

Irrigation Scheduling Project for the Belle Fourche Irrigation District



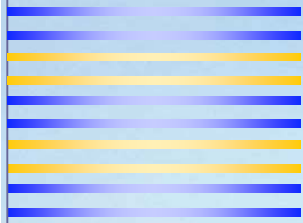
Presented by
Jared Oswald, RESPEC, Rapid City, SD

Producer Meeting
March 19, 2009
Newell, SD



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IRRIGATION DISTRICT





Conservation Innovation Grant (CIG)

- ❖ **Funded by NRCS**
- ❖ **3 year project**
- ❖ **Develop a web-based irrigation scheduling system for individual producers on the BFID**
- ❖ **Personalized, password protected web page**



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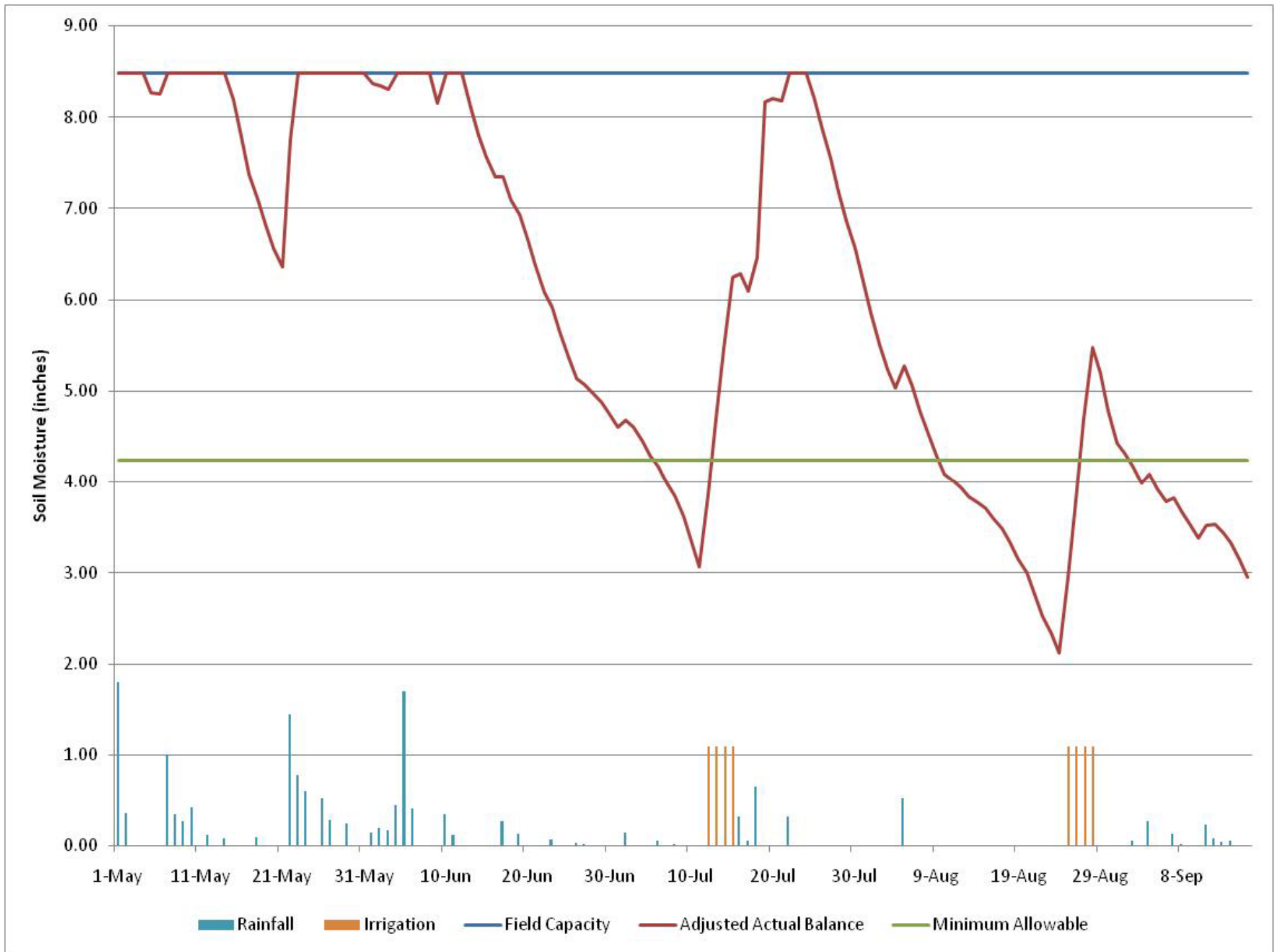


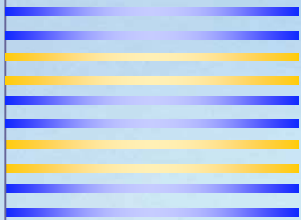
RESPEC
WATER & NATURAL RESOURCES

Calculating a Water Balance

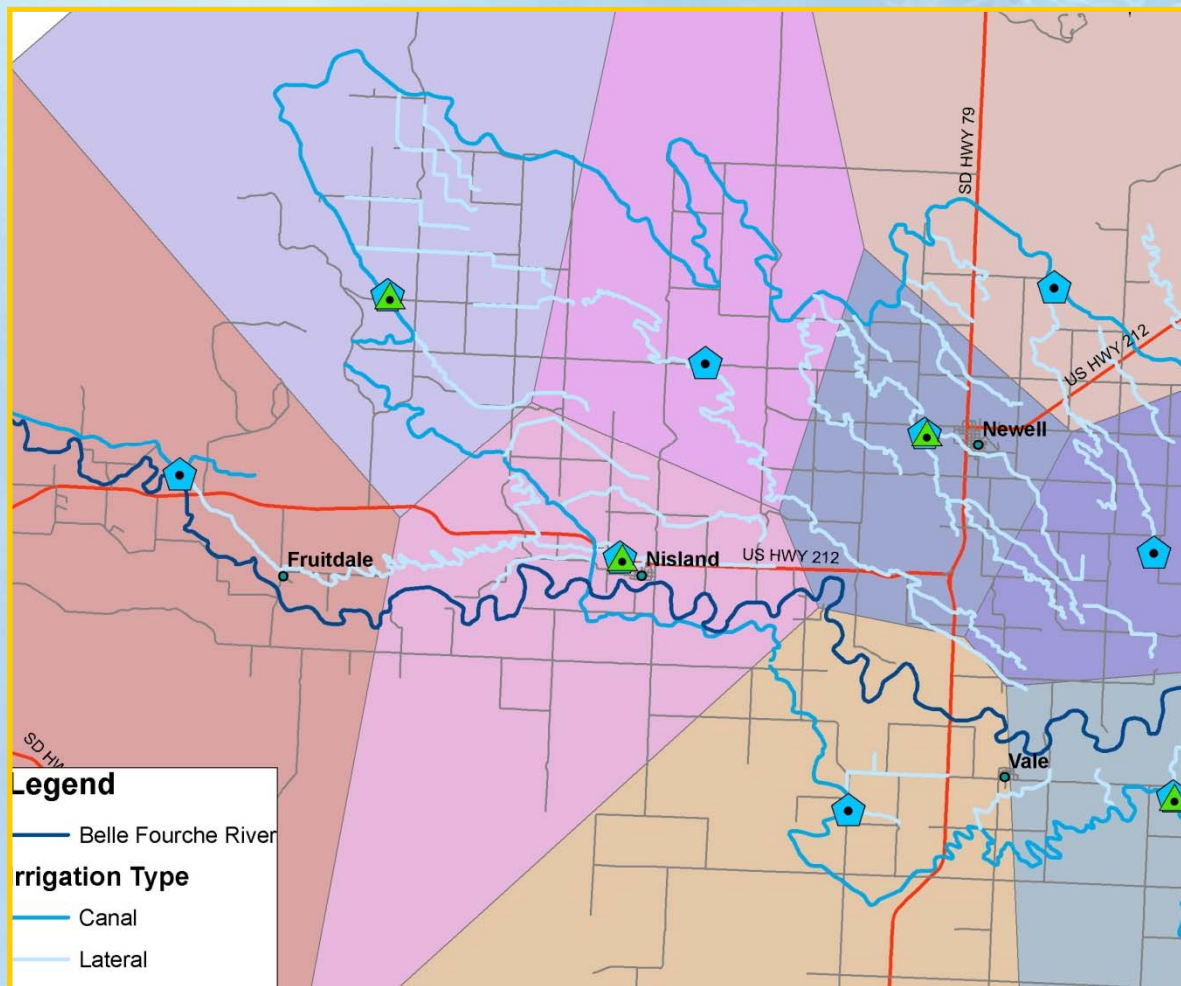
- ❖ **Available Water = Previous Day Available Water + Rainfall + Irrigation – Evapotranspiration (ET)**
- ❖ **Rainfall – collected from installed rain gauges**
- ❖ **Irrigation – entered into system**
- ❖ **ET – calculated on site using wind speed, solar radiation, temperature, and humidity sensors**





