

# FIELD TEST RESULTS

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# HYDROPONIC LETTUCE



2014

## CHI LIQUID FULVIC (CONCENTRATE) INCREASED HYDROPONIC PRODUCTION OF LETTUCE

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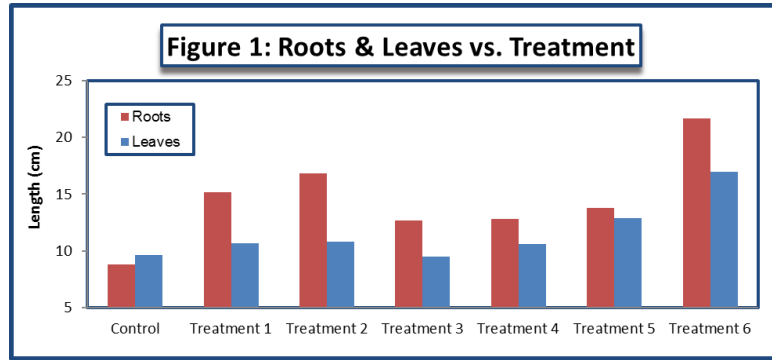
- **Objective:** To use fulvic acid to increase the yield of lettuce grown in hydroponic units
- **Financial support:** Canada Revenue Agency (Scientific Research & Experimental Development)
- **Period:** October 2013 to February 2014
- **Tested product:** CHI Liquid Fulvic (Concentrate) - source of fulvic acid
- **Tested plant:** Lettuce of "Grand Rapids" variety
- **Location:** Canadian Humalite International Inc, Alberta, CANADA
- **Hydroponic unit:** 50 cm long x 40 cm wide x 13 cm water deep
- **Growing solution:** Water containing 224 ppm N, 448 ppm P2O5, and 288 ppm K2O

### ■ DESIGN OF EXPERIMENTS

- Twelve (12) seedlings of 2 weeks old were grown in each hydroponic unit, representing 12 replications for each treatment
- Seven (7) hydroponic units were utilized as Control and Treatments 1 to 6:
  - **Control:** growing solution
  - **Treatment 1:** growing solution + 0.007% CHI Liquid Fulvic (Concentrate)
  - **Treatment 2:** growing solution + 0.05 % CHI Liquid Fulvic (Concentrate)
  - **Treatment 3:** growing solution + 0.4% CHI Liquid Fulvic (Concentrate)
  - **Treatment 4:** growing solution + 0.6% CHI Liquid Fulvic (Concentrate)
  - **Treatment 5:** growing solution + 1.4% CHI Liquid Fulvic (Concentrate)
  - **Treatment 6:** growing solution + 4.2% CHI Liquid Fulvic (Concentrate)
- CHI Liquid Fulvic (Concentrate) also contained 0.76% K2O and other negligible nutrients
- Plants were harvested after two (2) months
- Roots and leaves for each replicate were measured and analyzed for means, standard deviations, ANOVA ( $P = 0.05$ ), and Fisher's least significant difference ( $\alpha = 0.05$ ).
- Dry plants for each treatment were weighed and analyzed for means

## RESULTS

CHI Liquid Fulvic (Concentrate) at rates between 0.007 and 0.05% (Treatments 1 and 2) enhanced the growth of roots, leaves, and plant dry weights by 91, 13, and 27%, respectively. All were reduced at higher rates (Treatments 3 and 4), however at much higher rates (Treatments 5 and 6) they again increased due to the presence of nutrients (i.e. potassium) in the growing solution.



## CONCLUSIONS

CHI Liquid Fulvic (Concentrate) at application rates between 0.007 and 0.05% enhanced the growth and dry weight of lettuce grown in hydroponic units.

