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Heterosis and combining ability in chilli for yield and yield contributing traits (*Capsicum annuum* L.)

R.S.VAISHNAV, **K. SRIVASTAVA AND** P.K.SINGH
Department of Genetics and Plant Breeding, Institute of Agricultural Sciences, Banaras Hindu University, VARANASI (U.P.) INDIA

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Nine parents and their eighteen hybrids from a line x tester design were evaluated for fruit yield and its components. Line x tester interaction was found significant for all the traits except, plant height considered variance due to treatment were found to be significant for all the characters under study. Whereas, variance due to lines was found to be a significant for all the characters except, days to 50% flowering and fruit length while variance due to testers was found nonsignificant for all the characters. On the basis of gca effects across three characters, RHRC-Cluster-Erect, PBC-535, LCA-235 and LCA-206 were identified as most promising parents for involving in hybridization programme aimed in improving number of fruit per plant as well as other important yield and yield contributing characters. Cross combinations, KA-2 x PantC-1, LCA-235 x Pusa Jwala, PBC-535 x PantC-1, RHRC-Cluster-Erect x Pusa Jwala, RHRC-Cluster-Erect x LCA-206 and RHRC-Cluster-Erect x PantC-1 were recorded specific combiner for fresh yield per plant due to positive significant of sca effect. The manifestation of heterobeltiosis for fruit yield per plant was evidenced by significant superiority of two out of eighteen crosses over better parent ranging from 6.87% in case of RHRC-Cluster-Erect x PantC-1 to 13.48% in case of KA-2 x LCA-206 while rest of the crosses showed significant negative estimates of heterobeltiosis.The most promising crosses with significant positive heterobeltiosis for fresh yield per plant were KA-2 x LCA-206 (15.91%), PBC-535 x PantC-1 (20.10%), RHRC-Cluster-Erect x Pusa Jwala (16.32%), RHRC-Cluster-Erect x LCA-206 (42.60%) and LCA-438 x PantC-1 (16.26%).

Key words : Chilli, Combining ability, Heterosis, Yield and Yield component

INTRODUCTION

Heterosis in chilli has been recognized as a practical tool in providing the breeder a means of increasing yield and other economic traits. Identification of superior cross combinations and study of heterosis values for most of the agronomic as well as yield characters is prior-requisite. Heterosis shows the performance over mid parent whereas heterobeltiosis express the betterment over the better parent. The present study was undertaken to determine the combining ability effects and heterotic response of various economic characters in chilli. The present investigation was undertaken to have an idea of the nature of gene action for fruit yield and other important attributes in chilli. Several biometrical methods are available for studying the combining ability and gene action. The line x tester analysis first developed by Kempthorne (1957) is one such method, which may be used to build up a population with favourable fixable genes for effective yield improvement.

MATERIALS AND METHODS

The experimental material consists of six lines (KA-2, LCA-235, PBC-535, RHRC-Cluster-Erect, LCA-438, and G-4) and three testers (Pusa Jwala, LCA-206 and Pant C-1) and one standard hybrid check Namdhari (NS-874). The investigation presented here in, was carried out during 2008-2009 at the Vegetable Research Farm, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi (U.P.). Crosses were attempted in line x tester fashion involving 6 parents as male and 3 parents as females. Seeds were harvested cross wise to raise subsequent generation. In *kharif* season 2008-09 the seeds of 9 parents and 18 F_{1s} originating from Line x Tester crosses were raised in Randomized Block Design with three replication. The parents and F_{1s} were planted in 3 rows in each replication. of 5 meter with spacing of 60 cm and plants were spaced at the distance of 45 cm in rows. All recommended package and practices were followed to raise the healthy crop. Data were recorded from 10 randomly selected plants on following traits: days to 50% flowering, plant height, number of primary branches, number of secondary branches, weight of fresh fruit, total fresh yield/plant. Heterosis over mid parent, better parent (heterobeltiosis), and commercial check (commercial/standard heterosis) were worked out as per the standard procedures given by Turner (1953) and Fonesca and Patterson (1968). The analysis of variance

(ANOVA) was done according to Kempthorne (1957) and Singh and Choudhary (1979).

RESULTS AND DISCUSSION

Analysis of variance due to lines revealed significance for all the traits except days to 50% flowering and fruit length. Whereas, line x tester interaction variance was found significant for all the traits, except plant height. Variance due to treatment was found to be significant for all the traits.

