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EENDJE MEER

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Project Goal

To cultivate duckweed under controlled low input conditions to study its growth patterns, nutrient uptake, and potential applications in environmental sustainability. By understanding the factors that influence duckweed growth, this research aims to explore its use as a sustainable food source and .

Methodology

- Setup: Prepare five 900 m² trays with duckweed and monitor pH (6-6.5) and EC (1200-1500 µS).
- Fertilization: Use a balanced fertilizer mix to maintain ideal pH and EC levels.
- Harvest Cycle: Every 2 weeks, harvest 50-75% of the duckweed from each tray.
- Data Collection: Track growth, pH, and EC throughout June–January, adjusting fertilizer as needed.

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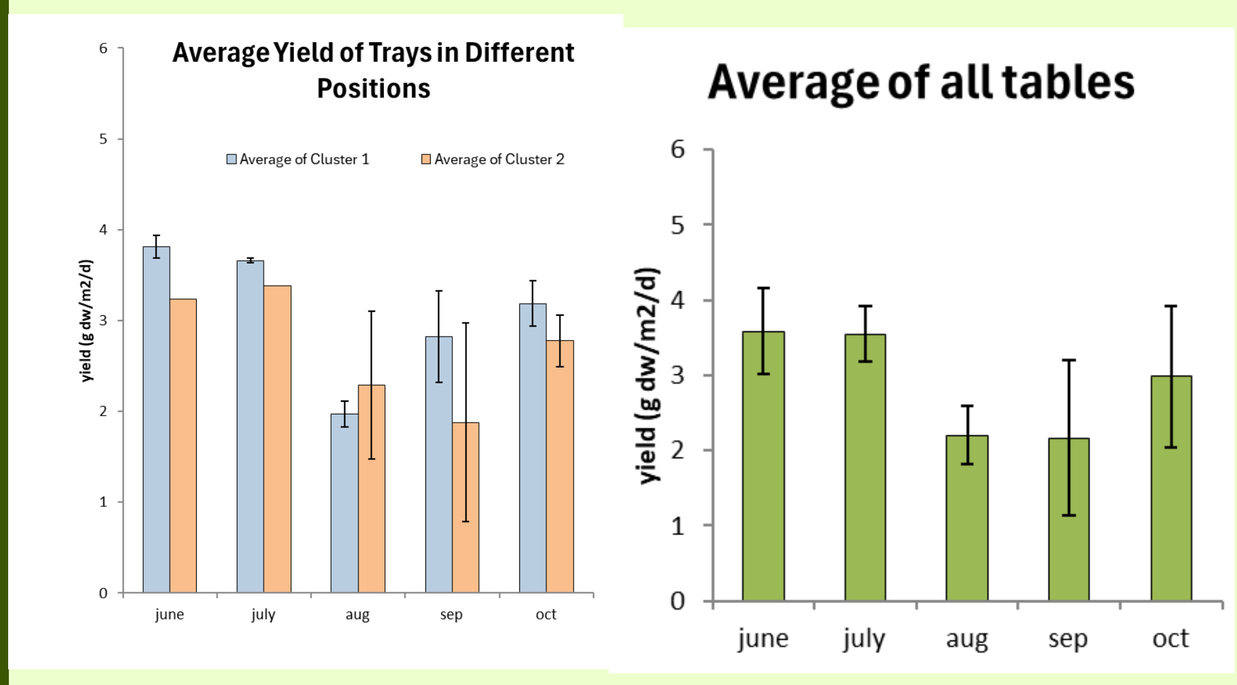
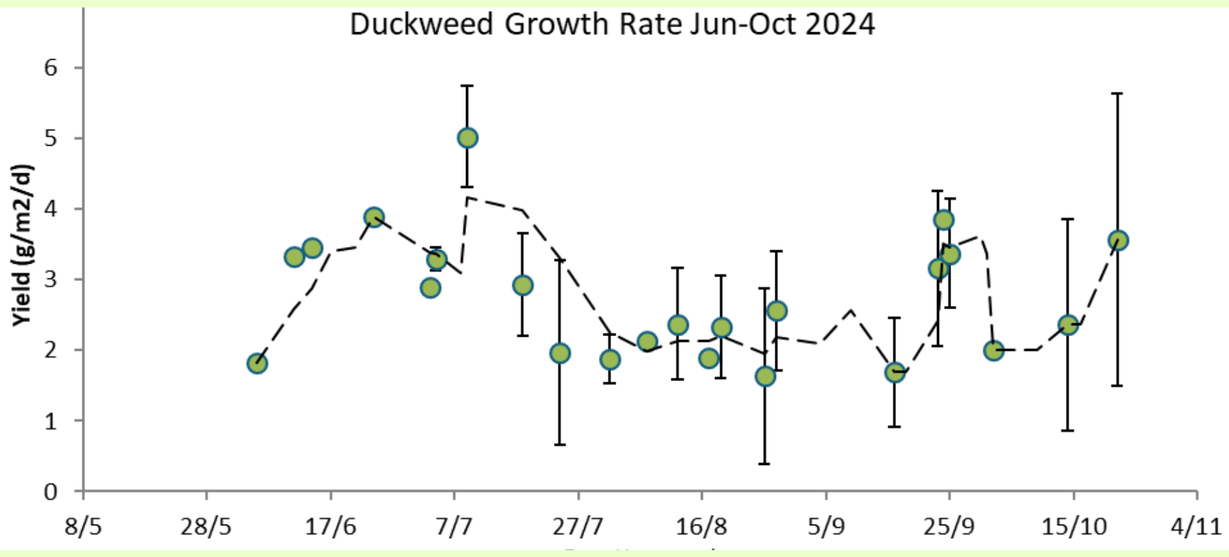
Results



Background

- Duckweed is a fast-growing aquatic plant with high nutrient absorption and biomass production.
- Duckweed is a high protein yielding crop.
- The project aims to identify optimal growth conditions to maximize duckweed's agricultural benefits.

Results



- Strongest growth occurred in June and July.
- Growth decreased in August and September.
- Growth improved again in October, possibly due to seasonal changes.
- Cluster 1 showed the highest average yields.

Discussion

- Temperature has an effect
- Cluster 1 received more sunlight than Cluster 2
- When temperature drops, more algal growth was noticed

Further Research

- Optimizing growth conditions
  - Determining best temperature
  - Exploring different duckweed varieties
  - Determining best water flow speed
- Manganese trials
  - using different nutrient sources to lower manganese level below legal threshold
- Reducing algae growth
  - using hydrogen peroxide to reduce algae growth