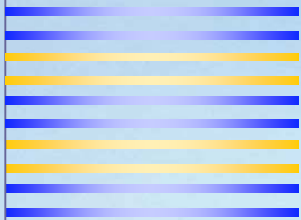


Rainfall Zones

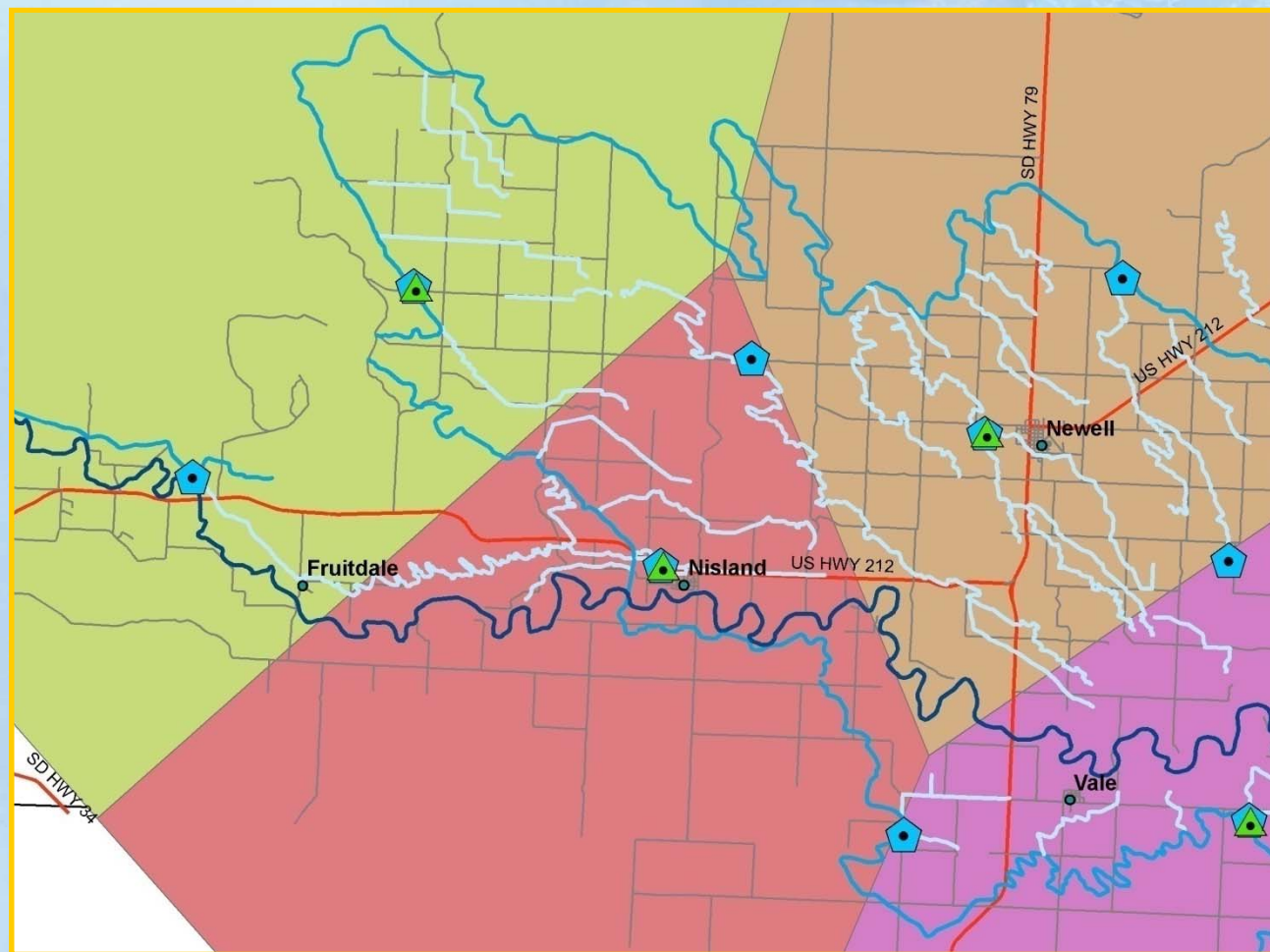


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ET Zones

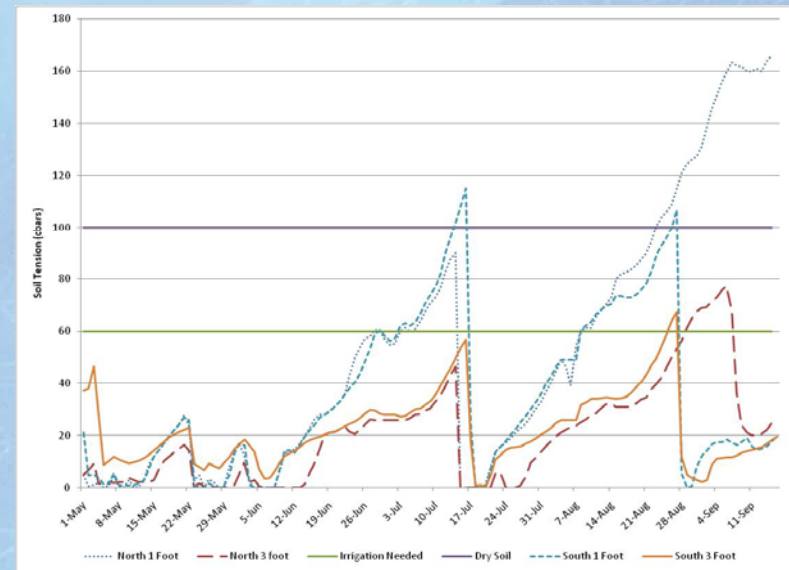


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Soil Moisture Stations

❖ Project will provide 2 per field for 1 field

