Screening of 37 Rice Varieties for Submergence Tolerance Ability Under Artificial Condition

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Abstract

Rice cultivation in Sri Lanka faces significant challenges due to susceptibility to flooding and wet conditions, affecting crop yield. To address this issue, a comprehensive study was conducted with the primary focus was to assess the survival and recovery capacities of 37 rice varieties, including 30 IRRI entries and 7 global check varieties (2 susceptible and 5 tolerant), under controlled artificial field conditions simulating submergence. The methodology involved the collection and preparation of seeds, followed by nursery cultivation in nursery trays with Randomized Complete Block Design (RCBD) with three replicates. The submerged conditions were carefully regulated for 14 days, mimicking flooding scenarios in the Lowland Wet Zone under Control Conditions. The data obtained were analyzed using the Standard Evaluation System for Rice by IRRI (2002), categorizing entries based on survival rates. The experimental design followed a Randomized Complete Block Design (RCBD) with three replicates. This research offers valuable insights into identifying potential rice varieties (Local Test Entry, Local Check, IRRI156, IR19A7712, IR19A8982, Local Test Entry, IRRI123, IR19A7886, Local Check, IR19A7994, Local Check, IR19A7963, IR19A7974, IR19A8596, IR19A7710, IR19A7798, Local Test Entry, Local Test Entry, Local Test Entry, Local Test Entry, Local Check, Local Test Entry, Local Check, Local Test Entry, IR19A9000,Local Test Entry, Local Test Entry, Local Check, Local Test Entry, Bg 364, Bg 372, NP 14-7-5,Bg 360, Bg 379/2, IR19A8767, IR19A7983, IR42) with enhanced flood tolerance, providing crucial information for further breeding and development programs. The findings contribute significantly to addressing the challenges of unpredictable flooding in rice cultivation, offering pathways for improved resilience and sustainable production in flood-prone regions.

Keywords: Rice Varieties, Submergence tolerance, Survival percentage

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