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## Evaluation of *per se* performance of parents and hybrids for quantitative characters in brinjal (*Solanum melongena* L.)

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**Abstract**

Brinjal or eggplant belongs to family nightshade (solanaceae) is one of the most popular and widely grown vegetable in India. Eggplant is a good source of minerals and vitamins in the tropical diets. Assessment of genetic resources is the starting point of any crop improvement programme. The crosses PB-6 x PB-101, BARI x Pant Samrat and BARI x Pusa Upkar can be exploited as commercial hybrids as they exhibited high *per se* performance. The crosses PB-6 x PB-101 and BARI x Pusa Upkar showed high *per se* performance for yield attributing traits, can be utilized for commercial exploitation of heterosis for obtaining maximum yield. It can also be concluded that for total yield per plant (Kg) SMB-115, Pant Rituraj (PR) and PB-101 were established as good general combiners and yield per hectare (q). Hence, these parents can be utilized for further investigation and genotypes improvement in respective traits of brinjal. The crosses PB-6 x PB-101, BARI x Pant Samrat and BARI x Pusa Upkar highest *per se* performance for most the characters. However, these cross combinations can be utilized as commercially exploited to higher yield.

**Keywords:** Eggplant, hybrids, nightshade, *per se* performance

**Introduction**

Eggplant (*Solanum melongena* L.) or brinjal, worldwide known as aubergine or guinea squash, is one of the most popular and major vegetable crops in India and other parts of the world, belonging to the nightshade family Solanaceae. It is an often cross pollinated annual herbaceous plant, originated in India and shows secondary diversity in South East Asia (Haushna, 2009) [2]. Brinjal fruits are rich sources of minerals like calcium, magnesium, potassium, iron, zinc and copper. It is also a good source of fatty acids and it is used for medicinal purposes in curing diabetes, asthma, cholera, bronchitis and diarrhoea. It is reported to stimulate the intra-peptic metabolism of blood cholesterol. Leaf and fruit, fresh or dry produce marked drop in blood cholesterol level. The hypo Cholesterolemic action is attributed to the presence of polyunsaturated fatty acids (linoleic and linolenic) which are present in flesh and seeds of the fruit in higher amount (65.1%) (Timmapur, 2007). Germplasm is the basic raw material for any crop improvement programme. Conservation and use of genetic resources have a great significance. It may either be introduced from other sources or may be developed by concerned breeder from his own material. The availability of genetic variability in germplasm and its proper use is very important. For maintaining adequate variability, the germplasm should include land races, obsolete varieties, varieties and parents of hybrids, breeding lines with genetic markers and other morphological variants, wild forms and their relatives. Hence, collection, evaluation, maintenance, categorization and utilization of germplasm have special significance. Involvement of genetically diverse parents is essential to generate new variability and to look for desirable recombinants with respect to enhanced yield, quality and resistance to several important diseases. Genetically diverse parents are likely to segregates and or to produce high heterotic crosses. More diverse the parents, greater are the chances of obtaining high heterotic F<sub>1</sub>s and broad spectrum of variability in segregating generations (Arunachalam, 1984) [1]. So, collection and evaluation of genotypes is a pre-requisite for genetic improvement of the crop. Therefore, a field investigation was undertaken to evaluate yield and quality characters in 36 genotypes of brinjal (*Solanum melongena* L.).

**Methods and Material**

A field investigation was conducted at Vegetable Research Centre (V.R.C.), Govind Ballabh Pant University of Agriculture & Technology, and Pantnagar during the *kharif* season of 2017-2018 and 2019. During the present investigation, the observation will be recorded on following parameters. Five randomly plants are selected and tagged from each replication from every

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genotype. These tagged plants were used for recording the observations. Analysis was done by calculating the mean of five tagged plant. The data for different traits were statistically analysed as per the procedures outlined by Panse and Sukhatme (1967).

