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Perse performance of pumpkin genotypes for growth and yield traits under Eastern Uttar Pradesh Conditions

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Abstract
The present investigation was conducted with the using of fifteen F_1 hybrids developed by the using of diallel mating of six parents excluding reciprocals. The hybrids and parents were evaluated consecutively different three seasons during 2015-16 and pooled analysis was worked out. The observations were recorded on fourteen quantitative traits *viz.*, days to first female flower anthesis, days to first male flower anthesis, node number to first male flower appearance, node number to first female flower appearence, days to first fruit harvest, vine length (m), internodal length (cm), number of primary branches per plant, fruit weight (kg), number of fruits per plant, equatorial circumference of fruit (cm), polar circumference of fruit (cm), flesh thickness (cm), fruit yield per plant (kg). The analysis of variance revealed that mean squares due to genotypes found significant for all the quantitative traits indicating wide range of variability among the genotypes (hybrids and parents). The hybrids *viz.*, $P_3 \times P_5$, $P_1 \times P_3$ and $P_1 \times P_2$ were showed earliness for flowering and marketable fruit yield.

Keywords: Fruit yield, diallel, pumpkin

Introduction
Based on commercial significance the cultivated *Cucurbita* sp. ranks among the 10 leading vegetable crops worldwide. China and India lead the world production and other major producers are U.S., Egypt, Mexico, Ukraine, Cuba, Italy, Iran and Turkey (Ferriol and Pico, 2008) [3]. The total area of pumpkin in India is 19,760 hectares whereas, the total production is 0.42 million tonne with productivity 21.25 MT/ha (Annonymous, 2015). Robinson and Decker-Walters (1999) [5] concluded that in genus *Cucurbita*, there are 5 cultivated and 10 wild species. Seshadri and More (2009) [6] also stated that the recent recognition of synonyms and taxonomic changes have reduced the number of *Cucurbita* species to 15 or even less. The five cultivated species are *C. argyrosperma* (earlier *C. mixta*), *C. pepo*, *C. maxima*, *C. moschata* and *C. ficifolia*. In India, pumpkin and squashes were introduced from South America by foreign navigators and emissaries. *Cucurbita moschata* is more widely cultivated than other four cultivated species in our country. Since *Cucurbita moschata* is amenable to hotter climates more than other cultivated species, it is also the most widely grown vegetable throughout the tropics of both hemispheres. Pumpkins, like other squash, are thought to have originated in North America. The oldest evidence, pumpkin-related seeds dating between 7000 and 5500 BC, were found in Mexico.

The color of pumpkin is due to the orange pigments. The main nutrients are lutein and both α and β-carotene, the latter of which generates vitamin A in the body. Pumpkins are very versatile in their uses for cooking. Most parts of the pumpkin are edible, including the fleshy shell, seeds, leaves, and even flowers. In the United States and Canada, pumpkin is a popular Halloween and Thanksgiving staple. Pumpkin purée is sometimes prepared and frozen for later use.

Pumpkin is relatively high in energy and carbohydrates and a good source of vitamins, especially high caretenoid pigments and minerals. It may certainly contribute to improve nutritional status of the people, particularly the vulnerable groups in respect of vitamin A requirement. Night-blindness is a serious problem of South Asian countries. Encouraging the mass people to take more pumpkin can easily be solved the problem.

Materials and Methods
The experiments were conducted in Randomized Block Design (RBD) with three replications to assess the performance of 15 F_1 hybrids and 6 parents (in two seasons (*Kharif* and *Rabi*

2015-16). The treatments were planted in rows spaced at 3.0 meters apart with a plant to plant spacing of 0.6 meter. The experiments were sown on 23th July, 2015 and 7th November 2015 for *Kharif* and *Rabi* crops respectively. All the recommended agronomic package of practices and protection measures were followed to raise good crop. Three experiments were conducted during *Kharif* (E_1), *Rabi* seasons (E_2) and summer season (E_3) of 2015-16 at Main Experiment Station of Department of Vegetable Science, at Narendra Deva University of Agriculture & Technology, Narendra Nagar (Kumarganj), Faizabad (U.P.).

