SoilBiotics Data review

By Agrimeasures, LLC

SoilBiotics Overview

- SoilBiotics was established June 2010 in Fairbury, Il whose goals are to provide quality products and customer service
- Todd Zehr, founder and owner of SoilBiotics, has over 25 years of experience in growing 240 different species of crops
- Todd graduated from Missouri State University with degrees in Agronomy and Chemistry
- Initially, nutrient management planning was the basis, but it has since been realized that applications of precision technology is just as important
- SoilBiotics helps farmers become more sustainable in their farming practices
- Todd is passionate about educating farmers, helping them see the potential benefits and then the results of proper soil and plant nutrient management
- SoilBiotics Conventional and Organic Growth Systems help to alleviate pressures from herbicide-resistant weeds and insect pressures that GMO crops do not always control
- These Growth Systems lead to proper nutrition for healthier soil and plants

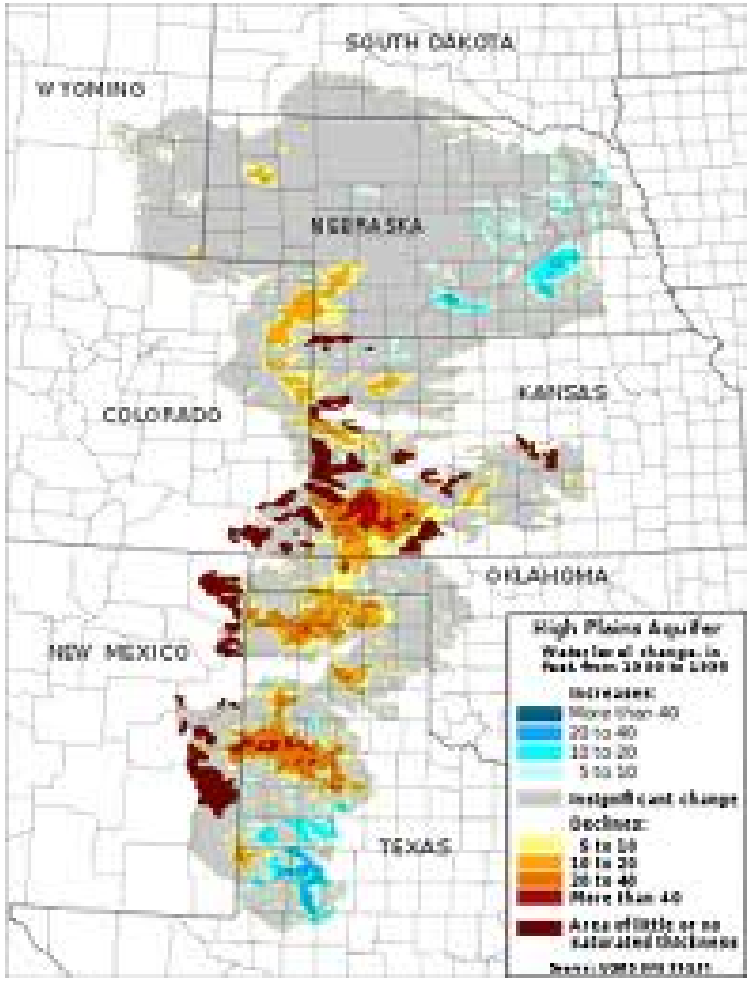
Agrimeasures, LLc

- Owned by Lance Lankford located in Trappe, MD
- Specializes in using electronic equipment to collect data to better understand how plants, nutrients and chemicals work mostly underground.
- Offer water management advice
- Offer center pivot prescriptions.
- Works with many companies researching products

IRF

- IRF (Irrigation Research Foundation) located in Yuma, CO
- No-profit started by concern farmers over future water supplies in the Ogallala aquifer.
- Started using capacitance probes 2008 to help study plant water needs and habits
- Now studies products and cultivars for water and nutrient efficiency

Ogallala Aquifer



Capacitance Probe

Typical Soil Type at IRF

Soil Texture Data

% Refill

50.0

Soil Texture

Field_Name	% Sand	% Silt	% Clay	% Field Capacity	% Permanent Wilting Point	% Avail Water	gal/ac ft Avail Water	inches/ ac ft Avail Water	% Refill Avail Water	ga//ac ft Refill Avail Water	inches/ac ft Refill Avail Water
Pivot A	56	16	28	26	16	10	32,842	1.2	5	16,421	0.6

