

CASE STUDY 153:

Cotton; Poor Water Quality

Quanah, Texas



KEY FINDINGS:

- Eliminated negative effects of salt & chlorides
- Achieved high quality crop using 6168 TDS water
- 111 bales in 2011 vs. 255 bales 2012
- 125% increase in yield compared to last year
- Eliminated germination and budding issues normally present with drought conditions

Problem:

Water reports show that the water source the grower was using to irrigate this field had water containing 6168 ppm of total dissolved solids. Contained within the 6168 TDS were very high levels of sodium and chlorides. In addition to the water problems, this field has extremely hard and clay like soil. As a result of these conditions, getting water to penetrate into the soil was found to be difficult. And when the water was absorbed into the plant the contaminants created toxic shock, creating early die off, stunted growth and low yields.

Irrigation Enhancer Solution:

The grower installed an 6" Irrigation Enhancer on the main irrigation line. The Irrigation Enhancer treats irrigation water by eliminating the water molecules ability to bond to other molecules or to any foreign contaminants such as salt and chlorides contained within the water. The Irrigation Enhancer achieves this by breaking dipole bonds and stripping valence electrons from the water and foreign contaminants, thereby leaving the water in a positively ionized state.

Results:

The Irrigation Enhancer eliminated the negative effects the salt, chlorides and clay soil caused. As a result he plants quickly matured, and crop yield ended up at 255 bales per acre. With less stress on the plant, the Irrigation Enhancer allowed the plant to have enough capacity, availability and stamina to produce higher yields. Also with less stress on the plant the cotton produced was very high in quality with a loan rate resulting in 56.16. These results can be seen in the following images of both plots, taken at the exact same time, periodically throughout the season.

Operational Profile

Farm Name	Jason Poole Farms
Crop Type	Cotton
Acres Treated	160
Seed	Bayer Fiber Max 9250
Irrigation	Center Pivot
Season	8 Months
Soil Loom	Clay
Water Quality	Very Poor, containing 6168 ppm of total dissolved solids



after installation of Irrigation Enhancer



6" Irrigation Enhancer

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Contact:
Eco1st Technology Group
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Water Report for (160 acre Katie Field)



Report generated for:
Jason Poole

Water Analysis Report
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
345 Heep Center, 2474 TAMU
College Station, TX 77843-2474
979-845-4816

Visit our website:
<http://soiltesting.tamu.edu>

Laboratory #: 17458
Customer Sample ID: 7
Date Processed: 9/24/2010
Sample from Hardeman County
Water Source =Well

Format based on publication SCS-2002-12

Water Use =Irrigation

Parameter analyzed	Results	Units	Method	V. Limiting	Limiting	Acceptable
Calcium (Ca)	925	ppm	ICP	*****		
Magnesium (Mg)	152	ppm	ICP		*****	
Sodium (Na)	933	ppm	ICP	*****		
Potassium (K)	13	ppm	ICP			*****
Boron (B)	1.01	ppm	ICP		*****	
Carbonate (CO ₃)	0	ppm	Titr.			*****
Bicarbonate (HCO ₃)	230	ppm	Titr.			*****
Sulfate (SO ₄ ²⁻ calculated from total S)	2195	ppm	ICP	*****		
Chloride (Cl ⁻)	1714	ppm	Titr.	*****		
Nitrate-N (NO ₃ -N)	4.55	ppm	Cd-red.			*****
Phosphorus (P)	0.02	ppm	ICP			*****
pH	7.00		ISE			*****
Conductivity	7100	umhos/cm	Cond.	*****		
Hardness	171	grains CaCO3/gallon	Calc.		*****	
Hardness	2934	ppm CaCO3	Calc.		*****	
Alkalinity	189	ppm CaCO3	Calc.			*****
Total Dissolved Salts (TDS)	6168	ppm	Calc.	*****		
SAR	7.5		Calc.			*****
Iron (Fe)						
Zinc (Zn)						
Copper (Cu)						
Manganese (Mn)						
Arsenic (As)						
Barium (Ba)						
Nickel (Ni)						
Cadmium (Cd)						
Lead (Pb)						
Chromium (Cr)						
Flouride (F)						
Charge Balance (cation/anion*100)	101		Calc.			

ppm=parts per million=milligrams per liter
N/A, not applicable for this water use

Descriptions of each water parameter, potential use issues and target levels are provided in publication SCS-2002-10, Description of Water Analysis Parameters.

