

Varietal evaluation of Okra hybrids (*Abelmoschus esculentus* (L.) Moench) on yield attributes under Allahabad agro climatic conditions

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ABSTRACT

The experiment was conducted during Kharif season of 2013-2014 at Research Farm Department of Horticulture, Allahabad School of Agriculture, Sam Higginbottom Institute of Agriculture, Technology and Sciences (Deemed to be University) Allahabad. The maximum fruit yield was recorded in Hybrids 13/OKHYB-5 (19.10 tons/ha) followed by 13/OKHYB-6 (14.77 tons/ha.) whereas minimum fruit yield was found in Hybrids 11/OKHYB-2 (7.77 tons/ha.). Maximum benefit cost (3.42) was obtained with Hybrids 13/OKHYB-5 followed by 13/OKHYB-6 (2.65) and 11/OKHYB-2 recorded the minimum (1.39). Hence on the basis of results obtained in this investigation, it could be concluded that Hybrids 13/OKHYB-5 was noted superior among all the hybrids of okra.

Key words : Hybrids, Okra, Yield and Benefit cost : ratio

INTRODUCTION

Okra (*Abelmoschus esculentus* (L.) Moench) also known as Lady's finger, Bhenidi, Gombo, or Gumbo is widely grown in the tropics, sub-tropics and warmer areas of the temperate zones (Camciuc, Deplagne, Vilarem, & Gaset, 1998). It originates probably from East Africa and today is widely distributed in the tropics, subtropics and warmer portions of the temperate region. Okra is a polyploidy, belonging to the family Malvaceae with $2n = 8x = 72$ or 144 chromosome and a self-pollinated crop, occurrence of out crossing to an extent of 4 - 19 percent with the maximum of 42.2 per cent is noticed with the insect assisted pollination (Kumar, 2006). The composition of okra pods per 100 g edible portion (81% of the product as purchased, ends trimmed) is water 88.6 g, energy 144.00 kJ (36 kcal), protein 2.10 g, carbohydrate 8.20 g, fat 0.20 g, fibre 1.70 g, Ca 84.00 mg, P 90.00 mg, Fe 1.20 mg, β -carotene 185.00 μ g, riboflavin 0.08 mg, thiamin 0.04 mg, niacin 0.60 mg, ascorbic acid 47.00 mg Okra seeds contain about 20% protein and 20% oil (Tindall 1983) the share of India being 67.1%, followed by Nigeria at 15.4% and Sudan at 9.3% (Varmudy, 2011). Now days a large number of Hybrids of okra are available in the market but all these Hybrids are not adapted

and suited to all the regions of the country. No specific recommendation about the suitability of Hybrids for a particular area is available. Farmers face problems in selecting Hybrids for a particular area for commercial cultivation. Considering the above mentioned facts there is a need to compare some of the available Hybrids or Hybrids and to select high yielding, better adaptable Hybrids/cultivars for commercial cultivation in this area. Keeping the above facts the present investigation has been done to observe the evaluation on Okra hybrids under Allahabad Agro climatic condition.

MATERIALS AND METHODS

The experiment was conducted in the Vegetable Research Farm, Department of Horticulture, Allahabad School of Agriculture, Sam Higginbottom Institute of Agriculture,

Technology and Sciences, Allahabad (Uttar Pradesh) during 2013. All the facilities necessary for cultivation, including labor were made available in the department. The experimental material for this study comprised 32 hybrids collected from Indian Institute of Vegetable Research, Varanasi (U.P). Experiment design Randomized Block Design (RBD), the data collected from the experiment was subjected to the following analysis. Observation from each plot, five plants were randomly selected and observations were recorded for morphological characters at successive stages of growth. Analysis of variance was done for partitioning the total variance into total variation due to the treatments and replications according to procedure panes and the structure of analysis of variance.

RESULTS AND DISCUSSION

Data on various parameters studied were subjected to statistical analysis in order to draw the valid conclusion of results. The economics of Hybrids viz..cost of cultivation per hectare, fruit yield, selling rate, gross return, net return and cost: benefit ratio has also been worked out and presented in table 1.

