Supplementary tables

Table 1. General Combining Ability (GCA) effects for parents.

S.NO	Crosses	Days to 1st flower Initiation	Days to 50% flower	Days to 1st fruit set	Vine Length (cm)	Number of leaf	Number of primary branch	Fruit Length (cm)	Fruit girth cm	Average fruit weight (gm)	Days to 1st fruit harvest	Number of fruit per plant	Duration of crop	Yield (q/hac)
Lines														
1	Narendra Jyothi	-3.68 **	-3.29 **	-3.36 **	-13.55 **	-0.71	1.41 **	3.20 **	-1.58 **	-30.15 **	-2.61 **	2.30 **	-0.26	26.43 **
2	Narendra Rashmi	-3.80 **	-3.50 **	-3.61 **	-12.22 **	-0.45	-0.28 **	6.19 **	0.87 **	-35.09 **	-3.54 **	1.66 **	2.87 **	18.92 **
3	Pusa Sandesh	-1.94 **	-1.39 **	-0.97 *	3.39	-3.33 **	0.63 **	-8.91 **	10.80 **	42.16 **	-0.74	1.93 **	1.54	21.92 **
4	Vallabh saral	0.75 *	1.31 **	0.67	6.14 *	-1.20 *	-0.38 **	-3.38 **	-1.65 **	-43.59 **	1.26 *	-0.32	1.65	-2.98
5	Pusa Santusti	0.86 **	0.78	1.14 **	-9.61 **	-1.72 **	-0.46 **	-6.82 **	1.74 **	20.91 **	1.23 *	0.02	1.79	0.84
6	IC-321412	2.70 **	3.29 **	2.31 **	-24.72 **	-3.72 **	0.13 *	1.68 **	-0.62 **	8.18	2.82 **	-1.40 **	2.35 *	-14.77 **
7	IC-338119	4.71 **	4.70 **	4.62 **	-45.80 **	-1.82 **	0.38 **	-2.05 **	-1.66 **	-62.84 **	4.87 **	-3.15 **	-1.57	-34.25 **
8	IC-592210	3.44 **	3.48 **	4.17 **	10.97 **	3.95 **	-0.45 **	2.40 **	-1.60 **	-10.73	1.25 *	-0.01	1.38	0.67
9	IC-321460	4.17 **	3.73 **	3.98 **	5.37	4.57 **	-1.09 **	0.42	-0.68 **	35.12 **	4.36 **	-1.32 **	-1.04	-17.11 **
10	IC-498541	4.81 **	4.28 **	4.56 **	4.00	4.04 **	-0.89 **	1.16 **	-2.56 **	-73.21 **	1.93 **	-3.65 **	0.35	-39.84 **
11	IC-321747	5.39 **	4.36 **	5.92 **	-2.11	1.30 *	-0.98 **	-1.42 **	-1.70 **	149.09 **	6.45 **	-3.32 **	2.93 **	-36.29 **
12	NDBG-132	-4.69 **	-4.57 **	-4.61 **	23.72 **	-2.49 **	0.87 **	5.79 **	-0.41 **	-10.12	-4.16 **	2.49 **	-1.37	28.44 **
13	Pant louki-1	-3.01 **	-3.08 **	-2.97 **	-0.84	4.16 **	0.36 **	-1.65 **	0.19	-43.62 **	-2.03 **	-0.33	-3.71 **	-2.56
14	Narendra Dharidar	-3.39 **	-3.57 **	-5.22 **	27.91 **	-0.34	0.34 **	3.60 **	-2.09 **	179.70 **	-4.83 **	2.45 **	-2.06 *	19.66 **
15	pusa Samridhi	-3.22 **	-4.42 **	-3.14 **	5.64	2.94 **	0.11	0.42	-0.84 **	-54.99 **	-2.86 **	1.21 **	-4.07 **	14.19 **
16	Punjab long	-3.11 **	-2.12 **	-3.48 **	21.70 **	-5.19 **	0.29 **	-0.62 **	1.80 **	-70.82 **	-3.41 **	1.43 **	-0.78	16.74 **
Tester														
1	Kashi Ganga	-1.49 **	-1.66 **	-1.84 **	-12.75 **	-1.62 **	0.50 **	3.14 **	-1.04 **	23.85 **	-1.21 **	-0.03	0.73	-1.68
2	Arka Bahar	2.24 **	1.77 **	2.57 **	-1.64	-3.86 **	0.02	0.88 **	0.46 **	-13.24 **	1.95 **	0.48 **	-0.85	5.20 **

S. No	Crosses	Days to 1st flower Initiation	Days to 50% flower	Days to 1st fruit set	Vine Length (cm)	Number of leaf	Number of primary branch	Fruit Length (cm)	Fruit girth (cm)	Average fruit weight (gm)	Days to 1st fruit harvest	Number of fruit per plant	Duration of crop	Yield q/hac
3	Narendra madhuri	0.49 **	0.54 *	0.17	8.65 **	6.12 **	-0.19 **	-7.93 **	1.38 **	-36.90 **	-0.22	0.21 *	0.43	3.12 **
4	Pusa Naveen	-1.24 **	-0.65 **	-0.90 **	5.74 **	-0.64 *	-0.33 **	3.91 **	-0.80 **	26.29 **	-0.52 *	-0.66 **	-0.32	-6.64 **
	SE(GCA for line)	0.31	0.44	0.44	3.00	0.60	0.06	0.22	0.16	7.70	0.51	0.20	0.93	2.10
	SE(GCA for tester)	0.16	0.22	0.22	1.50	0.30	0.03	0.11	0.08	3.85	0.25	0.10	0.47	1.05
	SE(between GCA of lines)	0.44	0.62	0.62	4.24	0.85	0.08	0.32	0.22	10.88	0.72	0.28	1.32	2.96
	SE(between GCA of tester)	0.22	0.31	0.31	2.12	0.42	0.04	0.16	0.11	5.44	0.36	0.14	0.66	1.48

*Significant at 5% probability level and ** Significant at 1% probability level

Table 2. Specific Combining Ability (SCA) effects for hybrids morphological and yield.

S. No	Crosses	Days to 1st flower Initiation	Days to 50% flower	Days to 1st fruit set	Vine Length (cm)	Number of leaf	Number of primary branch	Fruit Length (cm)	Fruit girth (cm)	Average fruit weight (gm)	Days to 1st fruit harvest	Number of fruit per plant	Duration of crop	Yield q/hac
1	Narendra Jyothi × Kashi Ganga	0.43	-0.16	0.57	7.41	-0.28	0.58 **	-0.25	1.08 **	7.21	0.70	0.05	-0.31	1.80
2	Narendra Jyothi × Arka Bahar	-0.49	-1.09*	-0.90	3.09	0.68	-0.49 **	0.79	1.08 **	6.52	-1.47	0.35	0.27	3.81
3	Narendra Jyothi × Narendra madhuri	-0.14	-0.30	0.32	2.80	-0.97	0.27 *	-0.35	-2.51 **	-10.04	1.76	-0.40	1.31	-5.44
4	Narendra Jyothi × Pusa Naveen	0.21	1.55*	0.02	-13.30 *	0.57	-0.36 **	-0.19	0.34	-3.69	-0.99	0.01	-1.27*	-0.16
5	Narendra Rashmi × Kashi Ganga	0.02	0.10	-0.58	-1.14	-0.68	0.05	1.56 **	0.14	26.15	-1.65	-0.53	0.77	-4.25
6	Narendra Rashmi × Arka Bahar	0.95*	0.79*	1.34	-0.70	0.16	0.09	1.51 **	0.19	-66.76 **	2.65 **	-0.70	-2.87	-7.47
7	Narendra Rashmi × Narendra madhuri	-1.63 **	-0.09	-1.15*	0.46	0.22	0.30 **	0.33	0.27	14.90	-1.65	-0.21	-0.82	-3.50
8	Narendra Rashmi × Pusa Naveen	0.66	-0.80	0.38	1.37	0.31	-0.44 **	-3.40 **	-0.60	25.71	0.66	1.43 **	2.93	15.21 **
9	Pusa Sandesh × Kashi Ganga	1.50 *	0.44	2.11 *	2.25	-0.60	0.90 **	-2.31 **	-2.04 **	3.90	1.87	2.20 **	3.88 *	25.81 **
10	Pusa Sandesh × Arka Bahar	0.76*	0.56	0.70	-1.85	0.09	0.40 **	1.40 **	-0.78 *	15.99	0.16	-0.65	-0.54	-6.80
11	Pusa Sandesh × Narendra madhuri	-1.50 *	0.24	-1.45	-0.15	0.10	-0.39 **	0.21	-0.69 *	-12.35	-1.66	-1.38 **	-1.27	-15.83 **
12	Pusa Sandesh × Pusa Naveen	-0.76	-1.24*	-1.37*	-0.25	0.41	-0.91 **	0.70	3.52 **	-7.54	-0.37	-0.17	-2.07	-3.19
13	Vallabh saral × Kashi Ganga	-0.20	-0.71	0.59	-1.50	0.26	-1.07 **	-0.39	0.20	1.65	-0.35	0.11	0.77	2.77
14	Vallabh saral × Arka Bahar	-0.71	-0.68	-1.48	9.39*	-3.05 *	-0.26 *	0.87	0.15	21.74	-0.62	-0.06	0.35	-0.33
15	Vallabh saral × Narendra madhuri	0.36	-0.90*	0.58	-4.90*	1.52*	0.23 *	-0.32	0.24	-13.60	0.67	-1.13 **	0.07	-13.14 **
16	Vallabh saral × Pusa Naveen	0.55	2.29 **	0.32	-2.99	1.28	1.10 **	-0.16	-0.59	-9.79	0.30	1.08 **	-1.18	10.71 *
17	Pusa Santusti × Kashi Ganga	-1.65 **	0.27	-0.55	2.25	-0.77	-0.99 **	0.27	0.27	-1.85	-2.43 *	-0.56	1.63	-5.00

