

ENVIRONMENTAL EFFICIENCY OF HYDROPONICS (SOIL-LESS) BUSINESS

ABSTRACT

AUTHORS

Brian De Jesus
Meekaella Mora
May Pimentel
Ryan Louise Rodriquez
Regine De Vera

RESEARCH ADVISER

Christine D. Calvo, LPT

AFFILIATION

Bestlink College of the
Philippines

DISCIPLINE

Business

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This study examines the feasibility and profit potential of hydroponic farming—an innovative agricultural technique that replaces soil with nutrient-rich water solutions. By removing the need for arable land, hydroponics addresses key challenges faced by traditional farming, such as limited land availability, unpredictable climate conditions, and water scarcity. The research seeks to evaluate hydroponic cultivation not only as a sustainable alternative to conventional agriculture but also as a scalable, economically viable business model capable of meeting the demands of modern food production. This study employed a descriptive research design, collecting data through a combination of interviews and structured surveys administered to 30 hydroponic farmers in Quezon City, Caloocan, and Bulacan. This approach allowed the researchers to gather comprehensive insights into the participants' practices, experiences, and perceptions regarding the viability of hydroponic farming. The findings indicate that hydroponic farming offers substantial economic potential, especially in urban areas where land is scarce. Long-term profitability, however, depends on key factors such as high initial capital investment, fluctuating market demand, and spatial limitations. Despite these challenges, hydroponic farmers highlight its environmental benefits, including efficient resource utilization, reduced water consumption, and enhanced food security. Consequently, hydroponics stands out as both a viable income-generating enterprise and a sustainable agricultural alternative well-suited to the demands of modern urban development. This concludes that hydroponic farming presents a practical and sustainable alternative to traditional agriculture, offering cost-effectiveness, resource efficiency, and a minimal environmental footprint. Its adaptability to urban and land-constrained settings further highlights its potential in addressing contemporary agricultural challenges. To promote wider adoption and ensure long-term sustainability, the study recommends further research aimed at lowering capital and operational costs, exploring untapped market opportunities, and integrating advanced technologies such as smart farming systems. These innovations are vital for enhancing profitability, scalability, and the resilience of hydroponic farming in the face of evolving environmental and economic conditions.

RECOMMENDED CITATION

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