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GROWTH, YIELD AND QUALITY OF BANANA (*MUSA SAPIENTUM* L) INFLUENCED BY DIFFERENT BANANA VARITIES/LINES AND PLANTING TIME

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ABSTRACT

A study was carried out to find the optimum planting time and suitable variety on quantity and quality of fruit of banana at the Regional Agricultural Research, Station, Ishurdi, Pabna, Bangladesh during 2009-2010. Six planting time viz, 15th September, 15th October, 15th November, 15th February, 15th March and 15th April and three varieties cv. sabri, ITC-1441 and BARI-kala-1 were used. The plant of 1 November planting were shorter in height (250cm) minimum crop duration was recorded in February planting (328.7 days) while it was maximum in September planting (454.2days). Among planting time, October planting time had higher bunch weight (19.5kg). Significantly higher bunch weight (15.3kg) was obtained from BARI-kala-1. In case of planting time and variety interaction October planting and BARI-kala-1 produced higher bunch weight (23.6kg) and number of finger per bunch (200). It was concluded that October planting and BARI-kala-1 combination is the best in Ishurdi region of Bangladesh

Key words: Musa sapientum, planting time varieties, Bangladesh

INTRODUCTION

Banana (*Musa Sapientam* L) is the best known tropical fruit. It is one of the economically important fruit crops grown in Bangladesh both in homestead and commercial farms (Ahmed 1984). The area under banana in Bangladesh is about 58,000ha and the annual production is about 1,004,520t (BBS 2009).

A number of dessert banana varieties in Bangladesh, but their performance are not equally well in all regions due to difference in varietal adaptability and microclimatic variation (Ahmed *et al*. 1973 and Ahmed *et al*. 1974). Amritsagar, the widely accepted commercial variety has been declining due to its low yield. Amritsagar produced only 8.13kg/bunch in the hilly area at Jaintapur, Sylhet as reported by Saha *et al*. (1992). The highest yield (14.9kg/bunch) was obtained from variety Mehersagar as reported by Islam *et al*. (1995) which is not well accepted by the consumers. Amritsagar and Sabri banana yield was 13.5kg and 10.2kg/bunch, respectively at Trishal, Mymensingh as reported by Hoque and Ahmad (2003). Different cultivars or varieties produced varying yield in different region of different countries.

Banana planting is done all the year round in order to secure better prices during off-season. Its market price greatly fluctuates in different month which directly affects the farmer's income (Haque 1984). Sometimes, flesh of banana plant is found to have hard lumps. Due to this, it is very difficult to cultivate banana in Ishurdi region. Cool weather and prolonged drought retrial growth banana plants need at least 25mm (1.0in) of water per week of good growth, more under some conditions for optimum development (Robinson, 1996).

Khan (2002) and Hoque (2004) postulated the avoiding of cold weather in December to January and high rainfall in July to August for planting banana. In southern Queensland the optimum time of planting is between September and mid December (Broodly 1994). The season of planting of banana varies between the various states. Banana are grown all through the year, while the peak season vary in different parts of the country and regions. In view of the different divergence of climatic and soil condition in our country. Inspite of its unique postion among the fruit crops of Bangladesh, limited studies have been regarding yield potential of different varieties under different agro-ecological zone of the

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country have been conducted. Scientist have different opinion and recommendation about planting season of banana. Therefore, the present study was aimed to find out the most suitable variety and optimum planting time for the best growth and yield of banana in Ishurdi region of Bangladesh.

