

## Lab Test Results (Seed Germination)-2016



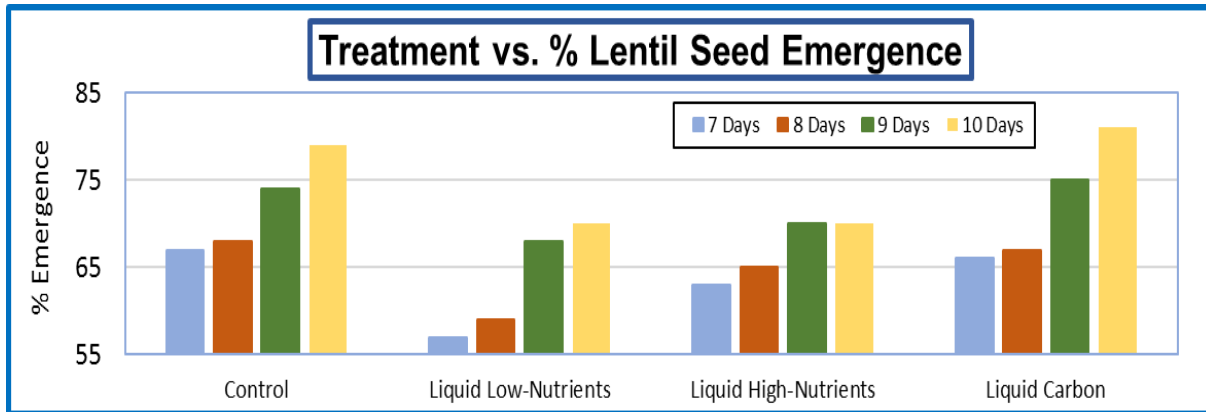
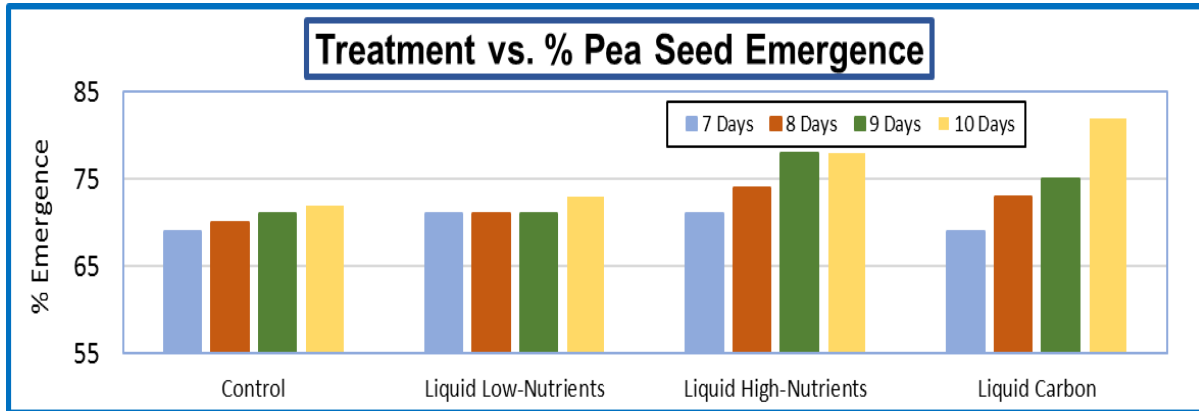
### **CHI Liquid Carbon Increased Seed Rate of Germination**

**Objective:** To use organic matter (humic acids) to accelerate seed germination  
**Collaborator:** 20/20 Seeds Labs Inc., Nisku, Alberta, CANADA  
**Period:** April 2016  
**Tested product:** CHI Liquid Carbon (source of humic acids)  
**Tested seeds:** Pea and lentil  
**Growing medium:** Test paper  
**Location:** Laboratory

### **Design of Experiments**

- Seeds were randomly selected: approx. 190 seeds of pea or lentil/seed lot
- Growing medium was test paper
- Control: distilled water  
Distilled water had pH of 6
- Treated 1: distilled water + 1.2 mL CHI-Liquid Carbon/kg of seeds  
CHI Liquid Carbon contained 12% humic acids and 1.8% K<sub>2</sub>O
- Treated 2: distilled water + 1.2 mL Liquid Low-Nutrients/kg of seeds  
Liquid Low-Nutrients contained 2% N, 3% K<sub>2</sub>O, 0.2% Co, and 0.3% Mo

- Treated 3: distilled water + 1.2 mL Liquid High-Nutrients/kg of seeds  
Liquid High-Nutrients contained 4% N, 16% P<sub>2</sub>O<sub>5</sub>, 5% K<sub>2</sub>O, 2.5% Cu, 2% Zn, and 1% Mn
- Radicle emergences were recorded as % of initial number of seeds by day
- Each treatment was replicated 2 times; results were totaled



### Results

At the same rate of application, CHI Liquid Carbon performed slightly better than Liquid High-Nutrients, and better than Liquid Low-Nutrients and Control in achieving 80% radicle emergences of pea seeds after 10 days. In the case of lentil seeds, CHI Liquid Carbon performed slightly better than Control, while both Liquid High and Low-Nutrients were found to be detrimental.

These results showed that humic acids accelerated the germination of seeds more effectively than that of common nutrients at both low and high amounts. Humic acids at the applied rate did not show any detrimental effects to the seeds.

### Conclusions

CHI Liquid Carbon accelerated the germination of seeds grown on test paper. At 1.2 mL/kg of seeds, CHI-Liquid Carbon was economical, practical, and compatible with most nutrients.