

## Study of different genotypes performance on yield and its components of Vegetable pea (*Pisum sativum* L)

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*Abstract: The present investigation was carried out during Rabi season of 2014-15 Department of Horticulture, College of Agriculture, Latur, VNMKV, Parbhani. The study was under taken with fifteen genotypes of pea with two replications in Randomized Block Design. Results of the study revealed that, among the different genotype, Phule Priya recorded significantly higher pod length (8.02 cm), number of seeds per green pod (8.06), green pod yield per plant (45.53 g) and green pod yield per hectare (92.60 q) as compared to other genotypes.*

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### INTRODUCTION

Pea (*Pisum sativum* L.) chromosome number  $2n = 14$  is one of the most important annual herbaceous legume crops of India. It is probably originated in south western Asia, possibly in North western India, Pakistan or adjacent areas of former USSR and Afghanistan. It is a popular as well as economically important winter vegetable crops. The genotypes of pea are classified in three categories viz. early season, mid season and late season depending upon their duration from sowing to maturity. The early genotypes are now a day's getting more popularity because of better price in market and their short duration enables the farmers to fit it in multicropping system. The mid season genotypes are capable of high yielding but these are sold at lesser price in the market if early and mid-season genotypes are sown late in November, crops suffers from powdery mildew, which reduces the yield. (Chet Ram *et al.* 2010). With this background information the present study is investigated to judge the performance of different genotypes on its yield and its components.

### MATERIALS AND METHODS

*Number of clusters per plant:* The total number of clusters of randomly selected five plants was

recorded from each treatment and average number of clusters per plant was calculated.

*Number of pods in cluster:* The total number of pods in a cluster of randomly selected five plants was recorded from each treatment and average number of pods in cluster was calculated.

*Pod length (cm):* Five green pods from each observation plant were selected randomly during harvesting for recording the length from the base of calyx to the apex of the pod and mean length of pod was calculated in centimetre.

*Number of seeds per green pod:* Five green pods from observation plants of each plot were selected randomly at the time of harvesting for counting the number of grains in a green pod and mean number of grains per pod was calculated.

*Green pod yield per plant (g):* The weight of the green pods from all the pickings of observation plants in each treatment was recorded and averages were worked out in grams.

*Pod yield per hectare (q):* The total yield per plot was recorded and it was computed on hectare basis in quintals.

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## RESULT AND DISCUSSION

*Number of clusters per plant:* The number of clusters per plant for all the fifteen genotypes ranged from 11.70 to 37.50, with the average of 18.95. The genotype Aghawan Local was noticed significantly maximum number of clusters per plant (37.50) followed by genotype Man Local (31.30) and Renapur Local (27.10). The increase in number of cluster is due to genotypic make up of genotypes. Similar results were found in Muhammad and Muhammad (2002), Dayal Prasad Babu and Suresh (2007).

*Number of pods in cluster:* The number of pods in a cluster was observed different genotypes. The maximum number of pods in cluster (2.00) was recorded in 14 genotypes and minimum number of pods in a cluster was recorded in genotype Jalna Local (1.00). Similar results were recorded in Dayal

Prasad Babu and Suresh (2007), Sardana *et al.* (2007), Kumar *et al.* (2010).

*Pod length (cm):* The range of pod length was from 3.92 to 8.02 cm, with the average length of pod 6.36 cm. Phule Priya was recorded significantly maximum length of pod (8.02 cm) followed by genotype Arkel (7.93 cm) and genotype Jalna Local (7.66 cm). The genotype Aghawan Local was found to have minimum length of pod (3.92 cm). Similar results were reported in Ghobary (2010), Kumar *et al.* (2010),

*Number of seeds per pod:* The range noted for number of seeds per green pod was 3.76 to 8.06, with the average number of seeds per green pod 6.05. Phule Priya was significantly recorded maximum number of seeds per green pod (8.06 cm) followed by genotype PB-89 (7.18) and genotype Arkel (7.06). The genotype Alandi Local was recorded minimum

**Table 1**  
**Study of different genotypes on number of clusters per plant and number of pods in clusters and pod length of pea**

Sr. No.	Genotypes	No. of clusters/ plant	No. of pods in cluster	Pod length (cm)	No. of seeds/green pod	Green pod yield/plant (g)	Green pod yield/ha (q)
1	AP-1	13.60	2.00	7.20	6.82	32.59	60.85
2	PB-89	11.70	2.00	7.52	7.18	31.51	59.53
3	Arkel	15.10	2.00	7.93	7.06	39.68	79.37
4	Phule Priya	16.10	2.00	8.02	8.06	45.53	92.60
5	AP- 3	14.20	2.00	7.13	6.76	33.79	66.14
6	Nilanga Local	20.60	2.00	4.97	3.91	16.36	29.10
7	Alandi Local	12.10	2.00	4.22	3.76	21.82	39.68
8	Aghawan Local	37.50	2.00	3.92	3.77	29.05	54.24
9	Man Local	31.30	2.00	4.36	5.66	21.96	41.01
10	Parbhani Local	18.20	2.00	7.30	6.82	26.85	48.94
11	Renapur Local	27.10	2.00	4.12	6.18	22.57	43.65
12	Jalna Local	14.40	1.00	7.66	6.26	25.79	51.59
13	Mudkhed Local	17.30	2.00	6.91	5.97	19.07	33.07
14	Partur Local	19.30	2.00	7.5	6.86	24.09	44.98
15	Aurangabad Local	15.80	2.00	6.66	5.73	19.51	38.36
	Mean	18.95	1.93	6.36	6.06	27.34	52.21
	S.Em±	1.37	0.10	0.51	0.42	2.15	3.07
	C.D. at 5%	4.16	0.32	1.57	1.27	6.54	9.33
	CV (%)	10.25	7.75	11.53	9.82	32.59	8.33

number of seeds per green pod (3.76). Similar results were observed in Ram *et al.* (2010), Rasaei *et al.* (2011).

**Green pod yield per plant (g):** Range for the green pod yield per plant was recorded from 16.36 g to 45.53 g. The average yield per plant was found to be 27.34 g. The genotype Phule Priya significantly produced maximum yield per plant (45.53 g) followed by genotype Arkel (39.68 g) and AP-3 (33.79 g). The genotype Nilanga Local recorded minimum yield per plant (16.36 g). Similar results were recorded Nawab *et al.* (2008).

**Green pod yield per plot (kg):** The green pod yield per plot of all the fifteen genotypes were in the range of 1.10 kg to 3.50 kg. The average yield per plot was found 1.97 kg. The genotype, Phule Priya had recorded significantly maximum yield per plot (3.50 kg) followed by genotype Arkel (3.00 kg) and AP-3 (2.50 kg). The genotype Nilanga Local found minimum yield per plot (1.00 kg). Similar results were found Pal and Singh (2012), Twari *et al.* (2012).

**Green pod yield per hectare (q):** The green pod yield per hectare of all the fifteen genotypes ranged from 29.10 q. to 92.60q. The average yield per hectare was found 52.21 quintal. The genotype Phule Priya produced significantly maximum green pod yield per hectare (92.60 q) followed by genotype Arkel (79.37 q) and AP-3 (66.14 q). The genotype Nilanga Local had recorded the minimum yield per hectare (29.10 q). Similar results were recorded Firas (2013) and Govardhan *et al.* (2013).

## CONCLUSION

From, the investigation it is concluded that among the different genotypes, Phule priya recorded higher yield performance compared to other genotypes. Hence, the cultivars Phule Priya were found superior for commercial cultivation and they are most useful for further breeding programme in pea.

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