## Result and Discussion

The observations were recorded on five plants from each genotype of three replications for fruit yield and its component characters and used for calculating the mean performance. The observations were first averaged for five plants taken randomly for each genotype in each replication and were later averaged over all the three replications. The data on mean performance of brinjal genotypes for fruit yield and component characters are presented character wise in Table 1 and 2. In first year days to first flowering of parents ranged from 43.33 to 76.33. Among parents Pusa Upkar (76.33) showed maximum days to the first flowering followed by PB-101(62.67) while in second year the minimum days to the first flowering was observed in Pant Rituraj (43.67) followed by PB-6 (45.67). Similarly among the crosses Pusa Upkar x *S.gilo* (84.67) followed by Pusa Upkar x PB-101(82.33) showed maximum while minimum BARI x PB-101(45.67) followed by PB-6 x *S. gilo*(45.33). In second year maximum days to first flowering observed again 78.00(Pusa Upkar) and minimum in 44.00 (Pant Rituraj). Among the crosses minimum days to first flowering observed in BARI x PB-101 (44.62) and maximum in Pusa Upkar x *S.gilo* (84.67). Number of flower per inflorescence among the parents ranged from 2.67 to 4.67 in first year. Among parents, the maximum number of flower per inflorescence recorded *S.gilo* (4.67) followed by BARI (4.50) whereas, among the crosses the maximum 4.67 whereas, minimum in maximum value was 2.67 by crosses for number of flower per inflorescence. In

second year parents ranged from PB-6 (2.67) to *S.gilo* (4.67) whereas, among the crosses the maximum SMB-115 x BARI (4.67 I), whereas minimum in maximum value was SMB-115 x *S.gilo* (2.67) by crosses for number of flower per inflorescence. The mean values for number of primary branches per plant in brinjal for parents varied from 4.50 to 2.23 in first year. The two parents SMB-115 and Pusa Upkar recorded 4.50 and 3.53 more number of primary branches per plant respectively whereas, less number of primary branches per plant was recorded in BARI (2.23) followed by Pant Samrat (3.07), whereas, among the crosses SMB-115 x Pant Rituraj (5.10) followed by Pusa Upkar x *S.gilo*(4.03) exhibited more number of primary branches per plant, whereas less number of primary branches per plant were found in Pant Rituraj x PB-101(2.23) followed by Pant Samrat x PB-101(2.37). Similarly in second year again SMB-115 had maximum number of primary branches per plant. BARI (2.37) had less number of primary branches per plant. Among the crosses maximum SMB-115 x Pant Rituraj (5.20) and less mean value was observed in Pant Rituraj x PB-101 (2.40).The mean values for plant height (cm) for parents ranged from 71.10 to 36.17in first year. Among the all parents two parents showed maximum plant height BARI (71.10) followed by PB-101(51.43) while, PB-6 (36.17) followed by Pant Rituraj (40.47) were found minimum plant height among all the parents in first year. Whereas, among the crosses SMB115 x *S.gilo* (74.10) followed by BARI x *S.gilo* (61.13) showed maximum plant height while Pant Samrat x PB-6 (34.50) followed by SMB115 x PB-101(41.73) exhibited minimum plant height (cm) among crosses. In second year, among parents BARI (73.07) has maximum mean value and PB-6 (37.00) had minimum mean value for plant height. SMB-115 x *S.gilo* (75.25) and Pant Samrat x PB-6 (35.21)

