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Fruiting Behavior and Yield Attributes of Some Colored Mango (*Mangifera indica* L.) Varieties under Sabour (Bihar) Conditions

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Abstract

The present trial was carried out during 2000-2001 and 2001-2002 to evaluate the performance of 12 varieties of colored mango namely Alphonso Bombai, Alphonso Poona, Gulabkhas, Hushnara, Moovendun, Sunder Prasad, Surkhverma, Zarda, Champakelwa, Pairi, Sinduriya and Zardalu. Maximum fruit set per panicle was observed in Alphonso Poona (62.50), while minimum was observed in Surkhverma (26.83). Fruit maturity recorded from 90.83 days in Sunder Prasad to 122.00 days in Sinduriya. Maximum size of fruits was observed in Surkhverma (10.61 × 7.56 cm), while it was minimum in Hushnara (9.21 × 5.10 cm). Highest number of fruits per plant was recorded in Hushnara (1145.50), while Alphonso Bombai at the top in respect of fruit weight and pulp weight i.e. 233.50 kg and 146.10 kg per plant respectively.
Key words : Colored mango varieties, Fruiting behavior, Yield.

Mango *(Mangifera indica* L.) is the national fruit of India and occupies a premier position in the world market. Although, India leads the world in terms of area and production, it exports only 0.2% of its production in the international market. The export demand for fresh and processed fruits is increasing steadily. Colored mango have great scope and significance in export. Attractive colors add to the desirable characteristics of varieties and enhances consumer appeal. Varieties in a large number are grown in various parts of the country and there is a wide variation among them. Yadav and Singh (1) opined that the relative success or failure of a variety could be ascertained only through adaptive trials. The distribution of varieties within India is mainly regional in nature. Different regions of the country have their own commercial varieties because a particular variety of mango is not expected to perform equally well under other sets of climatic amplitudes prevailing in different parts of the country. Keeping these in view the present trial was undertaken with 12 varieties of colored mango, under Sabour (Bihar) condition.

Table 1. Fruit set, fruit maturity and size of fruits of some coloured mango varieties.

Varieties	Fruit set per panicle			Fruit maturity			Date of maturity	Size of fruit	
	2001	2002	Pooled	2001	2002	Pooled		Length	Breadth
Alphonso Bombai	41.33	41.00	41.17	118.00	118.67	118.33	20/6	9.57	7.26
Alphonso Poona	63.67	61.33	62.50	114.67	117.00	115.83	14/6	8.48	6.73
Gulabkhas	38.67	39.00	38.83	108.67	109.67	109.17	7/6	9.67	7.42
Hushnara	42.00	40.00	41.00	111.33	112.00	111.67	12/6	9.21	5.10
Moovendum	60.67	58.33	59.50	110.33	111.67	111.00	15/6	7.72	6.24
Sunder Prasad	37.33	32.33	34.83	89.00	92.67	90.83	23/5	9.45	7.19
Surkhverma	27.00	26.67	26.83	98.00	99.00	98.50	3/6	10.61	7.56
Zarda	62.33	59.67	61.00	110.00	112.67	111.83	11/6	7.70	6.33
Champa Kelwa	38.67	39.00	38.83	117.33	118.67	118.00	18/6	9.75	7.19
Pairi	32.33	33.33	32.83	117.67	121.33	119.50	16/6	8.59	6.84
Sinduriya	62.33	60.67	61.50	121.33	122.67	122.00	2/7	8.32	5.71
Zardalu (control)	45.00	42.67	43.83	104.67	106.33	105.50	8/6	10.21	6.49
CD at 5%	6.34	5.60	3.92	14.23	12.86	8.31	–	0.73	0.56

Table 2. Yield parameters of some coloured mango varieties.