One season of Data

One season of Data

Scale is Water Volume content in percent

Bottom scale is time line with data collected every 15 minuets

One season of Data

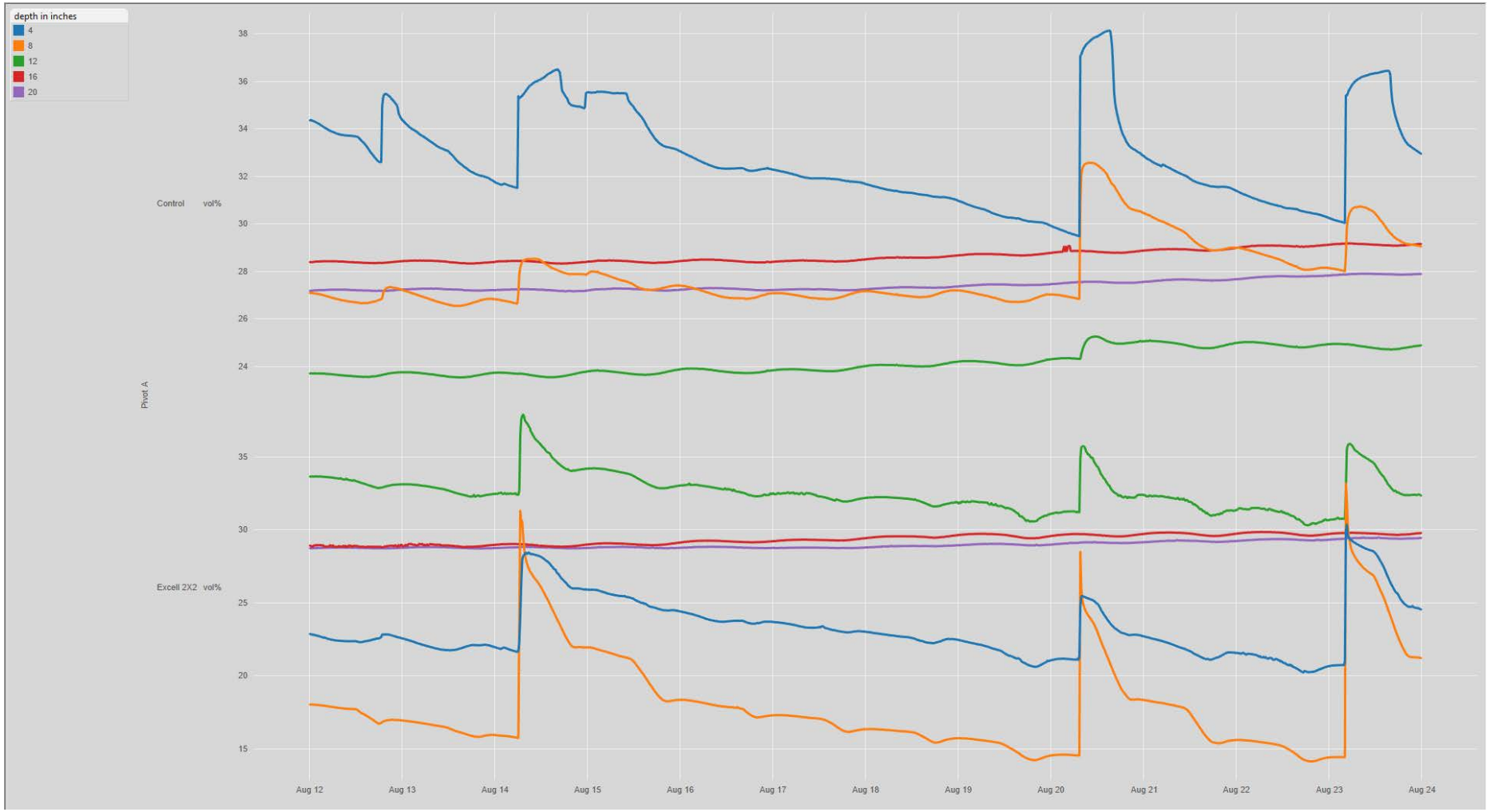
Color legend shows depths of data collection