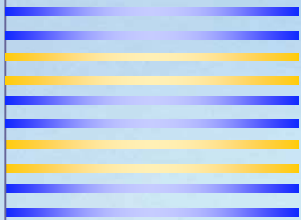


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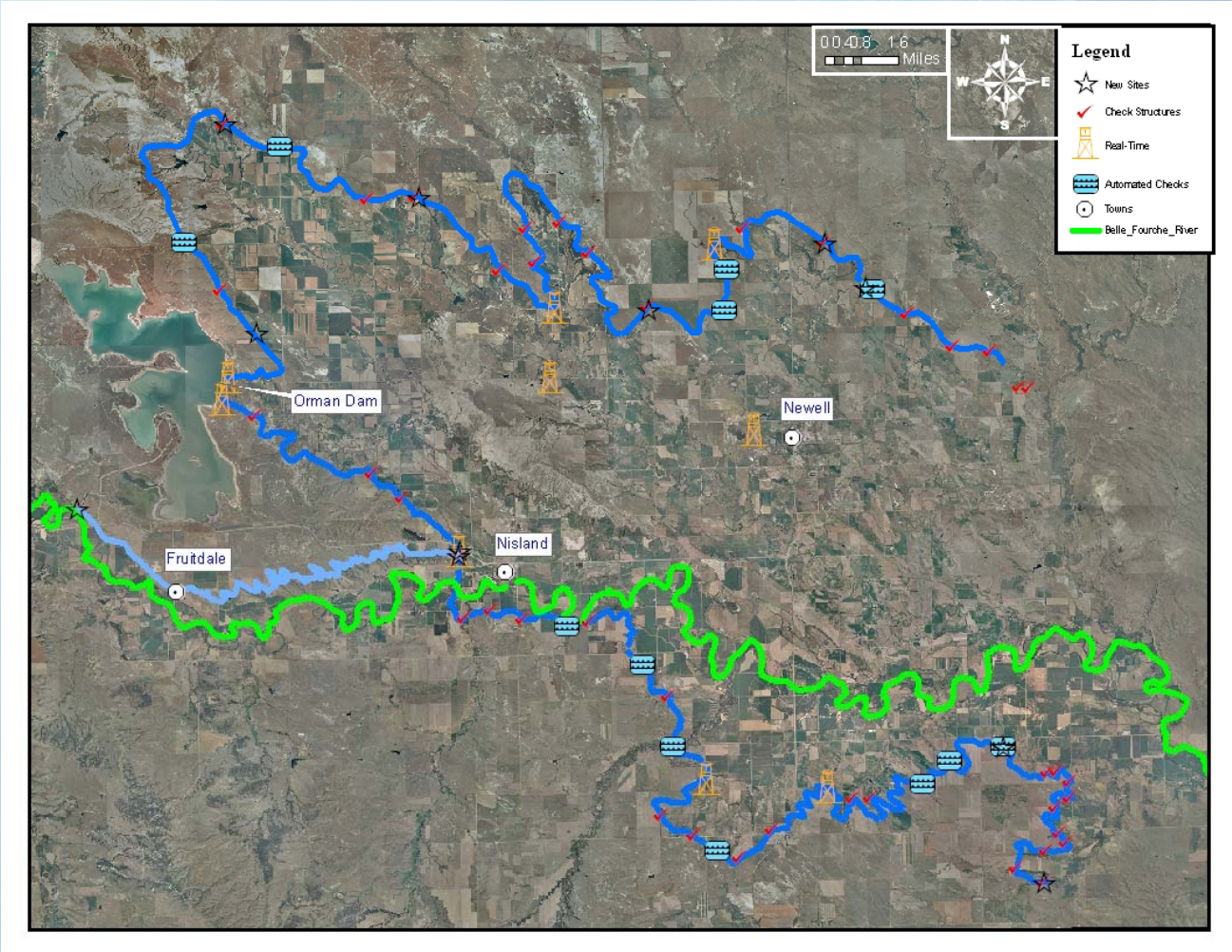




Screen After Login

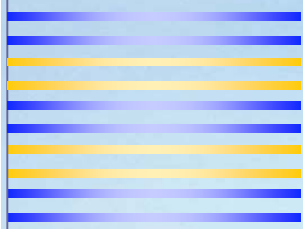
Producer: Jared
Oswald

Add Field



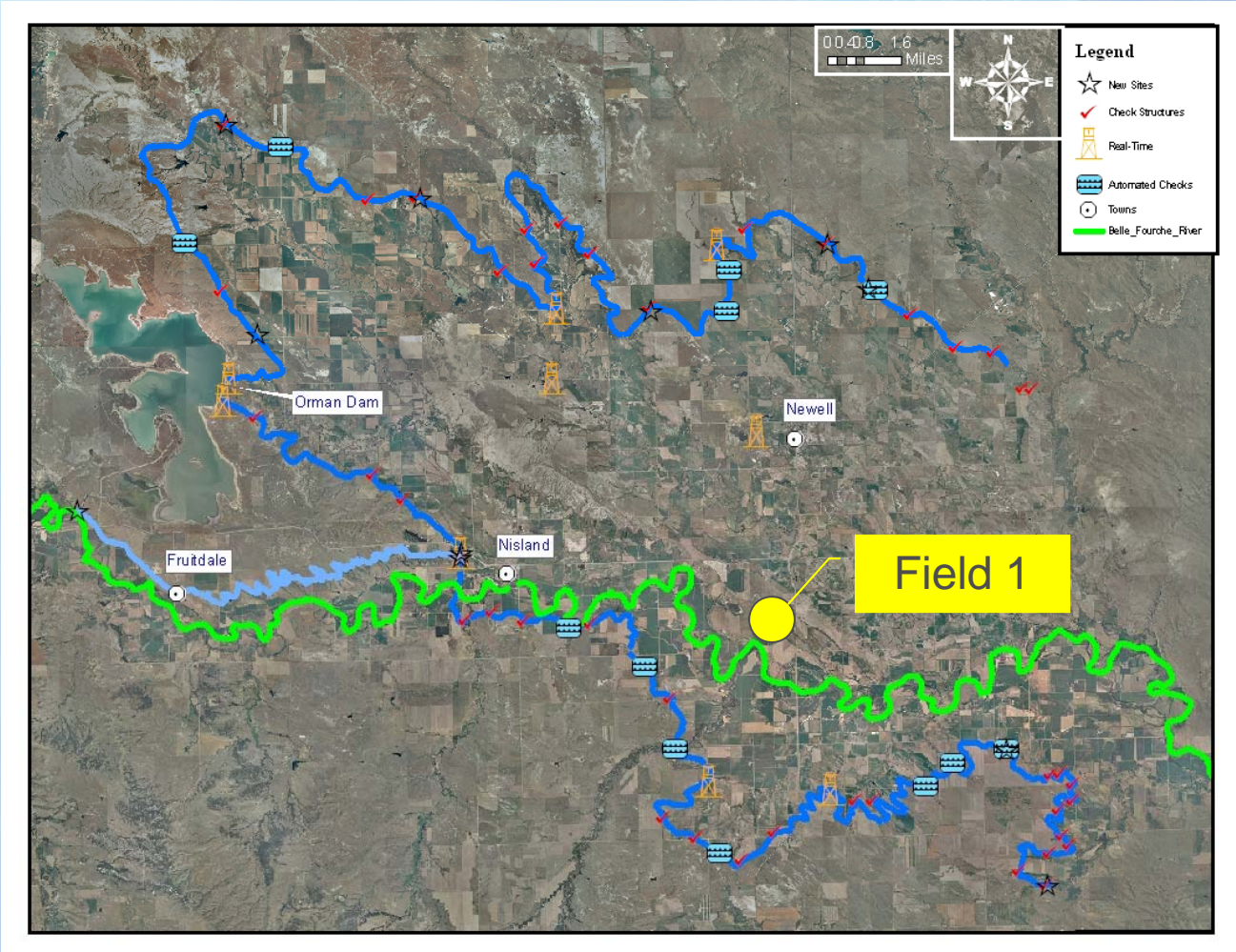
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Updated Screen After Login

