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Farmer attitudes, barriers, and opportunities for adopting aerobic rice cultivation in Sri Lanka

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Abstract

Ensuring global food security is increasingly challenged by climate change and soil variability, with agriculture, particularly rice cultivation, being the largest consumer of freshwater. Conventional rice farming consumes 2–3 times more water than other cereals, with 50–60 % of water wasted. In Sri Lanka, around two million farming families depend on paddy cultivation, which covers 34%-40 % of the total cultivated area. This study explores farmers' attitudes, knowledge, and willingness to shift from conventional to dry rice cultivation as a strategy for water conservation and sustainable production. The research focuses on the constraints faced by Sri Lankan farmers, primarily due to limited rainfall and irrigation access.

The study examines the understanding, attitudes, and barriers toward adopting aerobic rice methods in four Divisional Secretariat Divisions of the Kurunegala district. A survey of 120 farmers was conducted using a pre-tested structured questionnaire. Key findings show that the main varieties grown in the major cultivation season (Maha) are high-yielding Samba rice varieties, while in the minor cultivation (Yala) season, farmers prefer white Nadu rice varieties, which require less water. Despite water scarcity, some farmers switch to cultivating mung beans in the Yala season, enhancing soil fertility and income. The study reveals that socio-economic factors, including land ownership and education, influence farmers' willingness to adopt new methods, with male farmers being more open to innovation. Limited irrigation access and fragmented landholdings are major barriers to adopting aerobic rice cultivation. The study emphasises the need for tailored interventions to address water scarcity and promote sustainable farming practices. Overall, the findings highlight the importance of considering socio-economic factors, environmental awareness, and traditional practices when introducing innovative agricultural methods to enhance resilience and sustainability in rice farming.

Keywords: Aerobic rice, farmers perceptions, Sri Lanka, sustainable farming, water scarcity

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