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Stability analysis for grain yield in finger millet (*Eleusine Coracana* G.)

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ABSTRACT
Stability of seed yield is an important consideration in finger millet, which is highly influenced by agro-climatic conditions. The present study was conducted to determine stability for grain yield in twenty finger millet (*Eleusine Coracana G.*) genotypes. The pooled analysis of variance showed differential behavior of genotypes over environment. None of the genotypes was stable for all the characters evaluated. The genotype EC 138375 and AKP 1 possessed the high mean performance. The regression coefficient greater than one suggests utility of these genotypes for favorable environmental conditions, where as the genotype Mudua was found to be suitable for unfavourable environments. The genotypes RPSP 742, AKP 1 and EC 138375 could be stable under favorable enviroment for days to 50 % flowering, while the genotypes RPSP 742, EC 138375 and RPSP 732 were early maturing with average stability of genotype. The entries EC 138375, AKP 1 and Mudua with high mean grain yield could be utilized for developing high yielding stable finger millet genotypes.

Key words : Stability, Regression and Favorable environments

INTRODUCTION

Finger millet (*Eleusine coracana G.*) is the third most important millet crop of India. It is the stable food of rural and working people. Stability of seed yield is an important consideration in finger millet, which is highly influenced by agro-climatic condition. Introduction of genotype is the basic requirement to a plant breeder for successful crop improvement. Hence, the present study was undertaken to evaluate homogeneity production stability of some finger millet genotype.

MATERIAL AND METHODS

Twenty genotypes were evaluated in three different environments. The enviroments were created by using different sowing dates *i.e.* difference of three meteorological weeks in each of the sowing i.e. 26th met. week (E_1), 29th met. week (E_2) and 33rd met. week (E_3) under rainfed condition, at the Botany farm, College of agriculture, Pune, Maharashtra. The materials was grown in randomize block design with three replications. The recommended spacing of 30x10 cm. between and within rows was followed. Each entry was represented by two rows of 4.5 m length. The observation on days to 50 per cent flowering, days to maturity, plant height(cm), number of productive tillers, number of heads per plant, number of fingers per head, finger length (cm), Test weight (g) and grain yield per plant (g) were recorded. Stability analysis was carried out using the Eberhart and Russell (1966) model.

RESULTS AND DISCUSSION

Analysis of variance (Table 1) showed significant genotype difference for almost all the characters, except test weight. Environment variance was significant for all the character except finger length and test weight. Liner components of G x E introduction will significant for a day to 50 percent flowering, days to maturity, plant height and

Table 1 : Analysis of variance for stability in four characters of finger millet

Source	D.F.	Days to 50% flowering	Day to Maturity	Productive Tillers (no.)	Grain yield per plant (g)
Genotype (G)	19	338.878**	483.937**	4.546**	54.089**
Environment	2	219.695	90.235	10.17	166.959
(GxE)	38	15.895$^{\$\$}$	16.351$^{\$\$}$	0.713	11.323$^{\$\$}$
E+ (GxE)	40	26.084	20.047	1.213	19.105
E (Linear)	1	439.391**	180.47**	20.42**	133.919
GxE (linear)	19	16.376**	19.719**	0.756	10.504**
Pooled deviation	20	14.642$^{\$}$	12.337$^{\$\$}$	0.637	11.535$^{\$\$}$
Pooled error	114	20.616	55.389	1.636	62.597

Where,
* and * * significant at P = 0.05 and 0.01 respectively against pooled deviation.
$ and $$ significant at P = 0.05 and 0.01 respectively against pooled error.