Short Communication

PHENOTYPIC STABILITY FOR YIELD OF TEA (*CAMELLIA SINENSIS* L) IN DARJEELING

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Tea grown in Darjeeling is famous for its aroma in the international market. The fluctuations in yield over the years impede the growth of tea economy in Darjeeling. For sustainability of economy, it is imperative to identify the stable genotypes with high yield and quality. Therefore, an investigation was carried out over five years (1990-1994) in Darjeeling where 9 promising genotypes (clones and seed stocks) were evaluated for yield stability in randomised block design with three replications at 105 cm × 45 cm × 45cm spacing at Clonal Proving Station, Ging Tea Estate.

The yield of made tea (kg/100 m^2) was recorded for five consecutive years and was subjected to statistical analysis for stability parameters following Eberhart and Russel model [1]. The pooled analysis of variance (Table 1) showed that the mean squares due to genotypes, years, genotype × years, GXY (linear) and pooled deviations were all significant.

Table 1. Pooled analysis of variance for GXE interaction for yield of made tea (kg/100 m^2) in 9 genotypes

Source	d.f	Ms
Genotypes	8	353.93*
Years	4	1612.84*
Genotypes × years	32	48.09*
Year (linear)	1	2144.80
Genotype × years (linear)	8	35.76*
Pooled deviations	27	12.93*
Pooled error	90	6.69

* Significant at 5%

The environment index ranged from –11.00 (1993) to +9.68 (1994) and showed significant variation among years.

Phoobsering 1404 showed highest mean yield (38.46 kg/100 m^2) with significant bi (1.47) and significant S^{2}di (49.58) which suggested unstable character of this genotype (Table 2).

Table 2. Estimates of stability parameters for yield of made tea (kg/100 m^2) in 9 genotpes

Genotype	Stability parameter		
	X	bi	S^2 di
Phoosbering 1404	38.46	1.77**	49.58**
Rungli Rungloit 1240	33.26	1.23**	–3.49
St. 465	32.76	1.55**	9.26
Nanda Devi (TS 378)	21.22	0.94**	–1.69
Keyong 1	21.20	1.55**	5.66
Badamtam 16/S/573	26.68	0.70**	8.45
Phoobsering 1315	23.48	0.79**	–6.29
Phoobsering 1348	22.18	0.88**	–6.43
Badamtam 16/C/138	9.78	0.33	1.35
GM	27.71	-	-
S.E. -	-	0.23	-

**Significant at 1%

Rungli Rungliot 1240, St. 465 and Keyong 1 showed significantly higher yield than general mean (Table 2), more than unit bi value but non-significant S^2 di. These genotypes are likely to show high yield performance in favourable environments and can be characterised as less adaptable.

Nanda Devi (TS 378) showed significant bi value (0.94), close to unity and non-significant S^2 di (–1.69) along with medium yield performance and therefore, can be considered as more adaptable than others. Results revealed Nanda Devi (TS 378), to be the most stable in yield performance among 9 genotypes. Therefore, it could be used for commercial cultivation and/or in future tea breeding programme in selection and hybridization for transferring stability genes.

REFERENCES

1.   S. A. Aberhart and W. A. Russel. 1996. Stability parameters for comparing varities. Crop Sci., 6: 36-40.