The gca effects for each parent are presented in Table1. Among the parents LCA-235 displayed significant positive gca effect for number of fruit per plant. The desirable negative gca effects for days to 50% flowering also recorded for LCA-235. Therefore, parent LCA-235 may be used in breeding programme for earliness. PBC-535 emerged as a best general combiner for fruit length and fresh fruit weight. RHRC-Cluster-Erect emerged as best general combiner for number of primary branches, fresh yield per plant, number of fruit per plant. LCA-438 was good general combiner for day to 50% flowering (due to negative and gca effect), fruit girth, fresh fruit weight. RHRC-Cluster-Erect emerged as a good general combiner for fresh yield per plant. The parent LCA-235 may be valuable for breeding programm because of being of good general combiner for number of fruit per plant and some other important character. The lines mentioned above merit due to consideration for selection as parent for hybridization programme or multiple crossing programme to achieve good segregants.

The sca effects of all the crosses are presented in Table 2.In present study, all the crosses showed significant and positive sca effects in the desirable direction for one or two traits. Out of eighteen only five cross combinations, KA-2 x PantC-1, LCA-235 x Pusa Jwala, PBC-535 x PantC-1, RHRC-Cluster-Erect x Pusa Jwala, RHRC-Cluster-Erect x LCA-206 and RHRC-Cluster-Erect x PantC-1 were recorded specific combiner for fresh yield per plant due to positive significant sca effect .Four crosses were recorded as best combiner for days to 50% flowering due to negative significant sca effect, which is desirable for earliness and may be important for yield also.LCA-438 x Pusa Jwala may be consider as a best specific combiner for plant height, RHRC-Cluster-Erect x Pant C-1 for fruit length, fresh yield per plant and fresh fruit weight.

Heterosis is a one of the important genetic tool, which has significant genetic role in boosting crop yields, in many cases of the commercially important vegetable crop species like tomato, okra, watermelon, cabbage, cauliflower, cucumber and bittergaurd etc. has heterosis breeding approach, in our country and world over. Since chilli is one of the most important solanacious vegetable crop of the country, they deserve that this powerful hybrid

Table 1 : Estimation of general combining ability effects for various yield and yield contributing Characters in Line x Tester analysis in chilli (*Capsicum annuum* L.)

Sr. No.	Parents	Plant ht. (cm)	Days to 50% flowering	No. of primary branches	No. of secondary branches	Fruit length (cm)	Fruit girth (cm)	Fresh Fruit wt.(g)	Fresh yield/ plant	No.of fruit/ plant
1.	KA-2	-21.95*	4.52*	-0.51*	2.99**	-0.27*	-0.13*	-0.71*	-6.72	6.74**
2.	LCA-235	-8.63*	-3.01**	0.096	2.51*	-0.97**	-0.34*	-0.59*	-2.17	14.39*
3.	PBC-535	-9.33**	1.56*	0.48**	-4.04*	1.37**	0.39**	1.26*	-1.03	-24.38*
4.	RHRC-C.-E.	1.44	-2.90*	1.95**	-1.57*	-0.48**	-0.14*	0.43**	45.94*	10.24*
5.	LCA-438	10.33**	-3.62**	-0.21*	-2.78*	1.21**	0.50**	0.80**	-18.91**	-19.70*
6.	G-4	28.15*	3.45**	-0.83*	2.88**	-0.86**	-0.27*	-1.19*	-17.09**	12.70*
SE±		1.12	0.742	0.098	0.335	0.128	0.012	0.039	4.02	0.89
C.D. (P=0.05		2.28	1.50	0.199	0.618	0.260	0.025	0.80	8.18	1.81
C.D. (P=0.01)		3.06	2.02	0.267	0.914	0.349	0.033	0.107	10.98	2.43
1.	Pusa Jwala	0.987	-0.569	0.074	0.335	0.25**	0.002	-0.106**	0.73	-1.15
2.	LCA-206	-0.602	-0.38	0.076	-0.2.37	-0.06	0.001	0.101**	7.63*	0.62
3.	PantC-1	-0.385	0.948	0.002	-0.098	-0.19*	-0.003	0.006	-8.37*	0.52
SE±		0.793	0.525	0.069	0.237	0.09	0.008	0.027	2.84	0.63
C.D. (P=0.05		1.612	1.067	0.141	0.481	0.184	0.17	0.056	5.78	1.28
C.D. (P=0.01)		2.164	1.432	0.189	0.646	0.247	0.023	0.076	7.76	1.76

* and ** indicates significance of values at P=0.05 and 0.01, respectively
KA-2 = Kashi Anmol-2, RHRC-C.-E. = RHRC-Cluster-Erect, G-4 = Guntur-4

Table 2 : Estimation of specific combining ability effects for various yield and yield contributing characters in Line x Tester analysis in chilli (*Capsicum annuum* L.)

