



## Evaluating Alternative Static Hydroponic Solutions

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### Introduction

Growing lettuce in a static hydroponic system is a simple way to grow your own greens commercially or at home. CTAHR's static hydroponic fertilizer system developed by Dr. Bernard Kratky is utilized by farmers and homeowners in Hawaii and beyond. The 3 part fertilizer blend uses Hydro-Gardens' Chem-grow Lettuce Formula 8-15-36, calcium nitrate and magnesium sulfate. The CTAHR tested formulation produces consistent and commercial size lettuce heads. Recently, Hydro-Gardens has discontinued their fertilizer offerings leaving us with a limited supply. The popular water-soluble formulation which many producers rely on is no longer available in Hawaii.



Photo 1 &2: Lettuce grown using Hydro-Gardens' Chem-grow Lettuce Formula 8-15-36

Finding a new commercially available hydroponic fertilizer to sustain CTAHR's Static Hydroponic program is a top priority. Observational trials were started in August 4, 2023 comparing Chem-grow Lettuce Formula 8-15-36 to Greenway Biotech Lettuce Formulation 8-15-36 (purchased from Amazon) and Nutriculture High Cal-Mag Vegetable 12-31-14 (Plant Marvel).

Thirty-six lettuce seedlings were planted in a 4'x4' hydroponic bin. Hydro-Gardens and Greenway fertilizers were mixed at a rate of 1 tsp /gallon of water. Nutriculture was mixed at 1.5 tsp/ gallon. For all beds, calcium nitrate was applied at 1 tsp / gallon of water and magnesium sulfate at 1/2 tsp per gallon of water. Ten heads were randomly selected, harvested and weighed on August 30, 2023. A means analysis plus Turkey analysis of the means showed: Hydrogardens: 6.57a, Greenway: 5.33ab, and Nutriculture: 4.72b



Photo 3&4: Lettuce grown using Greenway Biotech Lettuce Formulation 8-15-36.

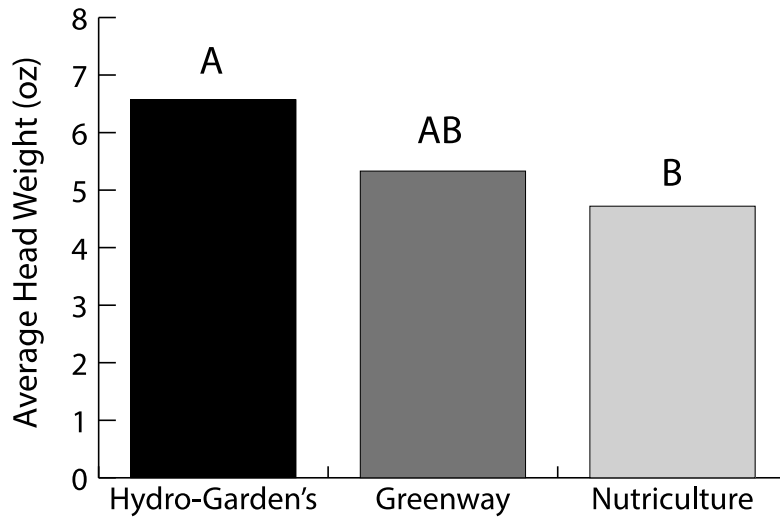


Figure 1. Mean analysis showing differences between different formulations.

### Summary

Preliminary findings show the Greenway was comparable to Hydro-Gardens. Nutriculture was significantly smaller than Hydro-Gardens.



Photo 5&6: Lettuce grown Nutriculture High Cal-Mag Vegetable 12-31-14

Future work includes modifying the amount of fertilizer / gallon rate for Greenway and Nutriculture's formulations. We will also evaluate Master Blend 4-18-38 Tomatoes and Vegetable formula against Hydro-Garden's Chem-grow Lettuce Formula 8-15-36 in hopes to find a suitable replacement for homeowners and farmers in Hawaii. More time is needed to provide a sound, science-based recommendation to producers and home gardeners on how to replace Hydro-Gardens' Chem-grow Lettuce Formula 8-15-36 in their static hydroponic lettuce systems.