International Journal of Agriculture Innovations and Research
Volume 4, Issue 3, ISSN (Online) 2319-1473
Manuscript Processing Details (dd/mm/yyyy) :
Received : 15/11/2015 | Accepted on : 27/11/2015 | Published : 07/12/2015

Yield Performance of Newly Breed Sweetpotato Entries under Cold Weather Conditions of La Trinidad, Benguet, Philippines

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Abstract – **This study represents the evaluation of eighteen newly breed sweetpotato entries with temperatures ranging from 10-21°C from September 2013 to January 2014. Different sweetpotato entries includes; JK 09-05-01, JK 07-01, JK 09-11-07, JK 09-11-08, JK 09-12-07, JK 09-25-05, PRCRTC breeding lines; SG 08-09-03, SG 08-09-02, SG 08-09-11, SG 08-09-12, SG 08-10-01, SG 08-11-05, SG08-15-01, SG 08-19-01are IPB-UPLB breeding lines. Results showed that the two newly NSIC 31 and 32 approved variety had the highest yield of 27.33t/ha and 29.03 t/ha. however entries SG 08-19-01, SG 08-09-02, SG 08-15-01 and JK 09-12-07 were highly potential because of their high yield with yield ranging from 18.75 to 21.78 tons per hectare which was higher over the check variety NSIC 30 and PSB Sp 22 . Most of these entries had dark oranged fleshed color except SG 08-09-02 with white fleshed and found to be acceptable. SG 08-15-01 was highly acceptable for its good flavour, color and appearance. JK 09-11-07 and JK 09-05-01 had high dry matter content with 35.58%. Sugar content had ranged from 8.40 - 20.20 ^{0}brix. JK 09-25-05, SG 08-09-11 and JK 09-05-01 had the highest sugar content with 20.07^0 brix and 20.20, ^{0}brix and 19.70^{0}brix, respectively.**

Keywords – **Dry Matter Content, Flavour, Oranged Fleshed, Sugar Content.**

I. INTRODUCTION

Sweetpotato *(Ipomoea batatas)* is traditionally important food crop and it is grown mainly for subsistence and commercial purposes. It is easily integrated into agricultural systems and it's comparatively easy to grow in the tropics as it exhibits no marked seasonality. Sweetpotato is used as an alternative staple food or as a supplement of rice. Department of Agriculture has intensified its efforts to increase production of sweetpotato in the region and now one of the priority crops supported. Ananayo, 2011 also stated that cordillera produces the best table sweetpotato (camote) with good climate which is suitable for this crop. Several varieties of sweetpotato are highly adaptable to either both in lowland and highland conditions. Their adaptability is significant for their high yielding ability, good root characteristics and preferred eating qualities. The proper choice of variety is important and the wise use of improved variety has resulted in tremendous increase in yield thus selecting the right variety will minimize problems associated in mean crop failure because of disease infection and adverse climatic condition.

The sweetpotato has a tremendous yield potential by the 30 t/ha produced in 5 months from improved lines grown under good management. It is tolerant to cold and can be grown as high as in the tropical zones. Temperature, moisture, light effects, the summation of areas weather, are the factors whose actions and interaction must be considered in physical environment of plants. These factors determine when, where and what plants will be grown, thus, yield is of the obvious difference in performance of certain crops between local condition (Janick, 1997) as cited by Catay (1996).

Northern Philippines Root Crops Research and Training Center of Benguet State University is one of the cooperating agency of this national program for the testing of newly breed sweetpotato entries. Other cooperating agencies includes; Luzon; Albay, Quezon, Laguna, Isabela, Tarlac and BSU; Visayas includes; Bohol, Bacolod, Leyte, Visayas State University, Mindanao includes, University of Southern Mindanao and NOMIAR. Benguet State University - NPRCRTC represents the highland conditions.

Continuous evaluation trials is being undergone to evaluate yield performance of new sweetpotato entries for high yield and its resistance to pest and diseases and sensory acceptability and to be recommended to the National Seed Industry Council (NSIC) for variety approval.