Field 1



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On~line Setup

❖ All

→ *Delivery Rate, Initial Soil Moisture*

❖ Alfalfa

→ *Assumed First Cutting Date*

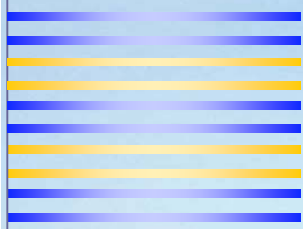
❖ Corn/Small Grains

→ *Planting Date, Assumed Maturity Date*



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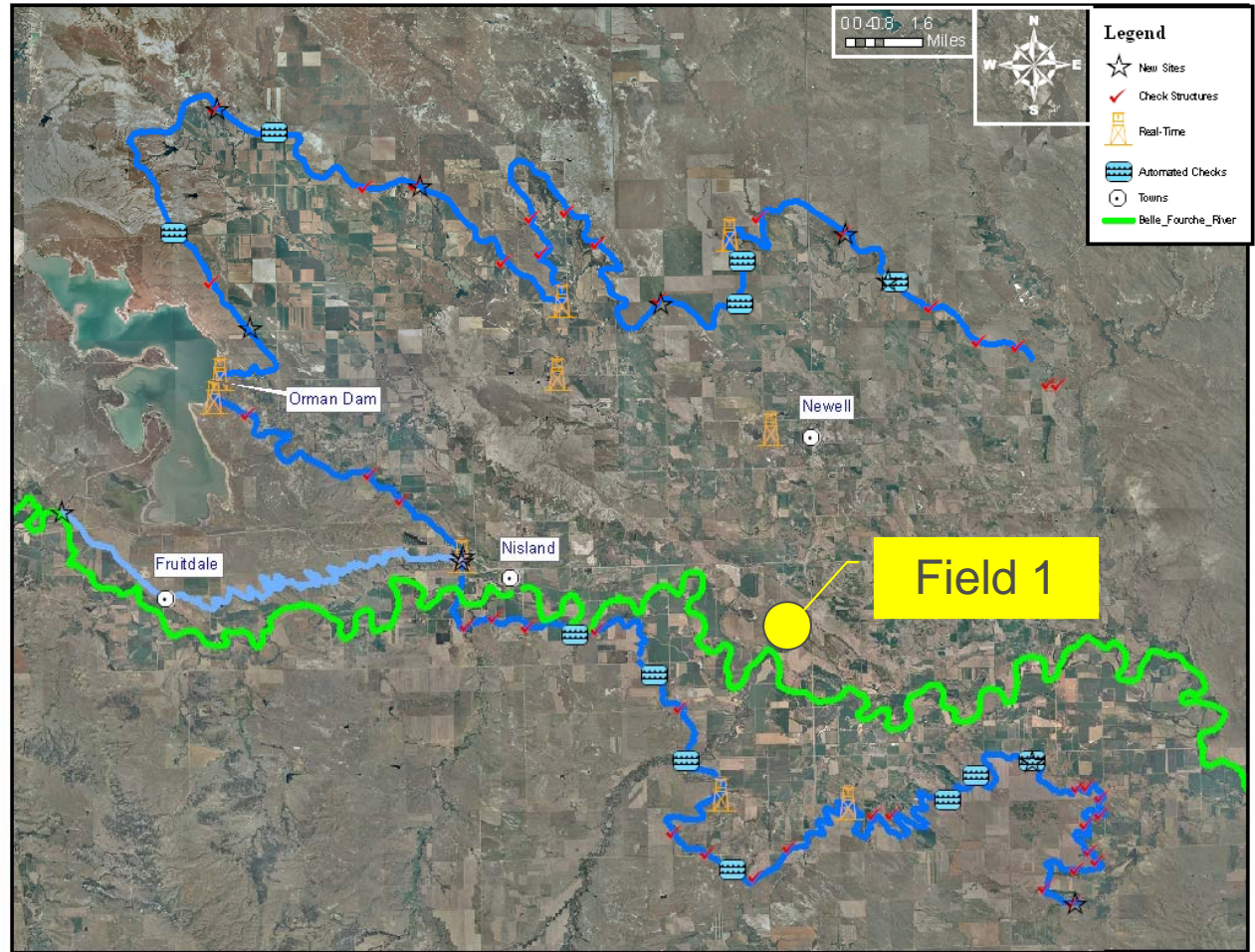


Updated Screen After Login

Field 1

Add Field

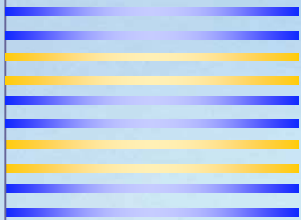
Delete Field



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Field 1

Recommendations:

Turn On Date: June 5

Turn Off Date: June 8

Turn On Amount: 2 CFS

Irrigation

Rainfall

Evapotranspiration

Current Conditions:

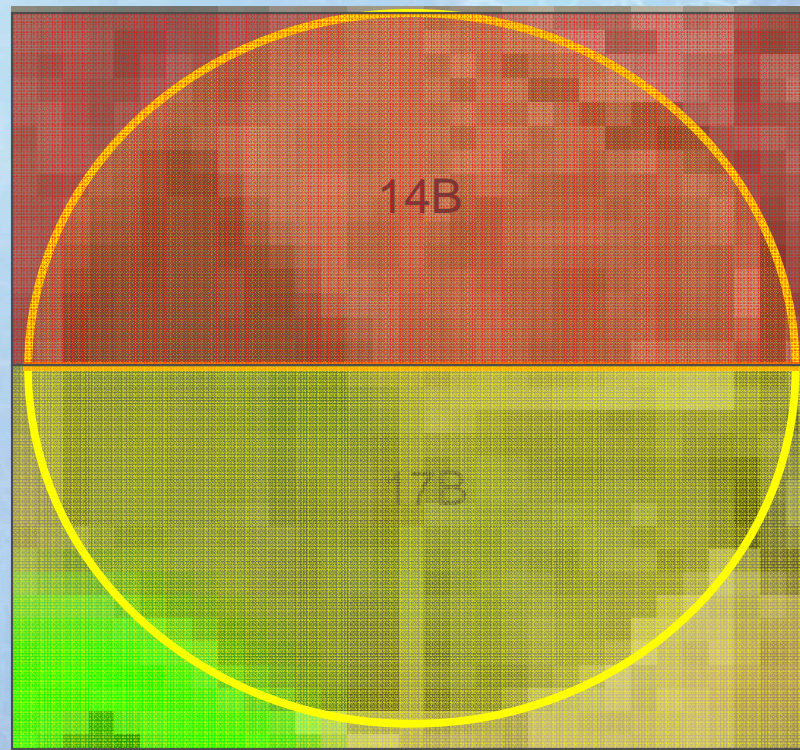
Temperature = 92 F

Wind Speed = 20 mph

Relative Humidity = 20%

24 Hr Rainfall = 0.0 inches

24 Hr Evaporation = 0.24 inches

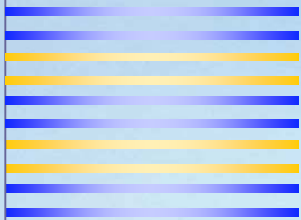


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Field 1 – Soil 14B

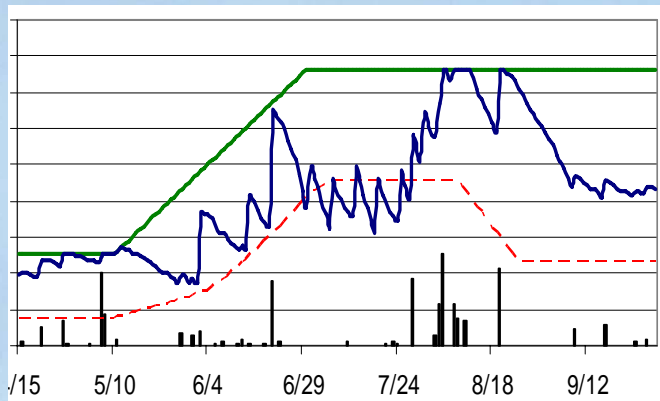
Current Conditions:

Water Balance (%) = 65

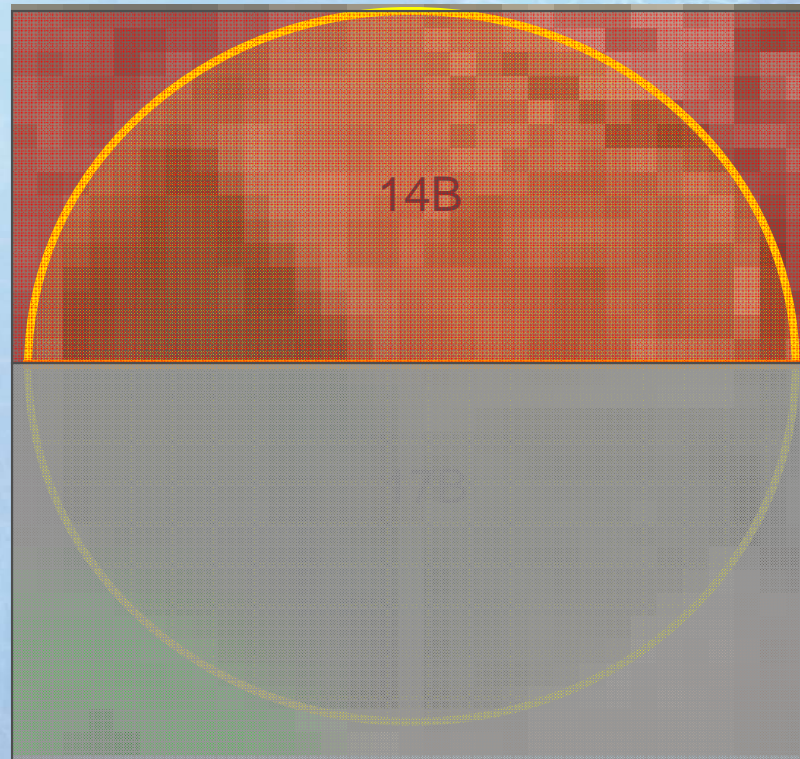
Minimum Allowable (%) = 50

Predicted Days to Stress = 3

[Modify Soil Water Balance](#)