MATERIALS AND METHODS

The experiment was conducted at the experimental field of Regional Agricultural Research Station, Ishurdi, Pabna in Bangladesh during 2009-2010. Three banana varieties viz; sabri, BARI kala-1 and ITC-1441 and six planting times 15th September, 15th October, 15th November, 15th February, 15th March and 15th April were included in this trial. The experiment was laid out in RCBD (Factorial) with three replications. Experimental area is situated at 24.03^0N latitude and 89.05^0E longitude at an elevation of 16m above sea level, with mean annual rainfall of 1775mm. The warmest (36^0c max.) and coldest (10.3^0c max.) months are June and January, respectively. Experiment plot was clay loam in texture belonging to high Ganges River flood plain under AEZ 11. The selected plot was well drained having pH value 8.5. Plot size was 4m*4m which included four plants per plot. The sucker were planted in pits or $60cm^3$ size. Pits were filled with top soil and thoroughly mixed with farmyard manures @ cow dung 85 tons, TSP-1500kg, and gypsum 60 kg per hectare during land preparation. The plants were side-dressed with urea and MP @ 1540 kg and 1850kg ha, respectively, in four installments starting from two months after planting. Weed control measures were adopted in field accordingly. All management practices such as hoeing, mowing, mulching, irrigation, desuckering, propping, spraying, fungicides and insecticides were done according to recommendation. Data in respect of vegetative characteristics, quantitative and qualitative contributing characteristics of fruits were recorded. Banana bunches were harvested with a curved knife when fruits were fully developed, 75 percent mature, angles were becoming less prominent and fruits of per hands stated to change their colour from dark green to light green. The bunch after harvest were kept at room temperature (13.2^0c) for ripening. Weight of selected bunches was measured just after harvest. TSS percentage was determined by hand refractometer (ATAGO IN Brix 0-32% Japan). The flesh of banana was taken in tip of refractometer. In refractometer scale was 0-32, where dark colour was arise in scale. The data were analyzed statistically means were separated by DMRT.

RESULTS AND DISCUSSION

Varietal effect of growth parameter

A highly significant variation was observed among the varieties/lines in respect of pseudostem height (Table 1). Maximum pseudostem height (3.1m) was obtained from local sabri. This result are in agreement with the findings of Ghose *et al*. (1992). BARI-kala-1 produced minimum pseudostem height (1.8m). ITC-1441 produced the maximum number of green leaves per plant (13.5) at shooting stage. This corroborated with the findings of Hoque *et al.* (2007). The highest number of yellow leaves (3.4) are found in sabri and lowest (2.8) in ITC-1441. Maximum number of sucker (8.7) was produced by sabri and lowest (7.2) in BARI-kala-1 at shooting. The base girth of the banana varieties/lines ranged from 55 to 73.0cm. The base girth of sabri was significantly highest (73cm) as compared to other varieties/lines which was

Table 1: Growth parameter of different varieties.

Varieties	Days to shooting	Pseudostem height (cm)	No. of green leaves/ plant at shooting	No. of yellow leaves/ plant shooting	No. of sucker at shooting	Base girth at shooting (cm)	Top girth at shooting (cm)	Days to harvest
Sabri	342.44a	312.17a	9.78c	3.44a	8.67a	73.22a	39.67a	434.72a
BARI-kala-1	276.06b	184.67c	12.11b	3.11ab	7.17b	55.78c	37.83b	356.06c
ITC-1441	277.22b	277.67b	13.60a	2.83b	8.00a	63.72b	39.00ab	363.72b
Level of significance	**	**	**	*	**	**	**	**
CV%	1.90	3.07	10.82	19.13	14.92	4.67	4.52	1.48

statistically differed from other treatment. The minimum base girth (55cm) was recorded in BARI-kala-1 while the maximum (73cm) was produced by sabri. The highest top girth (39.7cm) was obtained from sabri and the lowest (37.8cm) was in BARI-kala-1. Sabri took longer duration (434.7days) to harvest than other treatment ITC-1441 and BARI-kala-1 363.7 days, and 356.1 days, respectively, which are in agreement with the findings of Ghose *et al*. (1992).

Planting time effect on vegetative growth

The results in respect of vegetative growth are presented in Table 2. Early shooting (242. 2days) was found in February planting. Similar results were reported by Bahri *et al*. 2002. The late shooting was recorded in September planting (375.2days). February planting had the maximum pseudostem height (262.8cm) which was statistically identical to September, March and April Planting 260.2cm and 259.7cm, respectively. Maximum number of green leaves was found in October planting (14.6) which was significantly differed from the other plantings. The results are in agreement with the findings of Hoque (2006) and Haque (1984). Maximum number of yellow leaves (4.1) was found in February planting while the minimum (2.7) was found in October planting. September planting had more number of suckers (14.7) compared to other plantings. The results is in agreement with the findings of Ghose *et al.* (1992). Planting time did not influenced on base girth at shooting. October planting had the maximum top grith (39.8cm) which was statistically identical to September and November planting 39.3cm and 39.4cm, respectively. September planting had longer duration (454.2days) while February planting took least duration (328.7days). This result corroborated with the findings of Ghose *et al*. (1992). Crop may vary due to edaphic, climatic and management factors. It is very complex to explain. However, while all the factors are similar in all the treatments, it might be the difference in edaphic and climatic factors at different stages of plant growth which ultimately determine crop duration.