Sr. No.	Crosses	Plant ht. (cm)	Days to 50% flowering	No. of primary branches	No. of secondary branches	Fruit length (cm)	Fruit girth (cm)	Fresh Fruit wt.(g)	Fresh yield/ plant	No. of fruit/ plant
1.	KA-2 X Pusa Jwala	-0.709	2.00	-0.009	0.38	-0.008	0.03	-0.311*	-30.51**	-0.55
2.	KA-2 X LCA-206	0.78	0.813	0.127	0.75	-0.10	0.03	0.083	13.93	3.53*
3.	KA-2 X PantC-1	0.070	-2.81*	-0.11	-1.14	0.11	0.06**	0.22**	16.58*	-2.97
4.	LCA-235 X Pusa Jwala	0.931	-2.66*	-0.06	-0.50	0.05	0.02	0.18*	29.46*	0.99
5.	LCA-235 X LCA-206	0.791	-1.52	0.08	-0.16	-0.46*	-0.01	0.25**	-12.67	-0.78
6.	LCA-235 X PantC-1	0.141	4.18**	-0.02	0.66	0.41	-0.01	-0.43*	-16.79*	-0.21
7.	PBC-535 X Pusa Jwala	-0.765	0.92	0.13	-0.33	1.11*	-0.002	0.16*	-21.56*	0.04
8.	PBC-535 X LCA-206	0.291	1.60	-0.06	0.57	1.49	.03	-0.03	-25.53**	-1.57
9.	PBC-535 X PantC-1	0.474	-2.52	-0.07	-0.23	-2.60*	-0.03	-0.13	47.10**	1.53
10.	RHRC-C.-E. X Pusa Jwala	0.576	1.15	-0.11	-0.31	-1.20*	-0.008	-0.22**	18.85*	-4.22**
11.	RHRC-C.-E. X LCA-206	0.413	3.45*	0.06	-0.04	-0.85*	-0.007	-0.12	36.01*	1.76
12.	RHRC-C.-E. X PantC-1	0.163	-4.59	0.05	0.35	2.05**	0.01	0.35**	54.87*	2.46
13.	LCA-438 X Pusa Jwala	5.06*	-2.95*	0.18	0.03	-0.09	0.002	0.11	1.44	1.76
14.	LCA-438 X LCA-206	-2.14	-4.60*	-0.13	0.93	0.05	0.017	-0.12	-5.45	-0.11
15.	LCA-438 X PantC-1	-2.92	7.56**	-0.04	-0.96	0.03	-0.039	0.004	4.01	-1.64
16.	G-4 X Pusa Jwala	2.08	1.53	-0.12	0.73	0.13	-0.008	0.07	2.32	1.92
17.	G-4 X LCA-206	-0.131	0.28	-0.08	-2.06**	-0.13	-0.003	-0.06	-6.28	-2.82
18.	G-4 X PantC-1	2.219	-1.81	0.20	1.33*	-0.001	0.004	-0.01	3.96	0.84
C.D. (P=0.05)		3.94	2.61	0.34	1.18	0.45	0.04	0.13	0.12	2.99
C.D. (P=0.01)		5.30	3.50	0.46	1.58	0.60	0.05	0.18	0.16	4.01

