

Evaluation of AgriFuel Performance in Hydroponic Systems



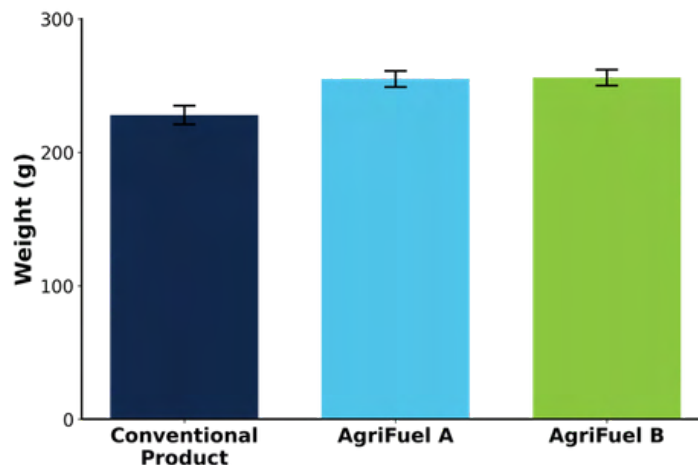
Study Overview

In collaboration with the National Research Council of Canada (NRC), Carbon OxyTech conducted controlled hydroponic trials to evaluate the performance of its AgriFuel formulations on lettuce growth and nutrient uptake. Both AgriFuel A and AgriFuel B are sustainable, carbon-based biostimulant products derived from agricultural crop residues, designed to convert underutilized biomass into high-value inputs for modern agriculture.

These experiments were conducted under standardized deep-water hydroponic conditions to assess the impact of these technologies on plant performance and nutrient efficiency.

The results demonstrate significant improvements in plant growth, biomass production, and nutrient utilization compared to a conventional fertigation program, highlighting the ability of AgriFuel solutions to enhance productivity while supporting sustainable agricultural practices.

Figure 1: Up to 12% Higher Fresh Yield



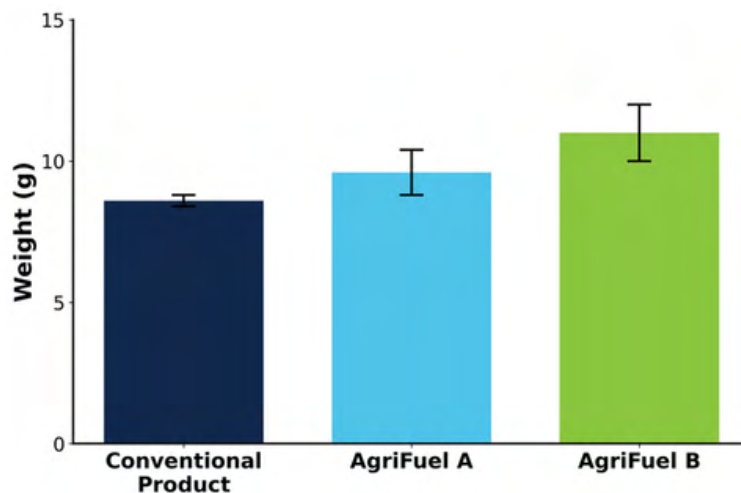
- AgriFuel A and AgriFuel B increased fresh biomass compared to the conventional fertilizer under hydroponic conditions.
- AgriFuel formulations consistently outperformed the conventional fertilizer, achieving up to 12% higher lettuce yield.

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- Fresh biomass represents the total marketable yield in hydroponic systems. This improvement directly translates into increased commercial output and profitability for growers, while utilizing sustainable, residue-derived inputs.
- Up to 12% higher marketable yield with sustainable AgriFuel products.

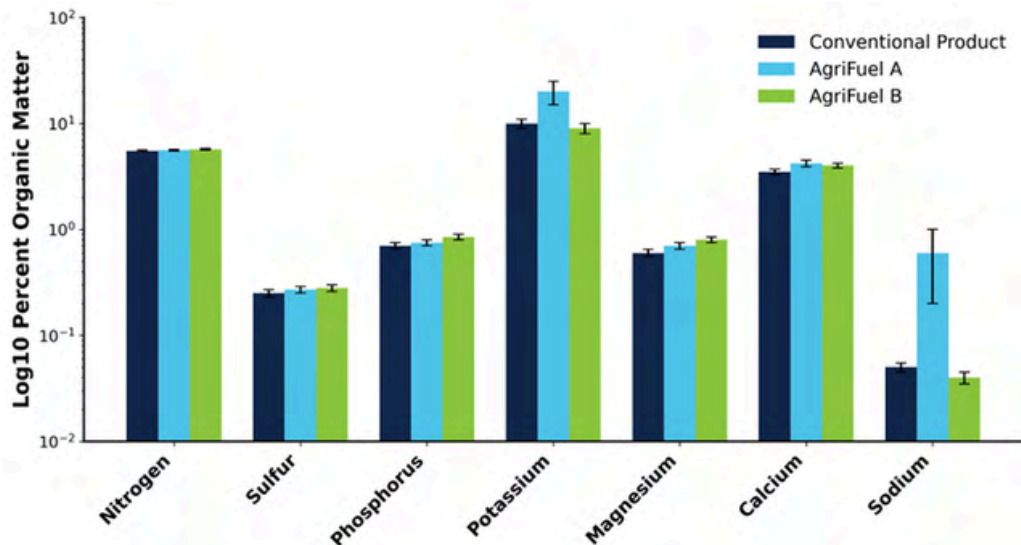
Figure 2: Up to ~27% Higher Dry Biomass



- AgriFuel treatments resulted in significantly higher dry biomass compared to the conventional fertilizer.
- Both AgriFuel A and B improved dry biomass, with AgriFuel B achieving increases of up to ~27%.
- Dry biomass reflects true plant growth and structural development. This result indicates more efficient conversion of nutrients into plant tissue, demonstrating the effectiveness of AgriFuel in enhancing plant metabolism and growth efficiency.
- Up to ~27% increase in true plant biomass using AgriFuel.



Figure 3: Stronger Nutrient Uptake vs. Conventional Fertilizer



AgriFuel treatments improved nutrient uptake efficiency and balance compared to the conventional fertilizer.

- **AgriFuel A** increased levels of potassium, magnesium, and calcium, supporting plant strength, photosynthesis, and structural integrity
- **AgriFuel B** delivered a more balanced macro- and micronutrient profile, promoting uniform plant development

Importantly, nitrogen, sulfur, and phosphorus levels remained stable, indicating that AgriFuel improves nutrient efficiency without disrupting essential nutrient balance. Overall, these results demonstrate that AgriFuel products enable more efficient nutrient use, leading to improved plant performance, higher quality crops, and reduced dependency on conventional inputs.

AgriFuel A and B demonstrate that sustainable fertilizers derived from agricultural crop residues can:

Key Takeaway

- Increase yield
- Improve nutrient efficiency
- Enhance plant growth
- Support circular agriculture