The experimental materials for the present study comprised of six promising and diverse inbreds and varieties of pumpkin selected on the basis of genetic variability from the germplasm stock maintained in the Department of Vegetable Science, N.D. University of Agriculture & Technology, Kumarganj, Faizabad (U.P.) India. The selected parental lines *i.e*. Narendra Upkar (P_1), NDPK-120 (P_2), Narendra Agrim (P_3), NDPK-39-2 (P_4), Kashi Harit (P_5) and NDPK-11-3 (P_6) were raised and crossed in the all possible combinations, excluding reciprocals, during *Zaid*, 2015 to get 15 F_1 hybrid seeds for the study

Statistical analysis

The average values for each genotype in each replication for the traits studied were used for further statistical analysis. A brief outline of the procedure adopted for the estimation of statistical parameters. Analysis of variance**, t**he data for the component traits was analysed as per the following model given by Panse and Sukhatme (1984) [4]. The calculated 'F' values were compared with the tabulated 'F' values at 5 % level of significance. If the calculated 'F' value was higher than the tabulated, it was considered to be significant.

Results and Discussion

The earliness for flowering and fruit harvest is desirable the present investigation revealed that cross combinations *viz.,* $P_3 \times P_5$, $P_1 \times P_3$, $P_1 \times P_2$, $P_4 \times P_6$ and $P_1 \times P_4$ were taken minimum days for days to first female flower anthesis, days to first male flower anthesis, node number to first male flower appearance, node number to first female flower appearance and days to first fruit harvest.

Number of primary branches per plant influenced the number of fruits per plant and finally resulted high fruit yield. The cross combination, $P_4 \times P_6$ produced maximum number of primary branches followed by $P_4 \times P_5$, $P_3 \times P_5$ and $P_5 \times P_6$ during all three seasons. the F_1 hybrid $P_4 \times P_6$ had significantly higher primary branches per plant than all the genotypes except hybrid $P_4 \times P_5$ which was recorded at par primary branches. Primary branches per plant ranged from 6.02 to 11.33.

Maximum equatorial circumference of fruit (cm) was recorded in cross combination $P_5 \times P_6$ followed by $P_1 \times P_6$, $P_1 \times P_3$, $P_4 \times P_5$ and $P_1 \times P_2$ during all three seasons (E_1, E_2, E_3) and pooled analysis. The equatorial circumference of fruit ranged from 46.67 to 60.57 cm in pooled analysis. F_1 Hybrid $P_5 \times P_6$ was significantly superior to all the genotypes except $P_1 \times P_3$, $P_1 \times P_6$, $P_4 \times P_5$. The equatorial and polar circumference of fruit showed the size of fruit and influenced directly fruit yield of hybrids. The cross combination $P_2 \times P_6$ followed by $P_3 \times P_5$, $P_1 \times P_3$, $P_2 \times P_5$ and $P_3 \times P_4$ on the bases of pooled analysis. Polar circumference of fruit varied from 38.74 cm to 50.74 cm with overall mean 46.34 cm. Low range of variation was observed for flesh thickness of fruit among different genotypes. Flesh thickness varied from 2.18 to 2.83 cm with grand mean 2.60 cm. Cross combination $P_1 \times P_6$ produced maximum thickened fruits followed by $P_3 \times P_6$, $P_1 \times P_3$ and $P_2 \times P_4$ on the pooled analysis bases. Similar finding were made by Devi *et al.* (1989) [2] and Srinivasan (2003) [8] in pumpkin.

Vine length and internodal play important role in increasing or decreasing fruit yield of genotype higher vine length and shorter internodal length produces more primary and secondary branches and finally it leads to more number of fruits per plant. The genotype have longer vine length and shortest internodal length should be selected. The vine length (Table-1) ranged from 2.17 m to 4.20 m with mean of 3.23 m. Cross combination $P_1 \times P_4$ recorded maximum vine length followed by $P_1 \times P_3$, $P_4 \times P_6$, $P_1 \times P_6$ and $P_2 \times P_3$ in pooled analysis. The F_1 hybrid $P_1 \times P_4$ recorded significantly higher vine length than all the cross combinations and parents except $P_1 \times P_3$, $P_4 \times P_6$, $P_1 \times P_6$, $P_2 \times P_6$ and $P_2 \times P_3$. F_1 hybrid $P_4 \times P_6$ produced significantly shortest internodes than all the parents and cross combinations except $P_1 \times P_5$ and $P_3 \times P_4$ on the pooled analysis bases.