■ Rainfall - - - Minimum Water Balance — Field Capacity — Actual Balance



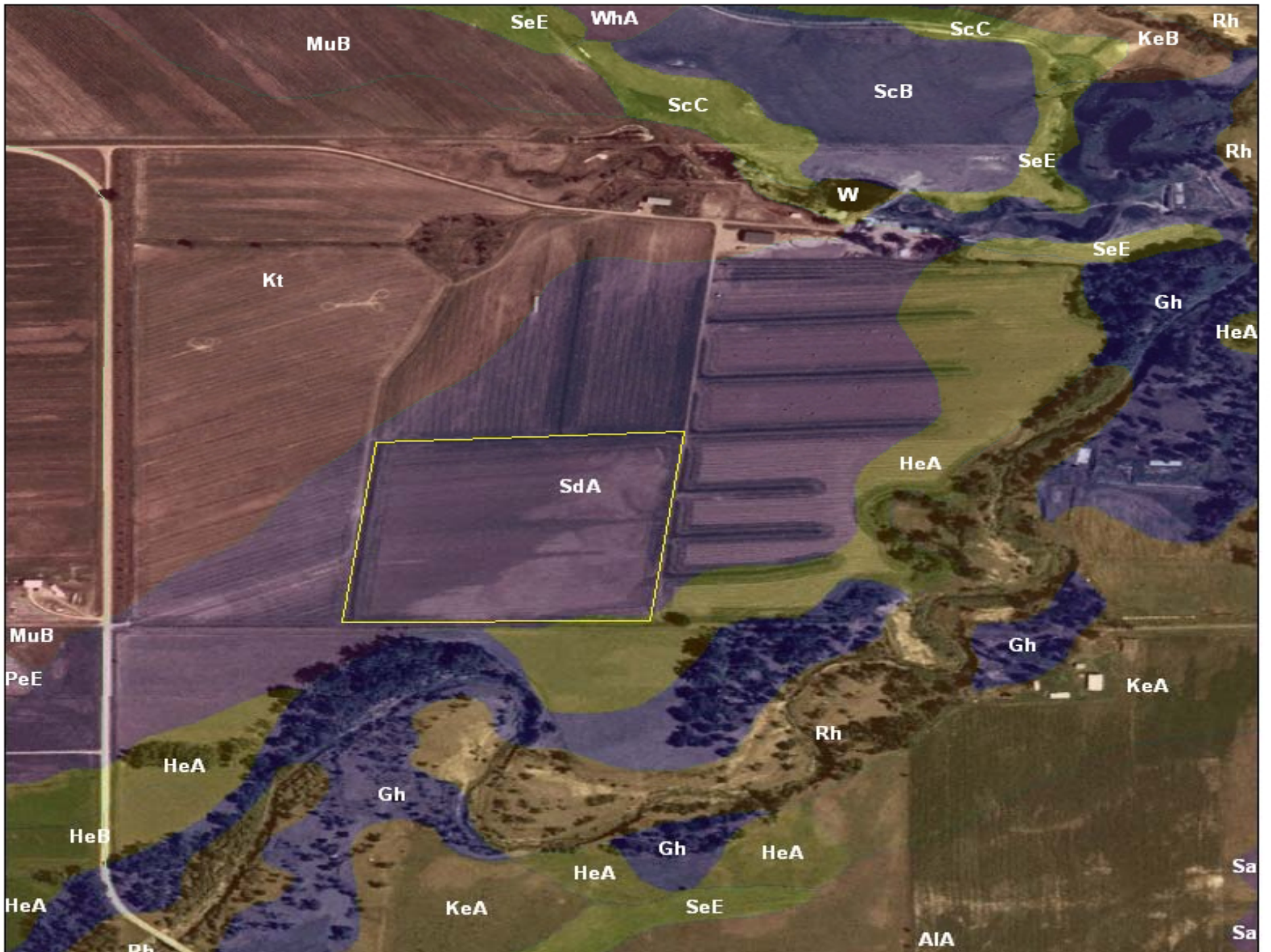
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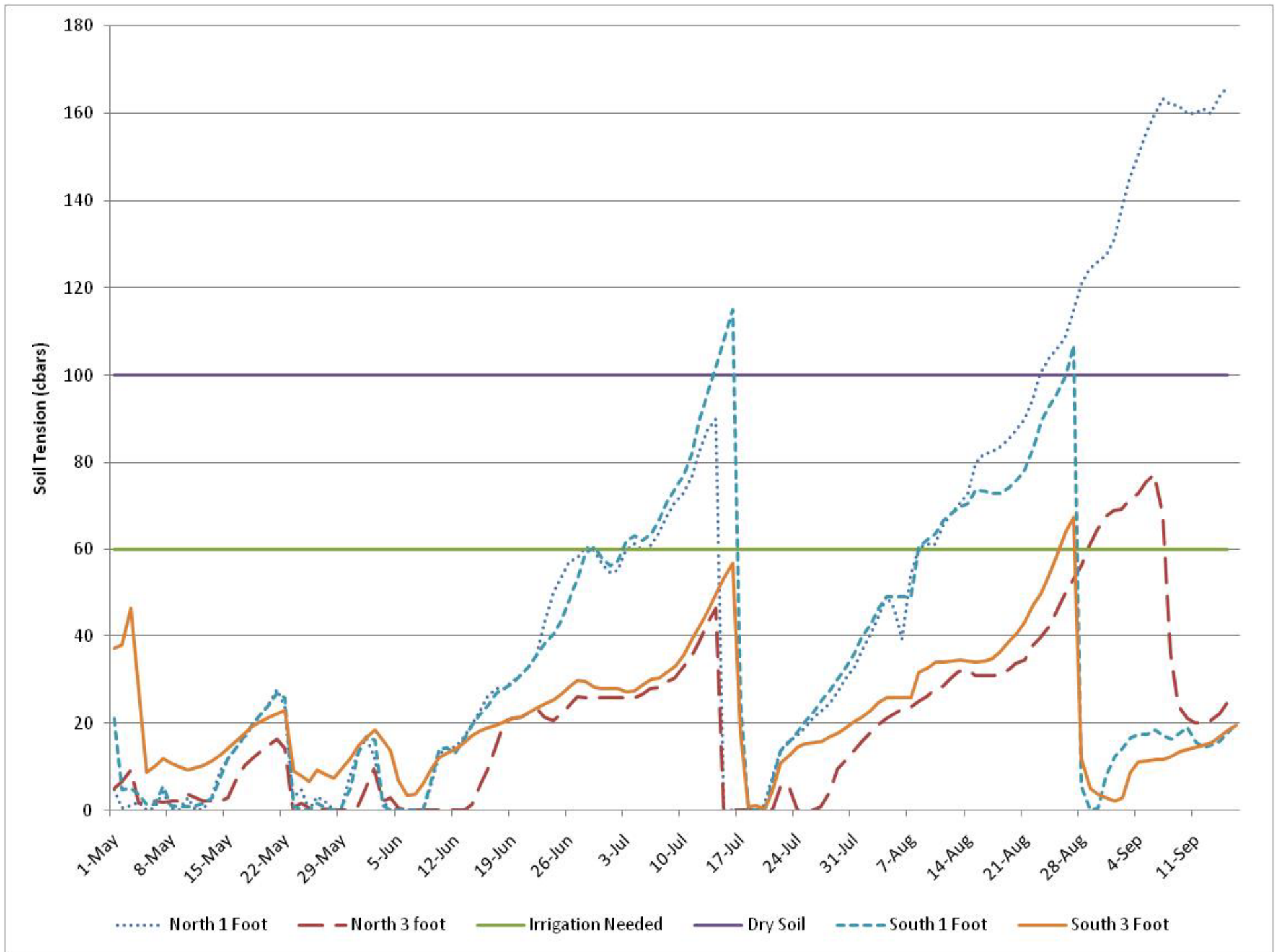
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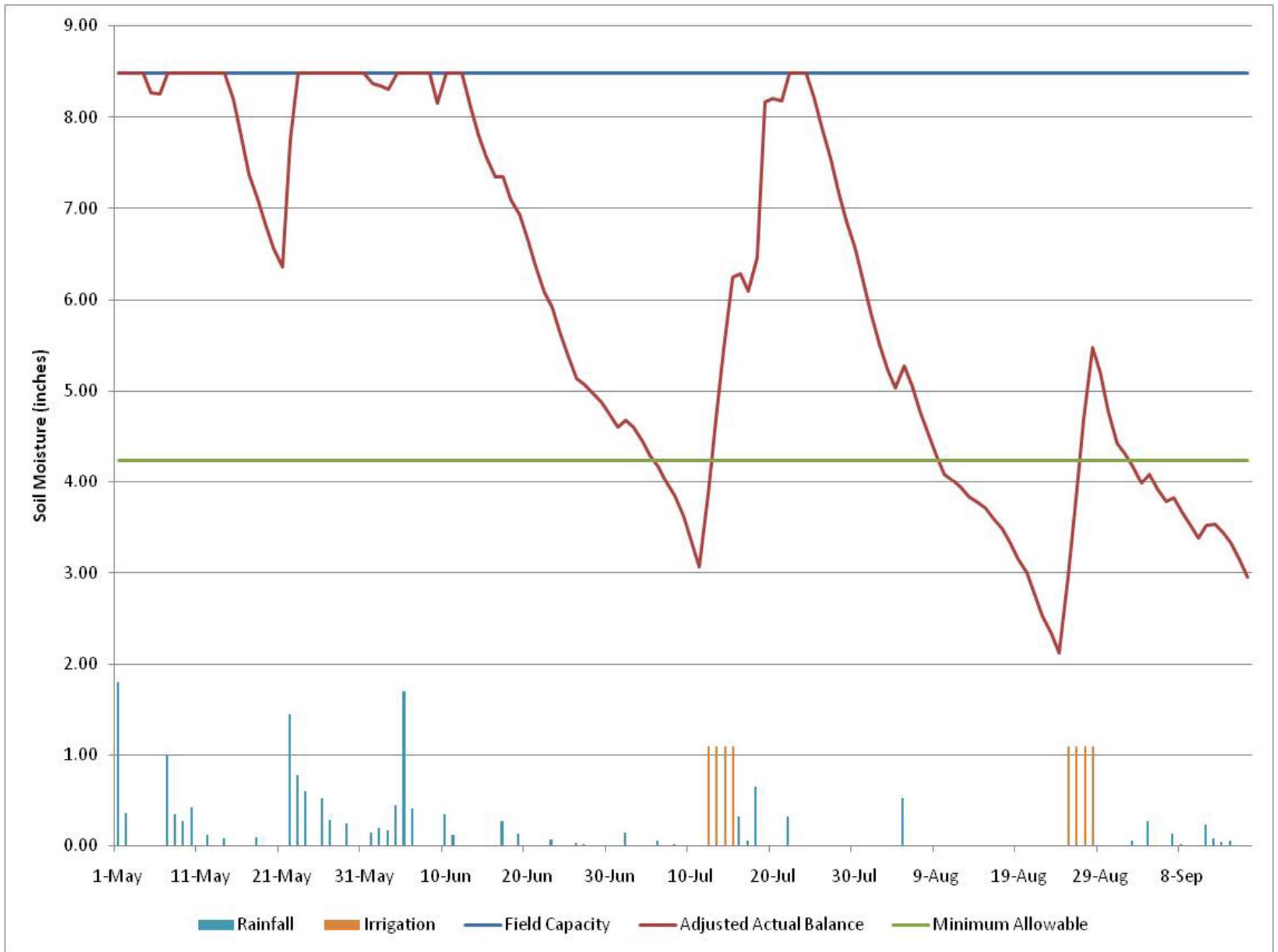