II. PROCEDURE

A. Source of planting materials

Sweet potato entries evaluated was taken from the different breeding stations; Institute of Plant Breeding, University of the Philippines, Los Banos, and Philippine Root Crops Research and Training Center, Visayas State University, (PRCRTC-VSU) Baybay, Leyte.

The treatment were the following:

Code	Entries	Source
Sp1	JK 09-05-01	PRCRTC
Sp2	JK 09-07-01	PRCRTC
Sp3	JK 09-11-07	PRCRTC
Sp4	JK 09-11-08	PRCRTC
Sp5	JK 09-12-07	PRCRTC
Sp6	JK 09-25-05	PRCRTC
Sp7	MILA (local ck)	NPRCRTC
Sp8	NSIC 31(ck)	variety
Sp9	NSIC 32 (ck)	Variety
Sp10	PSBSP 22 (ck)	variety
Sp11	SG 08-09-03	IPB-UPLB
Sp12	SG 08-09-02	IPB-UPLB
Sp13	SG 08-09-11	IPB-UPLB
Sp14	SG 08-09-12	IPB-UPLB
Sp15	SG 08-10-01	IPB-UPLB

Sp16	SG 08-11-05	IPB-UPLB
Sp17	SG 08-15-01	IPB-UPLB
SP18	SG 08-19-01	IPB-UPLB
SP19	NSIC 30(ck)	variety

B. Land preparation and lay-outing

An area of 684 square meters was thoroughly prepared and divided into three block. Each block will consist of 19 plots measuring 1X12 meter. Fourty (40) apical cuttings from each entry evaluated are planted in each plot spaced at 30 cm between hills. The study laid out following randomized complete block design (RCBD) with three replication.

C. Planting

The sweet potato tips cuttings from the different entries with length of 30 cm were prepared. The shoot tips cuttings were planted to the field immediate after cuttings with a distance of 30 cm between hills. The trial was planted September 2013 and was harvested January 2014.

D. D. Care and management

All other recommended cultural management such as fertilizer application, were employed equally to all the treatment to attain maximum production.

Harvesting was done five month after planting (5MAP).

E. E. Data gathered includes:

1. Plant survival (%). This was taken 45 days after planting (DAP) using the formula:

2. Plant Vigor. Plant vigor was rated at 45, 75, 90 and 120 days after planting (DAP) using the following rating scale

Scale	Description	Remarks
5	Plant are strong robust stems and leaves; dark green in color	High Vigorous
4	Plant are moderately strong with robust stem and leaves; are light green	Vigorous
3	Better than less vigor	Moderately vigorous
2	Plant are weak with few thin Stems and leaves; pale	Less Vigorous
1	Plant are weak with few Stems and leaves; very pale	Poor Vigor

3. Rating scale for Scab. Leaf scab infection of ten sample plants from each variety taken at random will be rated starting one month after planting up to one month before harvest using the following scale.

Rating	Description	Remarks
5	Lesion on leaves and stems leaf deformation and stem twisting	Susceptible
4	Severe lesion on leaves and stem leaf deformation and stem twisting	Moderately Susceptible
3	Severe lesion on leaves and stems, no stem deformation.	Moderately Resistant
2	Few lesions on leaves and stems, no stem deformation	Resistant
1	No symptoms	Very Resistant

4. Percent (%) diseases incidence *fusarium oxifarum*. The fungi infestation was taken by counting the number of plants infected.

5. Vine length (cm). The average vine length was measured from 10 sample plants taken at random per plant at harvest.

6. Herbage yield (kg). This was taken per plot at harvest by weighing the vines.

7. Number and weight of marketable roots (kg). All storage root with a diameter of 3 cm and above and free from defects was counted and weighed.

8. Number and weight of non-marketable roots (kg) Storage roots with defects and damage by insect and diseases and below 3 cm in diameter was counted and weighed.

9. Total yield per treatment (kg). This was the total weight of marketable and non-marketable storage root recorded and harvested.

