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## STUDIES ON VARIABILITY IN CHILLI

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### ABSTRACT

Genetic variability for yield and certain fruit characters of chilli was studied. The variances and coefficients of variation indicated the influence of environment on the characters. The estimates of genotypic coefficient of variation, heritability and genetic advance revealed that the length of fruit, weight of dry fruit and number of seeds per fruit offer scope for phenotypic selection.

Genetic variability in long type (samba) of chilli has been reported by Elangovan et al (1981), Vadivel et al

(1983) and Chandra et al. (1983). However, information on the variability of gundu type is lacking. Studies were,

therefore, undertaken in a collection of gundu chilli to gain an insight into the magnitude of genetic variability for yield and certain fruit characters.

### MATERIAL AND METHODS

The investigations were carried out at the Agricultural Research Station, Paramakudi with twenty three genotypes of chilli (gundu type) in non-replicated trials. A manurial schedule of 25 t of FYM, 75 Kg of N, 35 Kg of P<sub>2</sub>O<sub>5</sub> and 35 Kg of K<sub>2</sub>O/ha and a spacing of 45x30 cm were followed. The crop was grown under rainfed condition during

and coefficients of variation were calculated as suggested by Burton (1952) and heritability in broad sense is the ratio of genotypic to phenotypic variance (Burton and Devane, 1953). The methods of Johnson et al. (1955) were followed for calculating the expected genetic advance and genetic advance as per cent of mean.

### RESULTS AND DISCUSSION

The results showed that the characters under study were highly influenced by the environment as was also reported by Vadivel et al. (1983). The number

Table.1 Genetic variability, heritability and genetic advance for yield and certain fruit characters in chilli.

Character	Range	Mean	Phenotypic variance	Genotypic variance	Phenotypic coefficient of variation	Genotypic coefficient of variation	Heritability(%)	Genetic advance	Genetic advance as per cent of mean
Length of fruit(cm)	1.0-3.9	1.99	0.39	0.19	31.40	21.90	48.72	0.63	31.50
Girth of fruit(cm)	4.3-7.6	5.91	0.70	0.38	14.17	10.44	54.28	0.94	15.84
Weight of dry fruit (g)	0.235-1.845	0.883	0.099	0.039	35.64	22.37	39.39	0.255	28.92
Number of seeds/fruit	53-209	107.07	649.55	287.65	23.80	15.84	44.28	23.25	21.71
Weight of seeds/fruit(g)	0.180-1.263	0.533	0.030	0.005	32.52	13.28	16.67	0.059	11.17
Thickness of pericarp (mm)	0.11-0.39	0.218	0.0021	0.0003	20.77	7.25	12.19	0.011	5.05
Yield of dry fruits/plant(g)	11.0-82.0	35.37	264.93	30.40	46.59	15.59	11.48	3.85	10.88

September-November and with protective irrigations at 15-20 day intervals during December-March. Other cultural operations and plant protection measures were followed uniformly. The variances

of seeds per fruit exhibited the highest phenotypic as well as genotypic variances, followed by yield of dry fruits per plant. The variances for other characters were low.

The phenotypic coefficient of variation was the highest for yield of dry fruits per plant, followed by weight of dry fruit, while the genotypic coefficient of variation was the highest for weight of dry fruit, followed by length of fruit. The heritability estimate which helps in determining the heritable portion of variation ranged from 11.48 to 54.28 per cent for yield of dry fruits per plant and girth of fruit respectively. The genetic advance as per cent of mean was the highest for length of fruit, followed by weight of dry fruit and number of seeds per fruit, while other characters exhibited low values. The heritability coupled with genetic advance was high for length of fruit, followed by weight of dry fruit and number of seeds per fruit indicating thereby the additive nature of gene action for these traits. High estimates of

heritability and genetic advance for fruit length have been reported by Chandra et al (1983). In the case of girth of fruit, though the heritability was high, the genetic advance was low implying that it is mostly due to non-additive genetic factor and influence of environment and similar results have been reported by Vadivel et al.(1983). Low genotypic coefficient of variation, heritability and genetic advance manifested by weight of seeds per fruit, thickness of pericarp and yield of dry fruits suggested that these characters could not be relied upon for selection. The results thus indicated that the length of fruit, followed by weight of dry fruit could serve as useful indices for selection in chilli. The number of seeds per fruit could also be considered to some extent.

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