**Table 1:** Mean performance of brinjal for the year 2018

Parents	Days to first flowering	No of flower per inflorescence	No of primary branches per plant	Plant height (cm)	fruit length (cm)	Fruit diameter (cm)	Average fruit weight (g)	No of healthy fruits per plant	Number of unhealthy fruits per plant	Total number of fruit per plant	Weight of healthy fruits per plant (kg)	Weight of unhealthy fruits per plant (Kg)	Total yield per plant (kg)	Yield per hectare (q)	Infestation of shoot and fruit borer (%)
SMB-115	52.33	3.67	4.50	46.63	7.47	4.90	439.63	23.02	6.17	29.05	1.60	0.60	2.40	513.37	42.00
BARI	56.00	4.67	2.23	71.10	23.67	1.77	115.80	10.17	8.73	18.75	0.47	0.07	0.60	133.63	17.20
Pant Samrat	61.00	4.00	3.07	45.17	16.44	3.60	365.93	28.23	2.00	30.11	1.57	0.21	1.60	406.20	26.33
Pant Rituraj	43.33	4.33	3.37	40.47	7.50	5.05	550.25	21.83	8.73	30.44	0.93	0.93	1.90	433.70	32.13
PB-6	45.67	2.67	3.53	36.17	17.50	4.90	380.40	14.60	5.37	19.85	0.80	0.55	1.43	316.50	46.07
Pusa Upkar	76.33	2.67	3.77	41.33	8.17	6.40	625.93	15.27	4.37	19.22	1.23	0.40	1.60	349.27	23.07
PB-101	62.67	2.67	3.43	51.43	11.17	4.12	325.97	17.87	3.43	21.21	2.07	0.90	2.23	564.93	26.20
<i>S.gilo</i>	61.67	4.67	3.73	46.33	3.10	3.77	87.67	30.77	1.23	31.95	0.43	0.13	0.50	124.51	43.47
SMB-115 x BARI	75.00	4.67	2.97	45.60	9.43	3.27	215.13	19.47	5.20	24.53	0.80	0.55	0.45	171.63	14.52
SMB-115 x Pant Samrat	77.33	4.67	3.43	43.93	12.40	4.17	342.90	12.80	7.10	19.73	1.73	0.81	2.65	562.57	32.90
SMB-115 x Pant Rituraj	62.00	3.67	5.10	52.73	12.93	5.10	595.67	13.60	5.27	18.50	2.40	0.91	3.27	658.52	18.63
SMB-115 x PB-6	63.00	2.67	3.47	53.23	13.37	3.77	106.33	15.17	4.17	20.33	0.15	0.40	0.50	131.83	39.80
SMB-115 x Pusa Upkar	56.33	3.67	2.83	44.00	11.17	7.50	271.43	17.43	3.40	18.17	1.00	0.37	1.47	348.33	34.03
SMB-115 x PB-101	72.67	3.67	3.67	41.73	13.20	3.77	461.90	16.50	3.87	20.47	1.53	0.40	1.80	435.73	54.27
SMB-115 x <i>S.gilo</i>	63.67	2.67	4.20	74.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BARI x Pant Samrat	50.25	5.67	3.33	59.37	25.22	3.60	395.44	30.90	5.33	36.33	1.75	0.18	2.15	554.15	22.47
BARI x Pant Rituraj	57.33	2.67	3.67	51.63	15.20	3.60	341.37	11.83	4.53	16.47	0.65	0.12	2.10	404.87	16.33
BARI x PB-6	75.00	2.67	3.53	55.87	25.11	3.10	395.47	17.27	6.33	23.11	0.94	0.04	1.60	362.00	25.97
BARI x Pusa Upkar	52.67	5.33	3.83	44.07	25.55	5.50	662.40	21.67	2.93	23.98	1.52	0.23	1.85	449.25	30.37
BARI x PB-101	45.67	2.67	3.00	49.60	14.30	3.10	488.80	19.23	7.43	26.23	2.19	0.64	3.55	572.47	37.40
BARI x <i>S.gilo</i>	64.00	3.67	3.93	61.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pant Samrat x Pant Rituraj	53.33	3.67	3.10	45.37	13.33	3.77	283.53	12.87	5.10	18.11	1.22	0.20	1.37	451.52	37.47
Pant Samrat x PB-6	56.33	2.67	2.83	34.50	18.52	5.10	333.33	15.60	3.30	17.95	0.23	0.07	1.74	463.25	25.87
Pant Samrat x Pusa Upkar	71.33	3.67	2.67	43.07	16.33	3.40	649.25	16.80	2.13	18.30	0.16	0.06	0.20	143.25	45.40
Pant Samrat x PB-101	74.67	3.67	2.37	52.43	13.10	2.10	656.00	15.20	4.33	18.80	2.11	0.29	1.75	131.43	25.87
Pant Samrat x <i>S.gilo</i>	61.00	3.67	4.20	46.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pant Rituraj x PB-6	74.67	3.67	3.67	51.53	9.33	3.34	245.13	16.52	3.43	19.25	1.15	0.29	2.11	475.52	52.97
Pant Rituraj x Pusa Upkar	72.33	2.67	2.67	45.50	12.53	6.55	696.07	19.07	6.60	25.07	1.44	0.50	2.30	530.27	33.80
Pant Rituraj x PB-101	63.67	3.67	2.23	45.53	12.47	6.57	595.25	18.67	3.97	22.57	2.63	1.00	2.60	744.25	15.20

