

# **ADAPTIVE CAPACITY OF FARMERS FOR ORGANIC FERTILIZER AND ITS EFFECTS ON PADDY PRODUCTION IN THE MINOR IRRIGATION SYSTEMS, ANURADHAPURA**

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The policy of banning chemical fertilizer use in Sri Lanka pushes paddy farmers to sudden adaption of organic fertilizers. This study focused on investigating the adaptive capacities of farmers to organic fertilizer and its effect on paddy production in minor irrigation systems in the Anuradhapura district. The cluster sampling method was employed to interview 100 paddy farmers in minor irrigation systems. Data was collected using a pre-structured questionnaire. The adaptive capacity of each farmer was calculated using empirical methods. Adaptive capacities of rice farmers were calculated quantitatively and divided into high, moderate, and poor adaptive groups. The Cobb-Douglas production function's double logarithmic regression model was used to quantify the impact of farmers' adaptive capacity and other variables on paddy production. Thematic analysis was used to get experts' suggestions to improve adaptive capacity. The farmers generally have a moderate level (60%) of acculturation to the use of organic fertilizers. Keeping paddy straws in the field without destroying (85%), integrated water management (83%), and on-farm compost preparation (81%) were the mostly used strategies to fulfill the nutrient requirement in paddy production. Of all respondents, 39% had higher adaptivity, 60% had moderate adaptivity and only 1% showed a low-level of adaptivity towards organic fertilizer usage. The average adaptive capacity was 0.72. Land size, capital input, adaptive capacity, and access to the extension were the significant ( $p < 0.05$ ) variables in the Cobb-Douglas production function while age and education level were significant at a 10% significance level. Improving the awareness and knowledge of farmers through extension service was the most suggested strategy to improve farmers' adaptive capacity for organic fertilizer usage in paddy farming. The study concludes that higher adaptivity improves paddy production. Hence paddy farmers should be empowered through enhanced extension services to reach high adaptive capacity.

**Keywords:** Adaptative capacity, Cobb-Douglas production function, Organic fertilizer, Paddy production