		NG/SA/07/0522		NG/SA/07/0546		NG/SA/07/0081		*Clemson spineless*		NG/SA/07/0519		NGB/06/080		$FLS_{0.05}$	
Period	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late
Plant attribute																		
PH(cm)	72.1	72.5	81.9	85.9	124.7	109.5	69.9	71.8	120.2	119.6	65.0	60.0	74.2	65.7	125.6	122.6	18.9	20.4
NL/P	33.7	33.9	40.1	38.4	60.3	52.4	33.0	32.0	58.8	54.3	28.3	25.8	34.0	27.9	60.5	57.7	8.2	10.4
NLB/P	1.7	1.4	2.0	2.33	3.7	3.2	1.3	1.3	3.3	3.0	1.3	1.1	1.7	1.1	3.7	3.5	1.0	0.8
NF/P	9.3	8.4	10.0	10.7	14.0	13.3	8.3	7.7	13.5	12.8	7.0	6.7	9.0	6.7	14.3	13.4	3.3	2.4
NP/P	5.3	5.0	6.2	5.8	9.7	8.3	4.5	4.1	9.4	8.9	3.7	3.4	4.8	3.7	9.9	8.9	1.9	1.4
WP(g)	17.9	15.5	17.9	16.8	15.4	14.6	18.1	16.6	15.9	16.0	17.7	16.5	17.6	16.1	15.4	9.6	0.7	0.8
LP (cm)	13.6	15.1	15.4	14.9	15.5	1 5.6	13.4	14.7	16.2	15.9	17.6	17.7	13.1	14.5	17.1	16.7	0.9	1.3
100 SW(g)	7.3	7.8	7.3	7.8	6.7	6.5	7.8	7.8	6.6	6.7	7.95	7.2	7.8	7.3	6.2	6.4	0.4	0.7
FPY(kg/ha)	2639.9	2499.5	3043.6	2889.2	4142.3	3817.7	2252.9	2174.6	4128.2	3953.3	1800.0	1688.6	2335.9	1878.6	4222.5	3971.9	833.2	238.8

PH= Plant height, NL/P= Number of branches per plant, NLB/P= Number of lateral branches per plant, NF/P= Number of flowers/plant, NP/P= Number of pods/plant, WP= Weight of podsWP= Weight of pods LP=Length of pods, SW=Seed weight, FPY=Fresh pod yield.

Table 4: Performance of 8 Varieties of *A. esculentus* under Umudike conditions in 2010 Early and Late cropping seaon

Varieties:	NG/SA/07/0516		NG/SA/07/0528		NG/SA/07/0522		NG/SA/07/0546		NG/SA/07/0081		*Clemson spineless*		NG/SA/07/0519		NGB/06/080		FLS $_{0.05}$
Period	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early late
Plant attribute																	
PH(cm)	79.8	72.5	88.6	83.7	122.9	107.6	72.5	73.5	124.6	117.3	65.2	59.4	68.0	64.7	128.1	122.5	19.4	22.7
NL/P	36.9	33.3	38.5	38.2	54.3	50.6	33.5	31.2	57.8	54.4	26.4	26.3	30.2	27.2	57.9	54.7	12.2	6.8
NLB/P	2.0	1.3	2.0	2.3	3.3	2.7	1.7	1.3	3.3	3.1	1.0	1.0	1.3	1.3	3.67	3.3	1.5	1.1
NF/P	9.0	8.3	9.7	10.0	13.7	13.0	7.7	7.7	13.5	13.0	6.7	6.3	7.0	7.7	13.5	12.7	2.5	2.9
NP/P	5.6	5.0	6.0	5.5	9.2	8.5	4.0	4.0	9.3	8.8	4.0	3.1	4.3	4.2	9.2	8.6	1.4	1.8
PW(g)	11.4	11.1	11.6	10.1	9.6	9.5	11.3	11.2	10.4	10.9	11.6	11.2	11.4	11.	39.4	9.4	0.7	0.8
PL (cm)	18.0	18.1	18.5	18.3	15.9	15.5	19.1	18.9	15.9	16.0	17.5	17.8	18.9	18.81	16.9	16.9	1.36	1.7
100 SW(g)	7.5	7.5	7.3	7.2	6.5	6.0	7.8	7.3	6.3	6.9	8.0	8.0	7.5	7.83	5.96	5.6	1.0	0.7
FPY(kg/ha)	2819.7	2507.4	3070.8	2790.4	4043.7	53736.1	11973.2	2100.0	4111.5	3917.3	1942.0	1695.2	2270.9	2178.9	4317.3	4056.9	449.3	291.5

