



SUMMARY OF FIELD DATA

As of October 2007

In 2004, while traveling in the desert southwest of the US, we were exposed for the first time to the Water Conditioner technology. We were intrigued by the improvement in soil and plant health when high TDS, high sodium water was treated with this technology. We were not impressed by the lack of explanation as to how this device worked nor the inability of users to explain the science behind this technology. Seemed like "Snake Oil" to us.

Thus began the research, investigating what happens when you pass water through a magnetic field. We have spent more than 3 years researching this technology. We have read dozens of technical publications from esteemed technical journals such as Nature, IEEE, and Water Research. These articles go back as far as the 1960s. We have purchased a couple dozen units from different manufacturers and studied them. Field trials have been conducted and many are still in progress with a continuous collection of data.

This technology is nothing new. It has been widely known and accepted that passing water through a magnetic field has beneficial effects. The problem has been explaining not only what happens, but why. Unfortunately many before us have muddied the marketplace with false claims and failures.

We DID NOT invent this technology. We have simply studied it to death so that we are accurate in identifying applications for it. Once we have found an application and installed a unit, we are critical of quantifying the results of using the Water Conditioners to demonstrate value to our customers.

Attached are six (6) different examples of the use and performance of the Water Conditioner in both field trial and full scale applications. As you can see, the data is different for each installation. What is consistent and repeatable in each example is that there is a change in the soil solution or soil quality after using the Water Conditioner.

New Waves recognizes that the number of variables for each installation are numerous and thus expects different performance depending on these variables.

We make no claims, no silver bullet promises, only to provide our prospective customers with as much field data as possible so that they are educated in making a decision to work with the Water Conditioner. From this point, we will work to quantify results so that our customers recognize the value in treating their irrigation water with a Water Conditioner.

"There are a few precautions to be noted before selecting the technology: This technology is littered with disreputable manufacturers or vendors, the actions of whom have given the technology an undesirable history in the eyes of many. Work with a reputable manufacturer through their engineering department or their designated installer. These people have much more experience with the technology than the typical water treatment engineering firm."

- taken from "Non-Chemical Technologies for Scale and Hardness Control", Federal Technology Alert, January 1998, U.S. Department of Energy, Office of Energy Management.

EXAMPLE 1:

- Water Conditioner installed beginning of February 2007.
- Historical bicarbonate levels in water and soil are always elevated.
 - Water 250-400 mg/L
 - Soil > 150 mg/L or > 2.0 meq/L
- Dry Spring in 2007. Rainfall levels equate to those of 2006.



AnaLync

SOIL ANALYSIS - WATER EXTRACTABLE TEST RESULTS Testing Performed by Harris Labs, Lincoln, Nebraska

Laboratory No.	MAY 06	FEB 07	APR 07	OCT 07		MAY 06	FEB 07	APR 07	OCT 07		
Client ID	1GRN	#1GRN	1GRN	1GR		16GRN	16GRN	16GRN	16GA		
EC - conductivity	1.01	0.64	1.56	0.68		1.11	0.70	1.20	0.67		
Saturation Index	0.85	1.05	0.99	0.97		1.05	1.00	1.10	1.12		
Na - meq/ltr	1.8	1.0	1.7	0.5		1.0	0.8	1.8	0.5		
Ca - meq/ltr	2.4	2.5	6.4	2.5		1.8	2.9	5.3	2.8		
Mg - meq/ltr	2.3	1.2	2.7	1.2		2.2	1.3	2.6	1.3		
K - meq/ltr	3.8	1.1	3.2	1.2		1.8	1.0	3.7	1.4		
NH4 - N - meq/ltr	0.3	0.9	0.4	1.3		0.3	0.6	0.3	1.4		
NO3 - N - meq/ltr	1.1	1.3	3.4	1.9		1.1	1.5	3.6	2.1		
P - PO4 - meq/ltr	0.4	0.5	0.4	0.4		0.5	0.6	0.0	0.4		
HCO3 - meq/ltr	2.5	1.5	1.2	1.3		2.8	1.7	1.2	1.2		
S - SO4 - meq/ltr	7.6	3.6	10.7	3.8		1.6	4.3	8.8	3.9		
Cl - meq/ltr	1.5	0.8	2.1	0.5		1.7	0.8	1.9	0.6		
B - meq/ltr	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.1		
Mn - ppm	0.8	0.4	0.2	0.3		0.5	0.4	0.1	0.3		
Cu - ppm	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.1		
Zn - ppm	0.3	0.3	0.3	0.1		0.3	0.3	0.3	0.1		
Fe - ppm	2.8	4.0	2.3	3.6		2.5	5.2	1.7	3.7		

Bicarbonate levels in the soil solution have gradually dropped over the course of 10 months with the installation of the Water Conditioner. This can be seen on both Green 1 and Green 16.

