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Varietal performance of bitter gourd (*Momordica charantia* L.) in respect of growth and yield under Parbhani conditions, Maharastra

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SUMMARY

An experiment was performed to study the varietal performance of bitter gourd varieties in respect of growth and yield parameters at Department of Horticulture, Marathwada Agricultural University, Parbhani, Maharashtra. Results revealed that variety 'Priya' gave best result of growth in terms of germination percentage, length of vine and number of leaves per plant also the yield in terms of yield per vine, per plot and yield per hectare. While variety MC 84 recorded best results of number of primary branches per vine and inter nodal length of vine.

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Key words : Bitter gourd, Varietal performance, Growth, Yield

Bitter gourd (*Momordica charantia* L.) is a major cucurbit crop grown in *Kharif* and summer season. It is also called Balsam pear or karela. The commercial cultivation of bitter gourd in Maharashtra has been increased due to it's high remunerative value. Basically all cucurbits are warm season crops and respond very well during *Kharif* season. All Indian text book recommended planting of bitter gourd during *Kharif* season for better yield. Maharashtra has got mild but diversified climatic conditions and the winter is not so severe, which permit year round cultivation of almost all vegetables. However, this needs confirmation by experiment. A large number of growers cultivate this crop by using either their own seed or available seed in the market. The present status of bitter gourd production is not satisfactory and hence yields are low. Very little work has been done in respect of varietal performance and other package of practices and information about performance of varieties is lacking. Therefore, an experiment entitled, Varietal performance of bitter gourd in respect of growth and yield under Parbhani district of Maharashtra, India was undertaken.

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MATERIALS AND METHODS

The present study was conducted during *Kharif* season in the year 2007-08 at Department Horticulture, Marathwada Agriculture University, Parbhani district of Maharashtra, India.

The experimental site was having well leveled and uniform with medium black soil having uniform texture and good drainage. The experiment was laid out in RBD and consisted of eight treatments and three replications. The treatment deatails are as below:

Tr. No.	Treatment (Variety)
T_1 -	Phule Green Gold
T_2 -	Hirkani
T_3 -	Phule Ujjwala
T_4 -	Priya
T_5 -	Kakan Tara
T_6 -	Bitter Gourd 2
T_7 -	MC 84
T_8 -	Co White Long (Check)

The experimental plot was applied with 100:50:50 kg NPK from urea, single super phosphate and murate of potash, respectively. The seed was sown at the spacing of 150 cm as row to row and 100 cm as plant to plant. All the standard cultural operations was carried out as per recommendation and observations of growth parameters

and yield were taken at regular interval.

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been presented under following heads :

Growth parameters:

Germination per cent:

It was observed from Table 1 that variety Priya with 91.00% germination was significantly supervior over Phule Green Gold (85.63%), Hirkani (81.00%), Phule Ujjwala (77.66 %), Kokan Tara (82.36 %), Bitter Gourd 2(77.66%), MC 84 (83.33%) and was at par with Co White Long (90.90%), The rapid and higher germination in June-July sowing was due to favourable temperature during period of 15th June to 15th July. These findings are supported by reports of Huyskens *et al.* (1992) who observed that for higher and rapid germination of seed temperature range of 25^0-35^0 C was favorable.

Length of vine(m):

Results about the length of vine indicated that variety Priya (4.17m) recorded significantly more vine length followed by MC 84, Phule Ujjwala and control treatment Co White Long. While the lowest length of vine was observed in variety Bitter Gourd 2 (3.52m). These findings are in similar line with findings of Ramchandran *et al.* (1979) and Mangal *et al* (1981). They observed that yield was positively and significantly correlated with vine length in bitter gourd.