PH = Plant height, NL/P= Number of leaves/plant, NLB/P= Number of lateral branches, NF/P= Number of flowers/plant, NP/P= Number of pods/plant, WP= Weight of pods, LP= Length of pods, SW= Seed weight, FPY= Fresh pod yield, Ha= Hectare.

Table 5: Linear correlation matrix between eight (8) Agronomic characters of eight (8) Okra (*A sculentus*) genotypes and their fresh pod yield under Umudike conditions in 2009 early cropping season.

	PH	NL	NLB	NF	NP	LP	WP	SW	FPY
PH	**1.000**	**0.984****	**0.960****	**0.929****	**0.962****	**-0.955****	**-0.932****	**-0.936****	**0.944****
NL		**1.000**	**0.965****	**0.939****	**0.9973****	**-0.956****	**-0.928****	**-0.939****	**0.959****
NLB			**1.000**	**0.964****	**0.971****	**-0.939****	**-0.952****	**-0.954****	**0.955****
NF				**1.000**	**0.976****	**-0.953****	**-0.932****	**-0.919****	**0.975****
NP					**1.000**	**-0.974***	**-0.950****	**-0.955****	**0.995****
LP						**1.000**	**0.967***	**0.940***	**-0.958***
WP							**1.000**	**0.963***	**-0.919***
SW								**1.000**	**-0.931***
FPY									**1.000**

****implies highly significant difference (p<0.01), * implies significant difference (p<0.05) PH = Plant height, NL/P = Number of leaves/plant, NLB/P = Number of lateral branches, NF/P = Number of flowers/plant, NP/P = Number of pods/plant, WP= Weight of pods, LP= Length of pods, SW= Seed weight, FPY= Fresh pod yield, Ha= Hectare**

Table 6: Linear correlation matrix between eight (8) Agronomic characters of eight (8) Okra *A.esculentus*) genotypes and their fresh pod yield under Umudike conditions in 2009 late cropping season.

	PH	NL	NLB	NF	NP	LP	WP	SW	FRY
PH	**1.000**	**0.986****	**0.961****	**0.980****	**0.981****	**-0.773****	**-0.863****	**-0.811****	**-0.973****
NL		**1.000**	**0.962****	**0.976****	**0.982****	**-0.808****	**-0.865****	**-0.818****	**0.975****
NLB			**1.000**	**0.984****	**0.982****	**-0.856****	**-0.848****	**-0.780****	**0.965****
NF				**1.000**	**0.982****	**-0.830****	**-0.887****	**-0.825****	**0.975****
NP					**1.000**	**-0.795****	**-0.892****	**-0.830****	**0.993****
LP						**1.000**	**0.764****	**0.751****	**-0.778****
WP							**1.000**	**0.938****	**-0.840****
SW								**1.000**	**-0.775****
FPY									**1.000**

****implies highly significant difference (p<0.01), * implies significant difference (p<0.05) PH = Plant height, NL/P = Number of leaves/plant, NLB/P = Number of lateral branches, NF/P = Number of flowers/plant, NP/P = Number of pods/plant, WP= Weight of pods, LP= Length of pods, SW= Seed weight, FPY= Fresh pod yield, Ha= Hectare**

Table 7:Linear correlation matrix between eight (8) Agronomic characters of eight Okra (*A. esculentus*) genotypes and their fresh pod yield under Umudike conditions in 2010 early cropping season.