Quantitative and qualitative related factors effect on varieties

Quantitative and qualitative contributing characteristics of varieties differed among the treatments for pseudostem weight, number of bunch, single fruit weight, bunch weight, fruit length, fruit breadth, yield (t/ha), weight of flesh, weight of skin, TSS% and edible portion (Table 3). Sabri produced the highest pseudostem weight (2.6kg) while the least (2.1kg) was recorded in ITC-1441. The highest number of hands per bunch (10.3) was obtained from ITC-1441 which was statistically differed from the others. The fruits of BARI-kala-1 were heaviest fruit weight (121.0g). The germplasm ITC-1441 (98.1g) produced the smallest fruits. Heaviest bunch weight (15.3kg) was also produced by BARI-kala-1 and the germplasm ITC-1441 produced the lowest (14.6g). Variation of bunch weight was also reported by Hoque and Ahmed 2003 and Hoque *et al*. (2007). The highest number of fingers per bunch was recorded in ITC-1441 (164.4) and the lowest in sabri (138.4) which was statistically similar to BARI-kala-1. Similar observations were also found by Hoque

Table 2: Vegetative growth of banana as affected by planting date

	Days to shooting	Pseudostem height	No. of green leaves/plant at shooting	No. yellow leaves/plant at shooting	No. of sucker at shooting	Base girth at shooting	Top girth at shooting	Days to harvest
September	375.22a	258.78a	12.67b	2.67b	14.67a	64.33	39.33a	454.22a
October	334.89b	257.11ab	14.56a	2.66b	7.44b	65.0	39.78a	425.78b
November	304.22c	250.44b	13.89ab	2.89b	7.44b	62.33	39.44a	383.22c
February	242.22f	262.78a	10.56c	4.11a	7.00bc	65.00	38.56ab	328.68f
March	254.33e	260.22a	10.33c	3.22b	6.00cd	65.22	38.78ab	341.67c
April	280.56d	259.67a	8.78d	3.20b	5.11d	63.56	37.11b	375.44d
Level of significance	**	*	**	**	**	NS	*	**
CV%	1.90	3.07	10.82	19.13	14.62	4.67	4.52	1.48

Table 3: Quantitative and quality related characteristics of different varieties

Varieties	Pseudostem weight (kg)	No. of hands/ bunch	Single fruit weight (g)	Bunch weight (kg)	No. fingers/ bunch (cm)	Finger length (cm)	Finger breadth (cm)	Yield (t/ha)	Weigth of flesh (g)	Weight of skin (g)	TSS %	Edible portion (%)
Sabri	2.6	8.6b	104.0b	14.7b	138.4b	12.7b	12.1b	35.9b	80.4b	23.7b	23.4a	73.1c
BARI-kala-1	2.2	8.3b	121.0a	15.3a	139.8b	14.2a	11.6c	42.3a	86.9a	34.2a	19.2c	76.3b
ITC-1441	2.1	10.3a	98.0c	14.6b	164.4a	11.8c	12.5a	40.3a	77.6b	20.5c	21.9b	79.0a
Level of significance	**	**	**	*	**	**	**	**	**	**	**	
CV%	6.27	7.45	3.90	4.98	3.49	3.21	2.69	4.90	5.78	5.25	4.32	2.49

et al. (2007). The longest fruits were recorded in BARI-kala-1 (14.2cm) and the shortest was found in ITC-1441 (11.8cm). The germplasm ITC-1441 had the fruits of maximum breadth (12.5cm). The highest yield per hectare was received from BARI-kala-1 (42.3t/ha) and the lowest (35.9 t/ha) was recorded in ITC-1441. For single finger weight and fruit length of BARI-kala-1 (121.00 g and 14.2cm) ranked first against sabri and ITC-1441. The maximum weight of flesh (86.9g) was produced by BARI-kala-1 while the least (77.6g) was recorded in ITC-1441. BARI-kala-1 was also produced the highest weight of skin (34.2g) while the lowest weight of skin (20.5g) was also obtained from the ITC-441.In TSS, sabri excelled (23.4%), ITC-1441 (21.9%) and BARI-kala-1 (19.2%). The edible portion was 79.0% in ITC-1441 which significantly higher as compared to BARI-kala-1 and sabri. The edible portion was 76.3% and 73.1%.