Number of primary branches per vine :

Persual of data in Table 1 indicated that variety MC 84 (9.36) produced maximum number of primary branches followed by Priya, Phule Ujjwala and control treatment Co White Long. While the minimum number of primary branches were reported by variety Bitter Gourd 2 (5.30). Srivastava and Srivastava (1976), Ramchandran *et al.* (1979), Mangal *et al.* (1981) and Pranjape and Rajput (1995) reported that in bitter gourd yield was positively correlated with number of primary branches per vine. The present results are in agreement with above as the variety MC 84, Priya, Phule Ujjwala and Co White Long with more number of primary branches recorded high yield per vine.

Internodal length of vine(cm) :

The data presented in Table 1 revealed that there were significant diferences in internodal length amongst the treatments. The variety MC 84 (8 cm) recorded highest internodal length which was significantly superior over Phule Green Gold (7.00 cm), Hirkani (6.66 cm), Kokan Tara (6.36 cm), Bitter Gourd 2 (5.69 cm) and was at par with Phule Ujjwala (7.32 cm), Priya Gold (7.60 cm) and Co White long (7.34 cm). Reddy and Ramarao(1984) recorded positive and highly significant correlation of internodal length and yield. The present findings are in agreement with above as the variety MC 84 and Priya with high internodal length recorded high yield.

Number of leaves per plant :

In respect of number of leaves per plant at final harvesting, variety Priya (324.40) produced more number of leaves followed by MC 84, Phule Ujjwala, Kokan Tara and control treatment Co White Long. Indiresh (1982) and Paranjape and Rajput (1995) recorded that bitter gourd yield was positively and significantly correlated with number of leaves per plant. The present finding also show

Table 1 : Varietal performance of bitter gourd in respect of growth and yield

Tr. No.	Treatments	Germination per cent	Length of vine (m)	Number of primary branches per vine	Internodal length of vine (cm)	Number of leaves/ plant	Yield of fruit per vine (kg)	Total yield per plot (kg)	Total yield per hectare (q)
T_1	Phule Green Gold	85.63	3.75	6.68	7.00	282.32	1.54	15.45	103.00
T_2	Hirkani	81.00	3.63	5.64	6.66	284.00	1.23	12.34	82.26
T_3	Phule Vjjwala	77.66	3.92	8.34	7.32	316.30	2.00	20.06	133.73
T_4	Priya	91.00	4.17	9.00	7.60	324.40	2.30	23.00	153.34
T_5	Kokan Tara	82.36	3.67	7.00	6.36	297.28	1.38	13.84	92.29
T_6	Bitter Gourd 2	77.66	3.52	5.30	5.69	278.00	1.08	10.85	72.35
T_7	MC 84	83.33	3.97	9.36	8.00	321.33	2.21	22.15	147.67
T_8	Co White Long (C)	90.90	3.84	8.32	7.34	291.69	1.96	19.62	130.80
S.E. ±		1.43	0.014	0.31	0.29	0.91	0.027	0.27	1.85
C.D. (P=0.05)		4.33	0.042	0.94	0.90	2.76	0.084	0.84	5.61

that those varieties bearing more number of leaves recorded higher yield per vine. In agreement to this, the variety Priya recorded highest number of leaves per vine also recorded highest yield per vine (2.30 kg)

Yield parameters:

Yield of fruits per vine, per plot and per hectare :

The observations recorded in respect of yield of fruits per vine, per plot and per hectare presented in Table 1 clearly indicates that there was variability amongst the different varieties. The variety Priya (2.30kg) recorded highest yield per vine, while the lowest yield recorded by variety Bitter Gourd 2. The highest total yield per plot was recorded by variety Priya (23.00kg) followed by treatment MC 84, Phule Ujjwala and control treatment Co White Long. While the highest average per hectare yield was recorded by variety Priya (153.34 kg) followed by variety MC 84 (147.67 kg/ha). The data of the present study clearly indicated that varieties with more vine length, number of primary branches, number of leaves yielded higher fruit weight per hectare. These findings are similar to those reported by Srivastava and Srivastava (1976), Ramchandran *et al.* (1979) and Indiresh (1982).

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