	PH	NL	NLB	NF	NP	LF	WP	SW	FPY
PH	**1.000**	**0.985****	**0.922****	**0.984**	**0.979****	**-0.846****	**-0.846****	**-0.947****	**0.952****
NL		**1.000**	**0.938****	**0.989**	**0.964****	**-0.840****	**-0.816****	**-0.932****	**0.930****
NLB			**1.000**	**0.930**	**0.885****	**-0.803****	**-0.810****	**-0.866****	**0.844**
NF				**1.000**	**0.982****	**-0.855****	**-0.795****	**-0.952****	**0.961****
NP					**1.000**	**-0.870****	**-0.817****	**-0.964****	**0.988****
LP						**1.000**	**0.793****	**0.874****	**-0.878****
WP							**1.000**	**0.776****	**-0.742****
SW								**1.000**	**-0.960****
FPY									**1.000**

****implies highly significant difference (p<0.01), * implies significant difference (p<0.05) PH = Plant height, NL/P = Number of leaves/plant, NLB/P = Number of lateral branches, NF/P = Number of flowers/plant, NP/P = Number of pods/plant, WP= Weight of pods, LP= Length of pods, SW= Seed weight, FPY= Fresh pod yield, Ha= Hectare**

Table 8:Linear correlation matrix between (8) agronomic character of eight (8) Okra (*A.esculentus*) genotypes and their fresh pod yield under Umudike conditions in 2010 late cropping season.

	PH	NL	NLB	NF	NP	LP	WP	SW	FPY
PH	**1.000**	**0.719****	**0.659****	**0.649****	**0.662****	**-0.607****	**-0.475****	**-0.542****	**0.678****
NL		**1.000**	**0.943****	**0.952****	**0.963****	**-0.777****	**-0.736****	**-0.817****	**0.950****
NLB			**1.000**	**0.948****	**0.927****	**-0.737****	**-0.678****	**-0.794****	**0.927****
NF				**1.000**	**0.980****	**-0.813****	**-0.785****	**-0.860****	**0.927****
NP					**1.000**	**-0.810****	**-0.792****	**-0.848****	**0.989****
LP						**1.000**	**0.749****	**0.930****	**-0.794****
WP							**1.000**	**0.847****	**-0.706****
SW								**1.000**	**-0.814****
FRY									**1.000**

****implies highly significant difference (p<0.01), * implies significant difference (p<0.05) PH = Plant height, NL/P = Number of leaves/plant, NLB/P = Number of lateral branches, NF/P = Number of flowers/plant, NP/P = Number of pods/plant, WP= Weight of pods, LP= Length of pods, SW= Seed weight, FPY= Fresh pod yield, Ha= Hectare**

Clemson spineless recorded the least mean heights while NGB/06/080, NG/SA/07/0081 and NG/SA/07/0522 recorded the highest heights in both early and late cropping season of each year.

Katung (2007) reported mean height of 67.5cm in Northern Nigeria while Anonymous, (2010) reported a range of 61.3 to 101.2cm for improved varieties of *A.caillei*.

The ANOVA showed that the varieties differed significantly (P<0.01) with respect to number of leaves, LSD separated the leaf number means of the varieties in early and late cropping seasons of 2009 and 2010, (Tables 3 and 4). Number of leaf associated strongly and highly significantly (P<0.01) with fresh pod yield and other agronomic traits considered, (Tables 5, 6, 7 and 8). The number of leaves ranged from 28.3 to 60.5 and from 25.8 to 57.7 in 2009 early and late cropping season respectively. In 2008, it varied from 26.4 to 57.9 and from 27.2 to 54.7 in early and late cropping season respectively, (Tables 3 and 4). In early and late cropping seasons of both years Clemson spineless and NGB/06/080 recorded the lowest and highest number of leaves respectively. Just like plant height, the number of leaves recorded for NGB/06/080 did not differ significantly (P>0.05) with leaf number of NG/SA/07/0522 and NG/SA/07/0081. Okocha and Chinatu, (2008) and Anonymous, (2010) reported ranges of 39.0 to 55.1 and 46.4 to 93.1 respectively in *A.esculentus*.Katung(2007), reported mean leaf number (22.4) in Zaria, Northern Nigeria.

