Distance

The farmers tend to purchase the inputs at points close to their farm and so distance from the farm to the dealer's shop was considered as a variable influencing dealer loyalty.

Malpractices

Adulteration, sale of expired pesticides, ill filled containers, duplicate products and higher price were some of the common malpractices adopted by the dealers. The farmers were disloyal to the dealers who were doing the above malpractices, whenever they happen to know it.

RESULTS AND DISCUSSION

The results are presented in Table 1. It could be seen that the coefficient of multiple determination (R^2) ws 0.60, which implies that the explanatory variables included in the function explained 60 per cent of variation in the dealer loyalty of the farmers. Among the independent variables, the price of the products (x_1) and credit availability (x_2) were found to be highly significant, whereas all the other variables are not significant, evern though the variables distance from the farm (x_6) and malpractices (x_7) had positive coefficients. This implies that they did not influence the dealer loyalty significantly. All other variables like availability of preferred brand (x_3), customer service (x_4) quality of the product (x_5), etc are also non-significant. The study results implies that the dealers should ensure fair price for various products of pesticides, so that they can influence the dealer loyalty of farmers. In the long run this might help the dealers for realising larger turnover. Similarly the dealers should concentrate on extending credit to farmers at nominal interest rate which will help both the dealers as well as the farmers. If credit facilities are given by the dealers and the quality of products are good, naturally the farmers would tend to become more loyal to dealers. Rakila (1994) in her study at Coimbatore district found that credit availability and price of products were highly significant and the results of the study are in agreement with her findings.

CONCLUSION

The study shows that farmers are highly sensitive towards price of product and credit facilities. When credit facilities are made available to the farmers by dealers, coupled with reasonable pricing of products, the farmers become more loyal to the dealers.

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(Received : Nov 1998 Revised : July 1999)

Madras Agric. J., 86(1-3): 36 - 39 January - March 1999
https://doi.org/10.29321/MAJ.10.A00544

PATH ANALYSIS OF CHARACTERS CONTRIBUTING TO DROUGHT RESISTANCE IN GROUNDNUT

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ABSTRACT

Genotypic correlations were worked out among the six characters related to drought resistance and pod yield in 24 groundnut genotypes. Pod yield was negatively correlated with transpiration rate. Dry matter production had the highest positive direct effect on pod yield, while leaf area had the highest negative direct effect.

KEY WORDS : Path analysis, Drought resistance, Groundnut, Genotypic correlation

Drought is an important abiotic stress causing much reduction in yield. The stage at which the moisture stress occurs plays a major role in the final yield of the crop. The number of functional

Table 1. Genotypic correlation coefficients for physiological parameters in groundnut

	No.of. functional leaves	Leaf area	Specific leaf weight	Trans piration rate	Dry matter production	Harvest index
Pod yield	0.3030	0.1741	-0.1622	-0.5797	0.0608	0.3081
Number of functional leaves		0.2667	0.0333	-0.2380	0.0004	-0.5060
Leaf area			-0.3091	-0.0685	0.8699	-0.1939
Specific leaf weight				-0.6098	0.0116	-0.3558
Transpiration rate					-0.1309	0.1770
Dry matter production						-0.0521

leaves, leaf area, specific leaf weight and transpiration rate are very important characters contributing to drought resistance. Hence, a knowledge about the association of these characters with pod yield *per se* and the components *inter se*, together with the direct and indirect effects of these characters on yield will help in formulating suitable selection indices for drought resistance in groundnut.

MATERIALS AND METHODS

The experiment was conducted during summer 1993 with 24 bunch groundnut (*Arachis hypogaea* sp. *fastigistà*) genotypes in randomised block design with three replications. Normal irrigation was given upto 25 DAS after which water stress was imposed by withholding irrigation upto harvest. During the stress period, irrigation was given at 100 per cent depletion of available soil moisture level. Plant sampling on five competitive plants in each replication was done on pod setting stage (i.e., 60 DAS) and at harvest. Parameters like leaf area, specific leaf weight and transpiration rate were recorded at pod setting stage and the number of functional leaves, total dry matter accumulation, harvest index and pod yield were recorded at

Table 2. Path analysis showing direct (underlined) and indirect effects of pod yield characters related to drought resistance in groundnut

	No.of. functional leaves	Leaf area	Specific leaf weight	Trans piration rate	Dry matter production	Harvest index	'r' with pod yield
Number of functional leaves	<u>0.7003</u>	-1.0323	-0.0913	0.4353	0.0012	0.2896	0.3030
Leaf area	0.1868	<u>-3.8707</u>	0.8461	0.1253	2.7756	0.1110	0.1741
Specific leaf weight	0.0234	1.1962	<u>-2.7378</u>	1.1153	0.0371	0.2037	-0.1622
Transpiration rate	-0.1667	0.2653	1.6696	<u>-1.8288</u>	-0.4176	-0.1013	-0.5797
Dry matter production	0.0003	-3.3673	-0.0319	0.2394	<u>3.1906</u>	0.0298	-0.608
Harvest index	-0.3544	0.7006	0.9742	-0.3238	-0.1662	<u>-0.5723</u>	0.3081