No.	Cross													
18	Pusa Santusti × Arka Bahar	-0.04	-0.16	0.59	-1.86	0.02	0.55 **	1.31 **	-0.24	37.24 *	2.74 **	0.27	-0.24	3.17
19	Pusa Santusti × Narendra madhuri	0.70	0.08	0.44	-1.15	0.49	0.48 **	0.13	0.40	-17.10	1.03	-0.12	-2.07*	-2.08
20	Pusa Santusti × Pusa Naveen	0.99*	-0.19	-0.48	0.75	0.25	-0.04	-1.71 **	-0.42	-18.29	-1.34	0.40	0.68	3.90
21	IC-321412 × Kashi Ganga	0.86*	-0.74	1.28	0.91	-0.77	0.86 **	0.55	-0.37	12.88	1.31	0.53	1.08*	7.23
22	IC-321412 × Arka Bahar	0.12	-0.67	-0.12	13.25 *	0.02	0.45 **	0.80	1.12 **	29.97	-0.39	-0.31	0.65	-4.01
23	IC-321412 × Narendra madhuri	0.42	-0.89*	0.27	-2.03	0.49	-0.56 **	-2.38 **	-0.25	-58.83 **	0.78	-1.37 **	-0.08	-15.41 **
24	IC-321412 × Pusa Naveen	-1.40 *	2.30 **	-1.43	-12.13 *	0.25	-0.75 **	1.03 *	-0.50	15.98	-1.70	1.16 **	-1.66	12.19 **
25	IC-338119 × Kashi Ganga	0.34	-0.73	0.20	-2.56	-4.67 **	0.61 **	3.28 **	2.67 **	-36.10 *	-1.07	-1.72 **	-2.78*	-17.73 **
26	IC-338119 × Arka Bahar	-0.34	0.14	-0.43	11.34*	1.12	0.09	-8.47 **	-1.83 **	-49.01 **	0.77	-0.89 *	-2.21	-9.84 *
27	IC-338119 × Narendra madhuri	-0.14	0.70	0.19	12.05 *	1.58	-0.70 **	2.68 **	-1.27 **	71.65 **	0.95	0.71	2.85*	7.02
28	IC-338119 × Pusa Naveen	0.14	-0.11	0.04	-20.83 **	1.97	0.00	2.51 **	0.43	13.45	-0.65	1.91 **	2.15*	20.56 **
29	IC-592210 × Kashi Ganga	-0.67	-0.19	-0.35	1.00	4.79 **	1.56 **	1.33 **	-1.19 **	62.02 **	2.98 **	0.14	1.28*	2.90
30	IC-592210 × Arka Bahar	0.50	-0.31	0.67	-3.89	1.36*	-1.61 **	0.64	1.66 **	-90.89 **	4.50 **	-0.70	0.95	-7.76
31	IC-592210 × Narendra Madhuri	0.65*	1.71*	0.96	-2.51	0.04	-0.20	-0.55	-0.05	9.53	-8.44 **	0.57	-2.44	5.85
32	IC-592210 × Pusa Naveen	-0.48	-1.21*	-1.28	5.40	-6.19 **	0.25 *	-1.42 **	-0.42	19.34	0.97	-0.01	0.20	-0.99
33	IC-321460 × Kashi Ganga	0.50*	0.87*	1.74 *	0.82	2.27*	-0.70 **	-2.98 **	0.24	-13.75	1.62	0.11	0.47	5.78
34	IC-321460 × Arka Bahar	-0.02	0.23	-0.56	-1.71	-1.16	0.02	0.18	0.59	33.25 *	-0.72	0.94 *	0.27	0.93
35	IC-321460 × Narendra Madhuri	-0.05	-0.64	-0.06	-0.89	0.71	0.77 **	1.10 *	-0.61	-33.21 *	0.35	-0.13	0.42	0.98
36	IC-321460 × Pusa Naveen	-0.43	-0.46	-1.11	1.78	-1.82	-0.09	1.70 **	-0.22	13.71	-1.25	-0.92 *	-1.16	-7.70
37	IC-498541 × Kashi Ganga	0.41	0.32	0.26	1.86	-0.98	-0.55 **	-0.38	0.11	-31.63 *	2.88 **	0.11	-0.37	2.61
38	IC-498541× Arka Bahar	-0.66	-0.11	-0.04	-1.91	0.67	0.26 *	0.88	0.06	55.36 **	-10.18 **	0.94 *	-0.80	10.53 *
39	IC-498541 × Narendra madhuri	0.20	-0.21	0.47	-0.65	0.28	-0.65 **	-0.36	0.25	10.24	4.22 **	0.21	-1.18	1.50
40	IC-498541 × Pusa Naveen	0.05	0.00	-0.68	0.70	0.04	0.94 **	-0.14	-0.42	-33.97 *	3.08 **	-1.26 **	2.34*	-14.63 **
41	IC-321747 × Kashi Ganga	0.28	0.57	0.11	0.96	-1.24	-0.47 **	1.85 **	1.04 **	12.47	0.34	-0.89 *	0.05	-8.37 *
42	IC-321747 × Arka Bahar	-0.35	-0.19	-0.62	-3.13	-0.33	-0.55 **	-0.88	-0.13	-110.71 **	0.30	1.61 **	0.73	18.08 **
43	IC-321747 × Narendra madhuri	-0.50	-0.28	0.21	-3.31	1.80	0.66 **	1.93 **	-2.59 **	98.22 **	0.69	0.88 *	-1.99	8.47 *
44	IC-321747 × Pusa Naveen	0.57	-0.10	0.29	5.48	-0.22	0.36 **	-2.90 **	1.69 **	0.02	-1.33	-1.59 **	1.20	-18.19 **
45	NDBG-132× Kashi Ganga	-1.09*	-0.72	-0.47	-0.86	2.23	0.13	-0.44	-0.08	0.73	-0.03	-0.70	-1.87*	-6.44
46	NDBG-132 × Arka Bahar	0.06	0.52	0.01	-12.97 *	1.79	-0.39 **	0.82	-0.08	23.27	0.24	-0.20	-1.30	-2.21