10. Computed Yield (tons/ha). This was taken by converting the yield per plot (kg/ m^2) into tons per hectare using the formula:

$$\text{Yield (tons/ha)} = \frac{\text{Yield per pot (kg)}}{\text{Plot size m}^2} \times \frac{1\,\text{ton}}{1000\,kg}$$

11. Sensory Evaluation. Storage roots harvested from four entries was boiled and evaluated by seventeen (17) panelist using the nine-point hedonic rating scale. The evaluation was based on appearance, color, flavor and sweetness. The general acceptability was taken by computing the means of the ratings. The scale and description are as follows. Appearance, color, flavor, sweetness, and general acceptability(Huaman 1997).

Scale	Description
9	like extremely
8	like very much
7	like moderately
6	like slightly
5	neither like nor dislike
4	dislike slightly
3	dislike moderately
2	dislike very much
1	dislike extremely

12. Storage roots characteristics. This was the visual description based on skin color, flesh color and shape using the Huamans descriptors's list.

13. Dry matter content. This was taken by weighing at least 30 grams of storage root and oven dry. The dry natter content was computed as fallows

$$\%\text{DMC} = 100 - \%\,\text{MC}$$

Where; the formula:

$$\%\ \text{DMC} = \frac{\text{Fresh weight} - \text{oven dry weight}}{\text{Fresh weight}}$$

14. Sugar content. This was taken by extracting the juice from the roots and measure using the digital refractometer.

Data Analysis

All quantitative data were analyzed using the analysis of variance (ANOVA) for Randomized Complete Block Design with three replication. The significance among

treatment means was tested using the Duncan's Multiple Range Test (DMRT) at 5% level of significance.

III. RESULTS

Plant survival

Significant difference was observed in the plant survival of the 18 sweet potato entries evaluated (Table 1). JK 09-12-07 and NSIC 30, check variety obtained the highest survival rate at 97.5 %.

Plant vigor

Table 2, shows the plant vigor of the 18 sweet potato entry evaluated. At 45 days after planting (DAP) six of the entries evaluated are highly vigorous such as JK 09-25-05, MILA, local check, SG 08-11-05, and NSIC 30 check variety, JK 09-05-01, and SG 08-10-01. At 90 days after planting (DAP), it is observed that all of the treatments are highly vigorous.

Leaf scab infestation

Table 3, shows the leaf scab infestation of the 18 sweetpotato entries evaluated. At 45 days it was observed that there was no infestation but at 120 days after planting (DAP), MILA, JK 09-11-7, NSIC 30 and JK 09-05-01 showed to be resistant based from the rating. This may be attributed to the genetic make up of the variety.

Fungi infestation

Table 4, shows the number of plant infected by stem rot caused by fungi *Fusarium oxysporum f. sp. batatas* (Masangcay 2013). It was observed that NSIC 31, check variety and SG 08-12-07 had the lowest number of plant infected followed by SG 08-09-12 while the highest number of infected plant was entry JK 09-11-08.

Vine length (cm) and herbage yield (kg)

Table 5, shows the vine length and herbage yield of the 18 sweetpotato entries studied. It was observed that MILA, local check and JK 09-25-05 had the longest vine with the mean of 348.67 and 217.23 respectively followed by NSIC 30 (ck variety) which is comparable to JK 09-05-01. In terms of the herbage yield, significant difference was observed. NSIC 30, check variety obtained the highest herbage yield followed by MILA and SG 08-09-12. With this result it was noted that the herbage yield of the 18 sweet-potato entry evaluated doesn't depend only on the vine length but in the vine size and number of leaves as well.

Number of marketable and non-marketable roots per plot

Table 6, highly significant differences were recorded on the number of marketable and non-marketable roots per plot indicating the 18 sweetpotato entries evaluated. JK 09-12-7 obtained the most numerous marketable roots with a mean of 139.5 followed by NSIC 31 with the mean of 129.6 and 129. The lowest marketable root was obtained from JK 09-25-05 with the mean of 27 roots. Among the treatment, SG 08-11-05 had the most numerous non-marketable roots with a mean of 141.33 and the lowest was the SG 08-10-01 with a mean of 20 roots per plot.

