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Sai Salve
Department of Horticulture, College of Agriculture, Pune, Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar, Maharashtra India

Bhalekar SG
Department of Horticulture, College of Agriculture, Pune, Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar, Maharashtra India

Nagesh Gawade
Department of Horticulture, College of Agriculture, Junagadh Agricultural University, Junagadh, Gujarat, India

Yogesh Nilwarn
Department of Horticulture, College of Agriculture, Pune, Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar, Maharashtra India

Correspondence
Sai Salve
Department of Horticulture, College of Agriculture, Pune, Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar, Maharashtra India

Performance of promising genotypes of gaillardia (*Gaillardia pulchella* L.) for yield attributes and storage study

Sai Salve, Bhalekar SG, Nagesh Gawade and Yogesh Nilwarn

Abstract
In India floriculture industry is gaining importance for domestic and export market. Indian blanket blooms profusely even in light sands along seashore. The Gaillardias provide an abundant supply of cut flowers with little effort. The present investigation was conducted at Horticulture section, college of Agriculture, Pune with objectives to assess the promising genotypes of gaillardia for yield characters and examine the storage performance. Based on the results obtained from the investigation the genotype MG-9-1, MG-2-2 and MG-6-2 showed better storage performance and quantitative characters.

Keywords: *Gaillardia pulchella* L., genotypes, yield attributes, storage study

Introduction
Gaillardia (*Gaillardia pulchella* L.) is popularly known as 'blanket flower'. It belongs to Asteraceae family and the central and western united states are considered to be its origin. The generic name *Gaillardia* was proposed in honour of Mr. M. Gaillard, a French patron of botany, who cultivated it first. *Gaillardia pulchella* is useful in reducing erosion in coastal dune areas (Carig, 1977) [5]. This is substitute flower crop for chrysanthemum and China aster. (Bose *et al.* 2003). Gaillardia is the hardiest annual can be grown in a wide range of tropical to temperate climate. Panchaude (1990) [10] reported the nematicidal property when grown as catch crop and green manure. Gaillardia flourishes well in any garden soil and can withstand high light intensities, high temperature and drought better than most of the flowering plants. It is also tolerant to salinity (Tija and Rose, 1988) [13].

Human beings have emotional attachment with flowers due to their uses and close association with Indian culture. Every occasion is graced with flowers. They fetch higher returns per unit area as compared to other crops. Floriculture therefore is emerging as a major venture on Indian scenario. The estimated area under flower growing in the country is about 3.07 lakh hectares with 18.05 lakh MT productions of loose flowers and 7.04 Lakh number productions of cut flowers. The area under cultivation is maximum (52.37 thousand hectares) in Karnataka, while highest loose flower production (4.26 lakh tonnes) in Tamil nadu and cut flower production is maximum in West Bengal (2.03 lakh tonnes) (Anon, 2018) [3]. Maharashtra is a pioneer state with flower cultivation being an integral part of its culture. In Maharashtra, total area under floriculture is 12230 ha with a total production of 35150 MT cut flowers and 71610 MT loose flowers (Anon, 2017) [2].

Material and methods
The present investigation was carried out during 2016-17 at the Horticulture Section, College of Agriculture, and Pune. The experiment was laid out in Randomized Block Design (RBD) with three replications. The experiment having 12 genotypes *viz.* MG-2-2, MG-3-1, MG-3-2, MG-5-5, MG-6-1, MG-6-2, MG-7-1, MG-7-2, MG-9-1, MG-10-2, MG-10-4 and Local check. The raised beds of a size 2.0m x 1.0m x 0.15m were prepared for raising the gaillardia seedling of different genotypes after adding sufficient FYM. Seeds were sown in second week of June in lines 10 cm apart and 1.0 cm deep on raised beds. The FYM was applied at the rate of 15 t/ha before last harrowing for uniform mixing in the soil. The commercial importance and popularity of the crop, there is a lot of scope for breeding of new varieties with higher yield and superior quality of flowers. With a view, to find out superior genotypes having high yield and good quality flowers, the present investigation was carried out.

Results and discussion
The genotype MG-9-1 recorded significantly maximum flower diameter (6.02 cm) followed by the genotype MG-7-2 and MG-5-5 (6.00 cm) and both genotypes are on par with MG-9-1.

The present findings regarding flower size are in close affirmity with observations Recorded by Agale (2012) [1] in gaillardia and Kulkarni and Reddy (2006) [9] in China aster. Significantly more number of ray florets per flower was noticed in the genotypes MG-9-1 (156.53), MG-2-2 (155.80) and MG-6-2 (154.50). These results are agreement with Agale (2012) [1] and Gawade (2016) [6] in gaillardia and Swaroop *et al.* (2008) [12] in chrysanthemum.