S.NO	Crosses													
47	NDBG-132 × Narendra madhuri	0.48*	-0.03	0.85	16.07 **	-7.19 **	-0.15	-0.37	0.33	-7.96	0.41	0.96 *	3.32*	9.76 *
48	NDBG-132 × Pusa Naveen	0.55	0.23	-0.40	-2.24	3.18 **	0.42 **	-0.01	-0.16	-16.04	-0.62	-0.07	-0.16	-1.12
49	Pant louki-1 × Kashi Ganga	-0.20	0.55	0.90	2.03	3.01 *	-0.36 **	-0.46	-0.44	-5.32	0.83	0.12	-1.67*	2.35
50	Pant louki-1 × Arka Bahar	0.16	0.32	-0.51	-2.08	-1.08	1.12 **	1.35 **	-0.63 *	42.13 **	-0.22	0.62	1.04	6.58*
51	Pant louki-1 × Narendra madhuri	0.41	0.40	0.77	-0.26	-0.84	-0.12	-0.55	2.05 **	-9.25	1.15	-0.04	0.79	-0.23
52	Pant louki-1 × Pusa Naveen	-0.37	-1.27*	-1.16	0.31	-1.08	-0.64 **	-0.34	-0.99 **	-27.56	-1.76	-0.69	-0.16	-8.69 *
53	Narendra Dharidar × Kashi Ganga	-0.74*	0.74	0.95	-6.04	-0.92	0.21	-1.05 *	0.22	-18.14	-0.04	1.43 **	-2.28	-7.76
54	Narendra Dharidar × Arka Bahar	0.33	0.74	2.04 *	2.94	-0.36	0.09	0.11	0.15	9.13	2.47 *	-1.50 **	2.28*	-8.20
55	Narendra Dharidar × Narendra madhuri	0.51	0.75	-5.07 **	-7.46	0.76	0.00	-1.18 **	0.23	-30.39 *	-4.37 **	1.10 **	-0.89	19.77 **
56	Narendra Dharidar × Pusa Naveen	-0.10	-2.23 *	2.09 *	10.56	0.53	-0.30 **	2.12 **	-0.59	39.41 *	1.95	-1.03 **	0.89	-3.80
57	Pusa Samridhi × Kashi Ganga	0.33	0.13	-0.05	2.32	-0.88	-0.44 **	-0.64	-0.60	-2.41	-0.15	-0.42	-0.18	-3.29
58	Pusa Samridhi × Arka Bahar	-0.41	0.59	-1.45	-1.87	0.47	0.37 **	-2.60 **	-0.32	43.47 **	-1.17	0.42	-0.70	4.72
59	Pusa Samridhi × Narendra madhuri	0.01	0.38	1.04	-1.18	0.16	0.13	1.54 **	2.09 **	-19.66	1.91	-0.76	1.12	-9.31 *
60	Pusa Samridhi × Pusa Naveen	0.07	-1.10*	0.46	0.73	0.25	-0.06	1.70 **	-1.16 **	-21.40	-0.59	0.77	-0.24	7.89*
61	Punjab long × Kashi Ganga	-0.13	-0.71	-6.71 **	-9.73	-0.75	-0.33 **	0.07	-1.24 **	-17.82	-6.79 **	0.03	-0.46	1.60
62	Punjab long × Arka Bahar	0.15	-0.71	0.78	-8.04	-0.40	-0.15	1.31 **	-0.96 **	-0.71	0.95	-0.14	2.11	-1.18
63	Punjab long × Narendra madhuri	0.23	-0.92	1.61	-6.90	0.87	-0.05	-1.88 **	2.12 **	7.86	2.21 *	1.13 **	0.86	11.58 **
64	Punjab long × Pusa Naveen	-0.25	2.34 **	4.32 **	24.67 **	0.27	0.53 **	0.49	0.09	10.67	3.63 **	-1.01 *	-2.52*	-11.99 **
SE(SCA effects)		0.63	0.88	0.88	6.00	1.20	0.11	0.45	0.32	15.39	1.01	0.39	1.86	4.19
SE(between SCA effects)		0.89	1.24	1.25	8.48	1.70	0.16	0.63	0.45	21.77	1.43	0.56	2.64	5.93

Significant at 5% probability level and ** Significant at 1% probability level

Table 3. Estimates of better parent, mid parent and standard check heterosis in 64 F$_1$ progenies (Day to 1st flower, Days to 50% flower & fruit set).

S.NO	Crosses	Days to 1st flower Initiation			Days to 50% flower			Days to 1st fruit set		
		Better parent	Mid parent	Check (PN)	Better parent	Mid parent	Check (PN)	Better parent	Mid parent	Check (PN)
1	Narendra Jyothi × Kashi Ganga	-2.07	-0.01	-8.59**	-1.28	-0.38	-2.36	-2.53	0.00	-10.69**
2	Narendra Jyothi × Arka Bahar	-7.99 **	-0.48	-3.02	1.22	2.96	1.74	-7.52 **	-0.24	-5.80**
3	Narendra Jyothi × Narendra Madhuri	-6.02 **	-0.69	-5.78**	-3.71	0.00	1.00	-5.40 **	-0.01	-7.76**
4	Narendra Jyothi × Pusa Naveen	-8.53 **	-3.46 *	-8.53**	2.10	3.60 *	2.10	-10.04 **	-3.79 *	-10.04**

5	Narendra Rashmi × Kashi Ganga	-4.64 *	-3.92 *	-9.64**	-1.19	-0.97	-2.28	-8.13 **	-6.62 **	-13.01**
6	Narendra Rashmi × Arka Bahar	-5.50 **	-0.47	-0.40	3.93	5.01 **	4.46*	-4.25 *	-0.75	-2.47
7	Narendra Rashmi × Narendra Madhuri	-9.20 **	-6.64 **	-8.96**	-3.71	-0.66	1.00	-8.32 **	-6.98 **	-10.61**
8	Narendra Rashmi × Pusa Naveen	-7.88 **	-5.40 **	-7.88**	-2.10	-1.34	-2.10	-9.86 **	-7.40 **	-9.86**
9	Pusa Sandesh × Kashi Ganga	-6.03 **	-1.32	-3.02	-4.94 **	-1.19	1.74	-4.08 *	0.09	-4.13*
10	Pusa Sandesh × Arka Bahar	-2.37	-1.33	2.91	0.51	3.66 *	7.56**	-0.98	-0.04	0.87
11	Pusa Sandesh × Narendra Madhuri	-7.95 **	-6.62 **	-5.01*	-1.87	-0.88	5.02**	-6.67 **	-5.51 **	-6.71**
12	Pusa Sandesh × Pusa Naveen	-9.87 **	-8.45 **	-6.99**	-5.96 **	-2.77	0.64	-8.38 **	-8.36 **	-8.38**
13	Vallabh saral × Kashi Ganga	-10.30 **	-2.82	-1.05	-7.75 **	-1.59	4.28*	-9.69 **	-2.97	-3.95
14	Vallabh saral × Arka Bahar	-4.52 **	-2.35	5.32*	-2.74	2.97	9.94**	-6.03 **	-4.00 *	-0.05
15	Vallabh saral × Narendra Madhuri	-5.72 **	-1.22	4.00	-4.84 **	-1.29	7.56**	-6.56 **	-2.50	-0.62
16	Vallabh saral × Pusa Naveen	-8.50 **	-4.02 **	0.93	-1.94	4.06 *	10.85**	-8.65 **	-5.83 **	-2.83
17	Pusa Santusti × Kashi Ganga	-13.15 **	-5.69 **	-3.70	-7.29 **	-1.01	5.02**	-11.19 **	-4.35 *	-5.05
18	Pusa Santusti × Arka Bahar	-3.62 *	-1.18	6.87**	-2.95	2.85	9.94**	-2.54	-0.18	4.20*
19	Pusa Santusti × Narendra Madhuri	-5.41 **	-0.65	4.89*	-4.39 *	-0.72	8.30**	-6.51 **	-2.21	-0.05
20	Pusa Santusti × Pusa Naveen	-8.00 **	-3.25 *	2.02	-6.49 **	-0.67	5.92**	-9.63 **	-6.61 **	-3.38
21	IC-321412 × Kashi Ganga	-10.50 **	-0.36	4.89*	-9.44 **	-1.21	7.48**	-11.67 **	-2.38	-0.05
22	IC-321412 × Arka Bahar	-5.44 **	-0.43	10.83**	-4.60 **	3.31 *	13.23**	-7.24 **	-2.37	4.95*
23	IC-321412 × Narendra Madhuri	-7.89 **	-0.71	7.96**	-6.61 **	-0.84	10.85**	-10.19 **	-3.52 *	1.62
24	IC-321412 × Pusa Naveen	-13.88 **	-7.06 **	0.93	-3.84 *	4.37 **	14.13	-14.29 **	-9.00 **	-3.02
25	IC-338119 × Kashi Ganga	4.15 *	9.55 **	7.86**	3.78	7.29 **	9.81**	1.73	6.30 **	1.98
26	IC-338119 × Arka Bahar	8.05 **	9.01 **	13.89**	10.45 **	13.29 **	16.87**	6.31 **	7.15 **	8.28**
27	IC-338119 × Narendra Madhuri	7.01 **	8.75 **	10.83**	9.41 **	9.89 **	15.77**	5.05 **	6.51 **	5.31*
28	IC-338119 × Pusa Naveen	4.24 *	6.07 **	7.96**	6.31 **	9.31 **	12.49**	3.02	3.15	3.28
29	IC-592210 × Kashi Ganga	2.09	6.23 **	3.34	4.41 *	7.09 **	8.70**	1.21	5.20 **	0.33
30	IC-592210 × Arka Bahar	7.25 **	9.41 **	13.04**	9.63 **	11.56 **	14.13**	7.38 **	8.84 **	9.38**
31	IC-592210 × Narendra Madhuri	8.54 **	9.07 **	9.88**	10.03 **	10.44 **	15.41**	6.79 **	7.68 **	5.86*
32	IC-592210 × Pusa Naveen	2.95	3.58 *	4.22	4.40 *	6.50 **	8.68**	0.33	0.77	0.33
33	IC-321460 × Kashi Ganga	-12.50 **	-0.71	7.10**	-9.72 **	0.01	10.85**	-12.14 **	-1.16	3.48