Course opted to use Water Conditioner technology over traditional Sulfur Burner. Below is a breakdown of the cost savings realized:

	Sulfur Burner	Water Conditioner
Fixed Cost – unit	\$22,000	\$40,000
Variable Cost		
- Annual Sulfur usage	\$16,000	None
Lifespan	5 years	10 years
Annual Cost (\$/yr)	\$20,400	\$4,000
Realized Savings	80.4% or \$16,400/yr	

EXAMPLE 2:

- Water Conditioner installed December 2006.
- Primary application, build up in irrigation piping.
- Calcium based build up restricting flow in irrigation system (see photo below)



SOIL ANALYSIS - WATER EXTRACTABLE TEST RESULTS Testing Performed by Harris Labs, Lincoln, Nebraska

	A	B	C	D										
Laboratory No.	Nov 06	Mar 07	Jun 07	Sep 07										
Client ID	#18	#18	#18	#18										
EC - conductivity	0.36	0.49	0.35	0.25										
Saturation Index	1.14	0.91	0.88	0.90										
Na - meq/ltr	0.4	0.7	0.6	0.4										
Ca - meq/ltr	2.0	2.0	1.4	0.8										
Mg - meq/ltr	0.3	0.5	0.6	0.6										
K - meq/ltr	0.4	0.4	0.8	0.1										
NH4 - N - meq/ltr	0.7	0.4	0.1	0.3										
NO3 - N - meq/ltr	2.1	4.3	1.7	2.8										
P - PO4 - meq/ltr	0.2	0.2	0.2	0.2										
HCO3 - meq/ltr	1.3	1.8	0.9	0.9										
S - SO4 - meq/ltr	0.4	0.5	0.4	0.3										
Cl - meq/ltr	0.7	0.5	0.5	0.3										
B - meq/ltr	0.1	0.1	0.1	0.1										
Mn - ppm	1.3	0.6	1.6	0.6										
Cu - ppm	0.1	0.1	0.1	0.1										
Zn - ppm	0.1	0.1	0.1	0.1										
Fe - ppm	6.2	1.5	3.8	1.0										

Improvement in percolation rate (Saturation Index) and leaching (mobility) of Chlorides observed.

Removal of build up (primarily Calcium Carbonate) within irrigation piping in 8 weeks.



EXAMPLE 3:

- Installed Water Conditioner on a greens loop for testing purposes. Treated Green
- Compared soils on an adjacent green without treatment. Control Green
- Irrigated on same schedules for 3 months.



Analync

SOIL ANALYSIS - WATER EXTRACTABLE TEST RESULTS Testing Performed by Harris Labs, Lincoln, Nebraska

	A	B												
Laboratory No.	5249555	5249554												
Client ID	Control	Treated												
EC - conductivity	0.72	0.65												
Saturation Index	1.17	1.27												
Na - meq/ltr	7.4	2.5												
Ca - meq/ltr	1.6	1.3												
Mg - meq/ltr	1.6	1.3												
K - meq/ltr	1.0	1.1												
NH4 - N - meq/ltr	5.7	2.7												
NO3 - N - meq/ltr	1.9	1.1												
P - PO4 - meq/ltr	0.8	0.6												
HCO3 - meq/ltr	1.7	2.0												
S - SO4 - meq/ltr	6.9	2.5												
Cl - meq/ltr	2.4	2.1												
B - meq/ltr	0.2	0.2												
Mn - ppm	0.5	0.5												
Cu - ppm	0.1	0.2												
Zn - ppm	0.2	0.2												
Fe - ppm	2.2	2.2												

Control



Treated



Reduction in soluble Sodium and Chloride levels in soil allowed appreciable root mass increase.

EXAMPLE 4:

- Water Conditioner installed on a greens loop, Treated Green.
- Well water with excessively high Sodium (> 500 ppm) and dissolved solids (> 3000 ppm).



SOIL ANALYSIS - WATER EXTRACTABLE TEST RESULTS Analync Testing Performed by Harris Labs, Lincoln, Nebraska

