

# *Field Test Results (Canola)-2014*



## **CHI Liquid Carbon Increased Crop Production of Canola**

<b>Objective:</b>	<i>To use humic acids to increase the yield of canola</i>
<b>Collaborator:</b>	<i>Battle River Research Group, Camrose, Alberta, CANADA</i>
<b>Financial support:</b>	<i>Canada Revenue Agency (Scientific Research &amp; Experimental Development)</i>
<b>Period:</b>	<i>May to September, 2014</i>
<b>Tested product:</b>	<i>CHI Liquid Carbon (source of humic acids)</i>
<b>Tested crop:</b>	<i>Canola of "6060RR" variety</i>
<b>Location:</b>	<i>Camrose, Alberta, CANADA</i>
<b>Soil:</b>	<i>Loam, solonetzic clay underneath, OM = 8.3%, pH = 5.8, EC = 0.3 dS/m</i>
<b>Test plot:</b>	<i>4.5 x 22 ft<sup>2</sup> (1.4 x 6.6 m<sup>2</sup>)</i>

## **Design of Experiments**

- *One plot represented one treatment (including control)*  
*Each treatment was replicated 3 times, i.e. 3 test plots per treatment*
- *All plots were seeded with canola at 6 lbs/acre in May 2014*

Macronutrients and organic matters were applied in May 2014

Control - 60.0 lbs N + 20.0 lbs P<sub>2</sub>O<sub>5</sub> + 0.3 lbs K<sub>2</sub>O/acre

Treatment 1 - 60.0 lbs N + 20.0 lbs P<sub>2</sub>O<sub>5</sub> + 0.3 lbs K<sub>2</sub>O + 0.5 USG Liquid Carbon/acre

Treatment 2 - 60.0 lbs N + 20.0 lbs P<sub>2</sub>O<sub>5</sub> + 0.3 lbs K<sub>2</sub>O + 1 USG Liquid Carbon/acre

Treatment 3 - 60.0 lbs N + 20.0 lbs P<sub>2</sub>O<sub>5</sub> + 0.3 lbs K<sub>2</sub>O + 2 USG Liquid Carbon/acre

Treatment 4 - 55.0 lbs N + 18.6 lbs P<sub>2</sub>O<sub>5</sub> + 0.3 lbs K<sub>2</sub>O + 0.5 USG Liquid Carbon/acre

Treatment 5 - 55.0 lbs N + 18.6 lbs P<sub>2</sub>O<sub>5</sub> + 0.3 lbs K<sub>2</sub>O + 1 USG Liquid Carbon/acre

Treatment 6 - 55.0 lbs N + 18.6 lbs P<sub>2</sub>O<sub>5</sub> + 0.3 lbs K<sub>2</sub>O + 2 USG Liquid Carbon/acre

Treatment 7 - 51.0 lbs N + 17.0 lbs P<sub>2</sub>O<sub>5</sub> + 0.2 lbs K<sub>2</sub>O + 0.5 USG Liquid Carbon/acre

Treatment 8 - 51.0 lbs N + 17.0 lbs P<sub>2</sub>O<sub>5</sub> + 0.2 lbs K<sub>2</sub>O + 1 USG Liquid Carbon/acre

Treatment 9 - 51.0 lbs N + 17.0 lbs P<sub>2</sub>O<sub>5</sub> + 0.2 lbs K<sub>2</sub>O + 2 USG Liquid Carbon/acre

- CHI Liquid Carbon contained 12.0% humic acids

Also contained 0.7% N, 1.8% K<sub>2</sub>O, and negligible amounts of other nutrients

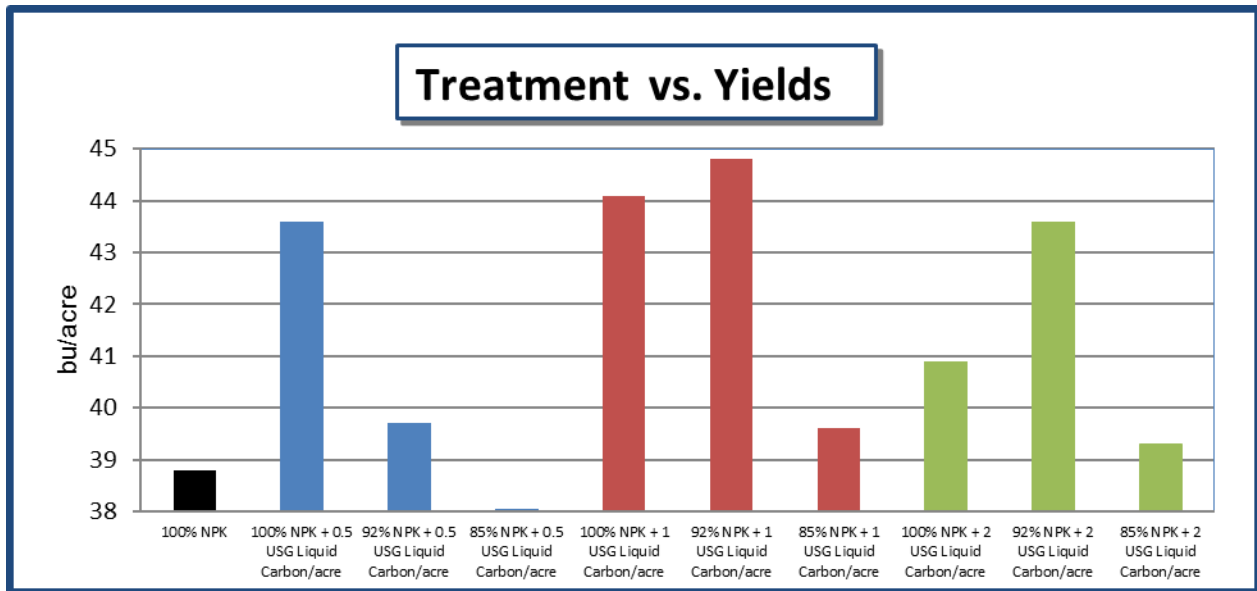
N and K<sub>2</sub>O in product were compensated within nutrient (NPK) inputs for each plot

- Harvest was completed in September 2014

Yield for each plot was measured

Results from 3 plots of same treatment were averaged

Yields were presented as bu/acre (1 bushel = 50 lbs)



## Results

CHI Liquid Carbon increased yields of canola, suggesting that humic acids made nutrients more available to plants. CHI Liquid Carbon at 1 USG/acre was found to be optimum with the highest yield increase at 15% over control. Even at 85% NPK, 2% increase was still observed. 0.5 USG/acre performed well with 100% NPK, but deteriorated with reduced nutrient inputs. 2 USG/acre was too much with 100% NPK, good with 92% NPK, and satisfactory with 85% NPK.

## Conclusions

CHI Liquid Carbon at 1 USG/acre increased the yield of canola by up to 15%. The yield was maintained even when the nutrient (NPK) input was reduced to 85%.