#	Cross									
34	IC-321460 × Arka Bahar	-7.31 **	-0.39	13.46**	-6.00 **	3.37 *	15.41**	-9.15 **	-2.57	7.00**
35	IC-321460 × Narendra Madhuri	-10.19 **	-1.25	9.93**	-8.81 **	-1.64	11.96**	-11.84 **	-3.54 *	3.83
36	IC-321460 × Pusa Naveen	-13.60 **	-4.89 **	5.76*	-10.16 **	-0.97	10.31**	-14.84 **	-7.89 **	0.30
37	IC-498541 × Kashi Ganga	15.89 **	18.33 **	8.17**	12.08 **	17.05 **	10.85**	11.31 **	16.44 **	1.98
38	IC-498541 × Arka Bahar	7.64 **	16.43 **	13.46**	15.18 **	21.22 **	15.77**	6.84 **	17.40 **	8.83**
39	IC-498541 × Narendra Madhuri	11.41 **	17.73 **	11.70**	8.29 **	16.27 **	13.59**	8.39 **	16.75 **	5.68**
40	IC-498541 × Pusa Naveen	7.96 **	13.94 **	7.96**	11.98 **	17.56 **	11.98**	1.98	11.13 **	1.98
41	IC-321747 × Kashi Ganga	3.92 *	10.01 **	9.08**	12.63 **	17.21 **	11.39**	2.09	7.51 **	4.01
42	IC-321747 × Arka Bahar	9.31 **	9.54 **	15.22**	15.18 **	20.79 **	15.77**	8.11 **	8.12 **	10.14**
43	IC-321747 × Narendra Madhuri	6.20 **	8.64 **	11.48**	8.31 **	15.89 **	13.60**	5.54 **	7.86 **	7.53**
44	IC-321747 × Pusa Naveen	4.94 **	7.48 **	10.15**	11.95 **	17.12 **	11.95**	3.91 *	4.88 **	5.86*
45	NDBG-132 × Kashi Ganga	-7.43 **	-4.85 **	-13.60**	-7.55 **	-5.97 **	-5.38*	-6.67 **	-2.70	-14.49**
46	NDBG-132 × Arka Bahar	-8.84 **	-0.78	-3.92	-0.06	0.84	2.28	-8.06 **	0.70	-6.35**
47	NDBG-132 × Narendra Madhuri	-6.79 **	-0.86	-6.55*	-5.27 **	-4.11 *	-0.64	-6.61 **	0.26	-8.95**
48	NDBG-132 × Pusa Naveen	-9.86 **	-4.24 **	-9.86**	-4.41 *	-3.30	-2.17	-12.83 **	-5.32 **	-12.83**
49	Pant louki-1 × Kashi Ganga	-2.78	-2.38	-8.51**	-1.32	-0.54	-0.85	-1.61	-1.42	-9.50**
50	Pant louki-1 × Arka Bahar	-5.50 **	-0.15	-0.40	3.85	3.87 *	4.38*	-6.24 **	-1.47	-4.50*
51	Pant louki-1 × Narendra Madhuri	-3.61 *	-0.56	-3.36	-2.28	-0.18	2.49	-3.96 *	-1.17	-6.36**
52	Pant louki-1 × Pusa Naveen	-8.33 **	-5.55 **	-8.33**	-2.65	-2.41	-2.18	-11.36 **	-7.66 **	-11.36**
53	Narendra Dharidar × Kashi Ganga	-4.63 *	-4.27 **	-10.31**	-2.50	-1.39	-1.35	-7.86 **	-6.56 **	-13.16**
54	Narendra Dharidar × Arka Bahar	-5.90 **	-0.54	-0.81	3.07	3.41	4.28	-5.75 **	-2.10	-4.00
55	Narendra Dharidar × Narendra Madhuri	-4.17 *	-1.10	-3.92	-2.49	-0.73	2.28	-17.79 **	-16.39 **	-19.84**
56	Narendra Dharidar × Pusa Naveen	-8.55 **	-5.74 **	-8.55**	-5.68 **	-5.12 **	-4.56*	-9.70 **	-7.02 **	-9.70**
57	Pusa Samridhi × Kashi Ganga	-1.31	-0.19	-7.88**	-2.67	-2.36	-3.74	-5.03 *	-4.14 *	-11.34**
58	Pusa Samridhi × Arka Bahar	-6.97 **	-0.27	-1.94	2.12	3.28	2.64	-8.04 **	-4.03 *	-6.33**
59	Pusa Samridhi × Narendra Madhuri	-4.82 **	-0.34	-4.57	-4.41 *	-1.29	0.26	-3.78	-1.68	-6.18**
60	Pusa Samridhi × Pusa Naveen	-7.88 **	-3.66 *	-7.88**	-4.10 *	-3.26	-4.10	-8.95 **	-5.82 **	-8.95**
61	Punjab long × Kashi Ganga	-2.61	-2.33	-8.56**	-2.02	-1.14	-1.35	-17.32 **	-16.65 **	-23.01**
62	Punjab long × Arka Bahar	-5.73 **	-0.28	-0.63	3.57	3.66 *	4.28*	-4.95 *	-0.69	-3.18

S. No.	Crosses								
63	Punjab long × Narendra Madhuri	-4.17 *	-1.02	-3.92	-2.83	-0.85	1.92	-3.38	-1.16	-5.80**
64	Punjab long × Pusa Naveen	-8.31 **	-5.42 **	-8.31**	4.60 *	4.96 **	5.32*	-3.08	0.37	-3.08
SE		0.90	0.78		1.25	1.08		1.18	1.02	
CD at 5%		1.75	1.52		2.45	2.12		2.31	2.00	
CD at 1%		2.25	1.95		3.13	2.71		2.96	2.56	

* Significant at 5% probablity level   ** Significant 1% probablity level

Table 4. Estimates of better parent, mid parent and standard check heterosis in 64 F_1 progenies. (Vine length, Number of leaf & Number of primary branch)

S. No.	Crosses	Vine Length (cm)			Number of leaf			Number of primary branch		
		Better parent	Mid parent	Check (PN)	Better parent	Mid parent	Check (PN)	Better parent	Mid parent	Check (PN)
1	Narendra Jyothi × Kashi Ganga	0.91	13.00 **	16.78**	-4.55 *	-0.62	-0.62	40.27 **	44.97 **	47.48**
2	Narendra Jyothi × Arka Bahar	2.49	12.81 **	18.61**	-6.06 **	-0.39	-2.20	14.55 **	19.97 **	23.82**
3	Narendra Jyothi × Narendra Madhuri	4.82 *	11.99 **	21.32**	3.81 *	9.72 **	8.09**	19.94 **	26.79 **	32.21**
4	Narendra Jyothi × Pusa Naveen	0.39	7.71 **	16.18**	-2.38	-0.41	1.64	20.31 **	21.32 **	20.31**
5	Narendra Rashmi × Kashi Ganga	0.39	11.84 **	14.83**	3.46	11.09 **	-0.79	5.23 *	6.62 **	13.59**
6	Narendra Rashmi × Arka Bahar	3.12	12.90 **	17.95**	5.66 **	11.42 **	-2.52	-1.13	-1.06	6.87*
7	Narendra Rashmi × Narendra Madhuri	5.83 **	12.44 **	21.05**	18.27 **	25.13 **	9.88**	-3.05	-2.03	6.87*
8	Narendra Rashmi × Pusa Naveen	5.35 **	12.42 **	20.50**	1.64	11.25 **	1.64	-13.58 **	-10.28 **	-6.72*
9	Pusa Sandesh × Kashi Ganga	10.04 **	19.97 **	19.96**	-1.63	-0.90	-4.26*	33.59 **	39.22 **	40.46**
10	Pusa Sandesh × Arka Bahar	11.77 **	19.71 **	21.86**	-3.59	-1.02	-6.17**	16.10 **	22.60 **	25.50**
11	Pusa Sandesh × Narendra Madhuri	14.75 **	19.17 **	25.10**	9.09 **	11.63 **	6.17**	0.00	6.57 **	10.23**
12	Pusa Sandesh × Pusa Naveen	14.00 **	18.92 **	24.29**	-1.79	-0.46	-1.79	0.00	1.71	0.00
13	Vallabh saral × Kashi Ganga	7.65 **	18.42 **	19.69**	-4.49 *	-0.56	-0.56	-9.68 **	-6.65 **	-5.04*
14	Vallabh saral × Arka Bahar	13.00 **	22.12 **	25.64**	-11.07 **	-5.70 **	-7.41**	-7.49 **	-3.11	0.00
15	Vallabh saral × Narendra Madhuri	12.02 **	17.45 **	24.56**	6.19 **	12.23 **	10.56**	-5.40 **	0.00	4.27
16	Vallabh saral × Pusa Naveen	11.78 **	17.70 **	24.29**	-2.11	-0.14	1.91	15.27 **	16.24 **	15.27**
17	Pusa Santusti × Kashi Ganga	1.02	12.93 **	16.45**	-3.07	-0.74	-2.47	-9.68 **	-7.42 **	-5.04*
18	Pusa Santusti × Arka Bahar	2.66	12.79 **	18.34**	-4.85 *	-0.72	-4.26*	2.82	6.82 **	11.15**
19	Pusa Santusti × Narendra Madhuri	5.23 **	12.22 **	21.32**	7.98 **	12.28 **	8.64**	-3.05	1.67	6.87*
20	Pusa Santusti × Pusa Naveen	5.00 **	12.45 **	21.05**	-0.61	-0.31	0.00	-3.36	-3.36	-3.36