Significantly more number of flowers per plant was recorded in the genotype MG-10-4 (217.00) followed by the genotypes MG-6-2 (209.08), MG-2-2 (205.65) and MG-9-1 (204.37). The genotypes MG-3-1 recorded significantly maximum weight of 100 flowers (297.30g). The weight of flowers per plant, yield of flowers per plot and yield of flowers per hectare were recorded significantly highest in MG-9-1 (580.41 g, 23.21 kg and 32.21 tones) respectively. Similar results have been reported by Agale (2012) [1] and Gawade (2016) [6] in gaillardia and by Kadam (2014) [7] in his study on evaluation of different genotypes of Marigold.

The genotype MG-9-1 recorded maximum vase life (4.42 days) followed the genotype MG-2-2 (4.28 days) for cut flowers.The genotype MG-9-1recorded significantly maximum shelf life (2.21 days) followed by the genotype MG-2-2 (2.16 days). These findings were confounded by Gawade (2016) [6] in Gaillardia, Khanvilkar *et al.* (2003) [8] in African marigold and Poornima *et al.* (2006) [11] in China aster.

Table no: 1 Quantitative attributes and storage study of promising genotypes of gaillardia

Genotype	Flower Diameter (cm)	No. of Ray Florets	No. of Flower/plant (gm)	Wt. of Fl./Pl (gm)	Wt. of 100 Flowers (gm)	Yield Kg/plot	Yield T/ha.	Vase life (Days)	Shelf life (Days)
MG-2-2	5.92	155.80	205.65	561.42	273.00	22.26	31.17	4.28	2.16
MG-3-1	5.16	132.13	158.82	470.50	297.30	18.82	26.12	4.20	2.14
MG-3-2	5.26	130.21	170.14	428.75	252.00	17.95	23.80	3.38	1.63
MG-5-5	6.00	137.33	200.42	483.27	241.13	19.33	26.64	3.78	1.82
MG-6-1	5.36	152.6O	202.34	522.03	258.00	20.88	28.98	4.00	2.03
MG-6-2	5.82	154.40	209.08	526.68	252.00	21.07	29.14	3.69	1.73
MG-7-1	5.76	130.50	197.00	437.31	222.00	17.49	24.27	3.95	1.94
MG-7-2	6.00	136.46	208.42	539.80	259.00	21.59	29.96	3.12	1.44
MG-9-1	6.02	156.53	204.37	580.41	284.00	23.21	32.21	4.42	2.21
MG-10-2	5.56	88.60	203.57	390.47	192.00	15.61	21.66	3.01	1.30
MG-10-4	5.05	137.60	217.00	522.97	241.00	20.91	29.02	3.97	1.97
Local (C)	5.41	135.00	202.21	446.88	221.00	17.87	24.81	3.50	1.65
SE (m)	0.19	3.78	8.26	23.73	10.79	1.23	1.35	0.25	0.11
C.D.±	0.58	11.16	24.40	70.08	32.19	3.62	4.00	0.75	0.34

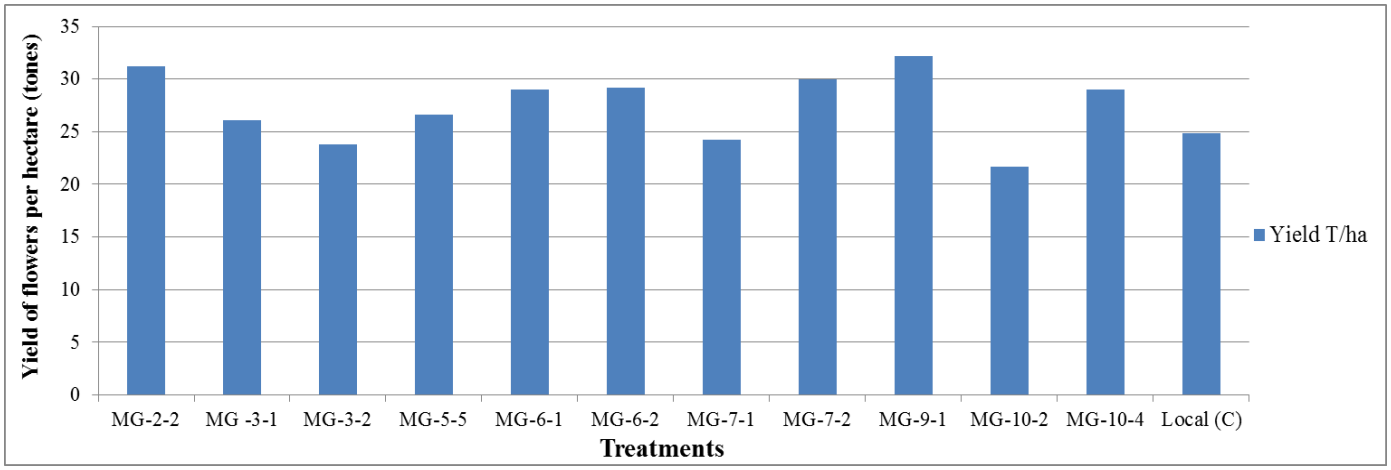

Fig. 1. Yield of flowers per hectare (tones)

