

IMPACT OF SPRINKLER IRRIGATION ON YIELD AND CULTIVATION COSTS IN GROUNDNUT AND JUMBO PEANUT FARMING IN KILINOCHCHI DISTRICT

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Abstract

The adoption of climate-smart agricultural practices has become essential for mitigating the challenges posed by climate change in dry-zone agriculture. However, the effectiveness of these practices remains uncertain due to low awareness and poor adoption rate of such technologies, especially among small-scale farmers. Therefore, this study focuses on the adoption of a climate-smart practice- sprinkler irrigation- by small-scale groundnut and jumbo peanut producers in northern Sri Lanka and evaluates its effectiveness of sprinkler irrigation adoption on farm outcomes such as yield and cultivation cost. Primary data for this study were collected using stratified random sampling technique from 257 small-scale farmers engaged in ground nut and Jumbo peanut cultivation in the Kilinochchi district in northern Sri Lanka. The dataset includes farm output measures, adoption status, and socio-demographic characteristics of farm households. Among jumbo peanut farmers, 124 are adopters of sprinkler irrigation practices, and 50 have not. Among the groundnut farmers, 31 are adopters, and 52 are non-adopters. The impact of sprinkler adoption was estimated using propensity score matching technique. The results indicate that sprinkler adopters experience a yield increase of 178 kg per acre for groundnuts and 30 kg per acre for jumbo peanuts compared to non-adopters. Additionally, the results show that sprinkler adopters experience a reduction in cultivation cost by Rs. 45,040 per acre in groundnut cultivation and by Rs. 59,399 per acre in jumbo peanut cultivation compared to their counterparts. These findings highlight the importance of adopting of sprinkler irrigation as a viable strategy to mitigate the climate challenges faced by small-scale groundnut and jumbo peanut producers.

Keywords: Climate smart agriculture, Groundnut, Jumbo peanut, Propensity score matching, Sprinkler irrigation.

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