21	IC-321412 × Kashi Ganga	5.39 **	13.58 **	12.01**	-1.07	-0.96	-4.94*	25.75 **	33.30 **	32.21**
22	IC-321412 × Arka Bahar	11.36 **	17.85 **	18.34**	-2.93	-0.96	-6.73**	9.75 **	17.85 **	18.63**
23	IC-321412 × Narendra Madhuri	10.09 **	12.93 **	16.99**	10.50 **	12.36 **	6.17**	-9.28 **	-1.70	0.00
24	IC-321412 × Pusa Naveen	6.78 **	10.03 **	13.48**	-2.47	-0.52	-2.47	-5.04 *	-1.71	-5.04*
25	IC-338119 × Kashi Ganga	2.63	8.84 **	5.37*	-10.00 **	-6.83 **	-7.41**	25.75 **	31.05 **	32.21**
26	IC-338119 × Arka Bahar	9.21 **	13.70 **	12.13**	-5.74 **	-0.61	-3.02	8.19 **	14.24 **	16.95**
27	IC-338119 × Narendra Madhuri	12.11 **	13.07 **	15.10**	6.80 **	12.25 **	9.88**	-7.76 **	-1.70	1.68
28	IC-338119 × Pusa Naveen	2.69	4.04 *	5.43*	-0.84	0.57	2.01	10.23 **	12.11 **	10.23**
29	IC-592210 × Kashi Ganga	23.85 **	28.62 **	21.67**	16.16 **	17.79 **	11.38**	27.35 **	31.62 **	33.89**
30	IC-592210 × Arka Bahar	25.56 **	27.96 **	23.36**	11.96 **	12.55 **	4.38*	-27.68 **	-24.26 **	-21.83**
31	IC-592210 × Narendra Madhuri	25.35 **	27.04 **	26.51**	23.44 **	23.66 **	15.09**	-12.33 **	-7.32 **	-3.36
32	IC-592210 × Pusa Naveen	27.86 **	28.99 **	27.86**	-0.95	2.52	-0.95	1.22	2.08	1.22
33	IC-321460 × Kashi Ganga	6.73 **	18.04 **	20.11**	13.72 **	18.82 **	9.05**	-14.62 **	-13.21 **	-10.23**
34	IC-321460 × Arka Bahar	8.79 **	18.23 **	22.43**	10.61 **	13.44 **	2.05	-13.56 **	-10.94 **	-6.56**
35	IC-321460 × Narendra Madhuri	11.45 **	17.52 **	25.43**	25.61 **	29.26 **	16.69**	-7.76 **	-4.06 *	1.68
36	IC-321460 × Pusa Naveen	11.40 **	17.97 **	25.37**	5.22 **	12.14 **	5.22*	-15.06 **	-14.33 **	-13.59**
37	IC-498541 × Kashi Ganga	-2.01	12.46 **	20.02**	8.86 **	14.51 **	4.38*	-9.68 **	-5.88 **	-5.04*
38	IC-498541 × Arka Bahar	-0.39	12.42 **	22.00**	12.35 **	16.02 **	3.65	-7.49 **	-2.31	0.00
39	IC-498541 × Narendra Madhuri	2.16	12.02 **	25.13**	24.32 **	28.81 **	15.49**	-24.65 **	-19.70 **	-16.95**
40	IC-498541× Pusa Naveen	1.81	12.10 **	24.71**	6.85 **	14.64 **	6.85**	5.04 *	6.83 **	5.04*
41	IC-321747 × Kashi Ganga	-0.33	12.78 **	18.13**	-5.72 **	-0.65	0.68	-9.68 **	-4.28 *	-5.04*
42	IC-321747 × Arka Bahar	1.27	12.65 **	20.02**	-7.26 **	-0.49	-0.96	-20.06 **	-14.18 **	-13.59**
43	IC-321747 × Narendra Madhuri	3.57	11.88 **	22.76**	6.74 **	14.16 **	13.99**	-7.76 **	-0.08	1.68
44	IC-321747 × Pusa Naveen	4.91 **	13.81 **	24.35**	-3.41	-0.24	3.15	-5.04 *	-1.74	-5.04*
45	NDBG-132 × Kashi Ganga	19.28 **	27.53 **	24.62**	4.58 *	6.31 **	0.28	25.75 **	29.96 **	32.21**
46	NDBG-132 × Arka Bahar	19.02 **	24.95 **	24.35**	4.52 *	4.82 **	-3.02	8.19 **	13.31 **	16.95**
47	NDBG-132 × Narendra Madhuri	29.20 **	31.43 **	34.97**	5.71 **	5.78 **	-1.79	6.65 **	12.74 **	17.56**
48	NDBG-132 × Pusa Naveen	23.71 **	26.41 **	29.24**	2.67	6.51 **	2.67	23.97 **	25.02 **	23.97**
49	Pant louki-1 × Kashi Ganga	-0.85	12.70 **	18.76**	14.15 **	20.08 **	9.46**	4.50 *	7.76 **	16.95**

50	Pant louki-1 × Arka Bahar	0.73	12.58 **	20.65**	10.17 **	13.77 **	1.64	18.14 **	20.19 **	32.21**
51	Pant louki-1 × Narendra Madhuri	3.46	12.30 **	23.93**	22.99 **	27.44 **	14.26**	-1.50	-0.76	10.23**
52	Pant louki-1 × Pusa Naveen	2.93	12.20 **	23.30**	5.62 **	13.31 **	5.62*	-10.64 **	-5.62 **	0.00
53	Narendra Dharidar × Kashi Ganga	18.01 **	26.67 **	24.35**	-4.11 *	-0.55	-0.95	19.30 **	19.33 **	25.50**
54	Narendra Dharidar × Arka Bahar	23.16 **	29.82 **	29.78**	-6.12 **	-0.82	-3.02	7.63 **	9.09 **	16.34**
55	Narendra Dharidar × Narendra Madhuri	23.13 **	25.79 **	29.75**	7.15 **	12.82 **	10.68**	1.39	3.76 *	11.76**
56	Narendra Dharidar × Pusa Naveen	27.01 **	30.33 **	33.83**	-1.21	0.39	2.05	-0.15	2.38	5.04*
57	Pusa Samridhi × Kashi Ganga	-2.27	12.52 **	20.59**	4.20 *	5.86 **	3.15	6.44 **	16.84 **	11.91**
58	Pusa Samridhi × Arka Bahar	-0.75	12.37 **	22.46**	3.09	6.72 **	2.05	8.19 **	20.25 **	16.95**
59	Pusa Samridhi × Narendra Madhuri	1.65	11.83 **	25.43**	15.15 **	18.81 **	13.99**	0.00	12.11 **	10.23**
60	Pusa Samridhi × Pusa Naveen	1.43	12.05 **	25.16**	5.75 **	6.29 **	5.75*	5.04 *	12.69 **	5.04*
61	Punjab long × Kashi Ganga	-5.53 **	10.74 **	21.67**	-2.73	-0.81	-6.73**	2.55	6.51 **	16.49**
62	Punjab long × Arka Bahar	-2.84	12.05 **	25.13**	-1.43	-1.39	-9.06**	-1.48	0.96	11.91**
63	Punjab long × Narendra Madhuri	-0.44	11.63 **	28.22**	12.84 **	13.27 **	4.83*	-2.96	-1.50	10.23**
64	Punjab long × Pusa Naveen	5.57 **	18.86 **	35.96**	-4.26 *	-0.37	-4.26*	2.96	9.51 **	16.95**
	SE	8.05	6.97		1.59	1.38		0.15	0.13	
	CD at 5%	15.77	13.66		3.12	2.70		0.29	0.25	
	CD at 1%	20.20	17.49		3.99	3.46		0.37	0.32	

