



Phenological and Yield Attributes variation of Nepalese Rice Landraces in Madhesh Province, Nepal

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Abstract

Background: Madhesh Province of Nepal is recognized as a rich repository of traditional crop landraces due to its diverse agro-ecological conditions, long history of cultivation, and farmer-led selection practices. Rice landraces possess valuable genetic variability, but their performance under field conditions needs proper evaluation. Therefore, this study aimed to assess the phenological traits, yield attributes, and productivity of Nepalese rice landraces.

Methods: The field experiment was conducted at the farm of the College of Natural Resource Management (CNRM), Bardibas, Mahottari, Madhesh Province from June to November 2025. The experiment was laid out in a randomized complete block design (RCBD) with two replications. A total of thirty rice landraces were transplanted at a spacing of 20 × 20 cm. Recommended agronomic practices were followed. Phenological and yield-related data were recorded at different growth stages and analyzed statistically.

Results: The results showed significant variation among the landraces. Days to flowering ranged from 86 to 101 DAT, and maturity ranged from 117 to 129 DAT. Yield and yield-attributing traits were significantly different at the 5% level of significance. Panicle length ranged from 19.2 to 27.1 cm, grains per panicle from 44 to 139, and test weight from 17.9 to 36.12 g. Among the landraces, Harinkith recorded the highest grain yield (4.05 t/ha), followed by Lajhi (3.98 t/ha), while Akshaviya produced the lowest yield (0.79 t/ha). Biomass yield varied from 11.12 t/ha (Aangaa) to 39.03 t/ha (Dewosar). The highest harvest index was observed in Harinkith (18.39%), followed by Gahuma (14.34%), whereas the lowest was recorded in Bangaliya (4.86%).

Conclusion: The study demonstrated significant variability among rice landraces in terms of phenology, yield attributes, and productivity. Under the given conditions, Harinkith emerged as a promising landrace. However, further multi-location trials and participatory evaluations are recommended to confirm its adaptability and acceptability among farmers.

Key Words: Rice landraces, phenology, yield attributes, grain yield, harvest index