	Control	Control			Treated	Treated				
Laboratory No.	4/7/2006	5/12/2006			4/7/2006	5/12/2006				
Client ID	Grn #9B	Grn #9B			Grn #6B	Grn #6B				
EC - conductivity	2.56	2.62			2.32	2.38				
Saturation Index	0.68	0.66			0.67	0.77				
Na - meq/ltr	7.1	9.7	37%		8.1	8.4	4%			
Ca - meq/ltr	5.0	3.8	-24%		5.6	6.5	16%			
Mg - meq/ltr	4.2	3.7			4.7	4.5				
K - meq/ltr	0.9	1.1			1.1	0.9				
NH4 - N - meq/ltr	0.2	0.3			0.2	0.3				
NO3 - N - meq/ltr	0.9	0.6			0.6	0.9				
P - PO4 - meq/ltr	0.2	0.2			0.3	0.2				
HCO3 - meq/ltr	0.4	0.8			0.5	0.9				
S - SO4 - meq/ltr	8.4	8.5			9.1	9.3				
Cl - meq/ltr	11.4	12.7			12.6	12.7				
B - meq/ltr	0.1	0.1			0.1	0.1				
Mn - ppm	0.1	0.1			0.1	0.1				
Cu - ppm	0.1	0.1			0.1	0.1				
Zn - ppm	0.1	0.1			0.1	0.1				
Fe - ppm	2.0	2.8			2.1	2.5				
SAR	3.6	5.0		SAR	3.3	3.6				

Dry spring, little rain, sodium begins to accumulate in the soil. Sodium Adsorption Ratio (SAR) begins to increase for both the control and treated green.

With the use of the Water Conditioner, the impact of Sodium is far less on the Treated Green. Sodium levels increase by only 4% compared to 37% for the Control. Additionally, soluble Calcium drops 24% on the Control Green while it increases by 16% on the Treated Green.

EXAMPLE 5:

- Single application on a greens loop.
- Treated Green is located directly on the Atlantic Ocean.
- Historically suffers from excessive Sodium in soil profile.



Analync

SOIL ANALYSIS - WATER EXTRACTABLE TEST RESULTS Testing Performed by Harris Labs, Lincoln, Nebraska

	A	B	C															
Laboratory No.	Control	Control	Treated															
Client ID	#6	#13	#18															
EC - conductivity	1.50	1.65	1.53															
Saturation Index	1.08	1.03	0.91															
Na - meq/ltr	5.6	6.0	2.8															
Ca - meq/ltr	2.7	2.8	2.6															
Mg - meq/ltr	2.3	2.6	2.8															
K - meq/ltr	0.6	0.7	0.7															
NH4 - N - meq/ltr	0.3	0.4	0.3															
NO3 - N - meq/ltr	2.6	2.4	3.2															
P - PO4 - meq/ltr	0.3	0.3	0.1															
HCO3 - meq/ltr	1.3	1.0	1.5															
S - SO4 - meq/ltr	2.7	3.3	2.1															
Cl - meq/ltr	7.7	6.2	8.9															
B - meq/ltr	0.1	0.1	0.1															
Mn - ppm	0.4	0.3	0.3															
Cu - ppm	0.1	0.1	0.1															
Zn - ppm	0.1	0.1	0.1															
Fe - ppm	1.2	1.2	0.8															
SAR	2.9	3.0	1.4															

After 3 months of treatment, the soluble Sodium levels in the green have been drastically reduced.

EXAMPLE 6:

- Water Conditioner installed on a greens loop.
- Green 5 is Treated Green.
- Soil analyses performed after 3 and 5 months.



Analync

SOIL ANALYSIS - WATER EXTRACTABLE TEST RESULTS Testing Performed by Harris Labs, Lincoln, Nebraska

	After 3 Months				After 5 Months						
Laboratory No.	Treated	Control			Treated	Control					
Client ID	GRN#5	GRN#3			GRN#5	GRN#3					
EC - conductivity	0.68	0.77			0.95	0.86					
Saturation Index	1.03	0.98			0.86	0.89					
Na - meq/ltr	2.4	2.3			1.9	1.8					
Ca - meq/ltr	1.6	1.6			1.8	1.8					
Mg - meq/ltr	1.1	1.0			1.1	1.1					
K - meq/ltr	0.6	0.6			1.7	1.4					
NH4 - N - meq/ltr	0.3	1.0			0.2	0.5					
NO3 - N - meq/ltr	2.1	1.9			1.9	3.2					
P - PO4 - meq/ltr	0.7	0.7			0.4	0.6					
HCO3 - meq/ltr	1.5	1.7			0.7	0.8					
S - SO4 - meq/ltr	2.0	2.6			2.1	2.8					
Cl - meq/ltr	2.2	1.7			1.6	1.6					
B - meq/ltr	0.1	0.1			0.1	0.1					
Mn - ppm	0.5	0.5			0.4	0.5					
Cu - ppm	0.1	0.1			0.1	0.1					
Zn - ppm	0.1	0.1			0.1	0.1					
Fe - ppm	1.6	1.3			1.5	1.4					

The biggest improvement in this application was not found on the soil analysis, but on the visual inspection of the turf itself. This green was selected because of areas of hydrophobia which have been challenging to manage, particularly in the dryer winter season. The use of the Water Conditioner alleviated these areas over time, allowing moisture to penetrate in a more homogeneous fashion.