



Biology: The Impact in High Salt Soils

Salinity/high-salt soil is recognized as one of the most significant “limiting factors” in high-production agriculture today. While salt is a natural component of all soil, high concentrations of salt have been brought into our farm systems over the past 5-6 decades through applied fertilizer and in the irrigation water we use today. Most crop plants are sensitive to salinity, the number of acres affected is increasing day by day.

Effects of Soil Salinity

Soil salinity leads to:

- **Ion toxicity.** Decreasing photosynthetic energy and chlorophyll concentrations which accelerates leaf senescence and leaf demise.
- **Osmotic stress.** This causes critical cell damage, **nutrient deficiency**, and **oxidative stress** which limits water uptake from soil.

Salinity affects most all aspects of plant development including germination, vegetative growth, and reproductive development.



Watch our video on the impact of biology on saline soils.

Diminished agricultural productivity means low economic returns this year and without a change in cultural practices or input selections, this trend will continue. There is something farmers can do.

The fix includes both chemistry and biology:

Dissociation
Reassociation
Uptake & Exchange

A salt molecule has no energy and it lacks the exchange capacity to be metabolized. Biology plays an important role in making the molecule plant available.

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Over time the fertilizer used caused this salt layer/limiting factor in this operation.

The use of LiquiLife+® broke the limiting factor apart.

In 5 short weeks, the limiting factor turned back into the beneficial input it was intended to be.

Taken from Scott Rygg's soil tests, the data on the below highlights the reduction in sodium and soluble salts. **This achievement was made in only 18 months on his farm!**

Sodium PPM				
Sample ID	Fall 2021	Spring 2023	Reduced PPM	Reduced %
Sct 29 SW-N	362.6	205	-157.6	43%
Sct 31 NEE	211	174	-37	18%
Sct 31 NE-W	24	18	-6	25%
Sct 32 NW-M	320	199	-121	38%
Sct 32 SW-E	137	48	-89	65%
Sct 32 SW-W	105.5	74	-31.5	30%
Sct 12 SEE Top	12.4	10	-2.4	19%
Sct 12 SEE Bot	14.4	13	-1.4	10%
Average Reduction				31%

Soluble Salts (EC)				
Sample ID	Fall 2021	Spring 2023	Reduced PPM	Reduced %
Sct 29 SW-N	2.4	1.6	-0.8	33%
Sct 31 NEE	1.8	1.3	-0.5	28%
Sct 31 NE-W	0.2	0.1	-0.1	50%
Sct 32 NW-M	2.0	1.4	-0.6	30%
Sct 32 SW-E	1.2	0.59	-0.61	51%
Sct 32 SW-W	1.4	0.76	-0.64	46%
Sct 12 SEE Top	0.2	0.05	-0.15	75%
Sct 12 SEE Bot	0.2	0.31	0.11	-55%
Average Reduction				32%

Soluble Salts (EC) Average Reduction 32%