Pant Rituraj x <i>S.gilo</i>	61.67	3.67	2.93	53.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB-6 x Pusa Upkar	72.33	2.67	3.07	42.57	8.50	6.50	453.53	18.60	3.20	21.60	1.90	0.30	1.95	446.57	54.43
PB-6 x PB-101	44.15	3.67	3.66	42.70	24.52	5.50	415.25	22.47	4.42	26.87	2.24	0.60	3.62	882.90	51.63
PB-6 x <i>S.gilo</i>	46.00	2.67	2.57	44.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pusa Upkar x PB-101	82.33	3.67	2.40	44.60	14.43	5.30	445.52	18.50	8.90	27.20	2.18	1.08	2.43	535.47	42.93
Pusa Upkar x <i>S.gilo</i>	84.67	3.67	4.03	44.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB-101 x <i>S.gilo</i>	45.33	3.67	3.17	52.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE(d)	2.80	0.19	0.15	2.18	0.59	0.19	18.87	0.75	0.18	0.88	0.06	0.02	0.09	18.00	1.15
C.D.	5.60	0.37	0.30	4.35	1.19	0.39	37.72	1.49	0.35	1.76	0.11	0.04	0.18	35.97	2.29
C.V.	5.52	6.38	5.41	5.51	6.30	6.61	6.97	6.19	5.51	5.85	6.42	7.25	7.35	6.45	5.21