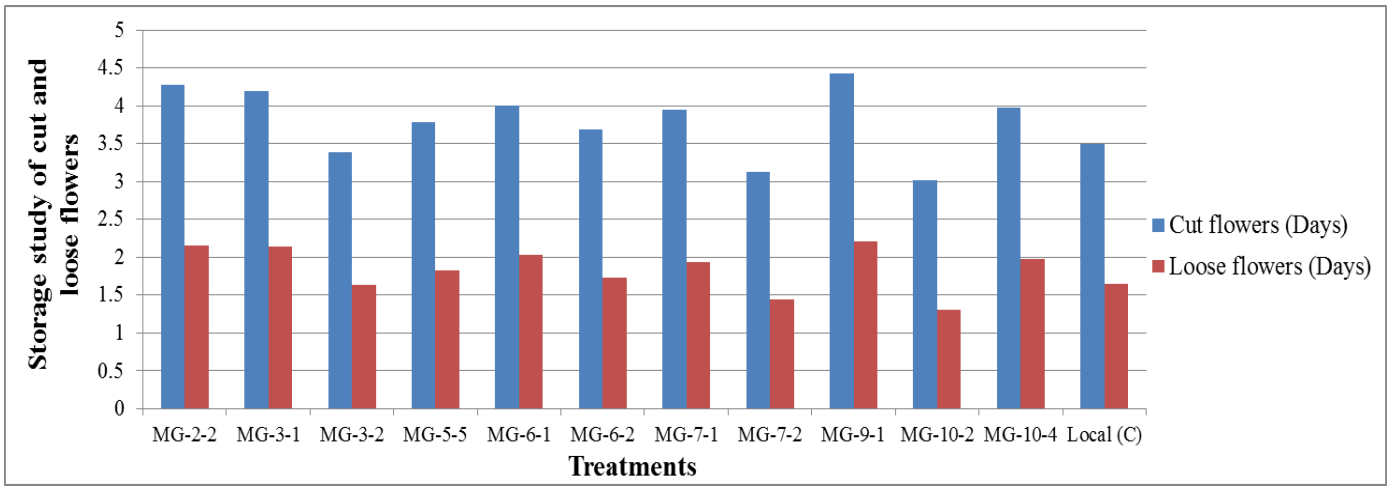

Fig. 2. Storage study of cut and loose flower

Conclusion

Based on the results obtained from the present investigation, it is concluded that, the genotypes *viz*., MG-9-1, MG-2-2 and MG-6-2 showed better flower yield performance. Also these genotypes showed better storage performance. The straight varieties can be developed from these genotypes in gaillardia. All these genotypes having good quality flower and yield attributes showed promise for further improvement in gaillardia.

Reference

1. Agale MG. Performance of different genotypes of gaillardia (*Gaillardia pulchella* L.) M. Sc. (Hort.) thesis submitted to Mahatma Phule Krishi Vidyapeeth, Rahuri (Maharashtra), 2012.
2. Anonymous. Indian Horticultural Database, National Horticulture Board (NHB), Gurgaon (www.nhb, gov,in), 2017.
3. Anonymous. The Indian Horticulture Database 2017-18. National Horticulture Board, Gurgaon. Available at http://nhb.gov.in/statistics/State_Level/201718 (1st%20Adv. %20Est).pdf accessed, 2018.
4. Bose TK, Yadav LP, Pal P, Das P, Parthasarthy V. Commercial flowers. 2nd Edition. Naya Udyog, Kolkata. 2003; 2:852-853.
5. Carig RM. Proc. Flo. Sta. Hort. Soc. 1977; 90: 108-110.
6. Gawade N, Bhalekar SG, Bhosale P, Katwate SM, Wadekar V. Studies on different genotypes of gaillardia (*Gaillardia pulchella* L.) for quantitative and qualitative performance. Int. J Curr. Microbiol. App. Sci. 2018; 7(3):1030-1039.
7. Kadam PT. Evaluation of different genotypes of marigold (*Tagetes erecta* L.). M.Sc. (Agri.) thesis submitted to Mahatma Phule Vidyapeeth, Rahuri, (Maharashtra), 2014.
8. Khanvilkar MH, Kokate KD, Mahalle SS. Performance African (*Tagetes erecta*) at North Konkan Coastal Zone of Maharashtra. J Maha. Agric. Uni. 2003; 28(3):333-334.
9. Kulkarni BS. Reddy BS. Vegetative growth and flower yield as influxenced by different cultivars of China aster. Haryana J Hort. Sci. 2006; 35(3-4):269.
10. Panchaude-Mattei E. Revue Horticole. 1990; 309:29-31.
11. Poornima G, Kumar DP, Seetharamu GK. Evaluation of China aster (*Callistephus chinensis* (L.) Ness) genotypes under hill zone of Karnataka. J of Orna. Hort. 2006; 9(3):208-211.
12. Swaroop K, Saxena NK, Singh KP. Evaluation of China aster varieties under Delhi condition. J Orna. Hort. 2004; 7(1):127-128.
13. Tija B, Rose SA. Salt tolerant bedding plants. Proc. Flor. St. Hort. Soc. 1988; 100:181-182.