Color legend show data source

One season of Data

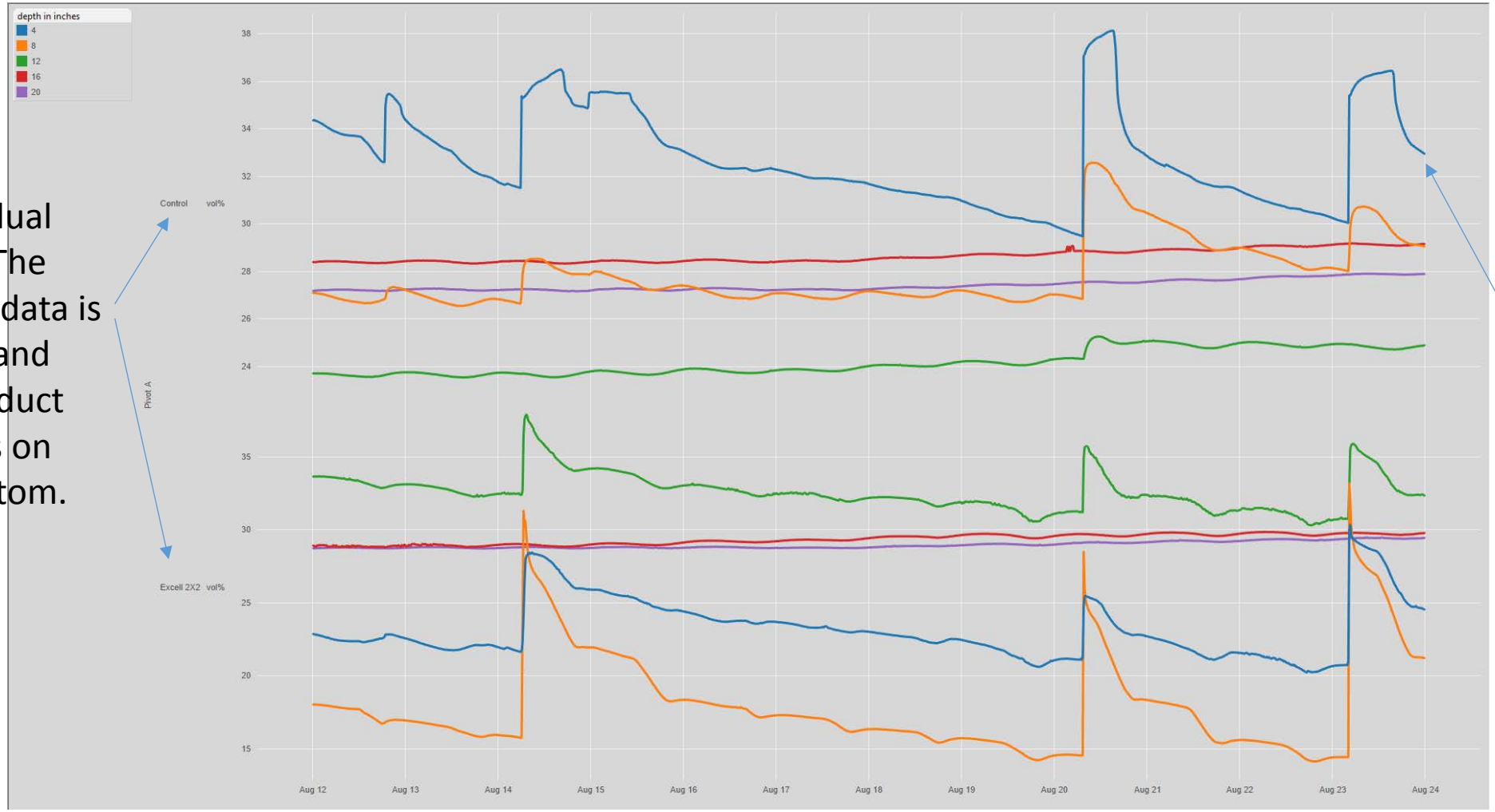
Area of interest

Data starting on 8-12-13 about 2 weeks



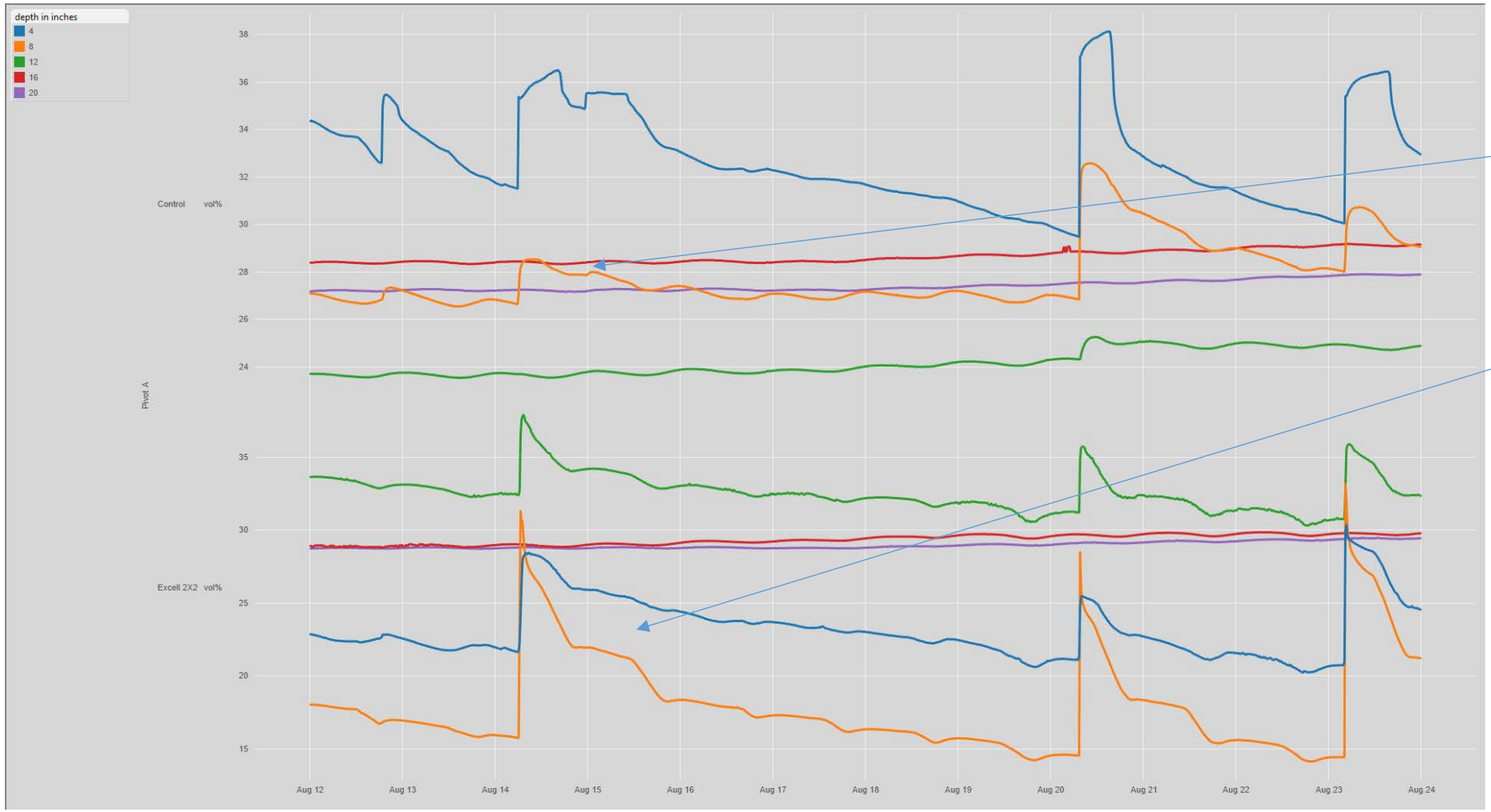
Data starting on 8-12-13 about 2 weeks

This is dual graph. The control data is on top and the product graph is on the bottom.



A common y axis graph will display the data relative to each other. The higher the line is on the graph the wetter it is.