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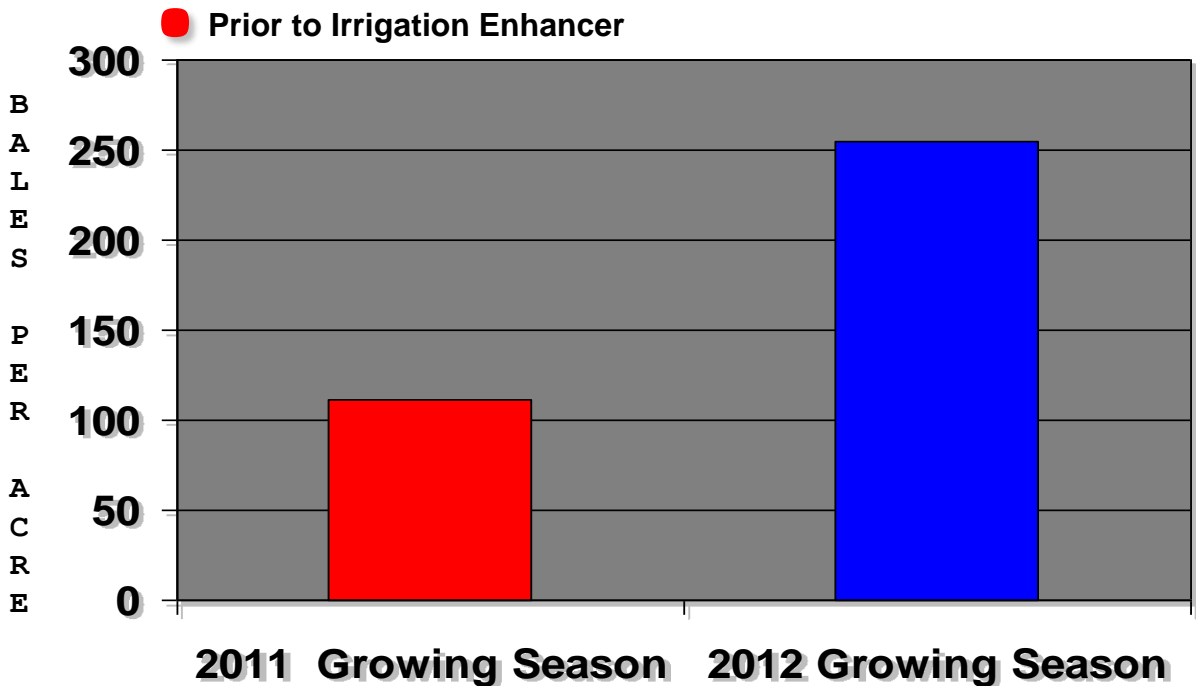


CASE STUDY 153:

VISUAL SUMMARY

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Results

- In 2011, The grower received 111 bales of cotton on the Katie field. After the Irrigation Enhancer was installed, the grower received 255 bales cotton. Not only was the cotton higher quality, the grower increased his production 125%.
- The grower has very high salinity and chlorides as noted on the water report. With the use of the Irrigation Enhancer, there are no signs of the negative effects from the salinity or chlorides in the water.
- This grower gained \$54,000 in additional profits with use of the Irrigation Enhancer.

Example

- With the use of the Irrigation Enhancer over the next 10 years with these or similar results, the grower would increase profits by \$540,000.

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