* Significant at 5% probablity level   ** Significant 1% probablity level

Table 5. Estimates of better parent, mid parent and standard check heterosis in 64 F_1 progenies. (Fruit length, fruit girth & Average fruit weight)

S. No.	Crosses	Fruit Length (cm)			Fruit girth (cm)			Average fruit weight (gm)		
		Better parent	Mid parent	Check (PN)	Better parent	Mid parent	Check (PN)	Better parent	Mid parent	Check (PN)
1	Narendra Jyothi × Kashi Ganga	7.77 **	18.92 **	12.53**	-8.63 **	-2.34	9.53**	6.89 **	11.32 **	7.33**
2	Narendra Jyothi × Arka Bahar	4.29 *	11.88 **	8.89**	-2.25	5.36 **	17.17**	12.04 **	12.05 **	3.56
3	Narendra Jyothi × Narendra Madhuri	-24.14 **	4.12	-20.79**	-13.60 **	-11.53 **	3.57	4.47 *	6.07 **	-0.45
4	Narendra Jyothi × Pusa Naveen	10.14 **	12.52 **	15.01**	-10.75 **	-2.69	6.98**	6.49 **	10.68 **	6.49**
5	Narendra Rashmi × Kashi Ganga	24.22 **	35.69 **	26.85**	8.00 **	10.06 **	17.18**	2.73	5.43 **	8.73**
6	Narendra Rashmi × Arka Bahar	17.50 **	24.75 **	19.99**	15.26 **	18.51 **	25.06**	-9.52 **	-3.40	-4.24
7	Narendra Rashmi × Narendra Madhuri	-11.71 **	20.33 **	-9.84**	13.91 **	16.85 **	30.16**	-4.05 *	0.98	1.55

8	Narendra Rashmi × Pusa Naveen	11.98 **	13.15 **	14.35**	5.63 **	9.94 **	14.62**	2.92	5.84 **	8.93**
9	Pusa Sandesh × Kashi Ganga	-17.19 **	9.36 **	-29.74**	-1.54	18.89 **	56.65**	13.74 **	16.00 **	14.21**
10	Pusa Sandesh × Arka Bahar	-17.36 **	11.41 **	-25.42**	7.33 **	30.53 **	70.76**	15.76 **	18.26 **	11.72**
11	Pusa Sandesh × Narendra Madhuri	-6.25	-2.06	-55.25**	10.53 **	28.66 **	75.85**	10.39 **	11.09 **	6.53**
12	Pusa Sandesh × Pusa Naveen	-18.47 **	13.52 **	-18.47**	17.03 **	43.73 **	86.19**	13.32 **	15.33 **	13.32**
13	Vallabh saral × Kashi Ganga	9.00 **	17.27 **	-7.52	-5.01 *	-2.45	4.69**	5.00 *	5.96 **	5.44**
14	Vallabh saral × Arka Bahar	-0.83	9.73 **	-10.50**	1.69	5.36 **	12.07**	5.23 *	8.62 **	3.74
15	Vallabh saral × Narendra Madhuri	-18.13 **	-1.06	-40.33**	2.56	4.41 **	17.18**	-0.74	0.94	-2.14
16	Vallabh saral × Pusa Naveen	-4.53 *	10.44 **	-4.53*	-7.55 **	-3.06	1.88	4.54 *	5.28 **	4.54*
17	Pusa Santusti × Kashi Ganga	-0.77	20.67 **	-15.81**	4.94 **	10.68 **	22.26**	11.06 **	12.80 **	11.52**
18	Pusa Santusti × Arka Bahar	-10.74 **	11.15 **	-19.45**	9.31 **	16.28 **	27.36**	14.81 **	17.76 **	11.72**
19	Pusa Santusti × Narendra Madhuri	-7.25 *	-0.95	-49.28**	16.09 **	17.22 **	35.25**	6.81 **	7.93 **	3.94
20	Pusa Santusti × Pusa Naveen	-19.44 **	4.15 *	-19.44**	2.97	10.82 **	19.97**	10.12 **	11.63 **	10.12**
21	IC-321412 × Kashi Ganga	19.81 **	24.74 **	10.38**	-6.94 **	-2.47	6.99**	7.43 **	9.31 **	11.72**
22	IC-321412 × Arka Bahar	13.33 **	14.50 **	4.42*	6.34 **	12.41 **	22.26**	5.51 **	11.72 **	9.73**
23	IC-321412 × Narendra Madhuri	-25.53 **	-1.88	-31.38**	4.34 *	4.67 **	19.97**	-5.28 *	-1.14	-1.49
24	IC-321412 × Pusa Naveen	14.11 **	18.78 **	14.11**	-6.47 **	0.05	7.54**	7.96 **	10.08 **	12.27**
25	IC-338119 × Kashi Ganga	10.20 **	17.83 **	7.40**	-4.05 *	3.44 *	17.17**	-0.66	3.72	-0.25
26	IC-338119 × Arka Bahar	-32.65 **	-30.07 **	-34.37**	-16.56 **	-9.30 **	1.88	2.52	2.80	-5.24*
27	IC-338119 × Narendra Madhuri	-25.52 **	-0.01	-27.42**	-10.39 **	-7.41 **	9.42**	9.60 **	11.57 **	4.44*
28	IC-338119 × Pusa Naveen	7.40 **	8.78 **	7.40**	-12.38 **	-3.65 *	6.99**	4.94 *	9.35 **	4.94*
29	IC-592210 × Kashi Ganga	7.34 **	19.74 **	14.86**	-6.43 **	-6.36 **	-2.14	5.28 **	9.59 **	14.74**
30	IC-592210 × Arka Bahar	-0.88	7.54 **	6.06**	14.76 **	15.89 **	20.02**	-12.11 **	-4.89 **	-4.22*
31	IC-592210 × Narendra Madhuri	-28.76 **	-1.48	-23.78**	1.52	6.01 **	16.00**	-5.08 *	1.28	3.44
32	IC-592210 × Pusa Naveen	1.82	5.27 **	8.95**	-1.51	0.70	3.01	1.60	5.97 **	10.72**
33	IC-321460 × Kashi Ganga	-5.60 **	2.99	-3.88	-8.30 **	-2.05	9.78**	11.09 **	11.19 **	11.75**
34	IC-321460 × Arka Bahar	-2.96	2.89	-1.19	-0.41	7.28 **	19.22**	12.07 **	16.81 **	12.74**
35	IC-321460 × Narendra Madhuri	-26.11 **	0.62	-24.76**	-1.62	0.67	17.78**	3.13	5.93 **	3.75
36	IC-321460 × Pusa Naveen	10.34 **	11.34 **	12.35**	-9.23 **	-1.09	8.66**	14.05 **	14.39 **	14.73**