Table 2: Mean performance of brinjal for the year 2019

Parents	Days to first flowering	No of flower per inflorescence	No of primary branches per plant	Plant height (cm)	fruit length (cm)	Fruit diameter (cm)	Average fruit weight (g)	No of healthy fruits per plant	Number of unhealthy fruits per plant	Total number of fruit per plant	Weight of healthy fruits per plant (kg)	Weight of unhealthy fruits per plant (Kg)	Total yield per plant (kg)	Yield per hectare (q)	Infestation of shoot and fruit borer (%)
SMB-115	53.67	4.33	4.50	47.12	9.60	4.37	426.85	24.00	6.33	30.25	2.17	1.03	2.75	632.57	42.33
BARI	56.00	4.33	2.37	73.07	22.17	2.07	129.52	11.62	8.15	19.52	0.37	0.33	0.72	155.33	17.53
Pant Samrat	61.00	4.00	3.20	46.67	16.77	4.00	374.25	29.23	2.33	31.25	1.30	0.21	2.51	452.62	26.93
Pant Rituraj	44.00	4.33	3.63	42.07	10.00	5.50	557.62	20.88	8.42	29.11	1.40	1.47	2.91	536.37	32.70
PB-6	45.67	2.67	3.60	37.00	18.93	4.47	356.20	16.33	5.67	22.12	1.37	0.70	2.05	337.77	46.47
Pusa Upkar	78.00	3.00	3.83	42.93	10.30	6.60	641.52	15.67	4.33	19.85	2.30	0.47	2.77	367.65	23.97
PB-101	59.33	4.00	3.50	50.55	14.67	4.77	345.62	16.99	3.85	20.55	2.20	0.47	2.70	603.33	26.43
<i>S.gilo</i>	64.00	4.67	3.73	47.51	4.17	3.77	95.62	31.05	1.67	31.98	0.47	0.14	0.61	134.62	44.03
SMB-115 x BARI	76.00	4.67	3.00	46.52	11.07	3.47	235.00	18.95	5.11	23.75	1.20	0.23	1.43	185.21	15.24
SMB-115 x Pant Samrat	75.00	4.67	3.50	42.85	13.50	4.47	370.53	13.42	7.67	21.10	1.30	0.73	2.03	585.43	32.93
SMB-115 x Pant Rituraj	61.67	3.33	5.20	51.55	14.23	5.27	618.52	15.00	4.33	19.25	2.45	1.02	3.47	764.87	18.70
SMB-115 x PB-6	63.33	2.67	3.57	54.11	16.47	3.77	113.60	16.38	4.67	21.22	0.17	0.17	0.34	227.67	39.83
SMB-115 x Pusa Upkar	57.67	3.33	2.90	45.15	12.83	7.65	269.40	16.52	2.67	19.52	1.22	0.77	1.99	374.70	34.07
SMB-115 x PB-101	77.33	3.33	3.77	41.52	16.33	3.77	475.00	15.75	3.67	19.85	1.85	0.53	2.38	407.03	54.27
SMB-115 x <i>S.gilo</i>	67.00	2.67	4.27	75.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BARI x Pant Samrat	52.67	2.67	2.93	61.55	26.52	3.40	415.25	31.42	5.62	37.10	1.77	0.23	2.00	614.52	22.77
BARI x Pant Rituraj	56.74	2.67	3.80	50.41	16.40	3.60	355.62	12.12	5.10	17.30	1.74	0.17	1.91	435.62	16.37
BARI x PB-6	74.55	2.67	3.70	54.15	24.07	3.10	440.17	13.67	6.05	24.66	0.73	0.27	1.00	388.50	25.97
BARI x Pusa Upkar	55.67	3.67	2.73	44.52	22.35	5.60	675.52	20.85	3.33	24.15	1.75	0.13	1.88	519.97	30.57
BARI x PB-101	44.62	2.67	3.07	52.52	13.83	3.07	499.52	18.08	7.33	26.75	2.22	0.43	2.65	591.10	37.50
BARI x <i>S.gilo</i>	65.05	3.67	3.97	62.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pant Samrat x Pant Rituraj	52.33	3.67	3.13	44.57	9.73	3.77	286.67	12.85	5.33	18.20	1.67	0.47	2.13	504.15	37.53
Pant Samrat x PB-6	54.87	2.67	2.90	35.21	16.33	4.80	346.85	16.95	3.67	19.15	0.60	0.13	0.73	516.63	25.93
Pant Samrat x Pusa Upkar	70.25	3.67	2.97	44.61	16.85	3.40	655.52	18.67	2.24	20.42	0.47	0.73	1.20	178.14	45.53
Pant Samrat x PB-101	75.02	3.67	2.77	51.52	14.30	2.10	674.62	17.41	4.44	20.55	1.93	0.31	2.04	141.52	25.93
Pant Samrat x <i>S.gilo</i>	60.35	3.67	4.33	47.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pant Rituraj x PB-6	73.66	3.67	3.80	52.55	9.75	3.33	265.30	17.67	3.67	21.52	0.77	0.63	1.40	504.25	53.03
Pant Rituraj x Pusa Upkar	71.33	2.67	2.80	45.90	12.65	6.85	736.67	18.75	6.67	25.41	0.77	0.63	1.40	541.30	33.90
Pant Rituraj x PB-101	64.61	3.67	2.40	45.44	13.77	6.57	621.52	19.77	4.12	23.91	2.52	0.35	3.30	841.27	15.23
Pant Rituraj x <i>S.gilo</i>	60.85	3.67	3.00	54.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB-6 x Pusa Upkar	72.01	2.67	3.37	41.65	11.00	7.02	450.42	17.33	3.00	20.41	1.75	0.27	2.02	462.23	54.43
PB-6 x PB-101	47.41	2.67	2.73	43.05	25.20	4.10	453.05	23.33	4.62	26.99	2.00	1.07	3.07	920.42	51.63
PB-6 x <i>S.gilo</i>	45.62	2.67	2.80	44.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pusa Upkar x PB-101	81.55	3.67	2.57	46.75	17.67	5.30	454.52	19.00	9.12	28.14	1.98	1.02	2.77	551.37	42.93
Pusa Upkar x <i>S.gilo</i>	84.67	3.67	4.23	46.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB-101 x <i>S.gilo</i>	45.25	3.67	3.43	54.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE(d)	2.92	0.16	0.16	2.43	0.63	0.19	15.33	0.82	0.18	0.96	0.07	0.02	0.09	20.59	1.21
C.D.	5.83	0.31	0.33	4.86	1.27	0.38	30.65	1.63	0.36	1.92	0.13	0.04	0.18	41.16	2.42
C.V.	5.72	5.59	5.91	6.07	6.33	6.51	5.48	6.66	5.51	6.20	6.78	5.62	6.97	6.74	5.47