Residual effect = 0.2726

Table 3. Mean performance of different genotypes for different physiological parameter

S.No	Geno types	No.of. functional leaves (No./plant)	Leaf area (cm^2/plant)	Specific leaf weight (cm^2/g)	Trans piration rate (g/cm^2)	Dry matter production (g/plant)	Harvest index (Fractions)	Pod yield
1.	2.	3.	4.	5.	6.	7.	8.	9
1.	ICG 4790	17.3	543	5.84	5.76	8.54	0.47	7.64
2.	ICG 3657	8.0	407	6.14	6.93	7.82	0.37	4.61
3.	JL 24	6.3	428	5.73	2.56	7.37	0.41	5.17
4.	ICG 4018	22.3	466	5.72	5.85	5.73	0.47	5.13
5.	VG 80	15.7	204	6.61	6.24	4.20	0.49	4.06
6.	J11	4.7	498	6.04	7.09	8.37	0.30	3.66
7.	J1	6.3	397	5.96	5.67	6.46	0.40	4.39
8.	PRS 1	11.0	343	5.93	5.82	4.85	0.46	4.19
9.	EL 119704	17.7	495	6.31	5.70	7.15	0.35	3.82
10.	GNP 742	12.7	281	6.95	5.69	5.01	0.49	4.40
11.	ICG 3704	8.3	311	6.12	6.36	5.40	0.47	4.76
12.	G2	5.3	316	5.48	7.07	5.63	0.36	3.20
13.	Co 2	8.0	355	6.15	6.79	5.84	0.46	5.00
14.	VRI 1	6.3	452	5.87	7.69	8.01	0.41	5.56
15.	VG 79	10.7	452	4.76	7.66	5.41	0.45	4.49
16.	GNP 402	7.7	471	5.03	7.91	5.81	0.41	4.03
17.	VG 81	9.7	454	6.31	7.24	7.47	0.48	6.94
18.	TMV 2	4.3	310	6.79	5.96	5.89	0.42	4.26
19.	VG 77	9.9	368	6.23	6.55	6.12	0.49	5.90
20.	VG 78	59.5	470	5.75	7.12	6.53	0.49	6.26
21.	GNP 64	14.0	435	6.65	6.84	6.83	0.37	4.18
22.	ICG 1697	12.0	693	6.16	5.74	4.07	0.41	7.69
23.	GNP 1145	12.7	342	6.24	7.67	4.73	0.49	4.55
24.	VG 55	3.7	337	5.60	7.69	5.54	0.44	4.27
	SE	2.46	34.84	0.05	0.46	0.54	0.01	0.24
	CD	7.01	99.23	0.14	1.31	1.54	0.03	0.71

harvest. The mean data (Table 3) were used to calculate the genotypes' correlation co-efficients (Johnson *et al.*, 1955) which were used for path analysis (Dewy and Lu, 1959).

RESULTS AND DISCUSSION

The genotypic correlation coefficients are furnished in Table 1. Pod yield was negatively correlated with transpiration rate. It is quite obvious that the reduced transpiration rate under stress environment resulted in water economy which contributed to increased pod yield. The number of functional leaves, leaf area and harvest index were positively associated with pod yield. Chhonkar and Kumar (1987) also concluded that leaf area was positively correlated with pod yield in groundnut. The specific leaf weight also exhibited negative correlation with transpiration rate. Hence the increased leaf thickness resulted in reduced transpiration. Leaf area and dry matter production were positively associated. Negative association of transpiration rate with yield and specific leaf weight and the positive relationship between dry matter production and yield have already been reported (Arjunan *et al.*, 1988).

The results of path analysis are presented in Table 2. Dry matter production had the highest positive direct effect on pod yield. The number of functional leaves also had positive direct effect. All the other characters had only negative direct effect on yield. The indirect effects of specific leaf weight on leaf area, and transpiration rate and leaf area on DMP were positive and high.

Thus, it is clearly brought out that total dry matter production and the number of functional leaves at harvest can be used as selection indices for development of drought resistant/tolerant groudnut varieties.

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(Received : July 1996 Revised : March 1997)

Madras Agric. J., 86(1-3): 39 - 42 January - March 1999

CHARACTER ASSOCIATION AND COMPONENT ANALYSIS IN UPLAND COTTON

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ABSTRACT

Genotypic correlation coefficients and path coefficients were worked out in 45 crosses and their 10 parents in American cotton. (*G. hirsutum* L.) Number of bolls per plant, plant height, number of monopodia, sympodia and seeds per boll had positive correlation with seed cotton yield, while ginning percentage showed significant negative association. All these traits showed either significant positive or negative association with number of bolls per plant. Path coefficient analysis revealed that among all the characters studied, number of bolls per plant should receive greater emphasis in cotton improvement programmes as it contributes significantly through other characters.

KEY WORDS : Upland cotton, Character association, Component analysis

Cotton in an important fiber crop grown in Andhra Pradesh. Yield is a complex character which depends on several component characters. Therefore, direct selection for yield is often not effective. Thus it is essential to study the association of yield components with yield which are less influenced by environmental factors. Path coefficient analysis (Wright, 1921) provides an effective means of finding direct and indirect causes of association. In the present investigation,