Weight of marketable and non-marketable roots per plot (kg)

Table 7, shows the weight of marketable and non-marketable roots of the 18 sweetpotato entries. Significant differences were observed in the weight of marketable roots. NSIC 31, check variety obtained the heaviest with mean of 28.66 kg, and JK 09-12-07 with mean of 27.7 kg and 20.86kg. The lightest was obtained from SG 08-09-12. In terms of the weight of non-marketable roots, there was significant differences, entry JK 09-11-08 had the heaviest and the lightest was entry SG 08-09-11.

Total yield per plot (kg) and computed yield per hectare (t/ha)

Table 8, shows the total yield per plot and computed yield per hectare with significant difference noted among the 18 sweetpotato entries evaluated. Considering the environmental condition, incidence of pest and diseases, soil fertility and cultural management, NSIC 32, and NSIC 31, the check varieties produced the highest yield with a mean of 34.83kg and 32.80kg, respectively followed by JK 09-12-7, SG 08-09-02, and MILA, local check with the mean of 26.13kg, 24.50kg and 23.90, respectively while SG 08-09-12 registered the lowest yield per plot.

Dry matter content (%) and sugar content (brix)

Table 9, highly significant difference among the entries was observed in terms of dry matter content and sugar content of the storage roots. JK 09-05-01 and JK 09-11-07 had the highest dry matter content among the 18 entry evaluated with the mean of 35.58% followed by JK 09-25-05 with the mean of 33.33 %. The lowest dry matter content recorded was the SG 08-19-02 with the mean of 21.11%. In terms of sugar content, JK 09-25-05 had the highest sugar content of 20.20^{o}Brix, followed by SG 08-09-11 and JK 09-05-01 with the mean of 20.07^{o}Brix and 19.70^{o}Brix. SG 08-11-05 had the lowest sugar of 8.40^{o} Brix.

Sensory evaluation

Table 10.1 and table 10.2, shows the result of the sensory evaluation of the 18 sweetpotato entries evaluated using the hedonic rating scale. Based from the rating of the 17 judges, SG 08-15-01 was rated as like very much (rating of 8-9) in terms of appearance, color, flavor, sweetness and general acceptability but in terms of texture it was rated as like moderately. Seven entries were like moderately (rating of 8-7) while nine entries were rated as like slightly (rating of 6-7). SG 08-09-12 was rated as neither like and dislike slightly with rating of 5-6.

Storage root characteristics

Table 11, shows the storage root characteristics of the 18 sweetpotato entries. Entries had diverse skin and flesh color. Corrugated malformed roots was observed in SG 08-09-11 and good shape oblong was entry SG 08-15-01. Malformed roots was attributed to the varietal characteristics and to the climatic conditions of the locality.

International Journal of Agriculture Innovations and Research
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Tables

Table 1: Percent (%) Plant Survival at 45 Days After Planting (DAP) of Eighteen (18) Sweetpotato Entries

ENTRY	SURVIVAL (%)
JK 09-07-01	88.33^{defg}
SG 08-15-01	89.16^{cdefg}
NSIC 31 (ck)	92.50^{ebdac}
SG 08-09-11	83.33^{g}
JK 09-12-07	97.50^{a}
JK 09-11-08	94.16^{abcd}
MILA (local ck)	95.83^{ab}
SG 08-09-02	86.66^{efg}
NSIC 32 (ck)	94.16^{abcd}
SG 98-09-12	94.16^{abcd}
SG 08-11-05	93.33^{abcd}
JK 09-11-07	88.33^{defg}
NSIC 30 (ck)	97.50^{a}
JK 09-05-01	95.00^{abc}
SG 08-09-01	90.83^{bcdef}
SG 08-10-01	85.83^{fg}
JK 09-25-05	91.66^{abdcef}
PSBSP 22 (ck)	91.66^{abcdef}
CV (%)	3.41

Means with the same letter are not significantly different.

