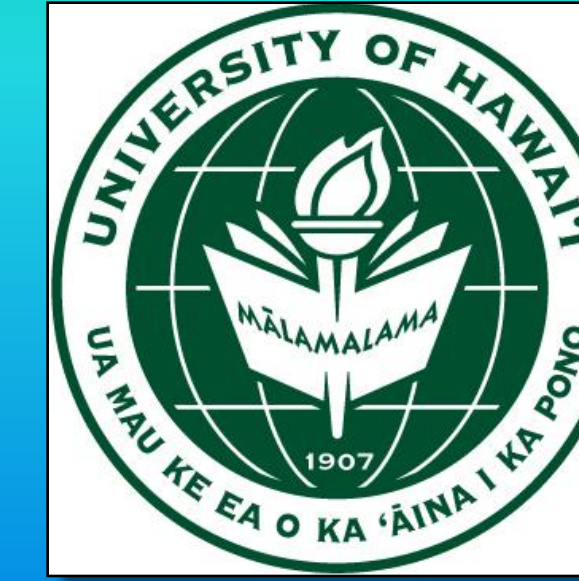


An Indoor Non-Circulating Micro-Hydroponic System

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Introduction



Miniature chili peppers growing hydroponically

Micro-hydroponics involves growing miniature vegetables (< 30.5 cm tall). A non-circulating hydroponic system using 3.8-L plastic jugs was too tall for use on shelving under artificial lighting. Also, jugs needed to be covered with aluminum foil to prevent algae growth.

Objective: Describe a non-circulating hydroponic system for growing miniature vegetables.

Methods

Seeds

Seeds were planted in Oasis cubes in plastic trays with clear covers. Trays were placed under fluorescent lighting, and additional water was added as needed.



Plastic trays with Oasis cubes and lettuce seeds

Methods

Nutrient Solution

Hydro-Gardens Hobby Formula 10N-8P-22K fertilizer (5.0 ml) and magnesium sulfate (1.3 ml) per 3.8 L of water.

Net Pots and Cartons

When seedlings were 2.5 to 5.1 cm tall, the Oasis cubes were placed into 5.1-cm diameter plastic net pots. A 4.8-cm diameter hole was cut out from the top side of milk or juice cartons (3.8 L) having a screw cap spout.

A net pot was placed into the hole, and the cartons were filled with nutrient solution, making sure it touched the bottom of the Oasis cube in the net pot. During the growing period, additional nutrient solution was added as needed to keep the cartons one-fourth full.



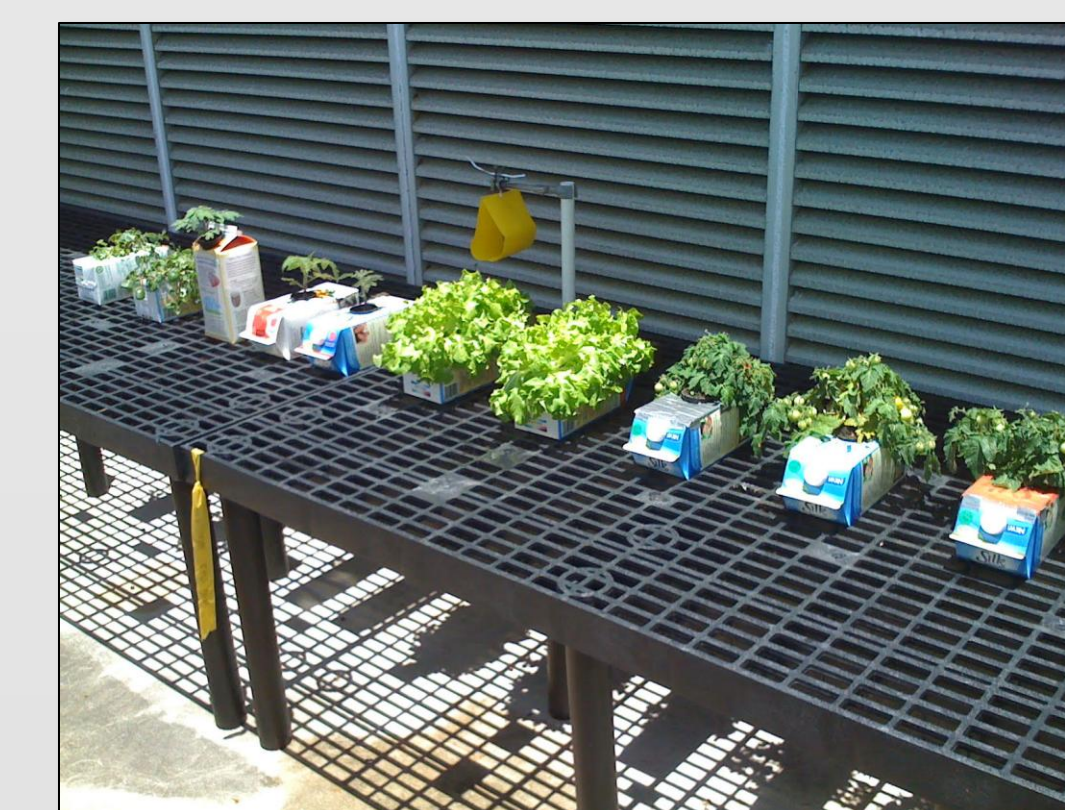
Micro-hydroponic system with two net pots



Miniature tomatoes growing hydroponically

Results

- Screw cap spouts made it convenient to add additional nutrient solution.
- Cartons were good for one-time use.
- This system was used for short term and longer term vegetables, and also for outdoors.
- First graders at a local elementary school used the system.



Hydroponic system can also be used outdoors

Advantages

- Use of recyclable materials.
- Low profile for growing vegetables on shelving under artificial lighting.
- Appropriate size for miniature vegetables.
- Cartons blocked sufficient light so algae growth was minimal.

Conclusions

This non-circulating micro-hydroponic system is a simple system for growing miniature vegetables.

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