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Comparative performance of chilli genotypes and hybrids under Kashmir valley conditions (*Capsicum annum* L.)

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Abstract : Significant differences were observed for all the characters under study in an experiment carried out at the experimental field of Division of Olericulture, SKUAST-K, Shalimar during *Kharif* 2009. The experimental material consisted of thirteen genotypes and twelve hybrids of chilli, raised in a plot of size 2.4 m x 1.8 m at spacing of 45 cm x 30 cm for chilli genotypes and 45 cm x 60 cm for chilli hybrids. Maximum average fruit weight was recorded by 08/CH 4/B-8 (9.50 g) followed by SH-82 and 08/CH 4/B-6 (6.13 g each) and 08/CH 4/B-5 (6.03 g) while minimum by SH-48 (2.47 g); maximum fruit yield per plant and fruit yield per hectare was recorded by SH-72 (581.60 g/plant and 269.26 q/ha, respectively) followed by 08/CH 4/B-8 (519.40 g/plant and 240.46 q/ha, respectively) and 08/CH 4/B-5 (508.26 g/plant and 235.30 q/ha, respectively) while minimum by SH-48 (204.24 g/plant and 94.55 q/ha, respectively). From the present investigations, it can be concluded that the genotype SH-C-108 exhibited maximum dry fruit of 319.48 q/ha emphasizing its importance with respect to better future prospects for growing under agro climatic conditions of Kashmir valley as compared to hybrids involved in the present investigation.

Key words : Chilli, Comparative performance, Temperate conditions

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Chilli (*Capsicum annum* L.) is grown throughout the Kashmir valley. It is one of the most valuable and commercial spice of India. There is hardly any vegetable where chilli is not used as a condiment. It is a rich source of vitamin A and vitamin C and known to be stimulant, alternative, carminative and anticoagulant due to presence of capsaicin. Keeping the importance of the crop in view, efforts were made to evaluate various chilli genotypes and hybrids (under release) in terms of yield and attributing traits under agro climatic conditions of Kashmir.

RESEARCH METHODS

The present investigation was carried out at the experimental field of Division of Olericulture, SKUAST-K, Shalimar during *Kharif* 2009. The experimental material consisted of thirteen genotypes and twelve hybrids of chilli, raised in a plot of size 2.4 m x 1.8 m at a spacing of 45 cm x 30 cm for chilli genotypes and 45 cm x 60 cm check for chilli hybrids. All the recommended package of

practices were followed for raising the good crop. Observations were recorded from ten randomly selected plants of each genotype in each replication on various characters *viz.*, plant height (cm), plant spread (cm), number of branches per plant, number of fruits per plant, fruit length (cm), fruit breadth (cm), number of seeds per fruit, average fruit weight (g), fruit yield per plant (g) and fruit yield (q/ha).

RESEARCH FINDINGS AND DISCUSSION

Significant differences were observed for all the characters under study as given in Table 1 for chilli genotypes and Table 2 for chilli hybrids. Maximum plant height was recorded by the genotype CH-4 (64.30 cm) followed by SH-C-107 (64.00 cm) and SH-C-111 (63.00 cm) while least by CH-2 (46.00 cm); maximum plant spread was recorded by the genotype SH-C-1011 (52.00 cm) followed by SH-C-1154 (49.30 cm) and CH-4 (47.00 cm) while least by SH-C-505 (40.30 cm); maximum

number of branches was recorded by the genotype SH-C-107 (11.30) followed by CH-15 (11.00), CH-4 and SH-KC-9 (each 8.7) while least by SH-C-108 (7.00); maximum number of fruits was recorded by the genotype SH-C-108 (150) followed by SH-C-105 (111.70) and SH-C-1001 (106.3) while least by CH-4 (70.7), maximum fruit length was recorded by the genotype SH-C-107 (12.50 cm) followed by SH-C-108 (11.70 cm) and SH-C-1001 (11.40 cm) while least by CH-2 (8.1 cm); maximum fruit width was recorded by the genotype CH-4 (2.20 cm) followed by SH-C-108 (1.70 cm) and CH-15, SH-C-1154 and SH-C-1001 (each 1.1 cm) while minimum by SH-C-1011 (0.80 cm); maximum average fruit weight was recorded by SH-SC-1001 (6.0 g) followed by SH-C-1003 (5.9 g), SH-C-1154 (5.8 g) while

