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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_{1s} and broad spectrum of variability in segregating generations (Arunachalam, 1984)^[1]. So, collection and evaluation of genotypes is a prerequisite 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

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

	Days	No of	No of	Dlant	fruit	Fruit	Averag	No of	Number	Total	Weight of	Weight of	Total wield	Yield	Infestatio
Parents	l0 first	nor	primary	r laint boigh	lengt	diam	e fruit	fruits	01 unhealthy	number of fruit	healthy	fruits nor	ner	per	n of Shoot and fruit
Tarcitis	flowe	inflores	branches	t (cm)	h	eter	weight	ner	fruits ner	ner	fruits per	nlant	nlant	hectare	horer
	ring	cence	per plant	t (em)	(cm)	(cm)	(g)	plant	plant	plant	plant (kg)	(Kg)	(kg)	(q)	(%)
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
S.gilo	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 S.gilo	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 S.gilo	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 S.gilo	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

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Pant Rituraj x S.gilo	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 S.gilo	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 S.gilo	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 S.glio	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

br for formore proces finitary proces print proces finitary proces print proces finitary proces print proces		Days	No of	No of				Averag	No of	Number	Total	Weight of	Weight of	Total	Vield	Infestatio
Parents first per marches freigh reng per plant freigh reng freight reng per plant freight reng per plant freight reng		to	flower	nrimary	Plant	fruit	Fruit	e fruit	healthy	of	number	healthy	unhealthy	yield	ner	n of shoot
Howe Information Information Part of paint Paint of paint	Parents	first	per	branches	heigh	length	diamete	weight	fruits	unhealthy	of fruit	fruits per	fruits per	per	hectare	and fruit
ring rence r<		flowe	inflores	per plant	t (cm)	(cm)	r (cm)	(g)	per	fruits per	per	plant (kg)	plant	plant	(a)	borer
SMB-115 S5.67 4.33 4.50 47.12 9.00 4.37 42.08 24.00 6.33 30.25 2.17 1.03 2.15 42.35 BAR1 66.00 4.33 3.20 46.67 16.77 4.00 74.25 9.23 2.33 31.25 1.30 0.21 2.51 452.62 26.93 Pant Rurraj 44.00 4.33 3.63 42.07 10.00 5.50 57.62 20.88 8.42 2.91 14.01 1.47 2.01 5.05 37.77 46.67 Pusa Upkar 78.00 3.00 3.83 42.03 10.30 6.60 64.152 15.67 4.33 19.85 0.47 2.77 67.66 2.37 PB-6 45.67 2.67 3.50 4.51 4.47 37.77 45.62 3.05 1.55 1.42 7.67 21.01 1.30 0.73 2.03 885.43 3.293 SMB-15 x PARI 5.00 4.67 3.00	0.05.115	ring	cence	1. 1.	17.10	0.50	4.05	(8/ 10 c 0 f	plant	plant	plant	1 8/	(Kg)	(kg)	(1)	(%)
BARI 56.00 4.33 2.37 /13.01 22.1 22.3 23.3 13.25 1.30 0.12 155.35 17.35 Pant Rimraj 44.00 4.33 3.63 42.07 10.00 5.50 557.62 20.88 84.2 29.11 1.40 1.47 2.91 556.37 32.77 46.47 PB-6 45.67 2.60 3.83 42.03 10.30 6.60 41.52 1.57 4.33 19.85 2.30 0.47 2.77 367.65 2.37 PB-101 59.33 4.00 3.50 50.55 14.67 4.77 356.21 1.05 1.67 4.33 19.80 0.47 0.14 0.61 134.62 14.03 SMB-115 x PAR 76.00 4.67 3.00 4.62 11.07 3.47 135.00 18.95 5.11 2.375 1.20 0.23 1.43 185.21 15.24 SMB-115 x PAR 76.00 4.67 3.30 4.55 1.23	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
Pant Samrat 61.00 4.00 3.20 46.67 16.7 4.00 374.25 2.2.3 31.25 1.30 0.21 2.51 42.62 26.93 Pant Samrat 64.00 4.33 3.63 42.07 10.00 5.55 55.75 20.88 8.42 29.11 1.40 1.47 2.91 56.73 2.70 PB-6 45.67 2.67 3.60 3.83 42.93 10.30 6.60 64.52 15.67 4.2.3 19.85 2.30 0.47 2.77 367.65 23.97 PB-101 59.33 4.00 4.67 3.73 47.51 4.17 37.77 35.62 31.05 1.67 31.98 0.47 0.14 0.61 13.42 14.03 SMB-115 x Pant Simmai 76.00 4.67 3.00 46.52 14.07 13.75 13.42 7.67 21.10 1.30 0.73 2.03 585.43 32.93 SMB-115 x Pant Simmai 75.00 4.4.25 1.37 <td>BARI</td> <td>56.00</td> <td>4.33</td> <td>2.37</td> <td>73.07</td> <td>22.17</td> <td>2.07</td> <td>129.52</td> <td>11.62</td> <td>8.15</td> <td>19.52</td> <td>0.37</td> <td>0.33</td> <td>0.72</td> <td>155.33</td> <td>17.53</td>	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