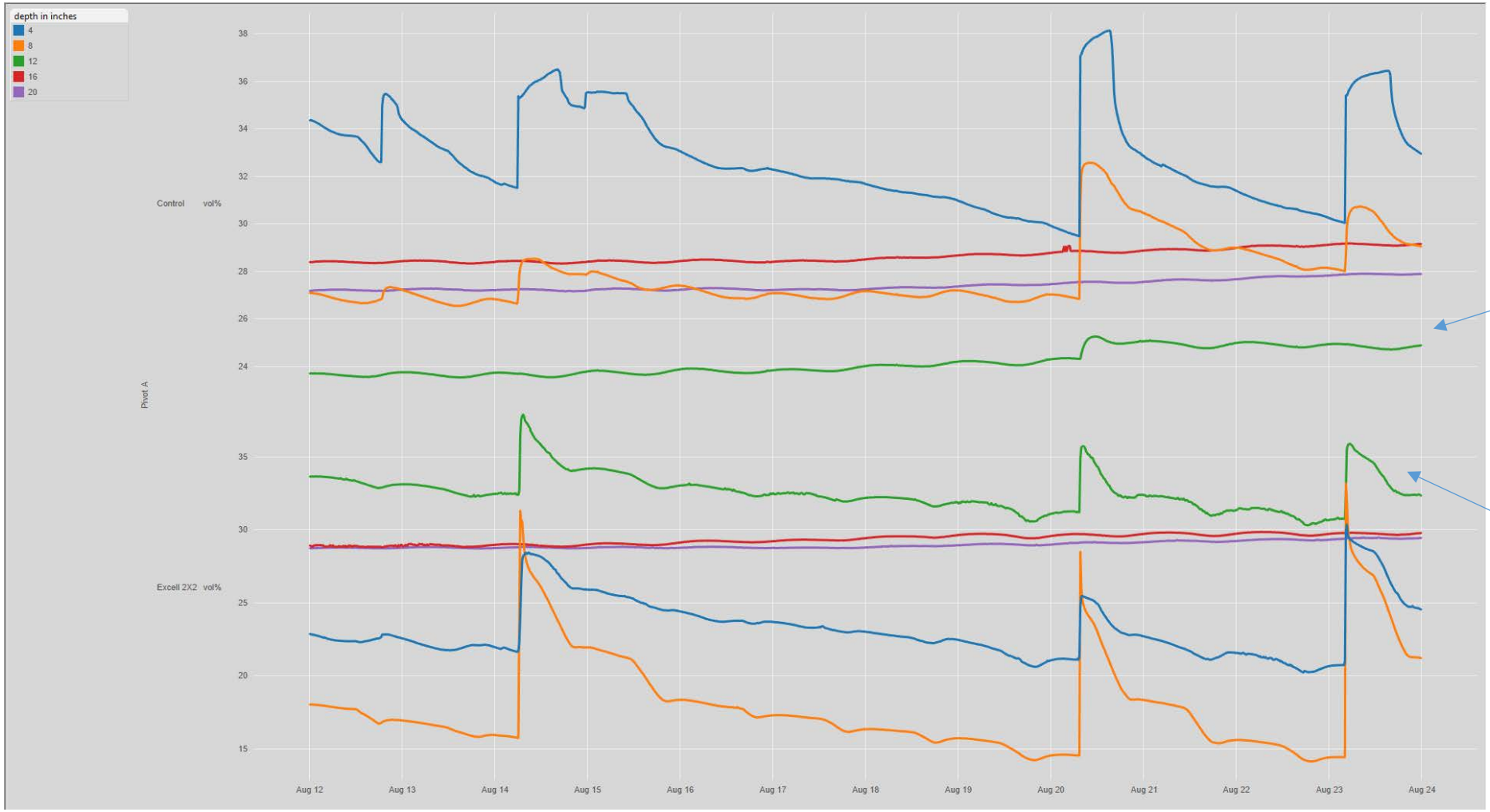
Data starting on 8-12-13 about 2 weeks



Limited water uptake by plant

Good water uptake by plant

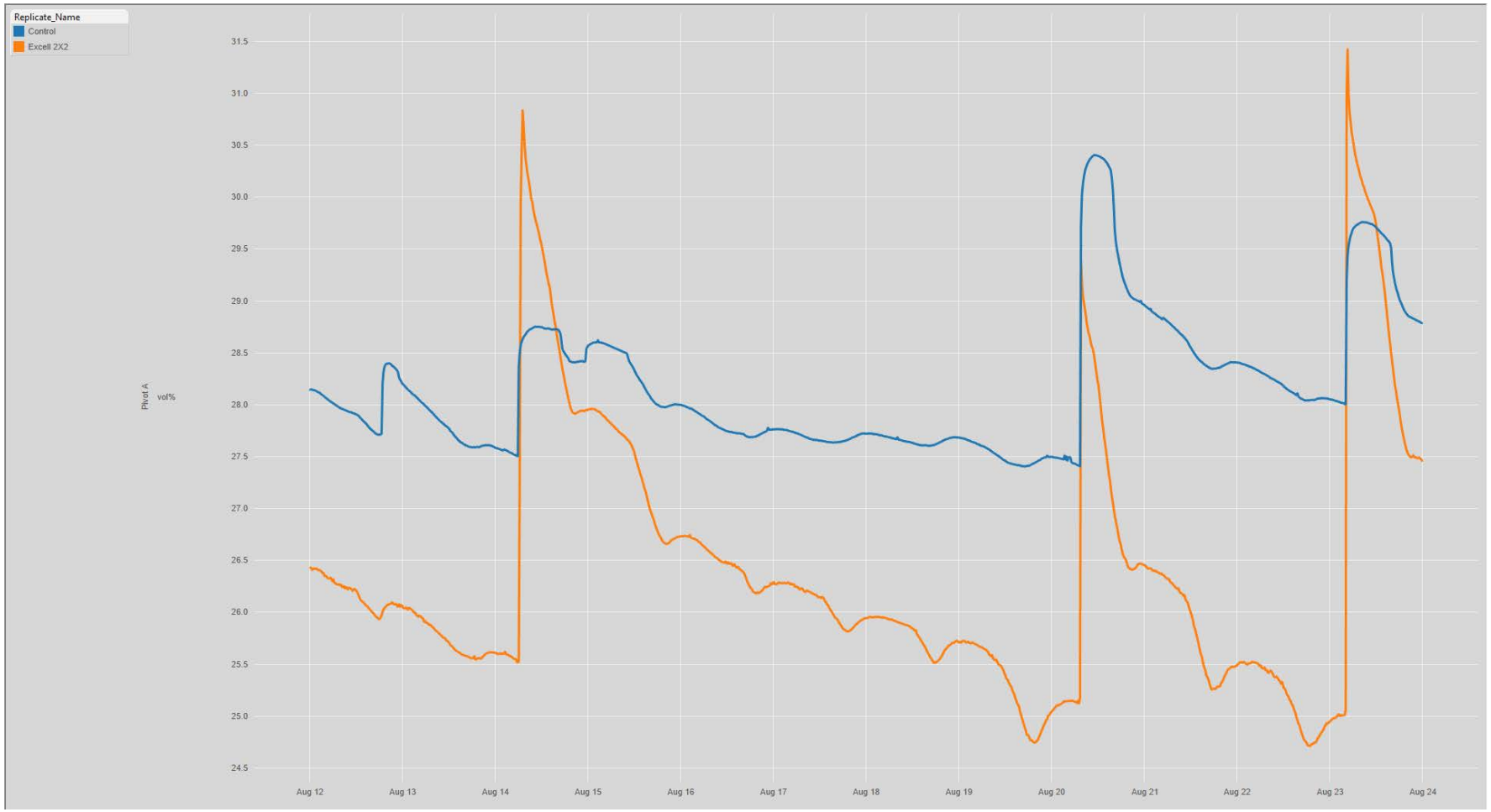