* and ** indicates significance of values at P=0.05 and 0.01, respectively

Table 3 : Estimatation of average percentage of heterosis over better parent

Sr. No.	Crosses	Plant ht. (cm)	Days to 50% flowering	No. of primary branches	No. of secondary branches	Fruit length (cm)	Fruit girth (cm)	Fresh Fruit wt.(g)	Fresh yield/ plant	No. of fruit/ plant
1.	KA-2 X Pusa Jwala	-49.78**	4.85	-18.02**	4.11	-45.75	-11.67**	-38.03**	-25.47*	5.52
2.	KA-2 X LCA-206	-25.36**	3.49	-6.96	10.84	-3.03	-12.08**	-16.00**	15.91*	24.94*
3.	KA-2 X PantC-1	-34.91**	0.36	-39.64**	-2.22	-1.69	-2.04	-10.47**	1.85	4.87
4.	LCA-235 X Pusa Jwala	-30.84**	-2.99	-9.49	-5.25	-51.38**	-30.00**	-20.47*	-8.06*	10.40*
5.	LCA-235 X LCA-206	1.70	2.42	-9.49	22.89**	-11.87	-27.78**	-7.10*	-16.21**	18.51**
6.	LCA-235 X PantC-1	-9.00	13.34**	-27.22**	31.63**	1.88	-37.55**	-29.08*	-29.69*	11.70**
7.	PBC-535 X Pusa Jwala	-31.61**	2.00	-14.12*	-49.09**	-21.41**	-2.56	-5.66*	-19.31**	-31.83**
8.	PBC-535 X LCA-206	-11.76*	3.21	-11.30	-14.02	0.37	0.00	-9.63**	-7.4	-24.19**
9.	PBC-535 X PantC-1	-11.01*	-0.70	-38.46**	-23.38*	-46.84**	-5.13*	-3.29	20.10**	-24.37**
10.	RHRC-C.-E. X Pusa Jwala	-15.76**	-1.67	9.20*	-31.96**	-58.06**	-9.58*	12.40**	16.32*	0.22
11.	RHRC-C.-E. X LCA-206	0.64	1.86	9.82*	3.58	-8.51	0.00	29.53**	42.60**	21.55**
12.	RHRC-C.-E. X PantC-1	0.58	-7.71**	7.10	9.32	44.22**	-9.39*	-10.36**	-19.60**	14.45**
13.	LCA-438 X Pusa Jwala	5.25	-4.33	-6.87	-37.90	-33.43**	2.44	-11.01**	-17.95*	-21.10*
14.	LCA-438 X LCA-206	-0.57	-3.30	-14.96*	3.30	1.60	1.95	-10.36**	-7.83	-13.32**
15.	LCA-438 X PantC-1	-1.45	18.11**	-33.14**	-17.63	-0.64	-2.44	-40.47*	16.26**	-24.21**
16.	G-4 X Pusa Jwala	-9.80**	2.02	-28.24**	0.22	-49.62**	-26.25**	-34.50**	-12.89**	7.58*
17.	G-4 X LCA-206	-9.40**	0.58	-20.87**	-21.65**	-6.89	-16.67**	-32.98**	-2.68	10.37**
18.	G-4 X PantC-1	-6.63*	-0.45	-39.64**	1.30	-6.89	-26.94**	30.42*	-11.33*	8.95*

