

Assessment of suitable variety of marigold (*Tagetes erecta*) for northern dry zone condition

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This field experiment was laid out by adopting F test at farmers' fields of marigold (*Tagetes* species Linn.) at Mutkod and Kellur village of Jewargi taluk during 2018-19. Totally 3 treatments were considered by three different varieties, Arka Agni and Arka Bangara 2 from IIHR, Bengaluru and local variety from Jewargi. The mean value of plant height was highest in Arka Agni (40.16 cm), followed by local variety (35.6 cm) Arka Bangara 2(33.6 cm). The variation in plant height due to genotypic differences in phenotypic expression of plant height is due to genotype-environmental interaction effects on plant height.

Similar results were reported by Rao *et al.* (2005), Singh and Singh (2006) and Mahantesh *et al.* (2018). The mean value of plant spread showed highly significant difference among varieties. The highest plant spread (41.30 cm) was recorded in Arka Bangara 2. However, lowest (37.30) was recorded in the control at 60 DAT. The mean value at 90 DAT was highest in Arka Bangara 2 (46.52 cm), followed by Arka Agni (45.55 cm) and lowest in the control (42.50 cm). Considering the values for plant spread all the varieties shown significant difference similar results were observed and documented by Narsude *et al.* (2010) and Raghuvanshi and Sharma (2011).

The genotypes showed significant by number of primary branches/plant. The highest number of primary branches was recorded in Arka Agni (8.3), lowest in the control at 30 DAT. At 60 DAT, it was highest in Arka Bangara 2 (11.3), followed by Arka Agni (10.1) and the control (8). At 90 DAT, highest branches were recorded in Arka Bangara 2 (12.5), followed by Arka Agni (11.3)

and the control (9.3). Similar results were observed by Mahantesh *et al.* (2018).

The highest number of secondary branches were in Arka Bangara 2 (9.1), followed by Arka Agni (8.25) and the control (7.1) at 30 DAT. The highest number of secondary branches was observed in Arka Bangara 2 (14.6), followed by Arka Agni (12) and the control (9.1) at 60 DAT. The highest number of secondary branches were observed in Arka Bangara 2 (17.2), followed by Arka Agni (15.9) and the control (14.5) at 90 DAT. The increased number of branches in some genotypes may be attributed to genetic make up of cultivars, Supported by Naik *et al.* (2005), Singh *et al.* (2008) and Mahantesh *et al.* (2018).

The genotypes were non-significant in number of days taken for first flower bud appearance. The earliest days (48.2) was recorded in Arka Bangara 2. Maximum number of days to first flowering (51.5) was recorded in Arka Agni. This is also recorded by Palthe *et al.* (2019) and Rao *et al.* (2005).

The genotypes differed significantly in flower size and weight of flowers. Highest flower size with diameter 4.8 cm and flower weight (5.4 g) were recorded in Arka Bangara 2, followed by Arka Agni and the control. These results are in conformity with those of Singh *et al.*, 2008 and Mahantesh *et al.*, 2018.

The longest flower duration (62.6) was recorded in Arka Agni and lowest in the control. The genetic control of these character and modification in their expression due to environmental factors might be possible causes of observed variation. Similar findings have been also reported by Raghuvanshi and Sharma (2011), Palthe *et al.* 2019 and Shubhashish *et al.* (2023).

The genotypes differed significantly in flower yield/plant. The maximum (0.44 kg) flower yield was recorded in Arka Bangara 2. However, lowest (0.32 kg) was recorded in the control. This clearly indicates that there is an existence of relationship between number of flowers/plant and flower yield/plant. The maximum

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Table 1: Mean performances of African marigold genotypes

Variety	Plant height(cm)		No. of primary branches/plant		Flower diameter (cm)	Weight of single flower (g)	Flower yield (Kg/Plant)	Flower yield (tonnes/ha)
	60 days	90 days	60 days	90 days				
Arka agni	60.55	73.23	10.1	11.3	4.2	5.2	0.36	11.70
Arka bangara 2	55.32	70.65	11.3	12.5	4.8	5.4	0.41	13.32
Control	58.50	73.00	8.0	9.3	4.1	5.1	0.32	10.40

(13.33 t/ha) flowers yield was recorded in Arka Bangara 2. However, it was the lowest (10.40 t/ha) in the control. The flower yield per plant and population of plants were directly proportional to flower yield per hectare. Flower yield exhibited highly positive correlation with number of flowers/plant, flower diameter and flower weight. These similar results were reported by Narsude *et al.* (2010 a), Beniwal and Dahiya (2012), Mahantesh *et al.* (2018) and Palthe *et al.* (2019). Thus, it is concluded that Arka Bangara 2 was better than Arka Agni and local type during *Kharif* season.

Acknowledgment

Authors acknowledge the support and coordination of farmers Shri. Ogeppa Hosamani, Shri. Sangu Policepatil and Shri. Yashawantray Patil of Jewargi taluka to conduct on farm trial at their fields.

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