Table 2. Plant Vigor of Eighteen (18) Sweetpotato Entries

ENTRY	45(DAP)	75 (DAP)	90 (DAP)	120 (DAP)
JK 09-07-01	Moderately Vigorous	Vigorous	High Vigorous	Vigorous
SG 08-15-01	Vigorous	High Vigorous	High Vigorous	High Vigorous
NSIC 31 (check)	Vigorous	High Vigorous	High Vigorous	Vigorous
SG 08-09-11	Vigorous	High Vigorous	High Vigorous	High Vigorous
JK 09-12-07	High Vigorous	High Vigorous	High Vigorous	Vigorous
JK 09-11-08	High Vigorous	High Vigorous	High Vigorous	Vigorous
MILA (local ck)	High Vigorous	High Vigorous	High Vigorous	High Vigorous
SG 08-09-02	Vigorous	High Vigorous	High Vigorous	High Vigorous
NSIC 32 (ck)	Vigorous	High Vigorous	High Vigorous	High Vigorous
SG 08-09-12	Vigorous	High Vigorous	High Vigorous	High Vigorous
SG 08-11-05	High Vigorous	High Vigorous	High Vigorous	Vigorous
JK 09-11-07	Moderately Vigorous	Vigorous	High Vigorous	High Vigorous
NSIC 30 (ck)	High Vigorous	High Vigorous	High Vigorous	High Vigorous
JK 09-05-01	High Vigorous	High Vigorous	High Vigorous	High Vigorous
SG 08-19-01	Vigorous	Vigorous	High Vigorous	High Vigorous
SG 08-10-01	Moderately Vigorous	Vigorous	High Vigorous	High Vigorous
JK 09-25-05	High Vigorous	High Vigorous	High Vigorous	High Vigorous
PSBSP 22 (ck)	High Vigorous	High Vigorous	High Vigorous	High Vigorous

Table 3. Leaf Scab Infestation of Eighteen (18) Sweetpotato Entries

Entry	45 (DAP)	138 (DAP)
JK 09-07-01	Very Resistant	Very Resistant
SG 08-15-01	Very Resistant	Very Resistant
NSIC 31 (ck)	Very Resistant	Very Resistant
SG 08-09-11	Very Resistant	Very Resistant
JK 09-12-07	Very Resistant	Very Resistant
JK 09-11-08	Very Resistant	Very Resistant
MILA (local ck)	Very Resistant	Resistant
SG 08-09-02	Very Resistant	Very Resistant
NSIC 32 (ck)	Very Resistant	Very Resistant
SG 08-09-12	Very Resistant	Very Resistant
SG 08-11-05	Very Resistant	Very Resistant
JK 09-11-07	Very Resistant	Resistant
NSIC 30 (ck)	Very Resistant	Resistant
JK 09-05-01	Very Resistant	Resistant
SG 08-19-01	Very Resistant	Very Resistant
SG 08-10-01	Very Resistant	Resistant
JK 09-25-05	Very Resistant	Very Resistant
PSBSP 22 (ck)	Very Resistant	Very Resistant

Table 4. Percent Incidence /Number of Plant Infected by *Fusarium oxifarum*

ENTRY	NUMBER OF INFECTED PLANT PER PLOT
JK 09-07-01	15.8
SG 08-15-01	17.5
NSIC 31 (check)	1.7
SG 08-09-11	20.0
JK 09-12-07	2.5
JK 09-11-08	27.5
MILA (local ck)	22.5
SG 08-09-02	14.2
NSIC 32 (ck)	10.0
SG 08-09-12	6.7
SG 08-11-05	14.2
JK 09-11-07	8.3
NSIC 30 (ck)	10.8
JK 09-05-01	11.7
SG 08-19-01	20.0
SG 08-10-01	15.0
JK 09-25-05	19.2
PSBSP 22 (ck)	15.0