Varieties	Number of fruits per plant			Weight of fruit per plant (kg)			Weight of fruit per plant (kg)		
	2001	2002	Pooled	2001	2002	Pooled	2001	2002	Pooled
Alphonso Bombai	1385.00	376.33	880.67	309.55	86.56	198.06	227.92	64.28	146.10
Alphonso Poona	1205.33	186.00	695.67	183.21	29.76	106.49	143.76	26.56	83.66
Gulabkhas	1135.67	612.00	873.83	204.42	116.28	160.35	130.48	74.48	102.48
Hushnara	1705.33	585.67	1145.50	238.75	89.31	164.03	151.42	57.10	104.26
Moovendum	518.00	306.00	412.00	73.56	45.90	59.73	56.99	35.73	46.36
Sunder Prasad	1472.33	298.00	885.17	276.00	58.11	167.09	200.42	42.48	121.45
Surkhverma	1256.00	210.00	733.00	273.81	48.30	161.05	183.67	32.74	108.20
Zarda	1711.33	385.00	1048.17	209.64	51.59	130.62	143.60	35.25	89.43
Champa Kelwa	1145.33	165.33	655.33	245.10	36.04	140.57	182.92	27.07	105.00
Pairi	1074.67	485.00	729.83	159.05	75.66	117.35	108.87	51.90	80.39
Sinduriya	1585.33	392.67	989.00	294.87	75.39	185.13	218.88	5528.00	137.08
Zardalu (control)	1575.00	368.00	971.67	315.07	77.46	196.27	215.51	53.09	134.30
CD at 5%	177.34	50.16	NS	32.46	8.26	NS	21.60	6.10	NS

Methods

The present trial was conducted at Bihar Agricultural College, Sabour during the year 2000-2001 and 2001-2002 with 12 varieties of coloured mango. The trial was laid out in randomized block design with three replications on 38 years old trees. The number of fruit set was counted in randomly selected panicels and average was calculated. Likewise number and weight of fruit per tree were also recorded. Yield, in terms of pulp was calculated on the basis of pulp percentage of the fruit.

Results and Discussion

The results were obtained from the comparative study of different varieties of coloured mango grown under Bihar conditions. The results revealed that better fruit set per panicle were observed in Alphonso Poona (62.50), Sinduriya (61.50), Zarda (61.00) and Moovendun (59.50), while it was minimum in Surkhverma (26.83). The variation in fruit set might be due to genetic behaviour and differential effect of climatic conditions on one or the other variety. These findings also get support in the work of Singh (2).According to hum fruit set is a varietal character depending upon several factors such as time of flowering, sex-ratio, efficient cross-pollination and intensity of drop.

Sunder Prasad matured at the earliest and Sinduriya at the last. Rest of the varieties matured in between. Minimum maturity period (90.83 days) was recorded in Sunder Prasad and it was maximum in Sinduriya (122.00 days). Variation in fruit maturity might be due to change in location or inherent genetic variations. The results were in accordance with that reported by Sharma and Josan (3) in mango.

The maximum fruit size (10.61 × 7.56 cm) was found in the variety Surkhverma, whereas, the smallest sized fruits (9.21 × 5.10 cm) was obtained from Hushnara. The maximum fruit length of 10.61 cm was found in Surkhverma having significant difference over Zardalu (10.21 cm) whereas minimum fruit length of 7.70 cm and 7.72 cm were recorded in Zarda and Moovendun, respectively. The maximum fruit breadth was also found in Surkhverma (7.56 cm), while minimum breadth of 5.10 cm was observed in Hushnara. Such variation is supposed to be a genetical character which might also be influenced by environment to some extent. This is in agreement with Singh and Maurya (4) and Badyal and Bhutani (5) in mango. Yield may be presented in three ways yield in number, in weight and in terms of pulp weight. Highest number of fruits per plant was recorded in Hushnara (1145.50) followed by Zarda (1048.17). Whereas, lowest number was recorded in Moovendun (412.00). In terms of weight, Alphonso Bombai was at the top (198.06 kg) followed by Zardalu (196.27 kg). whereas, the lowest yield was recorded in Moovendun (59.73 kg). So far as the pulp weight is concerned, the highest quantity of pulp per plant was obtained in Alphonso Bombai (146.10 kg) followed by Sinduriya (137.08 kg) and Zardalu (134.30 kg), while Moovendun produced least quantity of pulp (46.36

kg) per plant. Yield is highly variable factor depending upon the variety, age of the plant, climatic conditions, incidence of pests and diseases, above all, on the up keep of the orchards (6). According to Kumar (7), besides several other factors, number of hermaphrodite flowers per panicle is one of the important factors affecting fruit yield.

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