* and ** indicates significance of values at P=0.05 and 0.01, respectively

Table 4 : Estimatation of average percentage of heterosis over Standard Variety

Sr. No.	Crosses	Plant ht. (cm)	Days to 50% flowering	No. of primary branches	No. of secondary branches	Fruit length (cm)	Fruit girth (cm)	Fresh Fruit wt.(g)	Fresh yield/ plant	No. of fruit/ plant
1.	KA-2 X Pusa Jwala	-9.58	22.65	-34.06	2.01	-37.14	-46.15	-51.11	-45.98	-14.81
2.	KA-2 X LCA-206	-9.84	21.06	-34.43	0.67	-41.32	-46.15	-37.77	-25.58	-6.71
3.	KA-2 X PantC-1	-11.48	17.40	-37.38	-11.20	-40.51	-38.46	-36.35	-30.88	-15.82
4.	LCA-235 X Pusa Jwala	24.52	3.25	-23.94	-7.18	-43.67	-56.92	-37.33	-20 .34	-2.12
5.	LCA-235 X LCA-206	24.86	5.38	-23.94	-8.72	-52.04	-60.00	-31.33	-34.34	-3.36
6.	LCA-235 X PantC-1	23.74	16.56	-24.49	-2.08	-44.59	-60.76	-48.66	-42.34	1.28
7.	PBC-535 X Pusa Jwala	23.14	16.24	-30.93	-50.13	-8.87	14.54	3.33	-40.16	-56.92
8.	PBC-535 X LCA-206	21.73	17.62	-37.38	-47.91	-8.16	18.18	37.77	-39.00	-56.68
9.	PBC-535 X PantC-1	22.78	13.17	-36.37	-52.34	-51.42	11.81	37.77	-16.50	-52.25
10.	RHRC-C.-E. X Pusa Jwala	51.67	9.52	9.20	-33.35	-51.42	-34.54	-23.77	-5.44	-15.03
11.	RHRC-C.-E. X LCA-206	50.11	13.43	9.76	-35.36	-51.02	-34.54	-16.88	4.11	-4.33
12.	RHRC-C.-E. X PantC-1	50.03	2.78	11.11	-31.81	-22.85	-32.72	-8.44	-38.35	3.50
13.	LCA-438 X Pusa Jwala	89.53	1.82	-25.23	-39.19	-22.85	27.27	-7.76	-38.12	-48.09
14.	LCA-438 X LCA-206	66.62	-0.49	-33.70	-36.91	-24.84	26.36	-8.44	-38.12	-48.23
15.	LCA-438 X PantC-1	65.13	20.96	-30.75	-48.79	-41.63	20.90	-7.77	-40.72	-50.48
16.	G-4 X Pusa Jwala	117.28	20.21	-42.35	3.55	-47.65	-46.36	-53.11	-37.05	-3.08
17.	G-4 X LCA-206	118.25	18.51	-44.19	-19.06	-47.65	-45.45	-51.55	-37.73	-7.26
18.	G-4 X PantC-1	124.94	17.31	-37.38	4.96	-39.48	-46.36	-52.66	-40.02	4.13

* and ** indicates significance of values at P=0.05 and 0.01, respectively

Table 5 : Estimatation of average percentage of heterosis over mid parent

Sr. No.	Crosses	Plant ht. (cm)	Days to 50% flowering	No. of primary branches	No. of secondary branches	Fruit length (cm)	Fruit girth (cm)	Fresh Fruit wt.(g)	Fresh yield/ plant	No. of fruit/ plant
1.	KA-2 X Pusa Jwala	-33.9**	9.79**	-11.24*	8.06	-28.71**	-11.67	-29.60**	-25.47*	5.52
2.	KA-2 X LCA-206	-15.87**	10.12**	-5.31	32.94*	6.87	-7.46*	-7.18*	15.91*	24.94*
3.	KA-2 X PantC-1	-22.87**	7.03*	-27.14**	16.08	7.73	-1.03	-3.12	1.85	4.87
4.	LCA-235 X Pusa Jwala	17.77*	-1.32	-7.46	7.79	-33.18**	-19.04**	-17.16**	-8.06*	10.40*
5.	LCA-235 X LCA-206	2.53	2.45	-1.59	35.32**	-7.54	-20.20*	-6.16*	-16.21**	18.51**
6.	LCA-235 X PantC-1	-4.36	13.58*	-19.61*	43.28**	6.22	-27.14*	-28.17*	-29.69*	11.70**
7.	PBC-535 X Pusa Jwala	-22.56**	5.48*	-5.86	-35.46**	-12.13**	20.63*	9.57**	-19.31**	-31.83**
8.	PBC-535 X LCA-206	-5.90	8.48*	-8.52	11.07	30.43*	28.71**	12.76**	-7.4	-24.19**
9.	PBC-535 X PantC-1	-10.36*	4.60	-24.91**	-19.77*	-31.23**	16.54*	10.00*	20.10**	-24.37**
10.	RHRC-C.-E. X Pusa Jwala	-7.85*	0.56	21.09*	-16.88**	-42.62**	-5.03	2.74	16.32*	0.22
11.	RHRC-C.-E. X LCA-206	11.22**	5.89*	28.78**	5.09	-4.76	0.23	15.88**	42.60**	21.55**
12.	RHRC-C.-E. X PantC-1	2.53	-3.84	9.04	9.52	49.19**	-3.9	30.53*	-19.60**	14.45**
13.	LCA-438 X Pusa Jwala	9.04*	0.65	-5.43	-23.49**	-18.86**	29.23*	1.51	-17.95*	-21.10*
14.	LCA-438 X LCA-206	15.56**	0.11	-10.74*	3.68	22.15**	33.53**	3.51	-7.83	-13.32**
15.	LCA-438 X PantC-1	8.81*	21.99*	-23.65**	-16.88*	18.83*	22.14**	6.27**	16.26**	-24.21**
16.	G-4 X Pusa Jwala	3.24	7.21**	-20.68*	2.89	-32.15*	-15.71**	-26.32**	-12.89**	7.58*
17.	G-4 X LCA-206	20.68*	7.39**	-17.65**	-1.23	-0.77	-9.09*	-20.89*	-2.68	10.37**
18.	G-4 X PantC-1	19.36**	6.52**	-25.82**	26.49**	-1.38	-15.76**	-20.55*	-11.33*	8.95*

