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YIELD AND PROFIAABILITY OF DIFFERENT VARIETIES OF BANANA

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ABSTRACT

The experiment was conducted in the horticultural garden at Bihar Agricultural College, Sabour in the year 2007-08 and 2008-09.The design of experiment was Randomized Block Design with three replications. The yield contributing characters mainly depends on vegetative growth of the plant. The maximum yield was obtained in varieties Robusta i.e., 62.92 tons per hectare, which is statically similar with Basrai (60.43 ton/ha). The experiment comprise of eleven treatments as varieties.The highest gross income of Rs.3,98,583 per hectare was realized from the varieties Malbhog, and proved significantly superior to remaining varieties. The varieties Chinia Rs.3,39,040 ranked second in respect of gross return and followed by Alpan i.e., Rs.3,22,333. The maximum net income with higher B:C ratio was obtained in variety Malbhog. However, Robusta and Basrai showed parity with Malbhog in respect of benefit cost ratio. Therefore, Malbhog was found most outstanding being superior to remaining varieties under studies in term of higher market value, longer shelf-life as well as maximum net return and benefit cost ratio.

Key words : *Banana, cost of cultivation, economics, gross income and yield.*

Banana (*Musa spp.*) belongs to family musaceae. It is believed to have originated in the hot tropical region of South-East Asia and India is believed to be one of the centre of origin. Banana is one of the leading fruit crop and considered to be the “Apple of Paradise”. It is also known as “Adam’s fig”. In Sanskrit Banana is known as “Kadali”. Some important cultivars grown in Bihar for table purpose are Alpan, Malbhog, Chinia, Robusta and Basrai etc. With the advancement of breeding work in banana, so many varieties were developed during last few decades, but all the varieties are not suited for all locations. It is only the adaptive trial which may ascertain adaptability of a particular variety to a particular region. Earlier workers (Simmonds and Shepherd, 1955; Uma *et al.*, 1999; Singh *et al.,* 2001 and Uma, S. and Sathiamoorthy, S., 2002) tried on this aspect and reported some salient features for identification and classification of Indian banana. A new thrust is emerging to identify varieties from gene pool for higher yield, better fruit quality, longer shelf life with lesser susceptibility to diseases and pests and generate higher income to farmer.

Keeping all the facts under consideration and visualizing the paucity of information on these aspects, the present investigation entitled “Studies on bearing behaviour of some varieties of banana (*Musa spp.*)” under eastern zone conditions of Bihar was undertaken with the following objectives:- to generate higher income to farmer with low cost of cultivation

MATERIALS AND METHODS

The present investigation was carried out during the year 2007-08 and 2008-09 to study the economics of cost of cultivation of different varieties of banana. The experiment was conducted with eleven treatments as varieties replicated thrice for subsequent two years. The experiment was conducted in the Horticultural garden of Bihar Agricultural College, Sabour (Bhagalpur). The plan adopted to study the above treatments was Randomized Block Design (RBD) with eleven varieties replicated thrice. Each treatment was allocated to individual plot with the help of random table. The plot of six meter width and 4 (four) meter length was selected for the study. Banana is propagated by sword sucker. Three months old uniform sword suckers of each cultivars were selected from the same clumps as used for adult plants for studies. The experimental plot was prepared by cross harrowing of the land followed by cross ploughing with cultivator. Each ploughing was followed by planking in order to pulverize the soil. The pit size of 50 x 50 x 50 cm have been dug out at a spacing of 2 x 2 m in the month of May-June. Before 15 days of transplanting, the pits were filled with mixture of compost and soil in (1:1) proportion, added 1 kg Neem Cake and 20 g Furadon 3 G per pit.

The selected sword suckers have been cleaned properly and treated with Carbendazim 0.1% and

Table-1 : Total cost of cultivation, gross and net income from banana cultivation as per varieties (Mean Pooled data).

Treatments Varieties	Yield (t/ha)	Average Selling rate	Gross income (Rs/ha)	Total cost of cultivation (Rs./ha)
Basrai	60.43	75/bunch	198282.5	62608
Lamby	36.27	63/bunch	171057	62608
Robusta	62.92	80/bunch	215008	62608
Chinia	38.52	135/bunch	339040	112608
Fiha-17	35.13	65/bunch	167936.5	62608
Banger	37.76	100/bunch	258647	112608
Malbhog	34.83	150/bunch	398583.5	112608
Chinia-ratwara	31.35	110/bunch	291998	112608
Pisangawak	36.32	60/bunch	160493	62608
Alpan	36.87	125/bunch	322333.5	112608
Mati	34.73	60/bunch	158498	62608

Table-2 : Economics for cultivation of different varieties of Banana.