The average fruit weight ranged from 1.41 kg to 2.10 kg with overall mean 1.78 kg cross combination $P_1 \times P_5$ produced maximum average fruit weight followed by parent P_2. However minimum average fruit weight recorded in parent P_6. $P_1 \times P_5$ produced significantly higher fruit weight than all other parent and hybrids except P_2 in pooled analysis. Highest number of fruits per plant were recorded in cross combination $P_4 \times P_6$ followed by $P_1 \times P_5$, $P_1 \times P_2$, $P_3 \times P_5$ and $P_1 \times P_4$. Number fruits plant ranged from 1.58 to 4.08 with mean 2.74 on the bases of pooled analysis. Similar findings were reported by Suganthi (2008) [3] and Shivanand Hegde (2009) [7] in bottle gourd and ridge gourd respectively. The average fruit and number of fruits per plant contributed to the fruit yield of genotype in the present investigation on the bases of pooled analysis observed that cross combination $P_1 \times P_5$ produced maximum fruit yield per plant which was significantly higher than other crosses and parents yield. The fruit yield per plant varied from 2.89 kg to 7.65 kg with overall mean 4.88 kg per plant. Earlier results recorded by Shivanand Hegde (2009) [7] in ridge gourd also confirmed the present findings.

Table 1: Mean performance of genotypes (F_1 hybrids and parents) in relation to different growth, yield and quality traits during three seasons (E_1, E_2, E_3) and over seasons (pooled)

Genotypes	Days to first female flower anthesis				Days to first male flower anthesis				Node number to first male flower appearance			
	E_1	E_2	E_3	Pooled	E_1	E_2	E_3	Pooled	E_1	E_2	E_3	Pooled
$P_1 \times P_2$	41.33	90.33	40.66	57.44	43.11	90.11	42.89	58.70	3.89	6.78	3.89	4.85
$P_1 \times P_3$	39.22	93.44	38.55	57.07	46.22	92.11	42.66	60.33	3.89	5.83	4.09	4.60
$P_1 \times P_4$	38.66	96.33	37.99	57.66	43.33	94.22	43.11	60.22	3.64	6.45	3.64	4.58
$P_1 \times P_5$	38.22	99.44	37.55	58.40	38.82	85.44	38.60	54.29	4.33	5.00	4.33	4.56
$P_1 \times P_6$	39.67	101.22	39.00	59.96	42.89	98.33	46.00	62.41	4.09	6.42	3.89	4.80
$P_2 \times P_3$	38.85	96.44	38.18	57.82	43.83	93.44	43.61	60.29	3.82	6.50	3.82	4.71
$P_2 \times P_4$	41.33	98.88	40.66	60.29	42.78	96.66	42.56	60.67	4.79	7.37	4.79	5.65