Data starting on 8-12-13 about 2 weeks



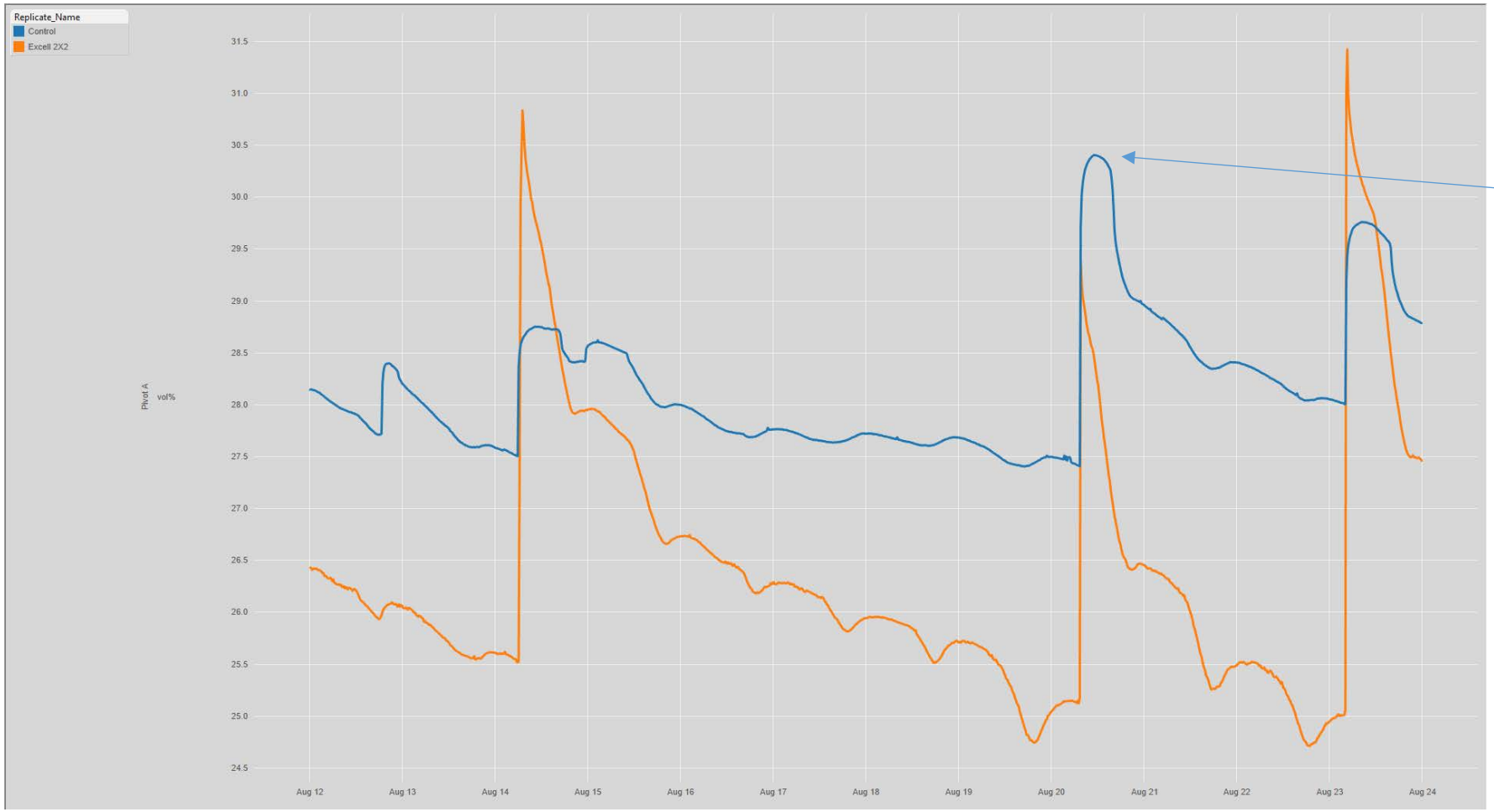
Unavailable water

Available water

Water balance for top 12 inches (average)