Quantitative and qualitative characteristics of different planting time

Quantitative and qualitative contributing characteristics significantly differed among the different planting time. September planting excelled in pseudostem weight (2.5kg) which was significantly identically to October planting (2.5kg). The highest number of hands per bunch (9.7) was obtained from October planting and lowest (8.4) was recorded in April planting. The maximum bunch weight (19.5kg) was produced by October planting. The bunch of October planting received warm temperature all through during the development of fruits. These results agree those of Hoque (2006). The fruit of September planting produced the heaviest fruits (114g) which was statistically identical to October planting (111g). The maximum bunch (19.5kg) produced by October planting was due to the highest number of hands per bunch. The minimum number of hands per bunch and bunch weight in April planting, 8.4, and 12.7kg, respectively. These results agree to those of Ghose and Hossain (1992). The highest number of fingers per bunch (170) was obtained from October which was significantly differed from the others treatment. The longest fruits were recorded in November planting (13.5cm) which was statistically identical to October planting (13.2cm). October planting had the fruits of maximum breadth (12.3cm) closely followed by November (12.3cm), March (12.2cm) and April (12.2cm). October planting stood first (47.4 t/ha) against minimum yield from April planting (34.9 t/ha) (Table 4) which was statistically differed from the others. The results were in support of Hoque (2006). Weight of flesh was highest in October

Table 4: Quantitative and quality contributing characters of different planting time.

Varieties	Pseudostem weight (kg)	No. of hand/ bunch	Single fruit weight (g)	Bunch weight (kg)	No. of fingers/ bunch	Finger length (cm)	Finger breadth (cm)	Yield (t/ ha)	Weight of flesh (g)	Weight of skin (g)	TSS%	Edible portion (%)
September	2.5a	8.9bc	114.0a	14.1c	136.4d	12.7b	11.7b	38.9bc	84.4a	29.6b	23.4a	74.2b
October	2.5a	9.7a	111.0a	19.5a	170.8a	13.2a	12.3a	47.4	85.4a	25.9c	23.0a	73.7b
November	2.4b	9.0abc	106.0b	14.3bc	151.2b	13.5a	12.3a	40.1bc	84.3a	21.9d	21.2b	77.8a
February	2.1cd	9.2ab	107.0b	14.6b	144.8c	12.4b	11.8b	38.7b	84.3a	32.3a	20.9bc	77.7a
March	2.2c	9.2ab	99.0c	13.8c	143.7c	12.7b	12.2a	35.6c	76.4b	22.7d	20.2c	76.5a
April	2.0	8.4c	101.0c	12.7d	138.3d	12.8b	12.2a	34.9d	76.7b	24.5c	20.3bc	76.8a
Level of significance	**	*	**	**	**	**	**	**	**	**	**	**
CV%	6.27	7.45	3.90	4.98	3.49	3.21	2.69	4.89	5.78	5.25	4.32	2.49

planting (85.4g) and the lowest was recorded in March and April planting (76.4g and 76.7g) respectively. February planting had the maximum weight of skin (32.3g) and lowest (21.9g) was found in November planting. Increase in fruit diameter in October planting occurred due to warm temperature which favored this character. Gawry and Meyer (1975) also report that breadth of banana fruit increased with rise in temperature up to 29^0c. The highest TSS was observed in fruits of September planting closely followed by October planting (23.0%), and November planting (21.2%). The TSS (23.4%) of fruits lower in March and April planting (20.2% and 20.3%) respectively. The results are in agreement with the findings of Hoque (2006) and Holder and Gumbs (1981) who reported September to November as the best planting months for banana in respect of yield. The present results were also in support of Roger Broadly, (1994). Edible portion were also significantly differed from other treatment.

Interaction effect of varieties and planting time

Interaction effect was found significant in respect of days to shooting, pseudostem height, number of green leaves, number of yellow leaves, number of sucker, base girth, top girth per plant at shooting stage, base girth and top girth at harvesting stage and days to harvest (Table 5). Early shooting was found in April planting with BARI-kala-1 combination (218.3day) and late was found in sabri with September planting treatment (429.7days). The longest pseudostem (319cm) was recorded in sabri when couple with September planting which was statistically identical to sabri with October planting (316cm) combination. The germplasm ITC 1441 with October planting produced the highest number of functional leaves (16) which was statistically identical to November planting (15.7) with ITC-1441. The highest number of suckers were found in September planting with sabri combination (16.7). Maximum base girth at shooting and harvesting stage were produced by sabri when coupled with October planting 75.7cm and 73.3cm, respectively. Significant difference was found in top girth at shooting and harvest stage. However, highest top girth at shooting and harvesting stage was 42.0cm and 39.0cm, respectively in ITC 1441 for October planting September planting took longer duration (524.3days) with sabri combination.