$P_2 \times P_5$	47.00	94.44	46.33	62.59	40.22	92.00	48.33	60.18	5.44	5.55	4.22	5.07
$P_2 \times P_6$	40.11	96.33	39.44	58.63	42.56	94.88	42.33	59.92	5.33	6.77	5.33	5.81
$P_3 \times P_4$	40.11	99.44	39.44	59.66	48.56	97.55	40.00	62.04	4.22	4.90	5.44	4.85
$P_3 \times P_5$	37.55	95.22	36.88	56.55	39.56	94.89	39.33	57.93	3.78	5.45	3.78	4.33
$P_3 \times P_6$	41.00	99.22	40.33	60.18	42.40	95.89	42.17	60.15	3.34	6.08	3.34	4.25
$P_4 \times P_5$	41.78	96.44	41.11	59.78	38.34	93.55	46.22	59.37	3.92	5.68	4.40	4.67
$P_4 \times P_6$	36.45	100.22	35.78	57.48	40.22	87.55	40.00	55.92	4.30	5.20	4.30	4.60
$P_5 \times P_6$	38.78	103.66	38.11	60.18	46.45	98.55	38.11	61.04	4.40	6.50	3.92	4.94
P_1	43.22	100.33	42.55	62.03	41.77	99.11	41.54	60.81	5.56	7.85	5.56	6.32
P_2	50.33	103.00	49.66	67.66	50.89	100.11	50.67	67.22	4.44	7.30	4.44	5.40
P_3 (Check)	48.22	101.33	47.55	65.70	49.56	98.22	49.33	65.70	5.00	7.50	5.00	5.83
P_4	47.28	104.22	46.61	66.04	49.11	100.33	48.89	66.11	4.56	8.27	4.56	5.79
P_5	41.00	106.33	40.33	62.55	42.45	104.11	42.22	62.93	5.14	7.25	5.14	5.85
P_6	40.28	107.66	39.61	62.52	40.65	105.00	40.43	62.03	4.44	7.88	4.44	5.59
Mean	**41.45**	**98.15**	**40.78**	**60.13**	**43.51**	**95.81**	**43.29**	**60.87**	**4.40**	**6.50**	**4.40**	**5.10**
S.E.±M	0.29	0.27	0.29	0.88	0.48	0.46	0.40	0.99	0.14	0.19	0.14	0.19
C.D. 5%	0.84	0.77	0.84	2.45	1.36	1.30	1.13	2.77	0.39	0.54	0.39	0.52
Range **Lowest**	36.45	88.44	35.78	53.78	38.34	85.44	38.11	54.29	3.34	4.90	3.34	4.25
Highest	50.33	107.66	49.66	67.66	50.59	105.00	50.67	67.22	5.56	8.27	5.56	6.32

Table-1 cont….

Genotypes	**Node number to first female flower appearance**				**Days to first fruit harvest**				**Number of primary branch**			
	E_1	**E_2**	**E_3**	**Pooled**	**E_1**	**E_2**	**E_3**	**Pooled**	**E_1**	**E_2**	**E_3**	**Pooled**
$P_1 \times P_2$	18.33	9.50	18.33	15.39	61.00	110.75	59.55	77.10	9.17	8.31	9.17	8.88
$P_1 \times P_3$	16.67	11.00	18.44	15.37	62.00	113.20	55.89	77.03	8.47	6.11	9.50	8.03
$P_1 \times P_4$	18.33	12.67	18.33	16.44	57.33	115.08	55.89	76.10	9.09	8.72	9.09	8.97
$P_1 \times P_5$	19.00	12.61	19.00	16.87	54.22	108.11	50.55	70.96	9.16	8.80	9.16	9.04
$P_1 \times P_6$	18.44	9.97	16.67	15.03	57.33	123.22	60.22	80.26	9.50	8.97	8.47	8.98
$P_2 \times P_3$	15.53	12.28	15.53	14.45	63.22	115.19	61.55	79.99	7.80	9.68	7.80	8.43
$P_2 \times P_4$	19.33	9.87	19.33	16.18	64.33	118.30	57.55	80.06	8.83	9.88	8.83	9.18
$P_2 \times P_5$	17.67	10.33	15.22	14.41	55.67	114.10	68.22	79.33	9.46	7.31	8.67	8.48
$P_2 \times P_6$	16.78	10.75	17.11	14.88	57.67	117.88	56.22	77.26	8.23	9.92	8.23	8.79
$P_3 \times P_4$	15.22	9.75	17.67	14.21	69.67	122.33	54.22	82.07	8.67	10.50	9.46	9.54
$P_3 \times P_5$	13.78	11.00	13.78	12.85	52.33	117.65	51.55	73.85	10.19	10.59	10.19	10.33
$P_3 \times P_6$	15.44	11.92	15.44	14.27	63.00	118.43	61.55	81.00	8.12	11.08	8.12	9.11
$P_4 \times P_5$	17.22	11.14	19.00	15.79	60.44	116.55	63.55	80.18	10.28	11.29	10.41	10.66
$P_4 \times P_6$	17.11	11.87	17.11	15.36	59.00	108.44	57.55	75.00	11.56	10.85	11.56	11.33
$P_5 \times P_6$	19.00	14.56	17.22	16.92	65.00	121.21	58.33	81.51	10.41	9.12	10.28	9.94
P_1	20.33	12.44	20.33	17.70	62.33	118.77	59.22	80.11	5.35	7.35	5.35	6.02
P_2	18.65	11.50	18.65	16.27	68.66	120.77	68.78	86.07	6.47	7.09	6.47	6.68
P_3	14.38	10.98	14.38	13.25	65.55	123.54	68.11	85.73	7.65	7.87	7.65	7.72
P_4	19.56	13.83	19.56	17.65	67.44	124.32	66.66	86.14	5.83	8.51	5.83	6.73
P_5	18.04	12.78	18.04	16.29	59.44	127.43	60.55	82.48	6.83	8.72	6.83	7.46
P_6	18.33	14.95	18.33	17.21	58.22	126.55	56.77	80.51	7.44	8.58	7.44	7.82
Mean	**17.48**	**11.70**	**17.50**	**15.56**	**61.14**	**118.18**	**59.64**	**79.65**	**8.50**	**9.01**	**8.50**	**8.67**
S.E.±M	0.33	0.39	0.31	0.40	0.49	0.54	0.43	1.20	0.16	0.13	0.16	0.27
C.D. 5%	0.93	1.12	0.90	1.11	1.41	1.56	1.23	3.34	0.45	0.39	0.45	0.75
Range **Lowest**	13.78	9.50	13.78	12.85	52.33	108.11	50.55	70.96	5.35	6.11	5.35	6.02
highest	20.33	14.95	20.33	17.70	69.67	127.43	68.78	86.14	11.56	11.29	11.56	11.33

