

ASSOCIATION BETWEEN YIELD COMPONENTS IN RAGI (*ELUSINE CORACANA* (L.) GAERTN.)

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Twenty one hybrids (excluding reciprocals) raised in kharif 1993 along with seven parents were utilised for correlation and path analysis in order to determine yield contributing character in Ragi (*Elusine coracana*). Character association studies revealed that the number of productive tillers, finger length and 1000 seed weight were significantly associated with grain yield at genotypic level. Number of productive tillers shows highest positive direct effect on grain yield, and hence is to be concentrated for yield improvement.

Keywords : Correlation; Path Analysis; Ragi.

Ragi (*Elusine coracana* (L.) Gaertn.) is one of the best millets from the stand point of palatability and food value. The yield of this crop is in general, low when compared to that of other cereals. It is difficult to manipulate the yield through mere *per se* approach. So, for identifying a suitable plant type for high yield, basic information between yield and yield contributing attributes is essential. In this situation correlation, path co-efficient analysis will give the necessary information.

Seven improved finger millet genotypes

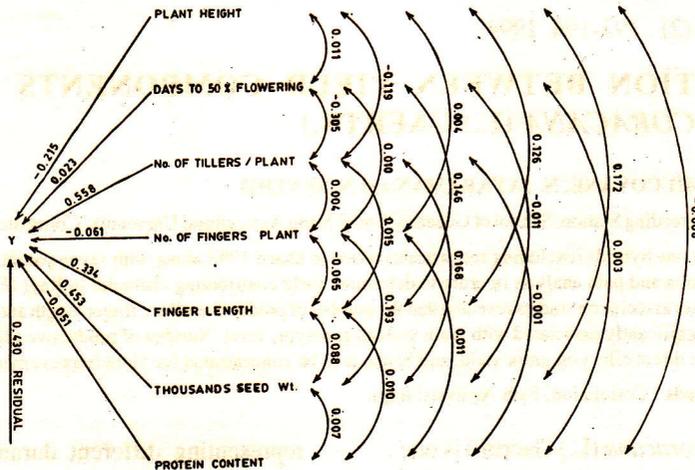
representing different duration groups of diverse origin (CO 9, DPI-1534, Paiyur-1, PR 202, VL 148 and TNAU-511) were intercrossed in all possible combinations to make diallel set of F1 [P (P-1)/2] without reciprocals. The twenty one hybrids (excluding reciprocals) along with parents were raised in kharif 1993 in a randomised block design and observations were recorded for eight characters. Correlation co-efficient were calculated as per the method of Johnson et al.¹ The path analysis was carried out by the method suggested by Dewey and Lu.²

Genotypic correlation co-efficient between

Table 1. Genotypic correlation coefficient among characters.

Characters	Days to 50% flowering	No. of productive tillers	No. Of fingers	Finger length	1000 seed wt.	Protein content	Yield/plant
Plant height	0.478**	-0.213	-0.074	0.379**	0.379**	0.166	-0.028
Days to 50% flowering		-0.546	-0.180	0.432**	-0.026	-0.074	-0.235
No. of productive tillers			0.069	-0.045	0.370**	0.022	0.739**
No. of Fingers				-0.196	0.427**	-0.228	0.129
Length of Fingers					0.195	-0.195	0.348**
1000 seed wt.						-0.153	0.624**
Protein content							-0.197

FIG.1 PATH DIAGRAM



yield and other seven characters and also the inter correlation are presented in Table 1. The grain yield indicated highly significant and positive genotypic correlation with number of productive tillers ($r_g = 0.739$) and 1000 seed weight ($r_g = 0.624$). A similar trend was also reported by several workers³⁻⁵. So selection of high grain yield can be done by selecting for more number of productive tillers having long fingers with high 1000 seed weight. Plant height was positively and highly significant when correlated with days to 50 per cent flowering. This suggested that late flowering types may be taller than the early flowering types. Similarly, days to 50 per cent flowering was highly significant and positively correlated with finger length, thereby suggesting late flowering types may have longer fingers.

Path analysis partitioned the genotypic correlation into direct and indirect effect of yield components on grain yield (Fig.1). The analysis revealed that number of productive tillers was the most important character because of its highest positive direct effect (0.558) on grain yield followed

by 1000 seed grain weight (0.453) and finger length (0.334). Plant height had the highest negative direct effect (-0.215) on grain yield per plant. The indirect effect of 1000 seed weight influences the number of productive tillers value. The other two characters 1000 seed weight and length of finger also registered positive direct effects. The present results are in accordance with the findings of Basavaraja and Sheriff³ and Marimuthu.⁵ So, for getting high yielding ragi genotypes the number of productive tillers character is to be concentrated during selection and plant height has to be properly adjusted as it exhibited highest negative direct effect on grain yield.

References

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