The maximum fruit yield per plant (g) was observed in Hybrid 13/OKHYB-5 (398.01g) followed by 13/OKHYB-7 (30.77g) and 12/OKHYB-1 (298.37g) whereas minimum fruit yield per plant (161.94 g) was found in Hybrids 11/OKHYB-2.

The difference in pod yield/plant (g) in different Hybrid may be due to difference in genetic make-up. This may also be due to congenial climatic condition in Allahabad for 13/OKHYB-5. Similar result was also reported by (Muhammad *et al.*, 2001), (Rashid *et al.*, 2002) and Singh and jain (2002).

The maximum fruit yield was recorded in Hybrid 13/OKHYB-5 (19.10 tons/ha) followed by 13/OKHYB-6 (14.77 tons/ha.) whereas minimum fruit yield was found in Hybrids 11/OKHYB-2 (7.77 tons/ha.).

Maximum gross return (Rs. 2,29,248) was obtained with Hybrid 13/OKHYB-5 followed by 13/OKHYB-6 (1,77,264) and 11/OKHYB-2 recorded the minimum (Rs. 93,276).

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Maximum net return (Rs.1,62,394) was obtained with Hybrid 13/OKHYB-5 followed by 13/OKHYB-6 (Rs. 1,10,410) and 11/OKHYB-2 recorded the minimum (Rs. 26,42,2). Similar result were also reported by (Sing and Kumari, 2006).

No. of Hybrids	Name of Hybrids	Yield per plant (g)	Fruit yield/ q/ha.	benefit: cost ratio
H1	11/OKHYB-1	180.88	86.82	1:1.55
H2	11/OKHYB-2	161.94	77.73	1:1.39
H3	11/OKHYB-5	281.21	134.98	1:2.42
H4	11/OKHYB-6	274.56	131.78	1:2.36
H5	11/OKHYB-7	234.03	112.33	1:2.01
H6	11/OKHYB-8	296.11	142.13	1:2.55
H7	11/OKHYB-10	236.49	113.51	1:2.03
H8	11/OKHYB-11	289.93	139.16	1:2.49
H9	12/OKHYB-1	243.01	116.64	1:2.99
H10	12/OKHYB-2	233.24	111.95	1:2.00
H11	12/OKHYB-4	233.24	111.95	1:2.00
H12	12/OKHYB-5	298.37	143.21	1:2.57
H13	12/OKHYB-6	244.73	117.47	1:2.10
H14	12/OKHYB-7	266.21	127.78	1:2.29
H15	12/OKHYB-8	247.05	118.58	1:2.12
H16	12/OKHYB-10	222.67	106.88	1:1.91
H17	12/OKHYB-12	262.40	125.95	1:2.26
H18	12/OKHYB-13	272.79	126.00	1:2.26
H19	12/OKHYB-15	262.51	128.95	1:2.31
H20	13/OKHYB-1	268.65	124.32	1:1.23
H21	13/OKHYB-2	259.02	134.40	1:1.41
H22	13/OKHYB-3	280.58	121.99	1:1.45
H23	13/OKHYB-4	307.77	147.72	1: 2.65
H24	13/OKHYB-5	398.01	191.04	1:3.42
H25	13/OKHYB-6	261.63	125.58	1:2.25
H26	13/OKHYB-7	224.27	107.64	1:1.93
H27	13/OKHYB-8	286.07	137.31	1:1.46
H28	13/OKHYB-9	212.48	101.99	1:1.83
H29	13/OKHYB-12	210.58	101.07	1:1.81
H30	HOK - 152	262.49	125.99	1:2.26
H31	ArkaAnamika (C)	270.32	129.75	1:2.32
H32	PusaSawini (C)	289.51	138.96	1:1.49

CONCLUSION

On the basis of the present investigation, it is concluded that the maximum fruit yield was recorded in Hybrid 13/OKHYB-5 (19.10 t/ha) followed by 13/OKHYB-6 (14.77 t/ha.) and maximum benefit cost ratio (3.42:1) was obtained with Hybrid 13/OKHYB-5 followed by 13/OKHYB-6 (2.65:1). Hence on the basis of results obtained in this investigation, it could be concluded that Hybrid 13/OKHYB-5 was noted superior among all the hybrids of okra.

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