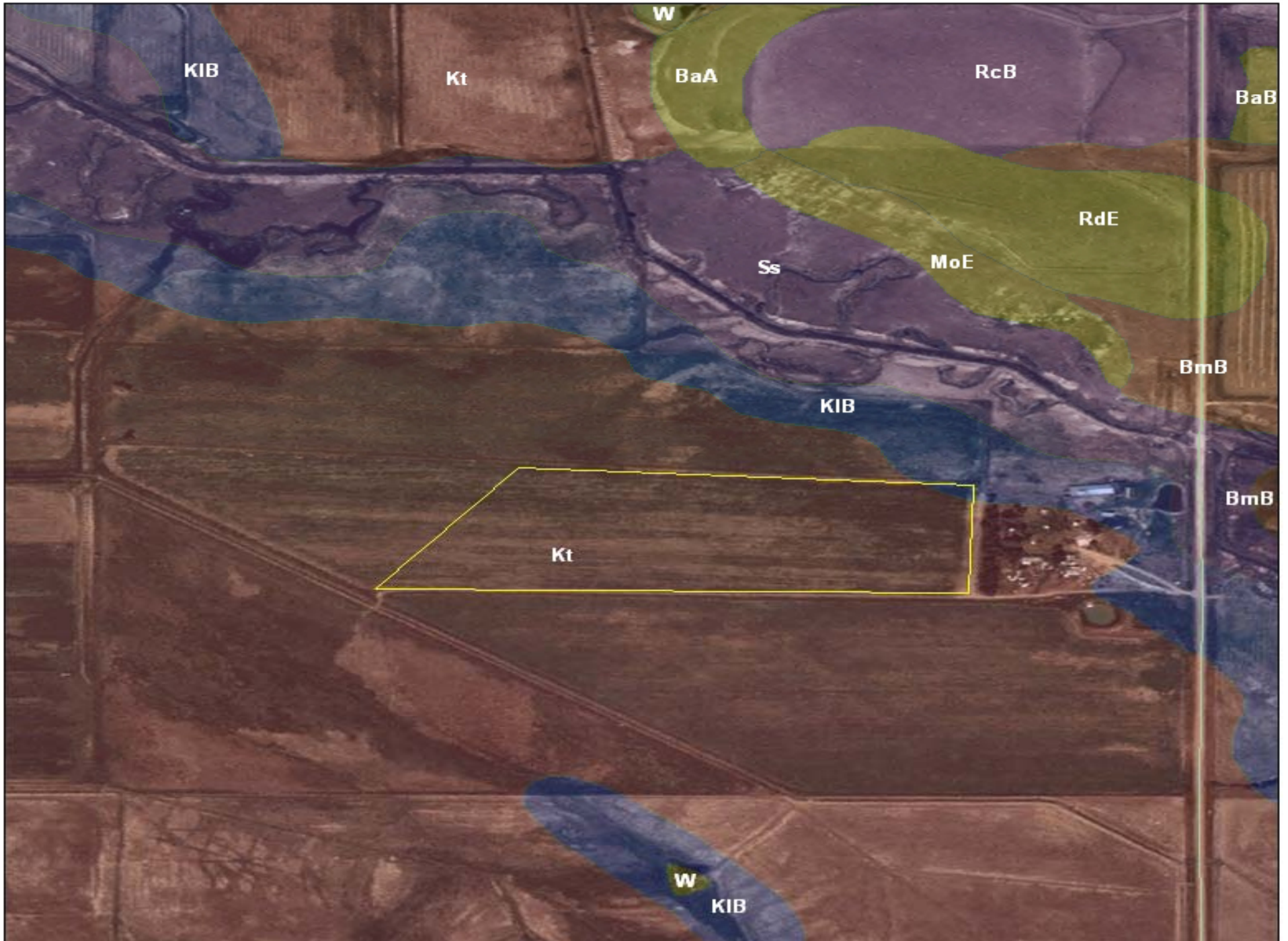
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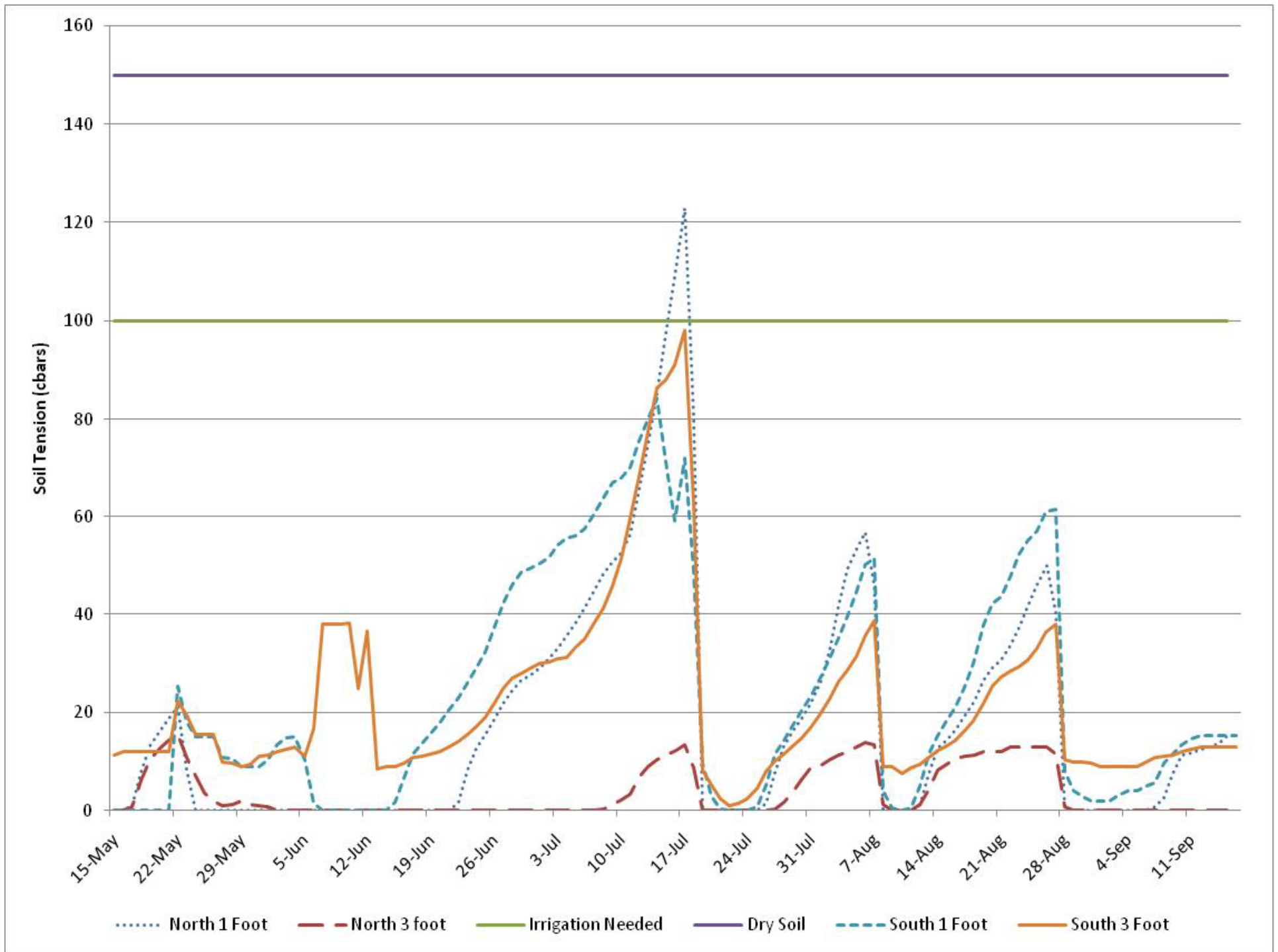