minimum by CH-4 (1.6 g); maximum number of seeds per fruit was recorded by the genotype CH-15 (116.70) followed by CH-2 (114.70) and SH-C-107 (112.30) while minimum by CH-4 (34.30); and maximum fruit yield per plant was in case of the genotype SH-C-108 (690.80 g) followed by SH-C-1001 (641.73 g), SH-C-105 (602.93 g) while minimum in SH-C-4 (113.07). The character of economic importance *i.e.*, fruit yield was recorded maximum by the genotype SH-C-108 (319.48 q/ha) followed by SH-SC-1001 (297.09 q/ha) and SH-C-105 (279.13 q/ha) while minimum by C-H-4 (52.34 q/ha). So far chilli hybrids, maximum plant height was recorded by SH-82-IET (70.67 cm) followed by 08/C4/B-15 (64.67 cm) and ARCH-228 hybrid IET (58.00 cm) while minimum by 08/CH4/B-09 (39.00 cm); maximum plant

Table 1: Performance of various chilli genotypes for yield and yield attributing traits

Genotypes	Plant height (cm)	Plant spread (cm)	No. of branches/plant	No. of fruits/plant	Fruit length (cm)	Fruit width (cm)	Av. fruit weight (g)	No. of seeds/fruit	Fruit yield/plant (g)	Fruit yield (q/ha)
SH-C-III	63.00	46.70	8.00	90.00	10.70	1.03	5.50	96.00	494.93	229.14
CH-4	64.30	47.00	8.70	70.70	9.10	2.20	1.60	34.30	113.07	52.34
CH-15	52.30	42.30	11.00	89.00	9.30	1.10	3.40	116.70	296.70	137.36
SH-C-107	64.00	43.00	11.30	100.70	12.50	0.90	5.60	112.30	560.33	259.41
SH-C-1154	61.70	49.30	7.30	80.70	10.70	1.10	5.80	65.00	467.87	216.60
SH-C-108	58.00	42.30	7.00	150.00	11.70	1.70	4.30	47.30	690.80	319.48
CH-2	46.00	43.70	8.00	81.00	8.10	0.90	4.70	114.70	378.07	175.03
SH-C-1011	48.00	52.00	8.00	100.30	8.70	0.80	4.50	71.70	447.67	207.28
SH-C-1003	52.00	43.00	7.30	99.70	9.00	1.00	5.90	46.70	588.07	272.25
SH-C-105	50.70	41.30	8.30	111.70	10.50	1.00	5.40	96.00	602.93	279.13
SH-SC-1001	62.00	43.70	8.30	106.30	11.40	1.10	6.00	104.30	641.73	297.09
SH-KC-9	59.70	41.30	8.70	102.00	10.90	0.90	5.40	99.00	554.37	256.65
SH-SC-505	61.30	40.30	7.70	98.00	9.90	0.90	4.30	89.70	421.77	195.26
C.D. (P=0.05)	1.769	1.785	1.404	3.934	1.657	0.219	0.368	4.959	38.537	21.693

Table 2: Performance of various chilli genotypes for yield and yield attributing traits