Fruit length of parents ranged from 3.10 to 23.67 in first year. Among the all parents two parents, BARI (23.67) followed by PB-6(17.50) showed maximum fruit length whereas, minimum were recorded in *S.gilo* (3.63) followed by SMB-115(7.47). Whereas, among the crosses BARI x Pusa Upkar (25.55) followed by BARI x Pant Samrat (25.22) similarly among the crosses 0.00 mean showed by BARI x *S.gilo*, Pant Samrat x *S.gilo*, Pant Rituraj x *S.gilo*, BARI x *S.gilo*, PB-6 x *S.gilo*, PB-101 x *S.gilo* respectively. Similarly in second year, maximum ranged in BARI (22.17) and minimum in *S.gilo* (4.17). Among the crosses BARI x Pant Samrat (26.52) had maximum mean values. Fruit diameter for parents ranged from 1.77 to 6.40 in first year. Maximum fruit diameter were found for parents in Pusa Upkar (6.40) followed by 4.90 (SMB-115) whereas, minimum fruit diameter were recorded

BARI (1.77) followed by *S.gilo* (3.77) whereas among the crosses maximum were showed SMB-115 x Pusa Upkar(7.50) whereas, minimum were recorded in 0.00 by BARI x *S.gilo*, Pant Samrat x *S.gilo*, Pant Rituraj x *S.gilo*, BARI x *S.gilo*, PB-6 x *S.gilo*, PB-101 x *S.gilo*. In second year BARI (2.07) had minimum and Pusa Upkar (6.60) maximum fruit diameter. Among the crosses maximum fruit diameter was found in SMB-115 x Pusa Upkar (7.65) followed by PB-6 x Pusa Upkar (7.02). Average fruit weight of parents ranged from 87.67 to 625.93 in first year. Among the parents two parents, maximum average fruit weight was recorded in Pusa Upkar (625.93) followed by Pant Rituraj (550.25) whereas, minimum were recorded in *S.gilo* (95.62) followed by BARI (115.80). Whereas, among the crosses maximum average fruit weight recorded in cross 736.67 (Pant Rituraj x Pusa Upkar).

