It is obvious that six column arrangement was mostly preferred (86.67percent) by readers. This arrangement was also found in Dinamani.

F. Preference to illustration components

The readers preference towards illustration components were elicitated using suitable specimens and models exposed to respondents. The results are given in Table 6.

Photographs were preferred by most of the readers (80.00 percent). Among these, colour photographs were preferred by almost all readers (98.33 percent).

Medium sized illustrations were preferred by most of the respondents (85.00 percent), more medium sized illustrations were found in both newspapers.

Action pictures were preferred by most of the respondents (90.83%). Only few action pictures were seen in both the newspapers. Bottom placement of caption was found preferred by 82.50 percent of respondents.

On an average, two illustrations for article were preferred by the readers. Contrary to this preference, most of the articles were published without any illustrations in both the dailies.

CONCLUSION

Most of the farmer readers preferred various components of content analysis like agriculture, farmers' experience, press correspondent (agriculture), messages with quoting instances and colour photographs.

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ASSOCIATION ANALYSIS OF YIELD AND ITS COMPONENTS IN SOYBEAN (Glycine max L) Merrill.

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ABSTRACT

The study of genotypic, phenotypic and environmental correlations between yield and yield and components of soybean (*Glycine max* (L) merr.) revealed that seed yield per plant possesses highly significant possitive associations with plant height, pods per plant, and days to flowering, seeds per plant, branches per plant, and days to maturity. The characters which showed significant positive correlation with yield were also positively associated among themselves, except days to maturity with seeds per plant. A weaker positive or negative associations among the characters at environmental level were observed.

KEY WORDS: Soybean, Phenotypic, genotypic and environmental correlation, plant breeding

Yield is dependent on its component characters. A clear understanding of the association of plant characters and yield helps a good deal in carrying out crop improvement programme successfully. Estimates of genetic associations along with the phenotypic correlations, not only display a clear picture of the extent of inherent association but also indicate level of phenotypically expressed correlation influenced by the environment. Hence, the present investigation was undertaken to find out the extent of such relationship between yield components and yield of soybean, which in due course can be utilized in selecting desirable plant types for increasing the yield.

MATERIALS AND METHODS.

Twenty genotypes supplied by the Project Coordinator, NRCS, Indore (M.P), were raised at the Agricultural Research Station, Madhira in a randomised block design with three replications during rabi 1993-94 and 1994-95. Each plot consisted of six rows of four meters length with a spacing of 30 x 10 cm. Five plants of each variety from each replication were selected randomly for recording observations on days to flowering, days to maturity, plant height at maturity (cm), branches per plant, pods per plant, seeds per plant, 100 seed weight(g) and grain yield per plant (g) Table-1). Mean values of the five randomly selected plants were used for the statistical analysis. The correlation coefficients at the phenotypic, genotypic and environmental levels were worked out following the methods suggested by Fisher(1954) and Al-Jibouri *et al* (1958).

RESULTS AND DISCUSSION

The phenotypic, genotypic and environmental correlations among the eight quantitative characters studied are presented in Table-2. The genotypic correlation were, in general, higher than their corresponding phenotypic correlations. This focussed attention on the point that in spits of strong inherent phenotypic association between various character pairs studied, the environment may modify the full expression of the genotypes (Nandpuri *et al.*, (1973). The low phenotypic correlations could result due to the modifying effects of environment on the association of character of the genotypic level.. In the present study, highly positive relationship of seed yield with pods per plant, plant height, days to flowering, seeds per plant, branches per plant and days to maturity were observed. The results have generally been in conformity with those of (Jagtap and Choudhry

Table 1. The mean values of the different characters studied in 20 genotypes of soybean

S.No.	Variety	Days to flowering	Days to maturity	Plant height (cm)	Branches per plant	Pods per plant	Seeds per plant	100 seed weight (g)	Yield per plant (g)
1.	Bragg	45.0	87.2	45.0	50.2	20.6	50.8	7.8	15.5
2.	PK-416	46.0	94.0	47.3	3.3	25.2	50.7	8.0	12.6
3.	Pk-564	46.33	96.2	46.0	5.1	22.0	56.8	10.5	12.4
4.	PK-472	45.66	86.2	48.8	3.9	48.4	120.8	7.5	15.9
5.	Panjab-1	44.0	96.8	60.0	5.6	21.0	68.0	9.3	11.3
6.	MACS-58	44.33	89.4	46.3	3.8	19.5	49.2	10.0	13.8
7.	PK-471	45.33	81.5	25.5	4.8	33.8	75.4	8.5	11.4
8.	PK-262	45.66	87.6	41.6	3.7	35.5	97.8	7.0	11 9
9.	JS-335	43.0	84.9	43.0	3.9	37.0	83.4	7.5	12.2
10.	Pusa-16	46.66	90.3	32.5	4.4	21.6	58.6	6.8	14.0
11.	JS-80-21	43.0	88.5	70.5	5.6	42.6	101.2	7.4	15.5
12.	PK-327	45.0	97.0	46.5	3.6	35.2	84.9	9.8	10.9
13.	MACS-13	44.3	88.0	30.5	4.8	30.6	86.6	6.5	11.7
14.	JS-75-46	44.3	90.6	50.0	4.5	33.4	84.9	9.5	12.5
15.	Pusa-20	46.3	88.3	52.5	3.8	26.0	56.9	8.0	13.8
16.	Durga	44.6	89.0	60.5	5.5	20.3	50.7	9.0	15.2
17.	Monetta	44.0	89.0	42.0	4.9	43.0	97.8	10.4	15.4
18.	MACS-124	45.6	90.3	49.5	3.1	52.5	110.5	8.5	14.4
19.	NRC-1	44.3	88.6	38.0	5.0	50.3	112.0	9.5	13 9
20.	NRC-2	45.3	88.3	47.0	4.3	41.6	95.4	7.8	14.5
	General Mean	44.3	95.58	56.20	4.94	38.41	86.12	8.96	14.9