Part Ritura 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 Pusa Upkar 78.00 3.00 3.83 42.93 10.30 6.60 64.152 15.67 4.33 19.85 2.30 0.47 2.70 603.33 2.643 Sgilo 64.00 4.67 3.00 4.62 14.17 3.77 75.62 1.05 1.67 3.188 1.04 1.01 1.04 1.01 1.04 1.04 1.01 1.04 1.04 1.01 1.04 1.04 1.01 1.04 1.04 1.01	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
PB-6 45.67 2.67 3.60 37.00 18.93 4.47 356.20 16.53 5.67 2.212 1.37 0.70 2.05 337.77 46.47 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 S.gilo 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 7.600 4.67 3.00 42.85 11.07 31.42 7.67 21.10 1.30 0.73 2.03 585.43 32.93 SMB-115 x PB-6 6.33 3.50 5.15 14.23 5.27 618.52 1.67 14.33 122 0.17 0.17 0.34 22.767 39.83 SMB-115 x PB-6 63.33 3.77 41.52 15.37 7.450 15.75 <td< td=""><td>Pant Rituraj</td><td>44.00</td><td>4.33</td><td>3.63</td><td>42.07</td><td>10.00</td><td>5.50</td><td>557.62</td><td>20.88</td><td>8.42</td><td>29.11</td><td>1.40</td><td>1.47</td><td>2.91</td><td>536.37</td><td>32.70</td></td<>	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
Phisa 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 Bill 5.gilo 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 Pant Samurat 70.00 4.67 3.00 46.52 1.107 3.47 235.00 18.95 5.11 23.75 1.20 0.23 1.43 185.21 15.20 SMB-115 x Pant Rituraj 61.67 3.33 5.20 51.55 14.23 5.27 618.52 1.60 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 3.77 475.00 16.52 2.67 1.62 1.22 0.17 0.17 0.33 2.34 40.73 3.40 15.2	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
PB-101 59.33 4.00 6.50 51.56 14.67 4.77 345.62 16.29 3.85 20.55 2.20 0.47 2.70 603.33 26.43 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 Rituraj 61.67 3.33 5.20 51.55 14.23 52.7 61.852 15.00 4.33 19.22 2.45 1.02 3.47 76.48 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 PB-101 77.33 3.33 3.77 47.50 15.75 3.67 19.85 1.85 0.53 2.38 40.70 34.77 SMB-115 x Sgilo 67.00 2.67 2.370 0.57 3.67 19.85 1.85 0.53 2.38 40.703 54.27 2.65 2.67 </td <td>Pusa Upkar</td> <td>78.00</td> <td>3.00</td> <td>3.83</td> <td>42.93</td> <td>10.30</td> <td>6.60</td> <td>641.52</td> <td>15.67</td> <td>4.33</td> <td>19.85</td> <td>2.30</td> <td>0.47</td> <td>2.77</td> <td>367.65</td> <td>23.97</td>	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
Sgilo 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 $13.4c2$ 44.03 SMB-115 x Pant Samara 75.00 4.67 3.00 42.85 13.50 4.77 70.53 13.42 7.67 21.10 1.30 0.73 2.03 85.43 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 $76.48.7$ 18.70 SMB-115 x Pant Rituraj 61.67 3.33 2.67 3.57 54.11 16.47 3.77 113.60 6.38 4.67 21.22 0.17 0.17 0.34 227.67 39.83 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 40.03 SMB-15 x Sgilo 67.00 2.67 4.27 75.25 0.00 <	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
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 Samat 75.00 4.67 3.50 42.85 13.50 42.85 13.50 42.85 13.50 42.85 13.50 42.85 13.50 43.3 19.25 2.45 1.02 3.47 764.87 18.70 SMB-115 x Pus 0 Lipkar 57.67 3.33 2.09 45.15 12.83 7.65 2.69.40 16.52 2.67 19.52 1.22 0.17 0.17 0.34 2.38 40.407 SMB-115 x Spilo 67.00 2.67 4.27 75.25 0.00	S.gilo	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 Pant Samrat 75.00 4.67 3.50 4.28 13.50 1.4.47 370.53 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 Pant Rituraj 61.67 3.33 2.67 3.57 54.11 16.47 3.77 113.60 16.52 2.67 19.52 1.22 0.77 1.99 374.70 34.07 SMB-115 x Pant Rituraj 67.00 2.67 4.27 75.25 0.00	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 Rituraj 61.67 3.33 5.20 51.51 14.23 5.27 618.52 1.500 4.33 19.25 2.45 1.02 