Table-1 cont….

Genotypes	**Equatorial circumference of fruit (cm)**				**Polar circumference of fruit (cm)**				**Flesh thickness (cm)**			
	E_1	**E_2**	**E_3**	**Pooled**	**E_1**	**E_2**	**E_3**	**Pooled**	**E_1**	**E_2**	**E_3**	**Pooled**
$P_1 \times P_2$	61.00	50.66	61.29	57.65	53.11	42.67	53.71	49.83	2.55	2.60	2.55	2.57
$P_1 \times P_3$	60.43	53.67	63.09	59.06	46.65	44.63	50.83	47.37	2.61	2.80	2.92	2.78
$P_1 \times P_4$	54.42	57.67	54.71	55.60	52.45	45.12	53.05	50.21	2.62	2.43	2.62	2.55
$P_1 \times P_5$	54.42	52.28	54.71	53.81	44.67	44.00	45.27	44.65	2.66	2.82	2.66	2.71
$P_1 \times P_6$	62.80	53.75	60.72	59.09	50.23	48.00	47.25	48.49	2.92	2.97	2.61	2.83
$P_2 \times P_3$	53.25	42.83	53.54	49.87	44.89	37.13	45.49	42.50	2.16	3.02	2.16	2.44
$P_2 \times P_4$	55.50	53.40	55.79	54.90	45.63	47.33	46.23	46.40	2.75	2.68	2.75	2.73
$P_2 \times P_5$	57.42	54.67	54.96	55.68	56.11	48.23	45.60	49.98	2.73	2.65	2.73	2.71
$P_2 \times P_6$	53.00	51.75	53.29	52.68	51.78	48.07	52.39	50.74	2.72	2.12	2.72	2.52
$P_3 \times P_4$	54.67	49.25	57.71	53.87	44.99	46.50	56.72	49.40	2.73	2.67	2.73	2.71
$P_3 \times P_5$	51.67	46.25	51.96	49.96	48.89	52.93	49.50	50.44	2.82	2.76	2.82	2.80
$P_3 \times P_6$	58.83	50.75	59.12	56.24	51.21	42.55	51.82	48.53	2.52	2.63	2.52	2.56
$P_4 \times P_5$	57.83	54.25	63.37	58.49	46.73	45.94	54.49	49.05	2.57	3.08	2.48	2.71
$P_4 \times P_6$	55.50	55.75	55.79	55.68	44.78	50.93	45.39	47.03	2.89	2.28	2.89	2.69
$P_5 \times P_6$	63.08	60.50	58.12	60.57	53.89	46.79	47.33	49.34	2.48	2.52	2.57	2.52
P_1	54.67	48.37	54.96	52.66	48.00	37.00	48.61	44.54	2.82	2.53	2.82	2.72