Table 2. Phenotypic (P), Genotypic (G), and environmental (E) correlation coefficients in soybean

Characters		Days to Maturity	Plant height	Branches / plant	Pods / plant	Seeds per plant	100 seed weight	Seed yield plant
Days to flowering	P	0.659*	0.734**	0.601*	0.778**	0.572**	-0.347	0.747**
	G	0.770**	0.760**	0.634*	0.842**	0.621*	-0.367	0.781**
	E	-0.166	-0.072	0.146	-0.147	0.075	-0.261	-0.084
Days to maturity	P		0.491	0.663*	0.646*	0.456	0.088	0.548*
	G		0.539*	0.761*	0.736**	0.527	-0.131	0.610*
	E		0.137	0.022	0.051	0.043	0.219	0.049
Plant height (cm)	P			0.579*	0.782**	0.809**	-0.547*	0.861**
	G			0.616*	0.841**	0.862**	-0.561*	0.871**
	E			-0.121	-0.129	-0.177	-0.206	0.042
Branches per plant	P				0.801**	0.657*	0.011	0.582*
	G				0.877**	0.724**	0.022	0.625*
	E				-0.167	-0.076	-0.084	0.008
Pods per plant	P					0.759**	-0.327	0.774**
	G					0.787**	-0.423	0.883**
	E					0.437	0.298	-0.128
Seeds per plant	P						-0.315	0.706***
	G						0.376	0.737**
	E						0.372	0.203
100 seed weight (g)	P							-0.498
	G							-0.503
	E							0.162

*, ** significant at 5% and 1% level of probability respectively.

(1993). Sengupta and Kataria (1971) also noted a strong positive correlation between yield and days to maturity and plant height. Kaw and Menon(1972) reported a highly significant positive relationship of yield with seeds per plant, pods per plant and plant height. The negative correlations between 100-seed weight and pods per plant is very much obvious. As the number of pods goes on increasing the total number of seeds also increase. Since the total food material synthesized and transported to the seeds is constant, the food material gets distributed resulting in small sized seeds and consequently lesser weight of 100-seeds. Similarly, it can be seen that as the yield is positively correlated with pods per plant and 100-seed weight is negatively correlated with pods per plant, the correlations between yield and 100-seed weight should be negative. The results are in confirmity with those reported by Jagtap and Choudhary (1993).

It is the interesting to note that, while there was no association at either genotypic or phenotypic level between yield and 100-seed weight, there was an evidance of positive weak association at environmental level, as reported by Jagtap and Choudhary (1993). At environmental level a positive weak association between 100 - seed weight and days to maturity, pods per plant and seeds per plant was also observed while, the characters like days to flowering, plant height and branches per plant showed negative weak association with 100-seed weight. A weaker positive or negative association of the characters at environmental level indicated considerably less influence of environment over the association of these characters. The characters which exhibited positive correlation with yield were also positively associated among themselves.

It can be concluded that due emphasis should be given during selecting on traits like plant height, pods per plant, seeds per plant and branches per plant for effective improvement in a complex character like grain yield.

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GENETIC VARIABILITY, CORRELATION AND PATH CO-EFFICIENT ANALYSIS IN COWPEA(*Vigna unguiculata* L. Walf)

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ABSTRACT

Genetic Variability, Correlations and path co-efficients were studied on nine quantitative characters in two F_2 populations of cowpea. A wide range of variation was recorded for most of the characters. Plant height exhibited high heritability coupled with high genetic advance. Grain yield per plant showed significant positive correlation with all the nine characters. Path co-efficient analysis indicated a greater contribution of pod weight and 100 seed weight to seed yield per plant.

KEY WORDS: Cowpea, Variability, Correlations, Coefficients, Path analysis, F_2 population

Cowpea is an important multipurpose legume and fits well in a variety of cropping systems. It is relatively drought tolerant and adopts well to a wide range of soil types. Yield is the most important plant breeding economic factor, which is greatly affected by various factors. *Vigna unguiculata* is a self-pollinated crop, wherein breeders have to put-forth lot of efforts to generate genetic variability for developing improved cultivars. The yield component traits are not independent in their action but are interlinked and in this complex genetic systems selection practised for an individual trait might subseqently bring about a simultaneous change in the other. Thus, an understanding of the association among component traits is essential to succeed in achieving the objectives of a breeding programme. The present investigation was aimed at assessing the genetic variability and association among different characters.

MATERIALS AND METHODS

The material for the study consisted of two F_2 populations of tow crosses viz., v16 x c152 (371) and v16 x S-488 (388). The variety v16 was tolerant to rust disease, while c152 and S-488 were susceptible. Both the F_2 populations were grown following randomised block design with three replications during Kharif season. A row of 5 m length and spacing of 45 cm between the row and 20 cm between the plants was maintained. Recommended cultural practices were followed to raise a good crop. Observations were recorded on plant height, number of branches per plant, number of clusters per plant, number of pods per plant, pod length, number of seeds per plant pod weight,