Interaction effect was also significantly in case of pseudostem weight, number of hand

Table 5: Variety and planting time interaction effect on vegetative characteristics of banana.

Varieties	Days to shooting	Psedo stem height (cm)	No. of green leaves /plant at shooting	No. of yellow leaves at shooting	No. of sucker at shooting	Base girth at shooting (cm)	Top girth at shooting (cm)	Days to harvest (days)
V_1P_1	429.7a	319.0a	12.0b-e	3.7a-c	16.7a	74.0a	40.7a-d	524.3a
V_1P_2	381.7b	316.0a	13.7a-c	2.7c-e	8.0cd	75.7a	38.7a-e	475.7b
V_1P_3	362.3c	309.3ab	12.0b-e	3.7a-c	7.7c-e	73.0a	41.3ab	446.7c
V_1P_4	331.3d	313.3ab	8.0fg	4.7a	8.0cd	75.3a	41.0a-c	423.7d
V_1P_5	288.0f	315.7a	7.0g	3.3b-d	6.0d-g	74.0a	39.7a-e	378.0g
V_1P_6	261.7i	299.7bc	6.0g	2.7c-e	5.7e-g	67.3b	36.7e	360.0h
V_2P_1	361.3c	183.0f	11.7c-e	2.0e	13.7b	57.3de	37.7c-e	420.0d
V_2P_2	310.7e	186.3ef	14.0a-c	2.7c-e	5.3fg	54.3ef	38.7a-e	393.3f
V_2P_3	275.7g	167.3g	14.0a-c	275c	7.0d-f	50.7f	37.3de	348.7ij
V_2P_4	265.3hi	198.3e	10.7de	4.3ab	6.7d-f	56.3de	36.3e	343.3j
V_2P_5	225.0k	188.7ef	12.0b-e	3.3b-d	6.3d-f	57.0de	40.3a-d	326.0k
V_2P_6	218.3k	184.3ef	10.3e	2.7a-c	4.0g	59.0c-e	36.7e	305.0l
V_3P_1	334.7d	274.3d	14.3ab	2.3de	13.7b	61.7b-d	39.7a-e	418.3d
V_3P_2	312.3e	269.0d	16.0a	2.7c-e	9.0c	65.0b	42.0a	408.3e
V_3P_3	274.7gh	274.7d	15.7a	2.3de	7.7c-e	63.3bc	39.7a-e	354.3hi
V_3P_4	245.0j	276.7d	13.0b-d	3.3b-d	6.3d-f	63.3bc	38.3b-e	339.3h
V_3P_5	250.0j	276.3d	12.0b-e	3.0c-e	5.7e-g	64.7b	36.3e	321.0k
V_3P_6	246.7j	295.0c	10.0f	3.3b-d	5.7e-g	64.3bc	38.0b-e	321.0k
Level	**	**	*	*	*	*	**	**
CV%	1.90	3.07	10.82	19.13	14.62	4.67	4.52	1.48

Table 6: Variety and planting time interaction effect on quantitative and qualitative contributing characteristics of banana

