

## Genetic variability and coheritability estimates in soybean (*Glycine max.* L.)

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### SUMMARY

Thirty diverse genotypes of soybean were evaluated during Kharif 2003-04 to study the genetic variability and coheritability with seed yield and its attributes. Seed yield per plant, number of pods per plant, number of seeds per plant, pod bearing length and plant height exhibited maximum genotypic coefficient of variation. High heritability coupled with high genetic advance as percentage of mean was noted for plant height, pod bearing length, pods per plant, seeds per plant and seed yield per plant. Significant contribution of additive genetic variance was observed for all the above characters. Coheritability was high for character pairs like seed yield per plant with all characters. Hence, selection for these characters might be as effective as direct selection for yield itself.

Key words: Coheritability, Soybean, Variability, Yield attributes.

Genetic variability is essentially the first step of plant breeding for crop improvement and it depends on its nature and magnitude. This information is useful in formulating selection criteria for different traits in breeding programme. The high value of coheritability estimates suggest that increase in one polygenic trait will lead to simultaneous increase in another co-heritable character. Thus coheritability may form a more meaningful index for achieving the breeding objectives.

keeping row to row distance of 45cm and plant to plant 10cm. Five competitive plants from each genotype per replication were tagged to record days to 50% flowering, days to maturity, plant height, pod bearing length, number of pods per plant, 100 seed weight, number of seeds per plant, protein percentage, oil percentage and seed yield per plant. Genetic parameters were worked out as procedure given by Burton (1952). Coheritability analysis was estimated as per the method of Singh and Chaudhary (1979).

### MATERIALS AND METHODS

Thirty diverse genotypes were grown in Randomized Block Design with three replications during Kharif season of 2003-04 at Oilseed Research Area IGKV, Raipur. Every genotype grown in two rows of 5 metre length

### RESULTS AND DISCUSSION

Highly significant differences were found among the genotypes for all characters under this study. Phenotypic variances were higher than genotypic variances (Table 1). Seed yield per plant, number of pods

Table 1 : Genetic parameters of variation for seed yield & quality attributes in soybean.

Characters	Mean — (X)	Phenotypic coefficient of variation (PCV)	Genotypic coefficient of variation (GCV)	Heritability (BS)	Genetic advance (GA)	Genetic advance as percentage of mean
Days to 50% flowering	40.22	5.56	5.30	91.1	4.20	10.44
Days to maturity	113.02	2.60	2.16	69.0	4.18	3.69
Plant height (cm)	51.79	26.08	26.01	99.5	27.68	53.44
Pod bearing length (cm)	44.94	27.88	27.64	98.3	25.37	56.45
No. of pods per plant	25.31	42.25	37.03	76.8	16.92	66.50
100 seed weight (g)	12.27	12.02	11.14	85.9	2.61	21.27
No. of seeds per plant	55.46	40.73	40.01	96.5	44.91	80.97
Seed yield per plant (g)	7.40	42.52	42.27	98.8	6.41	86.62
Protein (%)	40.02	4.87	4.10	70.7	2.84	7.09
Oil (%)	21.56	5.24	5.18	97.9	2.28	10.57