3.47 764.87 18.70 SMB-115 x Pba Upkar 57.67 3.33 2.90 45.15 12.83 7.65 269.40 16.52 2.67 19.52 1.22 0.17 0.91 374.70 34.07 SMB-115 x Pba-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 part Rituraj 5.67 2.67 4.27 75.25 0.00 0.0	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 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 0.14 22.767 39.83 SMB-115 x Pusa Upkar 57.67 3.33 2.90 45.15 12.83 7.65 269.00 16.52 2.67 19.52 1.22 0.77 1.99 374.70 34.07 SMB-115 x S.gilo 67.00 2.67 4.27 75.25 0.00 <	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 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 3.77 475.25 3.67 19.85 1.85 0.53 2.38 407.03 54.27 SMB-115 x S,gilo 67.00 2.67 2.27 75.25 0.00 1.74 0.17 1.93 3.67 2.77 BARI x Path 1.63 3.40 7.30 2.46 0.73 0.27 1.00 88.50 2.57 BARI x Path 5.67 3.67 3.73 2.65 51.10 37.50 <td< td=""><td>SMB-115 x PB-6</td><td>63.33</td><td>2.67</td><td>3.57</td><td>54.11</td><td>16.47</td><td>3.77</td><td>113.60</td><td>16.38</td><td>4.67</td><td>21.22</td><td>0.17</td><td>0.17</td><td>0.34</td><td>227.67</td><td>39.83</td></td<>	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 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 S.gilo 67.00 2.67 4.27 75.25 0.00	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 S.gilo 67.00 2.67 4.27 75.25 0.00 0	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
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 61.452 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 1.01 385.62 15.37 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 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 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 37.53 BARI x Sgilo 65.54 2.67	SMB-115 x S.gilo	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 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 S.gilo 65.05 3.67 3.97 62.12 0.00 0.	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 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 Sgilo 65.05 3.67 3.97 62.12 0.00 0.013 0.73 <td>BARI x Pant Rituraj</td> <td>56.74</td> <td>2.67</td> <td>3.80</td> <td>50.41</td> <td>16.40</td> <td>3.60</td> <td>355.62</td> <td>12.12</td> <td>5.10</td> <td>17.30</td> <td>1.74</td> <td>0.17</td> <td>1.91</td> <td>435.62</td> <td>16.37</td>	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 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 Sgilo 65.05 3.67 3.97 62.12 0.00 0.01 1.01<	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 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 S.gilo 65.05 3.67 3.97 62.12 0.00 0.01 0.01	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 S.gilo 65.05 3.67 3.97 62.12 0.00	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
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 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 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 Sidio 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 0.00 0.00 0.00 <td< td=""><td>BARI x S.gilo</td><td>65.05</td><td>3.67</td><td>3.97</td><td>62.12</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td></td<>	BARI x S.gilo	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 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 PB-6 54.87 2.67 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 S.gilo 60.35 3.67 4.33 47.12 0.00	Pant Samrat x Pant Riturai	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 Pbs 0 54.67 2.07 54.67 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 Pbs 0 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 S.gilo 60.35 3.67 4.33 47.12 0.00 0.0	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 PB-101 75.02 3.67 2.77 54.51 16.03 5.46 6053.22 18.07 2.24 20.42 6.47 60.73 16.07 16.07 43.03 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 S.gilo 60.35 3.67 4.33 47.12 0.00<	Pant Samrat y Pusa Unkar	70.25	3.67	2.90	14 61	16.85	3.40	655 52	18.67	2.24	20.42	0.00	0.13	1.20	178 14	45.53