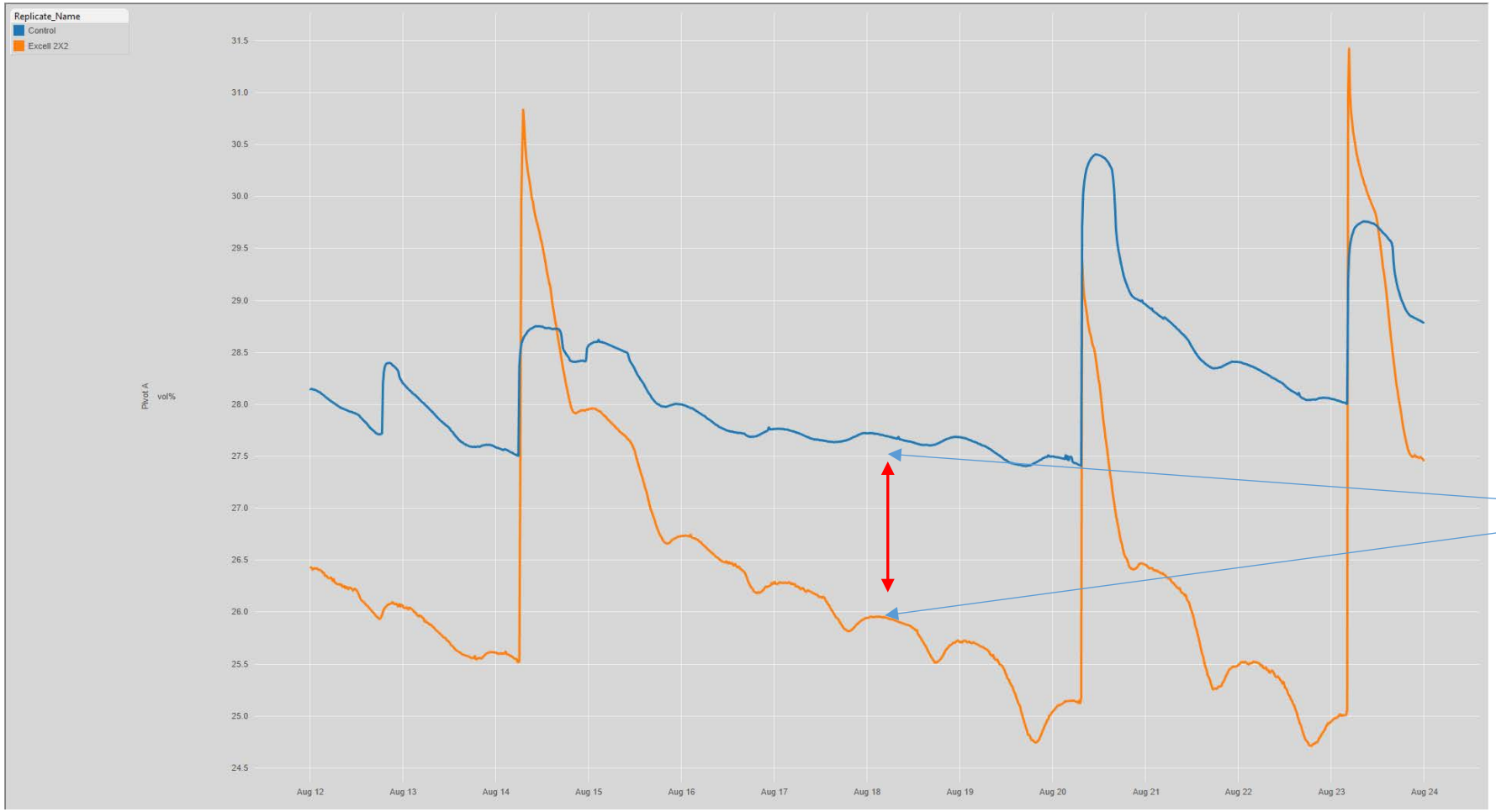


Water balance for top 12 inches



When graph line on water start to level off and appear to be almost flat that soil level is sataurated.