Varieties	Pseudo stem wt.(kg)	Number of hands/ bunch	Single fruit weight (g)	Bunch weight (kg)	Number of fingers/ bunch	Fruit length (cm)	Fruit breadth (cm)	Weight of flesh (g)	Weight of skin (g)	TSS (%)	Edible portion (%)	Yield (t/ ha)
V_1P_1	3.3a	9.0d-g	107.7cd	13.7f-i	160.7cd	12.1g-i	11.5g	78.0de	29.7c	23.7b	71.7ij	43.4bc
V_1P_2	3.3a	9.7b-e	104.8cd	17.8b	149.7e	13.1-e	12.3c-f	87.3bc	17.5h	22.7b	72.7hi	39.3ab
V_1P_3	2.4b	9.0d-g	104.5cd	12.04j	137.7f	12.2f-h	11.4g	82.7cd	21.9ef	24.3b	76.2c-h	36.1ab
V_1P_4	2.2b-d	8.0g-i	136.3b	14.3d-g	128.0gh	12.9c-f	12.2d-f	98.3a	38.0a	23.3b	75.6d-h	43.5bc
V_1P_5	2.2b-d	8.3f-i	89.9ef	14.9c-f	128.0gh	13.1c-e	12.4c-e	72.8ef	17.1h	23.3b	73.7g-i	28.8d-f
V_1P_6	2.1c-e	7.7hi	81.3ef	15.1c-e	126.7gh	12.7d-g	12.6b-d	63.3g	18.0gh	20.7c	68.6j	25.5d-f
V_2P_1	1.9de	7.7hi	140.3a	15.9c	96.0i	13.6bc	10.3h	102.0a	38.3a	20.3cd	74.1f-i	33.6cd
V_2P_2	1.9de	9.0d-g	136.7b	23.6a	200.3a	14.2b	11.7fg	96.7a	40.0a	19.0c-e	71.9ij	68.5a
V_2P_3	2.3bc	7.3i	122.0ab	15.7cd	149.7e	16.7a	12.4c-e	97.7bc	24.3d	19.0c-e	77.7b-f	45.6b
V_2P_4	2.4bc	8.7e-h	112.0c	14.6c-f	135.3fg	12.9c-g	11.5g	72.3ef	39.7a	17.3e	79.2a-d	37.9ab
V_2P_5	2.4bc	9.3c-f	96.5d-f	12.4ij	133.0f-h	13.3cd	11.9e-g	68.8g	27.7f	19.0c-e	75.0e-i	32.3ab
V_2P_6	2.0de	8.1g-i	129.1ef	9.7k	124.3h	14.3b	11.8fg	93.7ab	35.4b	26.0a	79.7a-c	40.1bc
V_3P_1	2.4bc	10.0a-d	94.0d-f	12.8h-j	152.7de	12.3f-h	13.4a	73.3ef	20.7f	26.0a	76.8c-g	35.9cd
V_3P_2	2.3bc	10.3a-c	92.5d-f	17.2b	162.3bc	12.3e-h	12.9a-c	72.3ef	20.2fg	20.3cd	76.6c-g	37.7ab
V_3P_3	2.4bc	10.7ab	102.2cd	15.3c-e	166.3bc	11.2hi	13.0ab	82.7cd	19.6f-h	20.7c	79.5a-c	42.4bc
V_3P_4	1.9e	11.0a	95.7d-f	15.0c-f	171.0b	11.4i	11.5g	76.3d-f	19.3f-h	20.0cd	78.3b-c	41.0bc
V_3P_5	2.0de	10.0a-d	111.04c	14.0e-h	170.0bc	11.8hi	12.2d-f	87.7bc	23.4de	17.7de	80.6ab	47.2b
V_3P_6	1.9de	9.7b-e	93.1d-f	13.1g-j	164.0bc	11.4i	12.2d-f	73.0ef	20.1fg		82.2a	38.1ab
Level		**	**	**	**	**	**	**	**	**	**	**
CV%		7.45	3.90	4.98	3.49	3.21	2.69	5.78	5.25	4.32	2.53	4.89

per branch, single fruit weight, bunch weight, number of fingers per bunch, fruit length, fruit breadth, weight of flesh, weight of skin, TSS% edible potion and yield t/ha (Table 6). The highest pseudostem weight (3.3kg) was produced by sabri for September planting while the lowest (1.9kg) was recorded in ITC 1441 with February planting. The maximum number of hand per bunch (11) was recorded in ITC 1441 with February planting. Heaviest single fruit weight (140.3g) was obtained from BARI-kala-1 with October planting combination. The highest bunch weight (23.6kg) was also obtained from BARI-kala-1 when coupled with October planting. The highest number of fingers per bunch (200.3) was produced by BARI-kala-1 with October planting which was statistically differed from the others combinations. The longest fruit (16.7cm) was produced by BARI-kala-1 with November planting combination while the shortest (11.2cm) were in ITC 1441 with February planting. The highest weight of flesh and highest weight of skin were also obtained from BARI-kala-1 with September planting, which was statistically identical to BARI-kala -1 with October planting. The highest yield (68.5t/ha) was also received from BARI-kala-1 when coupled with October planting combination which was differed from the other treatments. The lowest yield (25.5 t/ha) was obtained from sabri with April planting. The highest TSS (27%) was recorded in ITC 1441 when coupled with September planting combination. Wide variability's was found in case of edible portion. It range from 68.6 to 82.2%.

CONCLUSION AND RECOMMANDATION

From the above result of the experiment it may be inferred October planting and BARI Kala-1 combination is the most suitable for banana production in Ishurdi region of Bangladesh.

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