#	Cross	C1	C2	C3	C4	C5	C6	C7	C8	C9
37	IC-498541 × Kashi Ganga	7.73 **	15.72 **	6.06**	-4.63 *	-2.82	-0.41	-1.25	-0.36	-0.84
38	IC-498541 × Arka Bahar	4.70 *	9.25 **	3.07	4.32 *	5.36 **	6.98**	5.60 *	9.01 **	4.14*
39	IC-498541 × Narendra Madhuri	-25.76 **	0.00	-26.91**	-1.43	4.88 **	12.63**	-1.36	0.33	-2.72
40	IC-498541 × Pusa Naveen	9.04 **	9.89 **	9.04**	-2.40	-2.14	-1.88	-0.83	-0.14	-0.83
41	IC-321747 × Kashi Ganga	9.31 **	16.09 **	5.01*	-4.35 *	-0.33	8.66**	1.76	12.28 **	25.74**
42	IC-321747 × Arka Bahar	-6.16 **	-3.22	-9.84**	-2.87	2.10	10.34**	-11.18 **	1.62	9.75**
43	IC-321747 × Narendra Madhuri	-24.82 **	0.45	-27.77**	-10.30 **	-10.04 **	2.50	3.78 *	17.18 **	28.23**
44	IC-321747 × Pusa Naveen	-6.86 **	-5.00 **	-6.86**	-0.36	5.99 **	13.19**	0.96	11.59 **	24.74**
45	NDBG-132 × Kashi Ganga	-4.55 **	13.86 **	19.69**	-7.73 **	-1.83	9.53**	3.47	5.80 **	8.68**
46	NDBG-132 × Arka Bahar	-6.93 **	8.24 **	16.71**	-1.29	5.92 **	17.17**	2.09	8.60 **	7.23**
47	NDBG-132 × Narendra Madhuri	-30.72 **	0.36	-13.13**	4.42 *	6.41 **	23.94**	-3.12	1.59	1.76
48	NDBG-132 × Pusa Naveen	-1.70	9.38 **	23.27**	-7.04 **	0.91	10.34**	2.11	4.62 *	7.25**
49	Pant louki-1 × Kashi Ganga	14.84 **	16.15 **	-2.57	-8.74 **	-1.88	10.80**	3.18	3.74 *	4.74*
50	Pant louki-1 × Arka Bahar	6.51 **	11.01 **	-3.88	-3.24	4.91 **	17.47**	4.19 *	9.07 **	5.77**
51	Pant louki-1 × Narendra Madhuri	-22.66 **	-1.83	-35.86**	11.86 **	15.25 **	35.81**	-3.18	-0.12	-1.71
52	Pant louki-1 × Pusa Naveen	0.09	9.43 **	0.09	-10.04 **	-1.34	9.22**	1.23	1.99	2.76
53	Narendra Dharidar × Kashi Ganga	1.33	14.36 **	11.34**	-1.85	-1.13	2.50	3.26	13.18 **	25.74**
54	Narendra Dharidar × Arka Bahar	-1.66	7.99 **	8.05**	6.68 **	6.87 **	9.78**	2.46	16.49 **	24.76**
55	Narendra Dharidar × Narendra Madhuri	-29.08 **	-1.12	-22.08**	0.53	5.79 **	14.88**	-2.72	9.15 **	18.45**
56	Narendra Dharidar × Pusa Naveen	12.01 **	17.28 **	23.07**	-3.22	-1.83	-0.41	8.18 **	18.79 **	31.72**
57	Pusa Samridhi × Kashi Ganga	21.48 **	31.59 **	3.07	-6.04 **	-3.00	4.69*	3.46	6.06 **	3.89*
58	Pusa Samridhi × Arka Bahar	0.26	11.67 **	-9.52**	2.10	6.33 **	13.75**	9.71 **	11.50 **	4.77*
59	Pusa Samridhi × Narendra Madhuri	6.61 *	28.08 **	-23.45**	14.40 **	15.85 **	30.72**	0.65	0.75	-3.89*
60	Pusa Samridhi × Pusa Naveen	12.35 **	30.79 **	12.35**	-7.50 **	-2.51	3.06	2.24	4.60 *	2.24
61	Punjab long × Kashi Ganga	11.00 **	15.47 **	2.09	-10.05 **	-1.03	14.88**	0.36	1.61	0.78
62	Punjab long × Arka Bahar	7.72 **	8.74 **	-0.92	-2.95	7.65 **	23.94**	0.85	3.77	-1.22
63	Punjab long × Narendra Madhuri	-31.24 **	-9.46 **	-36.75**	13.00 **	19.28 **	44.32**	-0.69	0.68	-2.72
64	Punjab long × Pusa Naveen	5.64 **	10.05 **	5.64**	-3.79 *	7.92 **	22.87**	3.86	4.94 **	3.86**
	SE	0.63	0.55		0.42	0.37		21.71	18.80	

CD at 5%		1.23	1.07		0.83	0.72		42.55	36.85	
CD at 1%		1.58	1.37		1.07	0.92		54.49	47.19	

* Significant at 5% probablity level   ** Significant 1% probablity level

Table 6. Estimates of better parent, mid parent and standard check heterosis in 64 F_1 progenies. (Days to 1st fruit harvest, No. of fruits/plant, Crop duration & Yield q/hac)

S. No.	Crosses	Days to 1st fruit harvest			Number of fruit per plant			Crop Duration			Yield q/hac		
		Better parent	Mid parent	Check (PN)	Better parent	Mid parent	Check (PN)	Better parent	Mid parent	Check (PN)	Better parent	Mid parent	Check (PN)
1	Narendra Jyothi × Kashi Ganga	3.33	7.60 **	7.97**	24.67	20.72 **	19.13**	20.80**	17.22	19.11**	19.93 *	20.55 **	19.71**
2	Narendra Jyothi × Arka Bahar	2.71	3.77 *	9.56**	16.61 **	19.13 **	18.85**	23.22**	19.66	21.13**	24.88 **	17.10 **	21.33**
3	Narendra Jyothi × Narendra Madhuri	6.46 **	6.85 **	11.24**	22.87	20.25 **	15.11**	19.71*	22.22	23.42**	27.12	18.24 **	26.71**
4	Narendra Jyothi × Pusa Naveen	1.79	4.03 *	6.37**	11.21	13.05 **	28.02**	20.90**	18.56 **	20.14**	21.64	12.07 **	20.89**
5	Narendra Rashmi × Kashi Ganga	-9.52 **	-2.04	2.74	21.69	26.36 **	25.46**	25.31	22.44	25.26**	13.80	16.91 **	22.19**
6	Narendra Rashmi × Arka Bahar	0.99	4.14 *	14.67**	26.94	23.76 **	24.00**	19.86	18.13	21.12**	23.04	11.70 **	23.68**
7	Narendra Rashmi × Narendra Madhuri	-8.13 **	-3.98 *	4.32*	28.77	22.96 **	20.02*	20.80	19.16	17.40**	19.68	17.70 **	24.45**
8	Narendra Rashmi × Pusa Naveen	-5.30 *	0.71	7.53**	16.70 **	17.87 **	15.64***	13.19	14.01 **	17.36**	16.72 **	26.43 **	20.09**
9	Pusa Sandesh × Kashi Ganga	-4.16 *	5.50 **	12.84**	23.94 **	18.69 **	19.41**	22.19	23.08	21.02**	14.05 **	30.47 **	28.65**
10	Pusa Sandesh × Arka Bahar	-2.19	2.64	15.16**	18.05 *	15.66 **	16.53**	15.53	20.33	22.11**	25.24 **	19.60 **	20.17**
11	Pusa Sandesh × Narendra Madhuri	-7.62 **	-1.78	8.77**	11.25	9.80 **	10.88**	23.10	20.05	22.65**	16.43	14.69 **	20.65**
12	Pusa Sandesh × Pusa Naveen	-6.26 **	1.37	10.36**	16.56	12.87 **	15.48**	13.32	17.53 **	15.12**	22.42	11.28 **	21.82**
13	Vallabh saral × Kashi Ganga	-9.49 **	2.05	12.49**	20.95 **	19.73 **	19.24**	22.13	20.30	21.06**	14.03 **	21.70 **	16.12**
14	Vallabh saral × Arka Bahar	-5.77 **	1.42	17.11**	15.30 **	18.05 **	20.82**	23.67	18.30	23.09**	15.54 **	15.78 **	17.66**
15	Vallabh saral × Narendra Madhuri	-6.91 **	1.48	15.69**	19.36 **	10.14 **	14.59**	25.90	20.10	24.08**	9.59 **	15.48 **	11.60**
16	Vallabh saral × Pusa Naveen	-7.77 **	2.21	14.62**	15.30 **	19.99 **	17.82**	24.44 *	17.22 **	22.11**	15.22 **	16.27 **	17.34**
17	Pusa Santusti × Kashi Ganga	-11.99 **	-0.88	9.12**	14.58 *	11.34 **	13.70**	20.15	21.11	26.05**	19.13 **	23.71 **	14.52**
18	Pusa Santusti × Arka Bahar	-1.24	6.17 **	22.44**	24.00 **	24.64 **	23.88**	22.84	18.04	22.65**	18.95 **	22.14 **	20.65**
19	Pusa Santusti × Narendra Madhuri	-6.26 **	2.08	16.22**	16.96 **	19.51 **	20.82**	18.27	20.88	22.11**	22.40 **	25.45 **	17.66**
20	Pusa Santusti × Pusa Naveen	-9.69 **	-0.02	11.96**	19.24 **	19.91 **	19.24**	21.71	19.69 **	24.08**	16.12 **	18.41 **	16.12**
21	IC-321412 × Kashi Ganga	-9.64 **	3.93 *	17.64**	13.22	15.59 **	16.17**	15.29	18.00	11.05**	27.12 **	29.34 **	13.14**
22	IC-321412 × Arka Bahar	-7.86 **	1.29	19.97**	14.70 **	21.67 **	14.59**	23.82 *	20.00	24.08**	9.80 **	18.87 **	11.36**

