

EVALUATION OF INDIGENOUS RICE VARIETIES FOR SUBMERGENCE TOLERANCE

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Establishment of rice crops in the low-country wet zone is mainly by broadcasting pre-germinated seeds into puddled wet fields. During both seasons, times of crop establishment in the wet zone coincide with onset of the monsoon. As a result, farmers often broadcast germinated seeds into standing water or water accumulates after the seeds are sown. Under these circumstances poor seedling establishment in direct seeded rice is a common agronomic constraint that limits high yields in new improved rice varieties.

The popularity of indigenous rice varieties in the flood prone areas of the low-country wet zone is often attributed to their ability to stand shallow submergence at seedling stage. Therefore, diagnosis of genetic tolerance to seedling submergence and the evolution of suitable screening techniques to select seedlings possessing this agronomic trait is the primary step in breeding rice varieties for rice lands where flash floods and partial submergence occur during crop establishment. This paper explains the behaviour of indigenous rice varieties under submergence at seedling stage and discusses the success of a breeding program and a screening technique designed to diagnose the submergence tolerant character in a segregating population.

SECTION B

Submergence tolerance in indigenous rice varieties was based on seedling survival under submergence and recovery after water had receded. Rice varieties like *Karamana* and *Niwudu Samba* had the ability to survive submergence while varieties like *Molligoda* had faster recovering ability. The mechanism of seedling survival was based on better root development and reduced shoot development which facilitated better seedling anchorage and fast recovery.