

and purity in dark brown seed coat colour compared to its parent Jadia. It is suggested that these mutants, JMM-DBS, could be used as genetic marker in future genetic improvement programmes in mothbean.

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STABILITY OF YIELD IN FOXTAIL MILLET

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ABSTRACT

Variety x environmental components was highly significant indicating differential response of varieties over environments in foxtail millets. Stability analysis indicated SIA-9, Arjun and Co 5 had better adaptation to unfavourable environment while SLA 2566 and SLA 326 had high performance and adapted to favourable conditions.

KEY WORDS : Foxtail millet, stability, correlation.

In India, Karnataka, Tamil Nadu, Uttar Pradesh, Andhra Pradesh, Maharashtra, Bihar, Orissa and Gujarat are the main minor millets growing states. Other millets such as *Vari*, *Banti*, *Kang* and *Cheeno* occupy about 58000 ha in Gujarat with a productivity ranging from 380 to 540 kg/ha. These small millets are mainly grown as kharif rainfed crop in the less fertile hilly soils by tribals and areas adjoining to hilly tracts. The breeding work for foxtail millet is very scanty. However, phenotypic stability in certain varieties of foxtail millet was worked out by Appadurai *et al.* (1978) Thus, attempt has been made to assess the productivity of some promising genotypes of foxtail.

MATERIALS AND METHODS

Six genotypes of foxtail millets including check (local) were evaluated from 1984-85 to 1986-87 at Hill Millet Research

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Station, Gujarat Agricultural University, Waghai. The experimental design was randomized block with three replications. All the genotypes were grown in 10 row plots spaced at 22.5 cm, and plant-to-plant distance was 7.5 cm. Basal dose of fertilizers of 20:10:00 NPK/ha and top dressing with 20 kg N/ha was applied. Data on yield were averaged over replications. In first step of analysis, data were analysed following standard statistical analysis for RBD (Singh and Chaudhari, 1977). Stability parameters were estimated following the methods proposed by Eberhart and Russell (1966).

RESULTS AND DISCUSSION

Stability analysis was carried out since variety x environmental component was highly significant indicating differential response of the varieties over environments.

Stability of yield in foxtail millet

Table 1. Stability parameters for grain yield in foxtail millet

Genotype	Grain yield			
	\bar{X} (Kg/ha)	bi	S ² di	r ²
SIA-326	965	1.4653**	15499	0.98
SIA-2566	980	1.6755**	2233	0.99
SIA-9	690	0.6178	54795	0.76
Arjun	598	0.1861	269480	0.15
CO5	569	0.5706	65170	0.70
Local (Check)	504	1.4845**	10045	0.98

** P = 0.01

These significant interactions caused difficulty in identifying the stable and high yielding genotypes of foxtail millet.

In the present study, environmental indices ranged from -204.94 to 364.72 kg/ha, among which 1985-86 was the favourable year for high grain yield. Varieties SIA-2566 had high average grain yield and bi value greater than unity indicated this variety can perform well under better management (Table 1). As per classification proposed by Finlay and Wilkinson (1963), SIA-9, Arjun and CO5 had above average stability and better adapted to unfavourable environments. But entries showed lower performance than the average indicating that no further improvement in those entries is possible.

Major portion of the variation in grain yield of individual varieties for grain yield was accounted for by linear regression. The coefficient of determination (r²) ranged from 15 to 99% for grain yield. Except SIA-9, Arjun and CO5, rest of the genotypes had coefficient of determination above 9%.

Correlation between the mean and the three stability parameters (Table 2) revealed that mean performance was associated with most of the stability parameters (0.567 with bi, -0.396 with S²d, and 0.446 with r²).

Stability of yield performance of different genotypes of foxtail millet in Fig 1. indicated that the genotype SIA 2566 can be

Table 2. Correlation statistics of stability parameters for foxtail millet.

Statistics		Correlation
Stat. 1	Stat. 2	
\bar{X}	bi	0.567
\bar{X}	S ² di	-0.396
\bar{X}	r ²	0.446
bi	S ² di	-0.817
bi	r ²	0.891
S ² di	r ²	-0.988

used for further improvement programme of foxtail millet.

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