Treatments (Varieties)	Net return (Rs./ha)	Benefit cost ratio
T_1-Basrai	1,35,675	2.21
T_2-Lamby	1,08,449	1.78
T_3-Robusta	1,52,400	2.49
T_4-Chinia	2,26,432	2.02
T_5-Fiha-17	1,05,329	1.72
T_6-Banger	1,46,039	1.31
T_7-Malbhog	2,85,976	2.56
T_8-Chinia-Ratwara	1,79,390	1.61
T_9-Pisang-awak	97,885	1.60
T_{10}-Alpan	2,09,726	1.87
T_{11}-Mati	95,890	1.57
SEm ±	4551.60	0.13
C.D. at 5%	12,926.86	0.41

Monocrotophosh 0.2%. The treated suckers had been planted in the month of July,2007.

Banana is a gross feeder of nutrients. Application of NPK 250: 150:300 g/ plant had been done. Nitrogen 150 g applied into four equal proportion during vegetative growth period at 30, 75, 120 and 160 days after transplanting. Rest 100 g nitrogen divided into 3 equal part and applied during reproductive phase at 210, 255 and 300 days after transplanting. The whole amount of phosphorus had applied at the time of transplanting. The potassium divided into three equal proportion, 100 gm applied during vegetative growth period and rest 200 g had advocated during reproductive phase in two split doses. Cost of cultivation under each treatment was calculated by evaluating the rental value of land, planting material, inputs like fertilizer, insecticides, cost of propping and other miscellaneous cost incurred. The gross income was calculated by selling the product of each treatment. Finally the net income of individual treatment was obtained.

RESULTS AND DISCUSSION

Yield : The yield contributing characters mainly depends on vegetative growth of the plant. The maximum yield was obtained in varieties Robusta i.e., 62.92 tons per hectare, which is statically similar with Basrai (60.43 ton/ha). However the lowest yield was recorded in Chinia-ratwara (31.35 ton/ha), which showed parity with Mati (34.73) and Fiha-17 (35.17).

Gross Income : The mean pooled data pertaining to net return (Rs/ha), as influenced by varieties investigated, have been presented in Table-1. The highest gross income of Rs.3,98,583 per hectare was

realized from the varieties Malbhog, and proved significantly superior to remaining varieties. The varieties Chinia Rs.3,39,040 ranked second in respect of gross return and followed by Alpan i.e., Rs.3,22,333. However, the lowest gross return of Rs.1, 58,498 per hectare was realized from the varieties Mati, which showed statistical equality with Pisangawak (Rs.1,60,493) and Fiha-17 (Rs.1,67,936). The results of the individual years followed a similar trend as stated above under the pooled data.

Net return : The mean pooled data pertaining to net return (Rs/ha), as influenced by varieties investigated, have been presented in Table-2. The highest net return of Rs.2,85,976 per hectare was realized from the varieties Malbhog, and proved significantly superior to remaining varieties. The varieties Chinia Rs.2,26,432 ranked second in respect of net return and followed by Alpan i.e., Rs.2,09,726. However, the lowest net return of Rs.95,890 per hectare was realized from the varieties Mati, which showed statistical equality with Pisangawak (Rs. 97,885) and Fiha-17 (Rs.1,05,329). The results of the individual years followed a similar trend as stated above under the pooled data.

Rupees earned per rupee investment :_The mean pooled data corresponding to benefit cost: ratio (rupees earned per rupee investment), as influence by varieties investigated, have been presented in Table-1. Significantly highest gain per rupee investment was recorded maximum in Malbhog (1:2.56), which was at par with Robusta (1:2.49) and Basrai (1:2.21). Whereas, lowest gain per rupee investment was earned in Banger (1: 1.31), which showed statistical equality with Mati (1:1.57), Pisangawak (1: 1.60), Chinia-Ratwara (1: 1.61) and Fiha-17 (1: 1.72). On the basis of above results it may be inferred that Malbhog was found most outstanding variety, giving maximum benefit cost ratio of (1: 2.56). Rest of the varieties showed intermediate value. The results of the individual years followed a similar trend as stated above under the pooled data. On the basis of above results it may be inferred that Malbhog was found most outstanding variety, giving maximum benefit cost ratio of (1:2.56). These results gained on economic aspects are also in conformity with the results of Luhach *et al*. (2007) and Luhach *et al*. (2007).

CONCLUSIONS

The maximum gross and net income with higher B:C ratio was obtained in variety Malbhog. However, Robusta and Basrai showed parity with Malbhog in respect of benefit cost ratio. Therefore, Malbhog was found most outstanding being superior to remaining varieties under studies in term of higher market value, longer shelf-life as well as maximum TSS, total sugar, reducing sugar and less physiological loss in weight, ultimately get higher net return and benefit cost ratio.

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