HOUSEHOLD PRODUCTION OF CILANTRO *(Coriandrum sativum* L.*)* USING A WICK SYSTEM

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TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURES

LIST OF APPENDIX TABLES

LIST OF APPENDIX FIGURES

ABSTRACT

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A wick hydroponic system uses a fabric thread (cotton or nylon) to absorb water and nutrients from a reservoir, delivering them to plants in pots or trays. *Coriandrum sativum* L., also known as coriander or cilantro, is an aromatic herbaceous annual herb belonging to the Umbelliferae Apiaceae family. Cilantro faces challenges when grown in active hydroponic systems like NFT or drip systems, which are costly and require extensive maintenance, making them unsuitable for most growers. Cilantro's longer maturity period and delicate taproot further complicate its cultivation. To overcome these issues, a study investigated the use of a wick hydroponic system as a more accessible and sustainable method for growing cilantro hydroponically. The main goal of the study is to fabricate a wick hydroponic system for cilantro production. The study aimed to determine the optimal wick density to be used and assess the system effectiveness of growing cilantro in terms of yield.

Complete Randomized Design (CRD) layout was used in determining the wick density. One-way analysis of variance was used to analyze the treatments and means are compared using least significant difference (LSD). Wick density treatments were 2x2 inch (T_1), 3x3 inch (T_2), and 4x4 inch (T_3) with three (3) replications. The experiment assessed the rate of water delivery and rate of transmission. Random Complete Block Design

(RCBD) layout was used to evaluate the wick system. One-way analysis of variance was used to analyze the treatments and means are compared using least significant difference (LSD) Wick system treatments were based on plant spacing: 4-inch spacing (T_1), 3-inch spacing (T_2), and 2-inch spacing (T_3) with three (3) replications.

In the determination of wick density, results showed no significant difference in water delivery rate among the treatments. However, the rate of transmission differed significantly, with 2x2 inch (T_1) performing best with a rate of transmission of 1.08 in/hr. This is due to the lower volume causing increased transmission rates. Thus, a wick density of 1 wick per 2x2 inch area was used.

Throughout the 50-day production period, efforts were made to maintain ideal ranges for Electrical Conductivity (EC) and Total Dissolved Solids (TDS). However, the pH of the nutrient solution continuously increased over time, likely due to nutrient absorption by the growing cilantro plants.

After 50 days, 20 plants were selected from each treatment and replication to harvest for data collection. Stem length showed a significant difference between 4-inch spacing (T_1) and both 3-inch spacing (T_2) and 2-inch spacing (T_3,) while no significant differences were observed in average number of leaves and total weight among the treatments.

Keywords: Wick hydroponic system, cilantro, wick density

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