

**THE STATUS OF USE OF HYDROPONIC SYSTEMS BY FARMERS
IN WESTERN PROVINCE**



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FTC193

Project Report
Main Library, Eastern University, Sri Lanka

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Eastern University, Sri Lanka

2024

ABSTRACT

Hydroponic systems refer to a method of growing plants without soil, using mineral nutrient solutions in a water solvent. This technique allows for efficient use of resources such as water and nutrients and is often implemented within Controlled Environment Agriculture (CEA) setups to optimize growing conditions. In the Western Province of Sri Lanka, hydroponic systems are gaining traction, due to their potential to increase agricultural productivity and sustainability. This study explores the status of hydroponic systems in the Western Province of Sri Lanka, focusing on key concepts such as hydroponics, Controlled Environment Agriculture (CEA), sustainability in agriculture, operational efficiencies, economic benefits, challenges, and contextual considerations specific to the region. The research identifies and analyzes various independent variables; access to capital, technical knowledge, perceived benefits, environmental conditions and their impact on dependent variables; yield, cost savings, sustainability measures, and economic benefits. This study highlights the expected relationships between these variables and identifies gaps in the existing literature, particularly in region-specific studies and long-term sustainability assessments. The study employs a combination of surveys, interviews, and field observations to gather comprehensive data from farmers in the Western Province. The results and discussion, begin with demographic information, including district distribution, gender, age, educational level, marital status, greenhouse ownership, and main income sources. Descriptive analysis, correlation analysis, and regression analysis are conducted to uncover significant associations and the impact of various factors on the adoption of hydroponic systems. The study also identifies strategies for overcoming challenges, documenting farmer experiences and best practices. The findings offer valuable insights into the current state of hydroponics in the region and propose future research directions to address the identified gaps. The study acknowledges its limitations, providing a foundation for further research to enhance the understanding and implementation of hydroponic systems in Sri Lanka.

Keywords: Controlled environment agriculture, hydroponic system, productivity, sustainability, Western Province

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