* and ** indicates significance of values at P=0.05 and 0.01, respectively

breeding programme approach is faithfully followed in this crop as well.

The presence of high heterosis has encouraged the breeder to evolve high yielding and improve quality of hybrids which are new cultivar as commercial varieties. Furthermore, successful commercial cultivation of hybrid in some vegetable crops like tomato, brinjal etc. keep the option open for launching aggressive efforts for

Table 6 : Prospective five cross combination based on per se performance, heterosis, GCA and SCA Effects for number of fruit per plant

Five best crosses on the basis of *per se* performance	Heterobeltiosis	Standard Heterosis	Mid parent Heterosis	SCA Effects of the crosses	GCA Effects of the parents
LCA -235 x PantC-1	0.47	1.28	11.70	2.05	LCA -235→14.39
					PantC-1→0.52
LCA -235 x Pusa jwala	0.19	2.12	10.40	2.99	LCA -235→14.39
					Pusa jwala→1.15
LCA -235 x LCA -206	0.19	3.36	18.51	0.93	LCA -235→14.39
					LCA -206→0.62
RHRC-C-E x LCA -206	5.96	4.33	21.55	0.08	RHRC-C-E →10.24
					LCA -206→0.62
RHRC-C-E x PantC-1	6.87	3.50	14.45	1.97	RHRC-C.E. →10.24
					PantC-1→8.62

exploitation of heterosis by developing hybrid varieties in chilli. In the present investigation, the heterobeltiosis for number of fruit per plant ranged from 6.87% in RHRC-Cluster-Erect x PantC-1 to 13.48% in case of KA-2 x LCA-206 high manifestation of heterosis for number of fruit per plant was evidenced by significant superiority of two hybrids over better parent. For the plant height G-4 x LCA-206 (20.68%) could be good hybrids on the basis of mid parent heterosis. Standard heterosis for plant height ranged from -11.48% in case of KA-2 x PantC-1 to 124.94% for G-4 x PantC-1.Out of eighteen crosses only single cross combination RHRC-Cluster-Erect x PantC-1 displayed significant negative heterobeltiosis for days to 50% flowering, which is desirable for earliness. The cross combination G-4 x PantC-1 appear as best cross for fresh fruit weight over better parent heterosis.The five cross combinations showed positive significant heterosis over better parent for fresh yield per plant, namely, KA-2 x LCA-206 (15.91%), PBC-535 x PantC-1 (20.10%), RHRC-Cluster-Erect x Pusa Jwala (16.32%), RHRC-Cluster-Erect x LCA-206 (42.60%) and LCA-438 x PantC-1 (16.26%). Out of eighteen crosses, nine crosses exhibited significant and positive mid parent heterosis for number of fruit per plant ranged from 7.58% for G-4 x Pusa Jwala to 24.94% for KA-2 x LCA-206.

Conclusion:

From the above results obtained, it could be seen that considerable amount of useful heterosis is present in fresh fruit yield per plant as well as other associated traits. This could be meaningfully, to exploit these traits in commercial hybrid seed production programme. In doing so, utilization of cytoplasmic male sterility system is now available for hybrid seed production. From this point of view, the five high heterotic crosses having high *per se* performance, better sca effects *viz.*, LCA-235 x PantC-1, LCA-235 x Pusa Jwala, LCA-235 x LCA-206, RHRC-Cluster-Erect x PantC-1 and RHRC-Cluster-Erect x LCA-206 would be worth while remaining heterotic crosses with parent of gca could be advanced to further generations of selection for improvement programme and developing useful improving varieties.

In the high fertility irrigated areas, however hybrids could be required and they may be produced and exploited for raising the average yield per unit area of this crop. Together, these efforts could achieve a sizable genetic advance in yield in a short span of time in this most important vegetable crop of the country chilli.

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