Table 5. Vine Length and Herbage Yield of Eighteen (18) Sweet Potato Entries

ENTRY	VINE LENGTH		HERBAGE YIELD (Kg)	
JK 09-07-01	96.2	ih	8.17	e
SG 08-15-01	126.9	fg	13.50	c
NSIC 31 (check)	136.23	f	16.90	c
SG 08-09-11	72.9	j	7.70	e
JK 09-12-07	137.83	f	25.63	b
JK 09-11-08	108.17	gh	20.87	bc
MILA (local ck)	348.67	a	31.10	a
SG 08-09-02	113.9	gh	21.00	bc
NSIC 32 (ck)	139.3	ef	19.47	bc
SG 08-09-12	105.3	gh	27.93	ab
SG 08-11-05	106	gh	18.23	c
JK 09-11-07	160.23	de	11.90	d
NSIC 30 (ck)	198.67	bc	33.30	a
JK 09-05-01	177.93	cd	25.50	b

SG 08-19-01	162.13	d	21.87	bc
SG 08-10-01	77.9	ij	10.57	de
JK 09-25-05	217.23	b	24.77	b
PSBSP22 (ck)	168.73	d	17.23	c
CV%	8.57		18.74	

Means with the same letter are not significant difference

Table 6. Number of Marketable and Non-marketable of Eighteen (18) Sweet Potato Entries

ENTRY	MARKETABLE(kg)	NON-MARKETABLE(kg)
JK 09-07-01	89^{bcde}	76.33^{abcde}
SG 08-15-01	88.33^{bcde}	64.67^{bcde}
NSIC 31 (ck)	129^{ab}	102.67^{abcd}
SG 08-09-11	44^{efg}	36de
JK 09-12-07	139.5^{a}	81.67^{abcde}
JK 09-11-08	46^{efg}	91^{abcde}
MILA (local ck)	60^{cdefg}	121.33^{abc}
SG 08-09-02	49.33^{defg}	49.67^{cde}
NSIC 32 (ck)	129.67^{ab}	126.67^{a}
SG 08-09-12	37.67^{fg}	129^{a}
SG 08-11-05	92^{bcd}	141.33^{a}
JK 09-11-07	61^{cdefg}	104^{abcd}
NSIC 30 (ck)	68.33^{cdefg}	69.67^{abcde}
JK 09-05-01	66.33^{cdefg}	128^{a}
SG 08-19-01	101^{abc}	108.33^{abcd}
SG 08-10-01	64.33^{cdefg}	20.67^{e}
JK 09-25-05	27^{g}	37.67^{de}
PSBSP22 (ck)	79.67^{cdef}	104.67^{abcd}
CV%	30.77	43.77

Means with the same letter are not significant difference

Table 7. Weight of Marketable and Non-Marketable Roots of the Eighteen (18) Sweetpotato Entries

ENTRY	MARKETABLE (kg)	NON-MARKETABLE (kg)
JK 09-07-01	15.00cde	3.30bc
SG 08-15-01	18.66cd	3.83abc
NSIC 31 (check)	27.73ab	5.06abc
SG 08-09-11	11.06defg	1.80c
JK 09-12-07	20.86bc	5.26abc
JK 09-11-08	10.80defg	9.60a
MILA (local ck)	16.50cd	7.40abc
SG 08-09-02	17.03cd	7.46abc
NSIC 32(ck)	28.66a	6.16abc
SG 08-09-12	4.06g	4.90abc
SG 08-11-05	14.83cde	8.00ab
JK 09-11-07	6.96efg	4.33abc
NSIC 30 (ck)	17.83cd	3.60bc
JK 09-05-01	12.33cdef	5.73abc
SG 08-19-01	19.33cd	4.13abc
SG 08-10-01	14.10cde	1.80c
JK 09-25-05	5.26fg	1.63c
PSBSP22 (ck)	17.06cd	6.06abc
CV %	28.45	59.8

Means with the same letter are not significant difference

Table 8. Total Yield per Plot and Computed Yield per Hectare of Eighteen (18) Sweetpotato Entries

