

ASSESSMENT OF GENETIC VARIATION IN SUNFLOWER

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In order to find out magnitude of variability for seed yield and its component characters, 22 sunflower hybrids (All India Coordinated Research Project on Sunflower) were evaluated during kharif 2004. The experiment was conducted in randomized block design in the plots. Each plot had 5 rows spaced 60 cm away while plant-to-plant distance was 30 cm. The crop was raised under irrigation with all the improved cultural practices.

Data on plant height (cm), head diameter (cm), test weight (g), days to maturity, volume weight (g/100ml), husk content (%) and seed yield per plant (g) were collected by selecting five competitive plants in each entry. The data was subjected to analysis of variance, following the procedure given by Panse and Sukhatme (1967). The variability parameters like genotypic

and phenotypic coefficient of variation were estimated for each character following the procedure of Burton (1952), the heritability (%) was worked out as per the procedure of Lush (1940), while genetic advance was expressed as percent of mean (Johnson *et al*, 1955).

The results obtained revealed that the mean and high range for seed yield was observed in hybrids tested. The analysis of variance for all the characters of hybrids revealed significant difference. The differences between GCV and PCV for all the characters indicated the influence of environment in expression of all the characters. The results of Rama Subrahmanyam *et al* (2002) and Fatima *et al* (2005) are in agreement with present finding.

However, test weight and days to maturity

Table 1: Estimates of Range, Mean, P.C.V., G.C.V., Heritability (B.S.), Genetic advance and Genetic Advance as Percent of Mean in sunflower.

Character	Mean	Coefficient of variation		Heritability	Genetic Advance	Genetic advance as expressed percent of mean
		Genotypic	Phenotypic			
Plant height (cm)	142.00	485.09	532.77	91.05	51.59	36.33
Head diameter (cm)	15.60	47.99	57.43	83.56	5.15	33.03
Test seed weight (g)	4.30	90.46	94.16	96.06	3.98	92.6
Days to maturity	90.50	52.48	53.82	97.50	14.02	15.49
Volume weight (g/100ml)	24.30	71.34	80.54	88.58	8.07	33.22
Husk content (%)	38.40	219.96	265.22	82.94	17.24	44.9
Seed yield/plant (g)	18.30	1142.73	1158.16	98.67	29.59	161.7

showed least differences between GCV and PCV values indicating that these characters were least influenced by the environment. The magnitude of GCV values for seed yield per plant, plant height and husk content was high indicating the availability of high genetic potential. The results reported by Fatima *et al* (2005), for seed yield per plant were similar to those obtained during present study.

The estimates of heritability for all characters except husk content and head diameter were found to be high, which is amenable to least role of environment in the expression of these characters. Johnson *et al* (1955) reported that heritability and genetic advance were more useful for predicting the resultant genotypes than heritability or genetic advance alone. Among the traits, majority of characters recorded high heritability coupled with high genetic advance as percent of mean except days to maturity, which recorded high heritability and moderate genetic advance. Similar results were reported for test weight by Rama Subrahmanyam *et al* (2002) and Madrap *et al* (1998).

The seed yield per plant and plant height was associated with high heritability and high genetic advance, with the involvement of an additive type of gene action. Similar observations were made by Reddy (1999). Therefore, selection for these traits, possessing high PCV and GCV, high heritability and high genetic advance is expected to be responsible for genetic gains.

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