

Evaluation of proso millet germplasm traits in Kailali, Nepal

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Introduction

Proso millet, grown in the western mid-hill region of Nepal, is valued for its culinary uses. It has a short growing cycle (60-110 days) with tolerance to drought and heat. It is suitable for tropical and sub-tropical regions with low rainfall. Genotypes with a short duration and biotic stress are the key needs.

Research questions

- What is the feasibility of cultivating proso millet as a catch crop in Kailali?
- How much variability is present among genotypes in yield and traits?
- Which traits correlate strongly with yield?

Methodology

Eight genotypes were evaluated using the RCBD design with three replications in Godawari Municipality, Kailali from February to April 2024. FYM was applied @ 12.5t/ha. Randomly selected sample plant was used to collect data on phenological, yield, and yield attributing traits. R (4.3.3) was used for ANOVA, correlation and genetic variability analysis.

Key findings

Results revealed significant variability for all traits. NGRCO7339 and NGRCO7338 exhibited superior plant height. Mal Chino recorded the highest grain yield (1.67 t/ha) and lowest sterility (35.30%). HI and grain yield (0.96) showed a strong positive relationship. Hbs and GAM for yield and effective tillers were high, suggesting a strong additive gene action.



Figure 1 One way ANOVA (mean) of traits under study

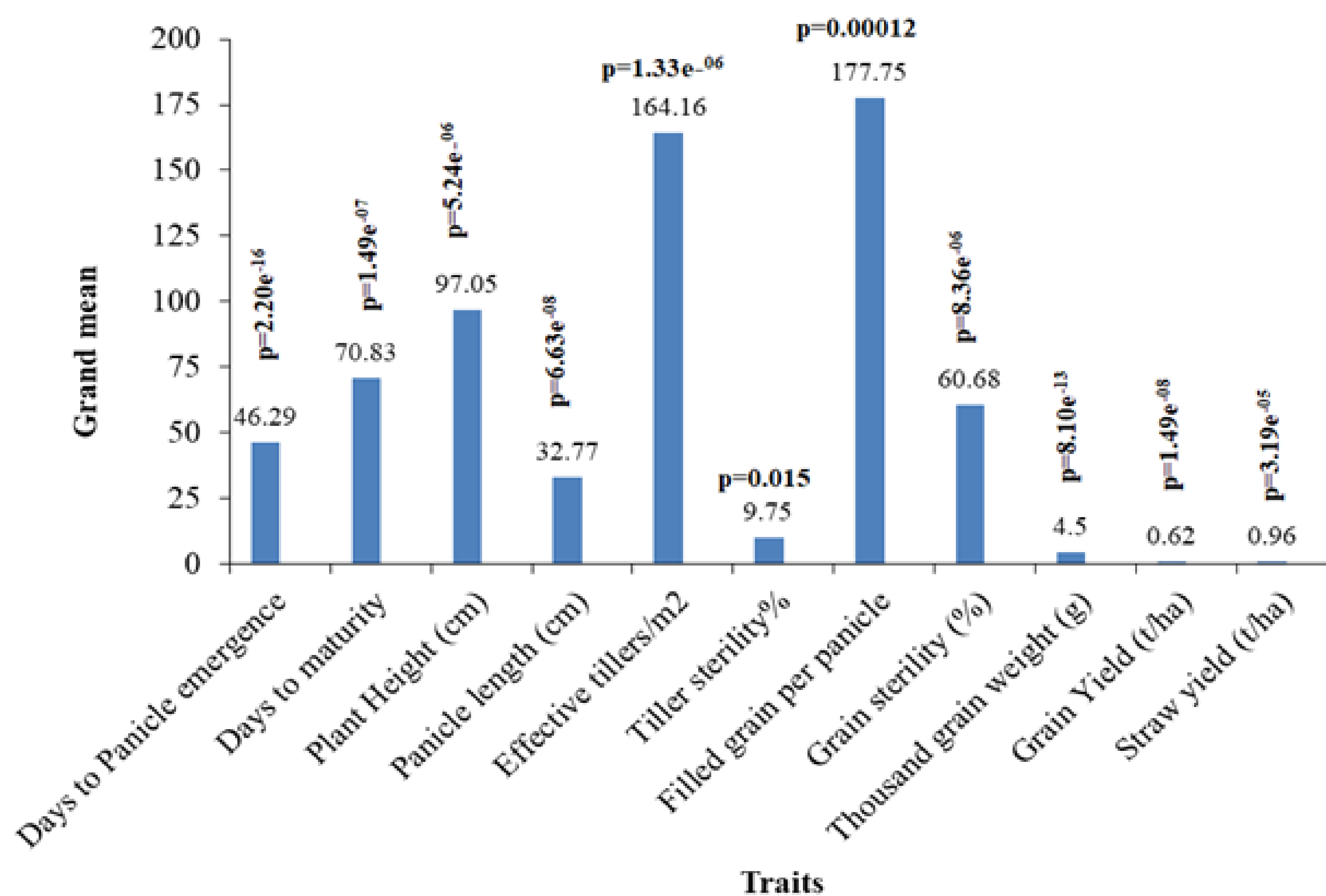
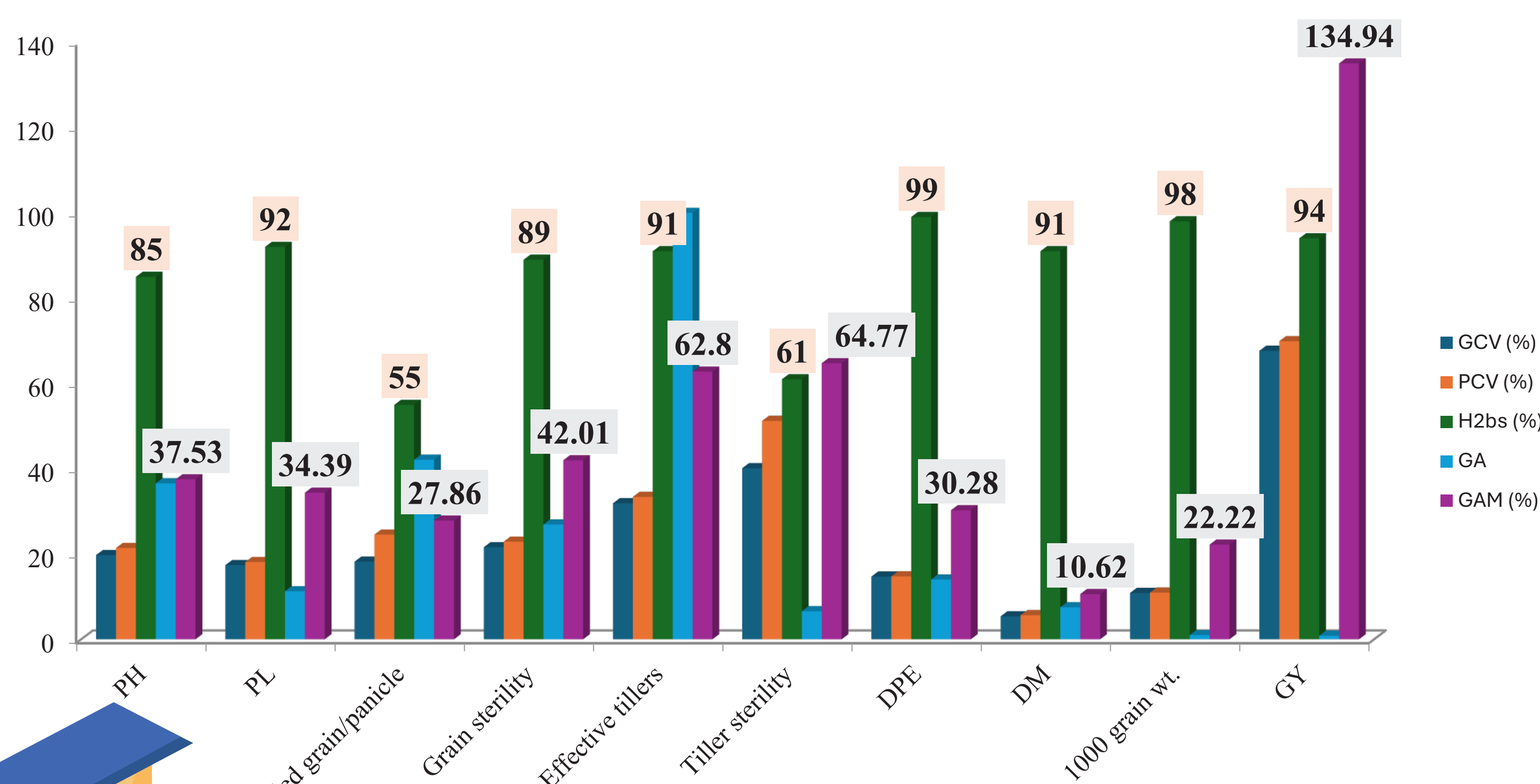


Figure 2 Genetic variability, heritability and genetic advance of quantitative traits



Conclusion

- Days to maturity make proso millet an ideal catch crop in tropical regions.
- Mal chino was the most promising variety for producing grain.
- Genetic component shows that grain yield and efficient tillers are important qualities for selection and improvement through breeding.