ENTRY	TOTAL YIELD(kg)		COMPUTED YIELD (t/ha)
JK 09-07-01	18.30	cde	15.25
SG 08-15-01	22.50	bcd	18.75
NSIC 31 (check)	32.80	a	27.33
SG 08-09-11	12.87	efg	10.72
JK 09-12-07	26.13	b	21.78
JK 09-11-08	20.40	bcd	17.00
MILA (local ck)	23.90	bc	19.92
SG 08-09-02	24.50	bc	20.42
NSIC 32 (ck)	34.83	a	29.03
SG 08-09-12	8.97	fg	7.47
SG 08-11-05	22.83	bcd	19.03
JK 09-11-07	11.30	efg	9.42
NSIC 30 (ck)	21.43	bcd	17.86
JK 09-05-01	18.07	cde	15.06
SG 08-19-01	23.47	bcd	19.56
SG 08-10-01	15.90	edf	13.25
JK 09-25-05	6.90	g	5.75
PSBSP22 (ck)	23.13	bcd	19.28
CV%	5.75		3.4

Means with the same letter are not significant difference

Table 9: Dry Matter (%) and Sugar Content of the Eighteen (18) Sweetpotato Entries

ENTRY	DRY MATTER CONTENT (%)		SUGAR CONTENT (^{o} Brix)	
JK 09-07-01	27.80	de	13.00	g
SG 08-15-01	31.11	bc	18.77	b
NSIC 31 (check)	24.45	fg	10.30	i
SG 08-09-11	28.00	de	20.07	a
JK 09-12-07	30.00	cd	17.87	cd
JK 09-11-08	23.33	gh	18.43	bc
MILA (local ck)	26.70	ef	9.23	jk
SG 08-09-02	31.10	bc	14.23	f
NSIC 32 (ck)	26.68	ef	11.33	h
SG 08-09-12	23.33	gh	15.37	e
SG-08-11-05	26.70	ef	8.40	k
JK 09-11-07	35.58	a	17.43	d
NSIC 30 (ck)	28.90	cde	9.60	ij
JK 09-05-01	35.58	a	19.70	a
SG 08-19-01	21.11	h	13.30	g
SG 08-10-01	28.13	cde	17.50	d
JK 09-25-05	33.33	ab	20.20	a
PSBSP22 (ck)	31.11	bc	11.27	h
CV%	5.7		3.4	

Means with the same letter are not significant difference

Table 10.1. Sensory Evaluation of the Eighteen (18) Sweetpotato Entries

ENTRY	APPEARANCE	COLOR	TEXTURE
JK 09-07-01	like moderately	like slightly	like slightly
SG 08-15-01	like very much	like very much	like moderately
NSIC 31 (check)	like moderately	like moderately	like slightly
SG 08-09-11	like very much	like very much	neither like nor dislike
JK 09-12-07	like moderately	like moderately	like slightly
JK 09-11-08	like slightly	like slightly	like slightly
MILA (local ck)	like moderately	like moderately	like moderately
SG 08-09-02	like moderately	like slightly	like moderately
NSIC 32 (ck)	like slightly	like slightly	like slightly
SG 08-09-12	like slightly	neither like nor dislike	neither like nor dislike
SG-08-11-05	like slightly	like slightly	like slightly
JK 09-11-07	like slightly	neither like nor dislike	neither like nor dislike
NSIC 30 (ck)	like moderately	like moderately	like slightly
JK 09-05-01	like moderately	like moderately	like moderately
SG 08-19-01	like moderately	like slightly	like slightly
SG 08-10-01	like moderately	like moderately	neither like nor dislike
JK 09-25-05	like slightly	like very much	like slightly
PSBSP 22 (ck)	like slightly	like slightly	like slightly