P_2		46.38	47.16	46.67	46.74	46.51	37.79	47.11	43.80	2.13	2.28	2.13	2.18
P_3		47.75	45.40	48.04	47.06	40.53	34.57	41.13	38.74	2.32	2.32	2.32	2.32
P_4		50.58	45.20	50.87	48.89	44.84	34.55	45.45	41.61	2.45	2.03	2.45	2.31
P_5		48.19	46.28	48.48	47.65	42.85	33.67	43.45	39.99	2.58	2.69	2.58	2.62
P_6		47.67	48.12	47.96	47.91	44.11	32.62	44.71	40.48	2.67	2.63	2.67	2.66
Mean		**54.72**	**50.85**	**55.01**	**53.53**	**47.75**	**42.91**	**48.36**	**46.34**	**2.60**	**2.60**	**2.60**	**2.60**
S.E.±M		1.00	0.56	1.00	0.84	1.04	0.68	1.06	1.14	0.10	0.06	0.10	0.07
C.D. 5%		2.85	1.61	2.85	2.35	2.97	1.95	3.04	3.19	0.28	0.16	0.28	0.20
Range	**Lowest**	46.38	42.83	46.67	46.74	40.53	32.63	41.13	38.74	2.13	2.03	2.13	2.18
	Highest	63.08	60.50	63.37	60.57	56.11	52.93	56.72	50.74	2.92	3.08	2.92	2.83

Table-1 cont….

Genotypes	Intermodal length (cm)				Vine length (m)				Average fruit weight (kg)			
	E_1	**E_2**	**E_3**	**Pooled**	**E_1**	**E_2**	**E_3**	**Pooled**	**E_1**	**E_2**	**E_3**	**Pooled**
P_1× P_2	7.20	5.47	7.00	6.56	3.75	2.97	4.05	3.59	2.07	1.62	2.24	1.98
P_1 × P_3	7.56	6.11	6.38	6.68	4.58	2.85	4.96	4.13	2.02	1.64	2.26	1.97
P_1 × P_4	9.00	5.56	8.80	7.79	4.89	2.53	5.19	4.20	1.92	1.48	2.10	1.83
P_1 × P_5	6.78	5.07	6.58	6.14	3.56	1.93	3.86	3.12	2.19	1.74	2.36	2.10
P_1 × P_6	6.58	6.05	7.36	6.66	4.66	2.20	4.88	3.92	2.09	1.57	2.19	1.95
P_2 × P_3	9.31	5.38	9.11	7.93	4.47	2.40	4.77	3.88	2.01	1.57	2.19	1.92
P_2 × P_4	8.50	7.11	8.30	7.97	3.36	2.55	3.66	3.19	1.84	1.40	2.02	1.75
P_2 × P_5	7.91	6.99	6.32	7.07	3.20	2.67	3.28	3.05	1.76	1.23	1.85	1.61
P_2 × P_6	7.29	6.24	7.09	6.87	4.16	2.50	4.46	3.71	1.92	1.48	2.09	1.83
P_3 × P_4	6.52	4.47	7.71	6.23	2.98	2.04	3.50	2.84	1.68	1.32	1.94	1.64
P_3 × P_5	6.45	6.15	6.25	6.29	2.78	2.15	3.08	2.67	1.74	1.30	1.91	1.65
P_3 × P_6	8.67	5.43	8.47	7.52	3.28	2.00	3.58	2.96	1.56	1.12	1.73	1.47
P_4 × P_5	6.78	8.18	10.14	8.36	3.00	2.59	2.78	2.79	1.67	1.32	1.94	1.64
P_4 × P_6	5.83	5.07	5.64	5.51	4.67	2.18	4.97	3.94	1.83	1.39	2.00	1.74
P_5 × P_6	10.33	7.79	6.58	8.24	2.48	2.85	3.30	2.88	1.77	1.20	1.84	1.60
P_1	8.67	6.83	8.47	7.99	3.92	2.68	4.22	3.61	2.08	1.55	2.25	1.96
P_2	7.50	6.44	7.30	7.08	2.26	2.47	2.56	2.43	2.13	1.68	2.30	2.04
P_3	8.51	7.27	8.31	8.03	3.73	2.07	4.03	3.27	1.89	1.44	2.06	1.80
P_4	7.87	7.10	7.68	7.55	3.65	1.97	3.95	3.19	1.96	1.45	2.13	1.85
P_5	8.62	6.79	8.42	7.95	1.82	2.55	2.12	2.17	1.63	1.19	1.81	1.54
P_6	6.92	6.14	6.72	6.59	1.82	2.80	2.12	2.24	1.50	1.05	1.67	1.41
Mean	**7.75**	**6.27**	**7.56**	**7.19**	**3.48**	**2.43**	**3.78**	**3.23**	**1.87**	**1.42**	**2.04**	**1.78**
S.E.±M	0.16	0.13	0.16	0.26	0.21	0.15	0.21	0.20	0.06	0.04	0.06	0.03
C.D. 5%	0.46	0.36	0.47	0.73	0.59	0.43	0.61	0.55	0.16	0.10	0.17	0.08
Range **Lowest**	5.83	4.47	5.64	5.51	1.82	1.93	2.12	2.17	1.50	1.05	1.67	1.41
Range **Highest**	10.33	8.18	10.14	8.36	4.89	2.97	5.19	4.20	2.19	1.74	2.36	2.10