The ANOVA showed that the varieties differed significantly (P<0.05) with respect to number of lateral branches in both years, in early and late cropping seasons. LSD separated the varietal means. Lateral branches associated positively, strongly and significantly (P<0.01) with fresh pod yield/ha, plant height, number of leaf and number of pods/plant, but associated negatively, strongly and significantly (P<0.05) with pod length, weight of pod and 100seed weight (Tables 5,6,7and 8). In 2009 early and late planting season, number of lateral branches varied from1.3 to 3.7 and from 1.0 to 3.3 respectively. In 2008 early and late cropping season, it varied from 1.0 to 3.7 and from 1.0 to 3.3 respectively. Number of lateral branches has significant effect on okra fresh pod yield (Adeniji, 2003; Chinatu and Okocha, 2006;Okocha and Chinatu, 2008) . Vegetative characters (plant height, number of leaves and number of lateral branches) determine the amount of photosynthates available for plant growth, fresh pod and seed yield,(Alfredo *et al*., 1999; Ajibade and Morakinyo, 2000; Adeniji ,2003;Ezeakunne, 2004 and Okocha and Chinatu 2008). Vegetative characters have also been strongly associated with high yields inchilli pepper(Rajesh and Culshan, 2001). The findings in this work show that vegetatively, the varieties that performed creditably well in early period of the planting season also performed well in the late season of same cropping season.

The results for number of flowers and number of pods/plant are presented on Tables 3 and 4. The ANOVA showed that the varieties differed significantly (P< 0.05) with respect to number of pods/ plant. LSD separated the varietal means into groups. Number of pods correlated positively and significantly (P<0.01) with vegetative characters and fresh pod yield/ ha. In 2009 early and late planting season, number of pods/plant varied from 3.7 to 9.9 and from 3.4 to 9.0, while in 2010, it varied from 4.0 to 9.2 and from 3.4 to 8.8 in early and late cropping seasons respectively.Katung (2007), Okocha and Chinatu, (2008) and Anonymous, (2010), reported range of 6.6 to 8.2, 5.3 to 8.7, and 5.2 to 9.2 pods/plant respectively.Akorod*aet al*., (1987) reported an average of 3.9, 4.9 and 4.8 dry pod/plant on NHAe 47-4, TAE 38 and OP80 varieties respectiveiy. This shows that NGB/06/080, NG/SA/07/0081 and NG/SA/07/0522 performed very well in both early and late cropping seasons of 2009 and 2010.

The results of pod length, pod weight and 100 seed weight are presented on Tables 3and 4. The varieties differed significantly (P<0.05) in both early and late cropping seasons of 2009 and 2010. In each year, negative, strong and significant (P < 0.05) association was deduced between fresh pod yield/ ha and pod length, fresh pod yield/ha and weight of pod and fresh pod yield/ha and 100 seed weight in both early and late cropping seasons. This implied that varieties that bore heavier pods had fewer numbers, hence, the heavier the pods the smaller the yield/ha. The findings from this work agreed with the earlier works of Akorod*aet al*.,(1987), who reported that pod length is so significant (distinctive feature), that it could serve as the basis of classification of okra genotypes.Okocha and Chinatu, (2008) andKatung (2007) reported yields of about 1000 to 3000Kg/ha in the tropics, The fresh pod yield of NGB/06/080, NG/SA/07/0081 and NG/SA/07/0522 in early and late cropping season of 2007 were 4222.5, 4128.2 and 4142.3 and 3972.0, 3953.3 and 3817.7 Kg/ha, respectively. In 2008, NGB/ 06/080 , NG/SA/07/0081 and NG/SA/07/0522 recorded fresh pod yield of 4317.3, 4111.5and 4043.8 and 4056.9, 3917.3 and 3736.1Kg/ha in early and late cropping season respectively.

Conclusion.

Two crops of okra per annum without irrigation is highly feasible. The varieties NGB/06/080, NG/SA/07/0081 and NG/SA/07/0522 could be released to the farmersin Umudike. This will boost fresh pod production thereby enhancing the drive for food security as well as improvement in the welfare of farmers in Umudike in Abia State, Nigeria.

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