Table 10.2 Sensory Evaluation of the Eighteen (18) Sweetpotato Entries

ENTRY	FLAVOUR	SWEETNESS	GENERAL ACCEPTABILITY
JK 09-07-01	like moderately	like moderately	like moderately
SG 08-15-01	like very much	like very much	like very much
NSIC31 (check)	like slightly	like moderately	like moderately
SG 08-09-11	neither like nor disliked	Neither like nor disliked	like slightly
JK 09-12-07	like moderately	like slightly	like slightly
JK 09-11-08	like slightly	like slightly	like slightly
MILA (local ck)	like moderately	like moderately	like moderately
SG 08-09-02	like moderately	like moderately	like moderately
NSIC 32 (ck)	like slightly	like slightly	like slightly
SG 08-09-12	neither like nor dislike	dislike slightly	neither like nor disliked
SG-08-11-05	like slightly	like slightly	like slightly
JK 09-11-07	like slightly	like moderately	like slightly
NSIC 30 (ck)	like moderately	like moderately	like moderately
JK 09-05-01	like moderately	like very much	like moderately
SG 08-19-01	like slightly	like moderately	like moderately
SG 08-10-01	like slightly	like slightly	like slightly
JK 09-25-05	like slightly	neither like nor disliked	like slightly
PSBSP22 (ck)	like slightly	like slightly	like slightly

Table 11. Storage Roots Characteristics of the Eighteen (18) Sweetpotato Entries

EMTRY	SKIN COLOR	FLESH COLOR	SHAPES
JK 01 07 01	Yellow	Orange	Elongated
SG 08 15 01	pinkish	Orange	Good shape oblong
NSIC 31 (check)	Pinkish light	White	Elongated
SG 08 09 11	Violet	Violet	Malformed
JK 09 12 07	red	Cream	Elongated good
JK 09 11 08	Pinkish	White	Elongated thin
Mila (local ck)	yellow	yellow	Elongated
SG 08 09 02	Red violet	White	Elongated
NSIC 32 (ck)	Pinkish dark	White	Corrugated
SG 08 09 12	Pinkish red	Yellow	Elongated
SG 08 11 05	Pinkish light	Yellow	Elongated
JK 09 11 7	Purple dark yellow	White purple	Good Elongated
NSIC 30 (ck)	Orange	Orange	Elongated good shape
JK 09 05 01	Pinkish light	Purple with white like	Elongated
SG 08 19 01	Pink orange	Orange	Elongated
SG 08 10 01	Violet	Violet	Malformed
JK 09 25 05	Deep violet	Violet with white	Fair
PSBSP 22 (ck)	Dark purple	Cream	Elongated

IV. Conclusion

The results showed significant difference between the different sweetpotato entries in terms of plant survival, plant vigor, number of marketable and non-marketable roots, weight of marketable roots, total yield per plot and computed yield tons per hectare, dry matter and sugar content, however there is no significant difference observed on weight of non-marketable roots. It was observed that JK 09-12-07 and PSBSP 30, check variety had the highest survival rate, and was highly vigorous at 75 DAP. At 45 DAP all the treatments were very resistant and no leaf scab infestation. Among all treatments, NSIC 31 (ck) and SG 08-12-07 had the lowest on fusarium rot infestation. MILA (local check), and NSIC 30, check variety both had the longest vine and high in herbage yield with significance differences. These varieties are found suitable for the hog raisers who are feeding them as fresh vine. The most numerous marketable roots were obtained from JK 09-12-7, and the lowest was from JK 09-25-05. Among the eighteen entries, NSIC 31 and NSIC 32, the check varieties still showed the highest marketable and total yield and computed yield per hectare. None of the other varieties had surpassed the newly approved varieties. No correlation was observed on dry matter and sugar content of different sweetpotato entries except for JK 09-02-01. Highest dry matter content were observed on sweetpotato entries JK 09-11-07 and JK 09-05-01, with 35.58%, respectively, Sweetpotato entries JK 09-25-05, and SG 08-09-11, with 20.20°Brix, 20.07°Brix, 19.70°Brix respectively, had the highest sugar content.

Acknowledgment

The is to acknowledge the NPRCRTC staffs who were been involve in the project the fund support from PRCRTC, the BSU administrative staffs for without them this project has not been a success. Thank you and Good Bless.

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