#	Cross												
23	IC-321412 × Narendra Madhuri	-9.09 **	1.20	18.36**	4.95 *	13.07 **	8.41**	26.40	21.04	24.62**	15.77 **	19.36 **	5.87**
24	IC-321412 × Pusa Naveen	-12.51 **	-1.03	13.92**	16.17 **	23.28 **	16.17**	25.18 **	22.83 **	22.32**	13.14 **	21.69 **	13.14**
25	IC-338119 × Kashi Ganga	-13.13 **	1.39	17.11**	-13.29 **	-7.81 **	-2.42	16.20 **	15.03 **	18.39**	-1.42	2.52	-4.97**
26	IC-338119 × Arka Bahar	-7.20 **	3.62 *	25.11**	3.86	4.25	3.76	20.99 **	24.31 *	17.40**	-0.37	2.16	1.05
27	IC-338119 × Narendra Madhuri	-9.57 **	2.21	21.91**	6.43 **	8.61 **	9.94**	22.05	20.37	23.64**	11.07 **	14.00 **	7.07**
28	IC-338119 × Pusa Naveen	-11.82 **	1.26	18.89**	11.52 **	11.99 **	11.52**	23.18	20.05 **	22.22**	8.61 **	10.60 **	8.61**
29	IC-592210 × Kashi Ganga	-11.10 **	3.02	17.80**	7.35 **	15.56 **	20.82**	21.79	19.04	25.29**	25.41 **	28.72 **	17.66**
30	IC-592210 × Arka Bahar	-5.45 **	4.77 **	25.29**	19.35 **	21.38 **	19.24**	23.26	20.04	23.42**	14.49 **	18.95 **	16.12**
31	IC-592210 × Narendra Madhuri	-23.69 **	-14.39 **	1.12	19.93 **	23.97 **	23.88**	24.89 *	22.03	21.34**	28.78 **	30.43 **	20.82**
32	IC-592210 × Pusa Naveen	-12.69 **	-0.48	15.69**	17.19 **	19.24 **	17.19**	15.43	18.27 **	23.20**	14.06 **	17.69 **	14.06**
33	IC-321460 × Kashi Ganga	-10.31 **	4.57 **	20.60**	1.82	18.42 **	14.59**	19.80	20.37	22.11**	25.39 **	30.00 **	11.60**
34	IC-321460 × Arka Bahar	-9.34 **	1.11	21.91**	20.93 **	33.57 **	20.82**	18.36	16.19	20.36**	10.84 **	22.12 **	12.42**
35	IC-321460 × Narendra Madhuri	-10.66 **	0.87	20.14**	10.93 **	24.36 **	14.59**	23.21	18.57	21.77**	22.04 **	28.17 **	11.60**
36	IC-321460 × Pusa Naveen	-12.91 **	-0.10	17.11**	6.88 **	18.10 **	6.88**	17.09	17.62 **	19.48**	4.09	13.95 **	4.09
37	IC-498541 × Kashi Ganga	-12.22 **	2.60	18.73**	-7.80 **	9.84 **	3.76	20.36	19.08	22.65**	13.53 **	23.77 **	1.04
38	IC-498541 × Arka Bahar	-23.92 **	-14.94 **	2.90	10.05 **	24.72 **	9.94**	11.40	13.22	20.68**	5.57 *	21.88 **	7.07*
39	IC-498541 × Narendra Madhuri	-9.47 **	2.47	22.44**	1.93	17.20 **	5.30*	15.68	16.25	21.57**	12.14 **	23.76 **	2.55
40	IC-498541 × Pusa Naveen	-11.16 **	2.15	20.15**	-5.53 *	7.11 **	-5.53	21.55	19.78 **	24.29**	-8.00 **	5.58 *	-8.00**
41	IC-321747 × Kashi Ganga	-9.43 **	5.64 **	21.90*	-10.57 **	-1.28	0.65	17.41	18.80	25.60**	10.13 **	10.26 **	-1.98
42	IC-321747 × Arka Bahar	-5.72 **	5.19 **	26.89**	14.70 **	19.83 **	14.59**	15.10	13.71	24.73**	10.03 **	17.33 **	11.60**
43	IC-321747 × Narendra Madhuri	-7.84 **	4.10 *	24.04**	6.43 **	12.96 **	9.94**	22.23	20.15	23.31**	16.83 **	18.54 **	6.84**
44	IC-321747 × Pusa Naveen	-10.59 **	2.59	20.33**	-5.53 *	-1.26	-5.53*	17.32	15.19 **	14.71**	-8.00 **	-2.54	-8.00*
45	NDBG-132 × Kashi Ganga	4.10	6.24 **	4.33	3.75	8.73 **	28.53**	20.94	22.37	19.48**	40.64 **	48.39 **	25.17***
46	NDBG-132× Arka Bahar	2.95	6.16 **	9.82**	7.50 **	19.02 **	33.18**	19.61	21.59	18.49**	27.88 **	43.21 **	29.70**
47	NDBG-132 × Narendra Madhuri	2.79	4.56 *	6.62**	10.84 **	20.88 **	37.31**	21.17	28.81	24.30**	46.24 **	56.27 **	33.73**
48	NDBG-132 × Pusa Naveen	4.26	4.38 *	4.49	3.75	14.82 **	28.53**	26.25	18.40 **	20.14**	25.32 **	39.47 **	25.32**
49	Pant louki-1 × Kashi Ganga	-3.55	4.26 *	9.12**	5.95 **	7.68 **	19.24**	24.64 *	21.89	17.38**	30.47 **	50.64 **	16.12**
50	Pant louki-1 × Arka Bahar	-0.57	2.36	12.49**	13.74 **	18.65 **	23.88**	17.55	17.69	18.49**	18.95 **	44.84 **	20.65**
51	Pant louki-1 × Narendra Madhuri	-1.70	2.57	11.21**	9.77 **	12.68 **	19.56**	20.52	21.13	19.51**	27.97 **	49.44 **	17.03**

No.	Cross												
52	Pant louki-1 × Pusa Naveen	-6.23 **	-0.46	6.08**	3.33	7.74 **	12.55**	25.41	19.00 **	17.83**	9.60 **	32.72 **	9.60**
53	Narendra Dharidar × Kashi Ganga	-7.71 **	-0.75	3.25	16.44 **	19.55 **	38.24**	15.82	20.64 *	18.39**	36.01 **	59.42 **	21.05**
54	Narendra Dharidar × Arka Bahar	0.40	2.79	12.32**	6.97 **	16.17 **	27.00**	11.07	19.36	21.34**	21.94 **	50.56 **	23.68**
55	Narendra Dharidar × Narendra Madhuri	-12.48 **	-9.18 **	-2.10	16.09 **	24.15 **	37.83**	25.59	20.58	19.48**	46.78 **	73.97 **	34.22**
56	Narendra Dharidar × Pusa Naveen	-3.87	1.51	7.53**	4.34 *	13.28 **	23.88**	21.76	18.24 **	20.49**	20.65 **	48.16 **	20.65**
57	Pusa Samridhi × Kashi Ganga	-3.75	2.85	6.22**	6.63 **	8.32 **	23.88**	13.74	15.69	18.49**	6.93 **	19.55 **	20.65**
58	Pusa Samridhi × Arka Bahar	-0.65	1.04	9.64**	11.99 **	20.42 **	30.11**	22.29	20.78	16.43**	12.30 **	18.28 **	26.71**
59	Pusa Samridhi × Narendra Madhuri	0.67	3.79 *	11.10**	6.19 **	12.42 **	23.37**	18.55	17.39	19.48**	6.49 **	17.63 **	20.15**
60	Pusa Samridhi × Pusa Naveen	-3.39	1.37	6.62**	8.87 **	17.02 **	26.49**	12.61	8.94 **	17.40**	9.17 **	15.75 **	23.18*
61	Punjab long × Kashi Ganga	-16.19 **	-9.45 **	-5.28**	1.23	6.72 **	27.00**	19.94	20.64	21.45**	26.86 **	32.64 **	23.68***
62	Punjab long × Arka Bahar	-0.76	2.10	12.16**	2.46	14.07 **	28.53**	21.15	17.76	22.43**	23.59 **	26.03 **	25.35**
63	Punjab long × Narendra Madhuri	-2.05	2.15	10.70**	6.16 **	16.44 **	33.18**	18.12	20.38	22.46**	33.04 **	37.30 **	29.70**
64	Punjab long × Pusa Naveen	-0.47	5.62 **	12.49**	-4.95 *	5.78 **	19.24**	24.41 *	20..78 **	18.39**	16.12 **	17.60 **	16.12**
SE		1.46	1.27		0.55	0.48		2.46	2.13		5.73	4.96	1.46
CD at 5%		2.87	2.48		1.08	0.93		4.83	4.18		11.24	9.73	2.87
CD at 1%		3.67	3.18		1.38	1.20		6.18	5.36		14.39	12.46	3.67

* Significant at 5% probablity level   ** Significant 1% probablity level

Table 7. Classification of lines/tester for character based on GCA (good, average and poor)

Line /Tester	IC-321747	IC-498581	IC-338119	IC-321460	IC-592210	Pusa Sandesh	Pusa Santusti	Vallabh Saral	Narendra Madhuri	NDBG-132	Narendra Rashmi	Punjab Long	Narendra Jyoti
GCA Classification	Good	Good	Good	Average	Average	Good	Average	Good	Good	Good	Good	Average	Good