Similarly among the crosses 0.00 mean showed by BARI x *S.gilo*, Pant Samrat x *S.gilo*, Pant Rituraj x *S.gilo*, BARI x *S.gilo*, PB-6 x *S.gilo*, PB-101 x *S.gilo* respectively. Average fruit weight of parents ranged from 95.62 to 641.52 in second year. Among the parents, maximum average fruit weight Pusa Upkar (641.52) followed by Pant Rituraj (557.62) recorded maximum average fruit weight whereas, minimum maximum average fruit weight were recorded in *S.gilo* (95.62) followed by BARI (129.52). Whereas, among the crosses maximum average fruit weight was observed in Pant Rituraj x Pusa Upkar (736.67). Similarly among the crosses 0.00 mean showed by BARI x *S.gilo*, Pant Samrat x *S.gilo*, Pant Rituraj x *S.gilo*, BARI x *S.gilo*, PB-6 x *S.gilo*, PB-101 x *S.gilo* respectively. Number of healthy fruits per plant of parents ranged from 10.17 to 30.77 in first year and maximum number of healthy fruits per plant was found in *S.gilo* (30.77) followed by 28.23 (Pant Samrat) whereas, minimum were recorded in 10.17 (BARI) followed by 14.60 (Pusa Upkar). Among the crosses maximum number of healthy fruits per plant was found in BARI x Pant Rituraj (30.90). Similar result was reported by Shukla (2012) [7] and Khan and Singh (2014) [3]. Similarly among the crosses 0.00 mean showed by BARI x *S.gilo*, Pant Samrat x *S.gilo*, Pant Rituraj x *S.gilo*, BARI x *S.gilo*, PB-6 x *S.gilo*, PB-101 x *S.gilo* respectively. In second year similar results were observed among the parents. In crosses BARI x Pant Samrat (31.42) had maximum number of healthy fruits per plant. In first year number of unhealthy fruits per plant among ranged from 1.23 to 8.73. Among the parents minimum mean value found in *S.gilo* (1.23) and maximum Pant Rituraj (8.73). Pusa Upkar x PB-101 (8.90) had maximum number of unhealthy fruits per plant. In second year number of unhealthy fruits per plant among ranged from 1.67 to 8.42. Minimum mean value found in *S.gilo* (1.62) and maximum was found in Pant Rituraj (8.42). Cross Pusa Upkar x PB-101 (9.12) had maximum number of unhealthy fruits per plant. In first year total number of fruits per plant among parents ranged from 18.75 to 31.98. Minimum mean value was found in BARI (18.75) and maximum in Pant *S.gilo* (31.95). BARI x Pant Samrat (36.33) had maximum total number of fruits per plant. Similar results was observed in second year. Similarly cross BARI x Pant Samrat (37.10) also had maximum total number of fruits per plant. Weight of healthy fruits per plant ranged from 0.43 to 2.07 in first year. Among the parents minimum mean value was found in *S.gilo* (0.43) and maximum PB-101(2.07). Pant Rituraj x PB-101 (2.63) had maximum weight of healthy fruits per plant. In second year, weight of healthy fruits per plant ranged from 0.37 to 2.30. Among the parents minimum mean value was found in BARI (0.37) and maximum Pusa Upkar (2.30). Pant Rituraj x PB-101 (2.52) had maximum weight of healthy fruits per plant. In first year weight of unhealthy fruits per plant ranged in parents from 0.07 to 0.90. Parents BARI (0.07) had minimum and PB-101 (0.90) maximum mean value. Among the crosses Pusa Upkar x PB-101(1.08) had maximum mean value. In second year again Pant Rituraj (1.47) had maximum and *S.gilo* (0.14) minimum mean value. Among the crosses PB-6 x PB-101 (1.07) had maximum mean value. In first year total yield per plant ranged in parents from 2.40 to 0.50. Among the parents SMB-115 (2.40) had maximum and *S.gilo* (0.50) minimum mean value in first year. Similarly among the crosses PB-6 x PB-101(3.62) had maximum mean value. Among the parents Pant Rituraj (2.91) had maximum and 0.61 (*S.gilo*) minimum mean value in second year. Similarly among the crosses SMB-115 x PB-6(3.47) had maximum mean value. In first year yield per

hectare (q) among the parents ranged from 124.51 to 564.93. Parents *S.gilo* (124.51) had minimum and PB-101(564.93) maximum mean value respectively. Among the crosses PB-6 x PB-101(882.90) had maximum mean value. In second year among the parents SMB-115 (632.57) had maximum and *S.gilo* (134.62) minimum mean value. Similarly among the crosses PB-6 x PB-101(920.42) maximum mean value was recorded. In first year yield per hectare (q) ranged from 17.20 to 46.07. Among the parents BARI (17.20) had minimum and PB-6(46.07) maximum mean value. Among the crosses Pant Rituraj x PB-101(54.43) had maximum mean value. In second year yield per hectare (q) ranged from 17.53 to 46.47. Parents BARI (17.53) had minimum and PB-6(46.47) maximum mean value. Among the crosses PB-6 x Pusa Upkar (54.43) had maximum mean value. These results are in agreement with those of Padmanabhan and Singh (1996) [4], Ramesh *et al.* (1996) [6] and Prakash *et al.* (1996) [5]

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