Table-1 cont….

Genotypes	Number of fruits per plant				Fruit yield per plant (Kg)			
	E_1	**E_2**	**E_3**	**Pooled**	**E_1**	**E_2**	**E_3**	**Pooled**
P_1× P_2	3.34	3.28	3.58	3.40	6.92	5.31	8.05	6.76
P_1 × P_3	2.72	2.49	2.73	2.65	5.49	4.09	6.17	5.25
P_1 × P_4	3.00	3.00	3.24	3.08	5.76	4.44	6.80	5.66
P_1 × P_5	3.53	3.62	3.78	3.64	7.72	6.31	8.92	7.65
P_1 × P_6	2.49	2.72	2.97	2.73	5.18	4.29	6.50	5.32
P_2 × P_3	2.15	2.15	2.40	2.23	4.34	3.39	5.25	4.33
P_2 × P_4	2.34	2.17	2.59	2.37	4.32	3.03	5.23	4.19
P_2 × P_5	2.70	2.33	2.58	2.54	4.76	2.88	4.77	4.14
P_2 × P_6	2.76	2.75	3.00	2.84	5.29	4.06	6.28	5.21
P_3 × P_4	2.33	2.70	2.95	2.66	3.91	3.57	5.70	4.39
P_3 × P_5	3.20	3.17	3.45	3.27	5.56	4.10	6.59	5.42
P_3 × P_6	2.60	2.60	2.85	2.68	4.07	2.89	4.95	3.97
P_4 × P_5	3.13	2.17	2.39	2.56	5.22	2.86	4.65	4.24
P_4 × P_6	4.00	4.00	4.25	4.08	7.32	5.55	8.51	7.12
P_5 × P_6	2.15	3.10	3.38	2.88	3.79	3.74	6.22	4.58
P_1	2.22	2.29	2.47	2.33	4.61	3.56	5.55	4.57
P_2	1.50	1.50	1.75	1.58	3.20	2.53	4.03	3.25
P_3	1.61	1.77	1.85	1.74	3.03	2.56	3.81	3.13
P_4	2.75	2.75	3.00	2.83	5.39	3.98	6.39	5.25
P_5	3.26	3.26	3.51	3.34	5.33	3.88	6.34	5.18
P_6	1.96	1.96	2.21	2.04	2.93	2.07	3.69	2.89
Mean	**2.65**	**2.66**	**2.90**	**2.74**	**4.96**	**3.77**	**5.92**	**4.88**
S.E.±M	0.09	0.10	0.10	0.08	0.24	0.18	0.32	0.16
C.D. 5%	0.26	0.29	0.29	0.21	0.68	0.50	0.91	0.46
Range **Lowest**	1.50	1.50	1.75	1.58	2.93	2.07	3.68	2.89
Range **Highest**	4.00	4.00	4.25	4.08	7.72	6.31	8.92	7.65

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