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Field Test Results (Soil SAR & EC) - 2014

CHI Liquid Carbon Reduced Soil Sodium Adsorption Ratio (SAR) & Electrical Conductivity (EC)

Objective:	*To use humic acids to reduce soil SAR and EC*
Collaborator:	*Bates Farm, Gadsby, Alberta, CANADA*
Financial support:	*Canada Revenue Agency (Scientific Research & Experimental Development)*
Period:	*October 2013 to July, 2014*
Tested product:	*CHI Granule (source of raw humic acids)* *CHI Liquid Carbon (source of extracted humic acids)*
Location:	*Gadsby, Alberta, CANADA*
Soil:	*40% dark brown solod, 40% dark brown solodized solonetz, and 20% orlic dark brown chernozem*
Tested area:	*4 acres (1.6 ha)*

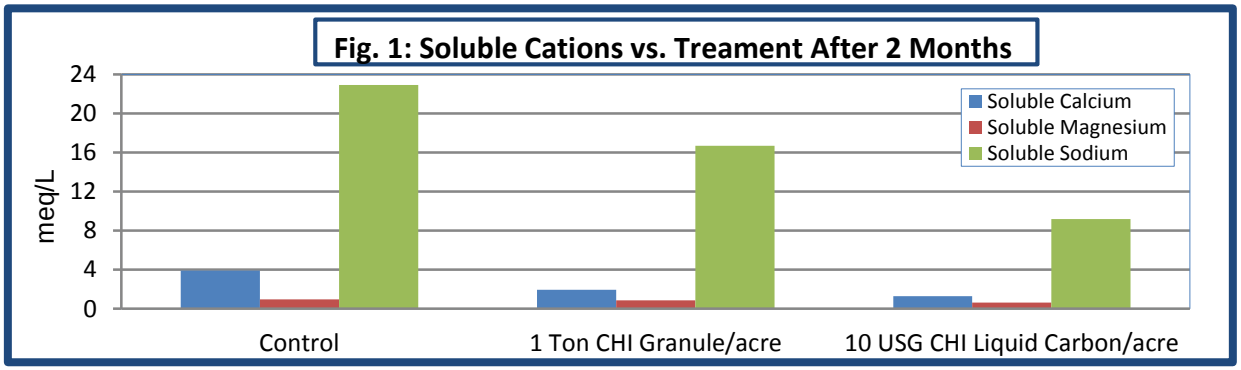
Design of Experiments

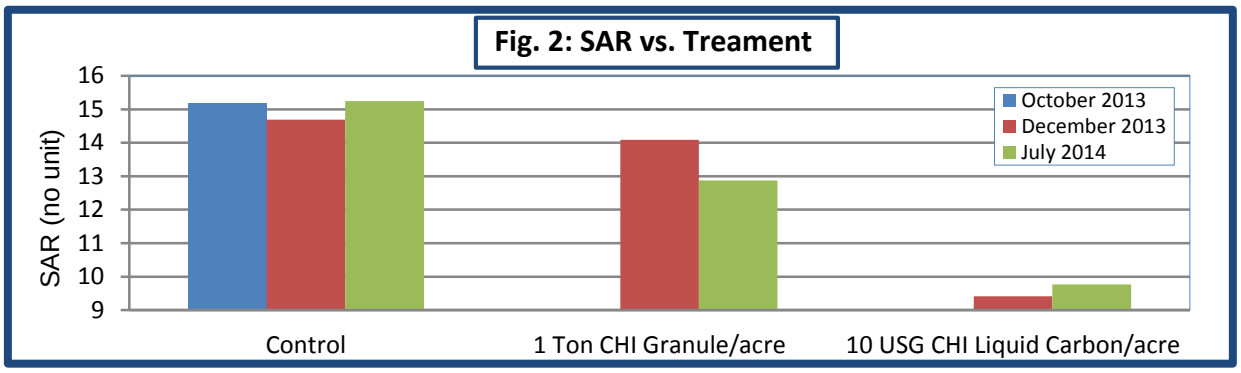
- *Three soil samples were taken from tested area, aggregated, and analyzed for pH, soluble calcium, soluble magnesium, soluble sodium, SAR, and EC*
- *Three test plots of 65 ft^2 (6 m^2) each were randomly selected from tested area:*
  Plot 1 - no product application (control)
  Plot 2 - 2,000 lbs (1 ton) CHI Granule/acre was applied in October 2013
  Plot 3 - 10 USG (38 L) CHI Liquid Carbon/acre was applied in October 2013

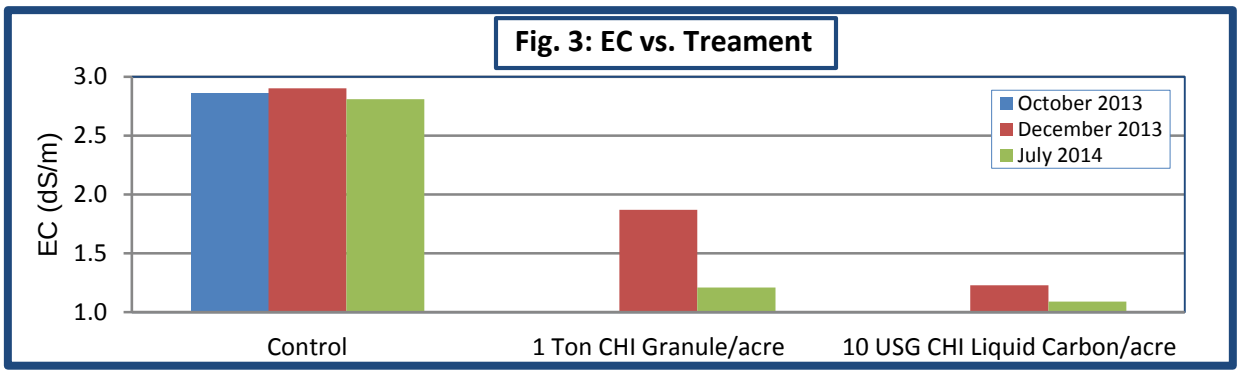
- *Three soil samples were taken from each plot in December 2013, aggregated, and analyzed for pH, soluble calcium, soluble magnesium, soluble sodium, SAR, and EC*
- *Three soil samples were taken from each plot in July 2014, aggregated, and analyzed for pH, soluble calcium, soluble magnesium, soluble sodium, SAR, and EC*

Results

Background soil contained high levels of SAR (around 15) and EC (around 2.8 dS/m), beyond acceptable limits of 13 and 2 dS/m, respectively. CHI Liquid Carbon at 10 USG/acre performed better than CHI Granule at 1 ton/acre in reducing soil soluble cations, SAR, and EC. CHI Granule reduced soil SAR to 12.9 after 9 months of treatment. CHI Liquid Carbon reduced it to 9.4, and met its target, only after 2 months of treatment. After 2 months, both products reduced soil EC below its limit, i.e. 1.87 dS/m for CHI-Granule and 1.21 dS/m for CH-Liquid Carbon.







Conclusions

CHI Liquid Carbon and CHI-Granule reduced soil soluble cations, SAR, and EC. CHI Liquid Carbon at 10 USG/acre performed better reducing SAR and EC from 15 and 2.8 dS/m down to 9.4 and 1.21 dS/m, respectively after 2 months of application.