



Performance of chilli (*Capsicum annuum* L.) genotypes for growth and yield parameters in eastern dry zone of Karnataka

H M Vijaya, A P M Gowda*, S D Nehru¹ & K Jyothi

Post Graduate Centre, University of Horticultural Sciences Campus,
Gandhi Krishi Vigyana Kendra, Bengaluru-560 065, Karnataka.

*E-mail: mallikarjuna.gowda@gmail.com

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Abstract

The present experiment was undertaken to evaluate 24 chilli genotypes for different growth and yield parameters. The genotype 'Chikballapur Local' was found to have maximum plant height (118.6 cm) and plant spread (0.481 m²) while, genotype 'Sankeshwar' recorded higher number of primary branches plant⁻¹ (7.47) and maximum fruit length (14.61 cm). Genotype 'Byadgi Dabbi' registered maximum fruit diameter (1.60 cm), pericarp weight (0.80 g), stalk weight (0.14 g) and number of seeds fruit⁻¹ (98.42). The higher number of fruits plant⁻¹ (186.30) and dry fruit yield (97.33 g plant⁻¹) were recorded in the genotype 'Sankeshwar' followed by genotype LCA-206.

Keywords: chilli genotypes, fruits, fruit yield

Chilli (*Capsicum annuum* L.), owing to its multifarious uses as vegetable, salad, pickles, sauce, spice, and condiment is an important and popular crop widely grown throughout the world. Collection and evaluation of genotypes is a pre-requisite for their utilization and detailed evaluation which determines the potential of genotypes in specific crop improvement programme. Therefore, a trial for characterization and evaluation of available chilli genotypes was carried out to identify the potential genotypes for different horticultural characters in eastern dry zone of Karnataka (Zone-5).

Field experiment was conducted during *rabi*, 2011–12 at Post Graduate Centre, University of Horticultural Sciences Campus, Bengaluru,

using 24 genotypes collected from different Research Stations of Andhra Pradesh and Karnataka (Table 1). The trial was laid out in Randomized Complete Block Design with three replications.

The experimental site was brought to fine tilth and healthy seedlings of 45 days old were transplanted on ridges opened at 60 cm within the row at 45 cm. The crop was raised as per the recommended package of practice of University of Agricultural Sciences, Bengaluru (Anon. 2010) by following prophylactic measures against pests and diseases. Observations were recorded for 14 characters from five randomly selected plants from each plot. The data was subjected to statistical analysis (Panse & Sukhatme 1967).

¹AICRP on Chickpea, University of Agricultural Sciences (B), GKVK, Bengaluru-560 065, Karnataka.

Table 1. Mean performance of chilli genotypes for different growth parameters

Genotypes	Source	PH (cm)	NPB	PS (m ²)	DFF
<i>Byadgi Kaddi</i>	HRS,UHS, Devihosur	70.0	6.20	0.233	69.33
<i>Byadgi Dabbi</i>	HRS, UHS, Devihosur	69.6	5.73	0.200	64.67
DCA-96	HRS, UHS, Devihosur	63.2	5.93	0.222	62.33
DCA-93	HRS, UHS, Devihosur	77.3	4.87	0.241	64.00
PP-9808-2	DLAP, UAS, GKVK, Bengaluru	73.4	5.53	0.286	66.00
GPM-140	HRS, UHS, Devihosur	57.9	5.39	0.246	60.00
<i>Sankeshwar</i>	HRS, UHS, Devihosur	78.2	7.47	0.248	70.00
HMT-1	DLAP, UAS, GKVK, Bengaluru	87.6	5.99	0.391	52.67
CA-960	DLAP, UAS, GKVK, Bengaluru	63.8	5.33	0.184	68.33
LCA-235	HRS,UHS, Devihosur	52.7	5.20	0.233	68.67
LCA-424	HRS, UHS, Devihosur	78.5	4.60	0.414	64.67
CKBL	HRS, UHS, Devihosur	118.6	6.87	0.481	66.33
LCA-305	HRS, APHU, Lam, Guntur	75.3	6.60	0.311	49.33
LCA-436	HRS, APHU, Lam, Guntur	66.5	7.27	0.246	59.00
G-3	HRS, APHU, Lam, Guntur	92.0	4.80	0.290	76.33
G-4	HRS, APHU, Lam, Guntur	63.3	5.67	0.275	55.67
DCA-97	HRS, UHS, Devihosur	64.3	5.23	0.262	67.00
DCA-71	HRS,UHS, Devihosur	84.4	6.00	0.369	59.00
LCA-334	HRS, APHU, Lam, Guntur	73.3	5.47	0.236	72.67
LCA-206	HRS, APHU, Lam, Guntur	73.4	6.33	0.302	68.67
GC-0707	DLAP, UAS, GKVK, Bengaluru	61.3	5.60	0.301	67.00
G-5	HRS, APHU, Lam, Guntur	72.9	7.00	0.409	53.67
GC-0708	DLAP, UAS, GKVK, Bengaluru	60.8	5.60	0.286	61.33
GC-0705	DLAP, UAS, GKVK, Bengaluru	66.9	5.87	0.294	61.67
Mean		72.7	5.86	0.290	63.68
SEm±		3.30	0.20	0.02	1.50
CD (P<0.05)		9.50	0.56	0.05	4.10

