

## **Field Test Results (High-Salinity Soil)-2013**



### ***Recovery of Non-Cultivable High-Salinity Soil with CHI Liq-SSS 12***

High-salinity soil decreases crop yield due to reduced ability of plants to take up water from soil and higher burnt-off incidences for young leaves. High-salinity soil is sometimes linked with high pH, which reduces the availability of nutrients like zinc, iron, and phosphorous. Crops such as dry beans, sorghum, and silver maples are sensitive to high pH, while corn and wheat are moderately susceptible.

High-salinity soil may be caused by an excessive use of nitrogen fertilizers. Humic organic matter helps reducing the amount of fertilizer without reducing the yield as it makes nutrients more available to plants.

Objective: To apply organic matter (humic acids) in a non-cultivable high-salinity soil  
Collaborators: P. Verdi and M. Cano at Bates Farm, Gadsby, Alberta, CANADA  
Financial support: Canada Revenue Agency (Scientific Research & Experimental Development)  
Period: June to September, 2013

Tested product: CHI Liq-SSS 12 (source of humic acids)  
 Tested crop: Wheat, "CDC Go" variety  
 Location: Gadsby, Alberta, CANADA  
 Soil: 40% dark brown solodized solonetz, 40% dark brown solod, 20% orthic dark brown Chernozem  
 Test area: 17.9 acres

**Design of Experiment**

- Treatment 1: 0 USG CHI Liq-SSS 12/ acre + 110 lbs 46-0-0/acre, applied to normal zone
- Treatment 2: 10 USG CHI Liq-SSS 12/ acre + 110 lbs 46-0-0/acre, applied to saline soil zone, that can be divided in three subzones:

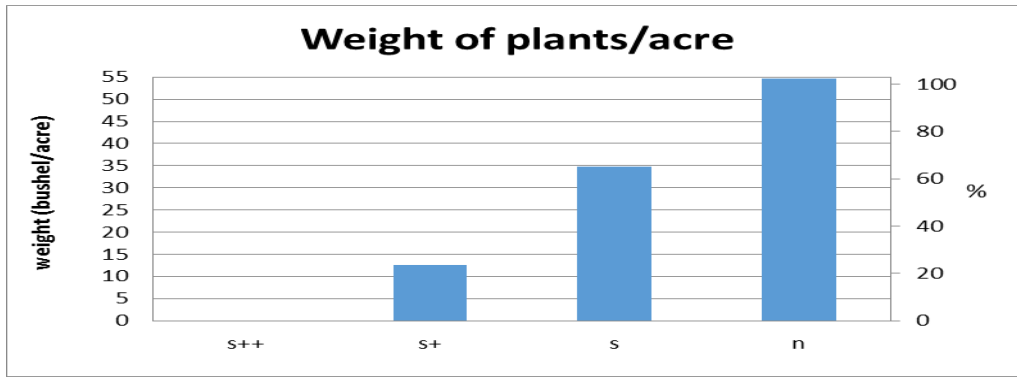


	N=Normal	S = Slightly saline	S+= Moderately saline	S++= Extremely saline
EC (dS/m)	0.81	1.53	7.02	38.3
pH	6.26	7.05	7.5	7.78

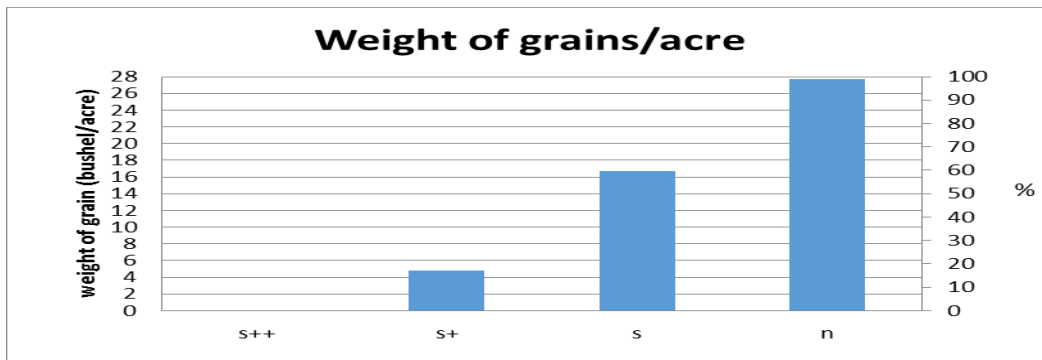
Normal zone was very low in salt, crops could grow without problems. Subzone S was slightly saline, sensitive crops decreased its yield. Subzone S+ was moderately saline, yield decreased for most crops. Subzone S++ was extremely saline, no crops grew. During harvest, a sample of 1m<sup>2</sup> was obtained from each zone, which was extrapolated to 1 acre. Each sample was measured for total plant and grain weights. Yields were presented as bu/acre (1 bu = 60 lbs).

**Results**

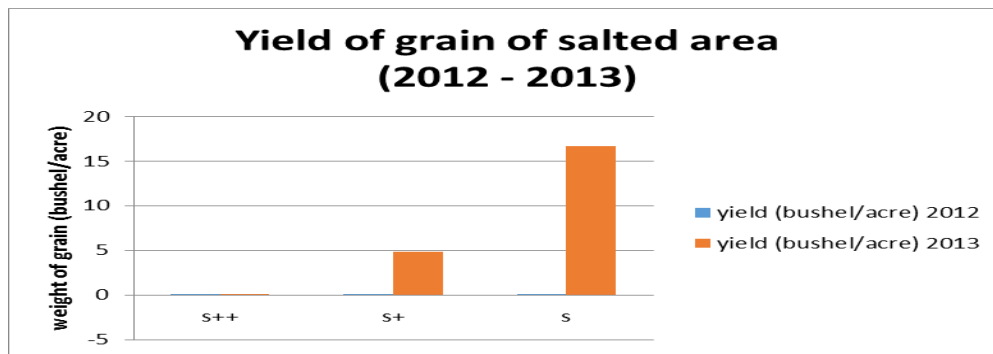
Due to CHI Liq-SSS 12 application, subzones s+ and s (which were previously non-cultivate) showed plant yields of 22.9 and 63.7% from the normal zone's at 54.6 bu/acre, respectively.



Subzones s+ and s also showed grain yields at 17.4 and 60.1% from the normal zone's at 27.73 bu/acre, respectively.



Due to CHI Liq-SSS 12 application, grain yields increased significantly in the interval of one year for subzones s+ and s at 4.8 and 16.7 bu/acre, respectively. Subzone "s++" remained non-cultivate. Knowing that the saline frame was non-cultivate for years, it was evident that the application of CHI Liq-SSS 12 was relevant.



**Conclusions**

The application of organic matter (CHI Liq-SSS 12) at 10 USG/acre enhanced recovery of high-salinity soil significantly.