Pant Samat X PB-101 75.02 3.07 2.77 51.52 14.50 2.10 674.02 17.41 4.44 20.55 17.55 60.51 2.04 141.52 25.75 Pant Samat X S.gilo 60.35 3.67 4.33 47.12 0.00	Pant Samrat x PB-101	75.02	3.67	2.77	51 52	14.30	2.10	674.62	17.41	1.14	20.42	1.03	0.75	2.04	1/1.152	25.03
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 PB-6 73.66 3.67 2.80 45.90 12.65 6.85 736.67 18.75 6.67 25.41 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 S.gilo 60.85 3.67 3.00 54.52 0.00	Pant Samrat x S ailo	60.35	3.67	1 33	17 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 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 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 S.gilo 60.85 3.67 3.00 54.52 0.00	Pant Riturai x PR-6	73.66	3.67	3.80	52 55	9.75	3 33	265 30	17.67	3.67	21.52	0.00	0.63	1.40	504 25	53.03
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 S.gilo 60.85 3.67 3.00 54.52 0.00	Pant Riturai x Pusa Unkar	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 J.gilo 60.85 3.67 3.00 54.52 0.00	Pant Rituraj y PB-101	64.61	3.67	2.00	45.70	13.77	6.57	621.52	10.75	4.12	23.41	2.52	0.05	3 30	8/1 27	15.23
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 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 S.gilo 45.62 2.67 2.80 44.85 0.00 0.	Pant Rituraj x Sailo	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 PB-101 47.41 2.67 2.73 43.05 25.20 4.10 47.35 53.06 20.41 17.75 6.27 2.02 402.25 54.45 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 S.gilo 45.62 2.67 2.80 44.85 0.00	PB 6 x Pusa Upkar	72.01	2.67	3.00	11 65	11.00	7.02	450.42	17.33	3.00	20.41	1.75	0.00	2.02	462.23	54.43
PB-6 x Figlio 47.41 2.07 2.73 43.05 25.20 4.10 433.05 25.33 4.02 20.99 2.00 1.07 3.07 920.42 51.03 PB-6 x S.gilo 45.62 2.67 2.80 44.85 0.00	$PP \in \mathbb{F}$ DP 101	12.01	2.07	2.72	41.05	25.20	1.02	452.05	22.22	1.62	26.00	2.00	1.07	2.02	402.23	51.62
Pusa Upkar x PB-101 81.55 3.67 2.57 46.75 17.67 5.30 45.52 19.00 9.12 28.14 1.98 1.02 2.77 55.137 42.93		47.41	2.07	2.73	43.03	23.20	4.10	455.05	23.33	4.02	20.99	2.00	0.00	0.00	920.42	0.00
rusa Upkai A rb 101 01.55 5.07 2.57 40.75 17.07 5.30 434.32 19.00 9.12 26.14 1.36 1.02 2.77 51.57 42.95	Duce Unker v DD 101	4J.02	2.07	2.00	44.03	17.67	5.20	454.52	10.00	0.00	28.14	1.00	1.02	2.00	551 27	42.02
$= B_{000} \cup B_{000} \times S_{010} \cup S_$	Tusa Upkar X PD-101	84.67	2.67	4.37	40.73	17.07	0.00	+54.52	19.00	9.12	20.14	1.90	0.00	2.77	0.00	42.93
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	PD 101 v C ali	04.07	2.07	4.23	40.31	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 5.200 [45.25] 5.07 5.45 54:00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	PD-101 X S.glio	43.23	3.0/	0.16	2 42	0.00	0.00	15.22	0.00	0.00	0.00	0.00	0.00	0.00	20.50	1.21
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	SE(0)	2.92	0.10	0.10	2.43	0.03	0.19	15.55	0.82	0.18	0.90	0.07	0.02	0.09	20.39	1.21
C.D. 5.05 U.31 U.35 4.00 1.27 U.36 50.05 1.05 U.30 1.72 U.15 U.04 U.18 41.10 2.42 C.V. 5.12 C.V. 5.	C.D.	5.05	5.50	0.33	4.00	1.27	0.30	5 49	1.03	0.30	6.20	0.13	5.62	6.07	41.10	2.4Z

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. Simiarly 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 maimum 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 maimum 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 Samart (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. Simarliy 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. Simarliy 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. Simarliy 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 prents 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 Padmanbhan and Singh (1996)^[4], Ramesh et al. (1996)^[6] and Prakash et al. (1996)^[5]

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