PH=Plant height; NPB=Number of primary branches; PS=Plant spread; DFF=Days to 50% flowering

The growth parameters *viz.*, plant height, number of primary branches, plant spread, days to 50% flowering and days to first fruit harvest were recorded at the time of harvest. The result implied that the differences obtained among different genotypes in relation to the above said characters were statistically significant. The varietal means for different growth parameters are given in Table 1. The plant height ranged from 52.7 cm (LCA-235) to 118.6 cm ('Chikballapur Local'). The genotype 'Chikballapur Local' which recorded maximum plant height (118.6 cm) also had higher plant spread (0.481 cm²). Taller plants

with higher plant spread were earlier recorded by Nehru *et al.* (2012). The higher and lower number of primary branches plant⁻¹ was recorded in 'Sankeshwar' (7.47) and G-3 (4.8), respectively, similarly the number of days required for 50% flowering was least in genotype LCA-305 (49.33).

Mean values for different yield and yield attributing characters are presented in Table 2. Fruit length varied from 4.91 cm ('Chikballapur Local') to 14.61 cm ('Sankeshwar') with the mean fruit length of 8.78 cm. The higher fruit diameter (1.6 cm), pericarp weight (0.80 g) and more number of seeds fruit⁻¹ (98.42) were noticed

Table 2. Mean performance of chilli genotypes for yield and yield attributing parameters

Characters	FL (cm)	FD (cm)	PW (g)	NSPF	TW (g)	NFPP	DFYPP (g)
<i>Bydagi Kaddi</i>	12.35	0.78	0.54	71.90	5.02	80.37	36.00
<i>Bydagi Dabbi</i>	9.32	1.60	0.80	98.42	5.59	64.33	76.07
DCA-96	8.10	0.97	0.40	77.97	5.78	134.13	85.93
DCA-93	9.21	1.24	0.46	74.33	5.85	73.47	54.50
PP-9808-2	9.04	1.15	0.35	66.73	4.11	73.07	37.40
GPM-140	8.32	0.93	0.29	62.30	4.00	125.53	62.53
<i>Sankeshwar</i>	14.61	0.77	0.50	61.11	5.42	186.30	97.33
HMT-1	9.06	1.21	0.32	55.80	4.89	121.87	58.80
CA-960	7.95	1.44	0.51	68.73	6.41	71.33	26.13
LCA-235	8.08	1.11	0.28	51.30	3.71	75.73	26.93
LCA-424	8.75	1.21	0.35	72.60	4.64	74.37	54.80
CKBL	4.91	1.08	0.29	68.43	4.15	49.63	28.27
LCA-305	8.86	1.12	0.36	53.60	3.97	122.53	79.73
LCA-436	8.18	1.45	0.44	75.10	4.92	79.33	62.13
G-3	9.26	1.09	0.67	66.35	5.22	63.10	27.60
G-4	8.55	0.93	0.60	74.87	4.72	135.07	64.80
DCA-97	8.91	1.19	0.28	71.83	6.52	131.47	66.33
DCA-71	8.15	1.34	0.30	77.60	3.90	120.07	45.83
LCA-334	8.23	1.08	0.31	68.68	5.03	112.80	63.33
LCA-206	8.28	0.83	0.39	65.21	4.16	176.53	91.00
GC-0707	9.35	0.96	0.44	73.63	4.26	104.73	59.20
G-5	6.10	1.33	0.39	65.83	3.78	93.87	57.73
GC-0708	8.49	1.52	0.45	80.23	4.72	95.27	53.00
GC-0705	8.74	0.86	0.32	61.43	4.22	142.20	69.30
Mean	8.78	1.13	0.42	69.33	4.79	104.46	57.70
SEm±	0.50	0.06	0.03	3.90	0.19	9.10	5.0
CD (P<0.05)	1.30	0.18	0.09	11.10	0.54	25.9	14.3

FL=Fruit length; FD=Fruit diameter; PW=Pericarp weight; SL=Stalk length; SW=Stalk weight; NSPF=Number of seeds fruit⁻¹; TW=Test weight; NFPP=Number of fruits plant⁻¹; DFYPP=Dry fruit yield plant⁻¹

in genotype 'Byadgi Dabbi'. Maximum test weight was recorded in genotype DCA-97 (6.52 g) followed by CA-960 (6.41 g). Dry chilli yield ranged from 26.14 g (CA-960) to 97.33 g ('Sankeshwar') with the mean value of 57.7 g. The dry chilli yield plant⁻¹ was significantly higher in genotype 'Sankeshwar' (97.33 g) followed by LCA-206 and DCA-96 over other genotypes (Table 2). The increased yield in these genotypes was due to increased number of primary branches, number of fruits plant⁻¹, test weight and fruit length. Similarly, such large variations in dry chilli yield in different

genotypes were previously reported by Hundal *et al.* (1995), Warade *et al.* (1996), Khurana *et al.* (2003) and Shanthanu *et al.* (2005). Overall, evaluation of 24 chilli genotypes indicated that the genotypes 'Sankeshwar', LCA-206 and DCA-96 were promising for eastern dry zone of Karnataka as they recorded significantly more number of fruits and higher dry chilli yield plant⁻¹.

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