Genotypes	Plant height (cm)	Plant spread (cm)	No. of branches/plant	No. of fruits/plant	Fruit length (cm)	Fruit width (cm)	No. of seeds/fruit	Av. fruit weight (g)	Fruit yield/plant (g)	Fruit yield (q/ha)
SH-82-IET	70.67	36.00	6.33	40.00	13.13	2.07	124.00	6.13	245.30	113.56
SH-92-Hyb IET	51.33	46.00	7.33	69.67	12.60	1.07	105.00	4.07	239.77	111.00
SH-48 FI/Chilli/09	56.33	33.33	7.00	84.33	9.30	0.90	29.67	2.47	204.24	94.55
SH-72-Hyb IET	45.33	45.67	8.33	54.00	10.20	1.03	97.00	6.10	581.60	269.26
08/CH 4/B-15	64.67	36.33	8.33	82.67	10.70	0.93	83.00	5.27	326.47	151.14
08/CH 4/B-4	57.67	42.00	9.33	95.33	10.00	2.13	31.67	3.40	333.27	154.29
08/CH 4/B-3	51.00	37.67	8.0	62.00	11.17	0.63	86.00	4.03	280.75	129.98
08/CH 4/B-8	46.33	38.67	6.33	98.00	11.33	1.40	123.33	9.50	519.40	240.46
08/CH 4/B-5	42.00	31.00	7.33	54.67	9.80	1.90	163.30	6.03	508.26	235.30
08/CH 4/B-9	39.00	32.00	7.33	36.67	11.00	1.10	124.00	4.47	241.17	111.65
08/CH 4/B-6	44.00	34.00	7.33	50.67	10.80	0.87	95.00	6.13	225.00	104.16
ARCH-228 Hybrid IET	58.00	42.00	8.33	51.00	10.33	1.90	111.30	5.73	290.33	134.41
C.D. (P=0.05)	1.76	1.282	1.264	3.158	0.933	0.206	3.994	0.225	21.299	9.860

spread was recorded by SH-92-hybrid IET (46.00 cm) followed by SH-72 hybrid IET (45.67 cm) and 08/CH-C4/B-4 and ARCH-228 hybrid IET (42.00 cm each) while minimum by 08/SH-C4/B-5 (31.00 cm); maximum number of branches by 08/SH-C 4/B-4 (9.33) followed by 08/CH 4/B-15, SH-72 hybrid IET and ARCH-228 hybrid IET (8.33 each, and 08/CH 4/B-3 (8.0) while minimum by 08/CH-4/B-9 (36.67); maximum number of fruits by 08/CH 4/B-8 (98.00) followed by 08/CH 4/B-4 (95.33) and SH-48 FI/chilli/09 (84.33) while minimum by 08/CH 4/B-9 (36.67); maximum fruit length was recorded by SH-82-IET (13.13 cm) followed by SH-92-hybrid IET (12.60 cm) and 08/CH 4/B-8 (11.33 cm) while minimum by SH-48/F₁/Chilli/09 (9.3), maximum fruit width by 08/CH 4/B-4 (2.13 cm), SH-82-IET (2.07 cm) and 08/CH 4/B-5 and ARCH-228 hybrid IET (1.90 cm each) while minimum by 08/CH 4 /B-3 (0.63 cm); maximum number of seeds by 08/CH 4/B-5 (163.30) followed by SH-82-IET and 08/CH 4/B-9 (124.00 each) and 08/CH 4/B-8 (123.33) while minimum by 08/CH 4/B-4 (31.67); maximum average fruit weight by 08/CH 4/B-8 (9.50 g) followed by SH-82-IET and 08/CH 4/B-6 (6.13 g each) and 08/CH 4 /B-5 (6.03 g) while minimum by SH-48 FI/chilli/09 (2.47 g); and maximum fruit yield per plant and fruit yield per hectare was recorded by SH-72 hybrid IET (581.60 g/plant and 269.26 q/ha, respectively) followed by 08/CH 4/B-8 (519.40 g/plant and 240.46 q/ha, respectively) and

08/CH 4/B-5 (508.26 g/plant and 235.30 q/ha, respectively) while minimum by SH-48 F₁/Chilli/09 (204.24 g/plant and 94.55 q/ha, respectively). From the present investigations, it can be concluded that the genotype SH-C-108 exhibited maximum dry fruit of 319.48 q/ha emphasizing its importance with respect to better future prospects for growing under agro climatic conditions of Kashmir valley as compared to hybrids involved in the present investigation. Related references which reflect similarity in results can be quoted from other crops like chilli *viz.*, Shirsta (1994) and Varalashmi and Haribabu (1991).

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