Water balance for top 12 inches (average)

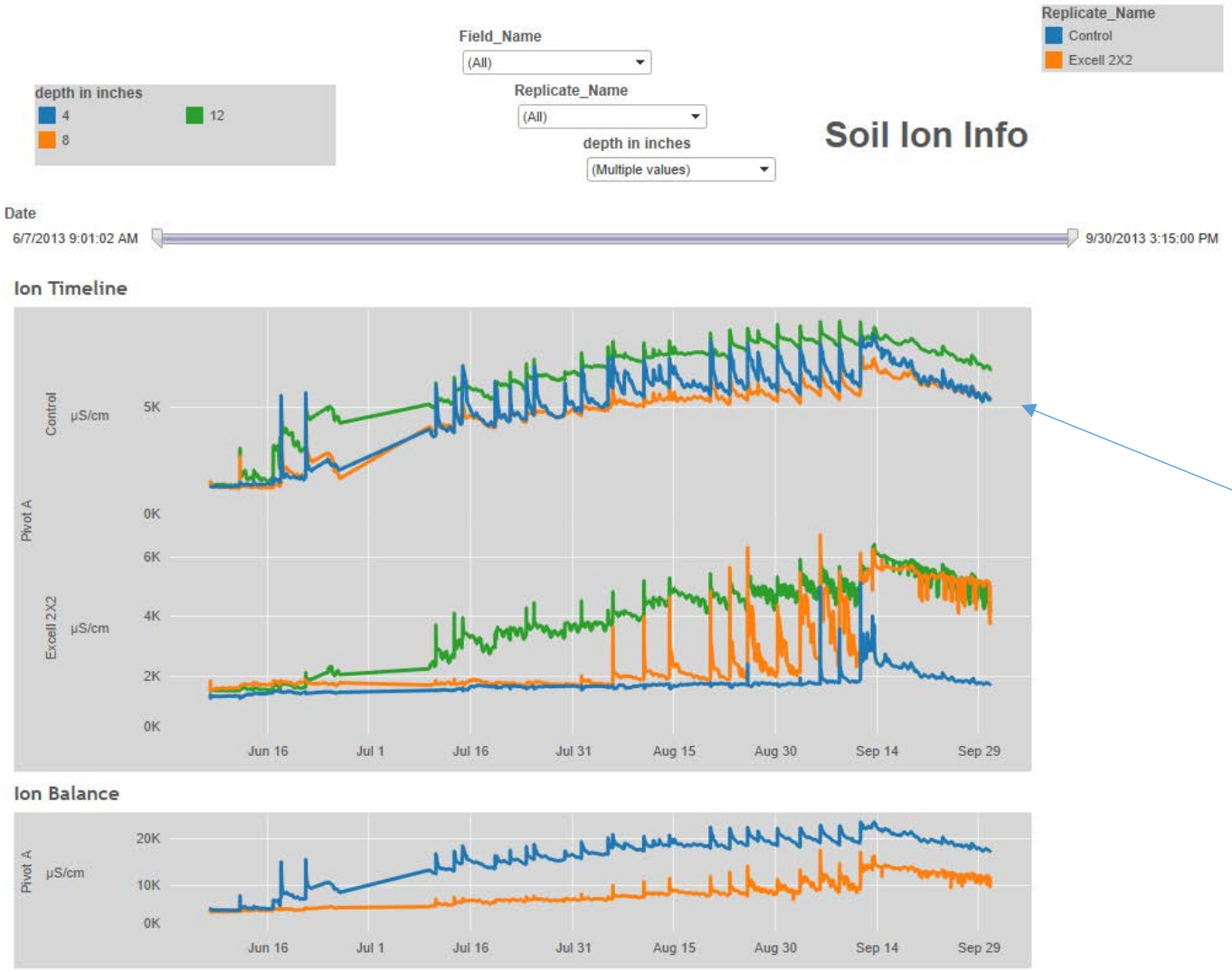


The greater the gap the more one crop used water over the other

Ion time line graph

Ion charts are best read when a lot of time has passed.

Ion time line graph



Ion charts are best read when a lot of time has passed.

Notice that the control has a steady increase in Ions over the season.

Ion time line graph

Not only is the control at all depths going up but the total amount of the Ions are higher

This chart is an sum of several depths of collected data.

2015 IRF study

- 6 probes
- Comparing liquid vs dry material
- Looking at low water vs normal watering
- Will track water and Ion

Recap

- In this years study the SoilBiotics product made several soil related changes and increased yields
  - Both treatment and control where watered and fertilized the same.
    - Water penetration was improved on the treated soil(slide 13)
    - The treated soil plants were able to withdraw water in greater volumes than the control (slide 14)
  - Plants need most of their fertilizer in Ion form for uptake
    - Less fertilizer was wasted on the treated plants based on ion levels before and after crop season (slide 20)
    - Indications are the treatment plants consumed far more fertilizer along with the water (slide 21)
- These soil changes can help explain how the yield was increased.

Contact Information

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Questions?