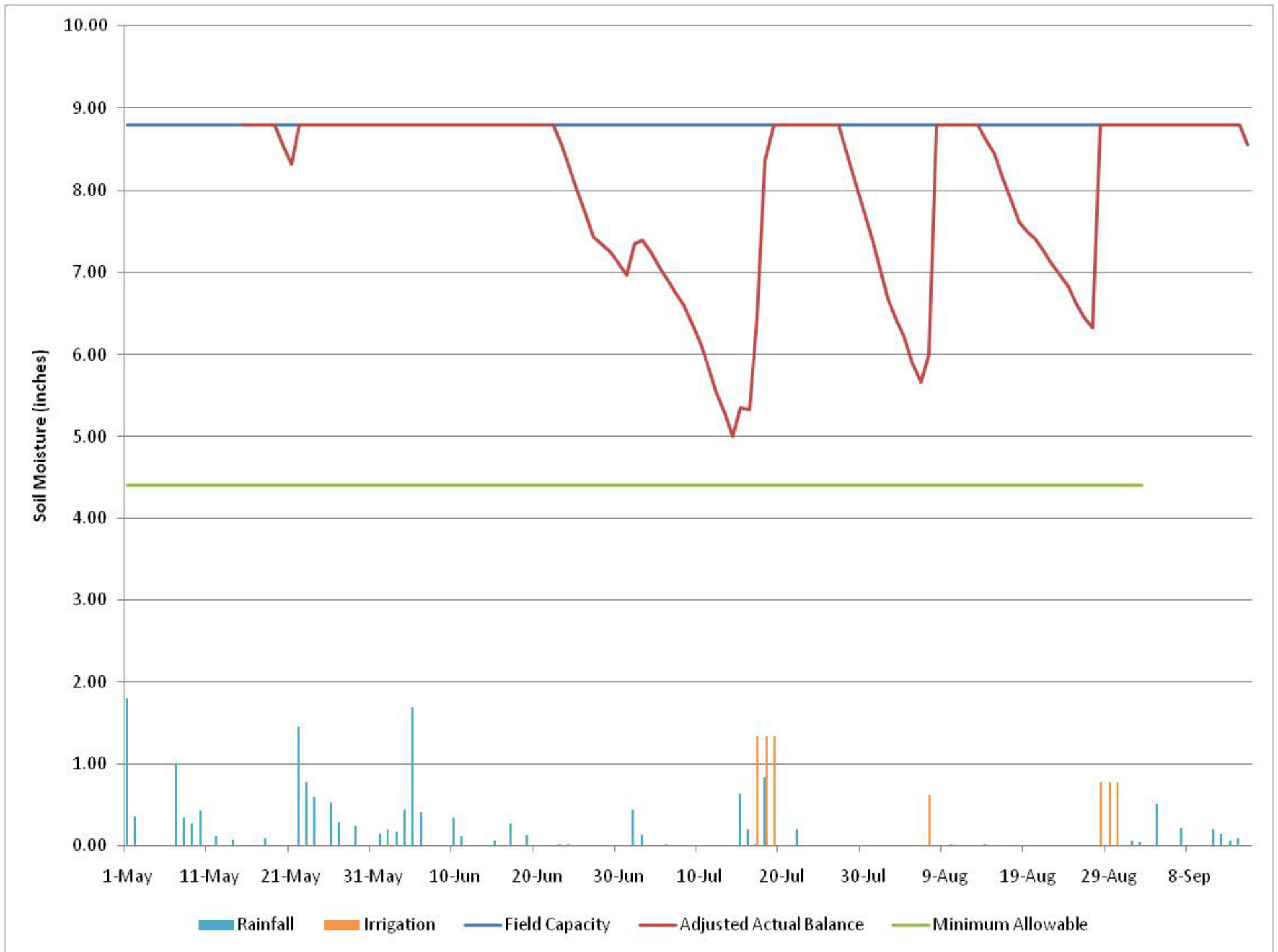


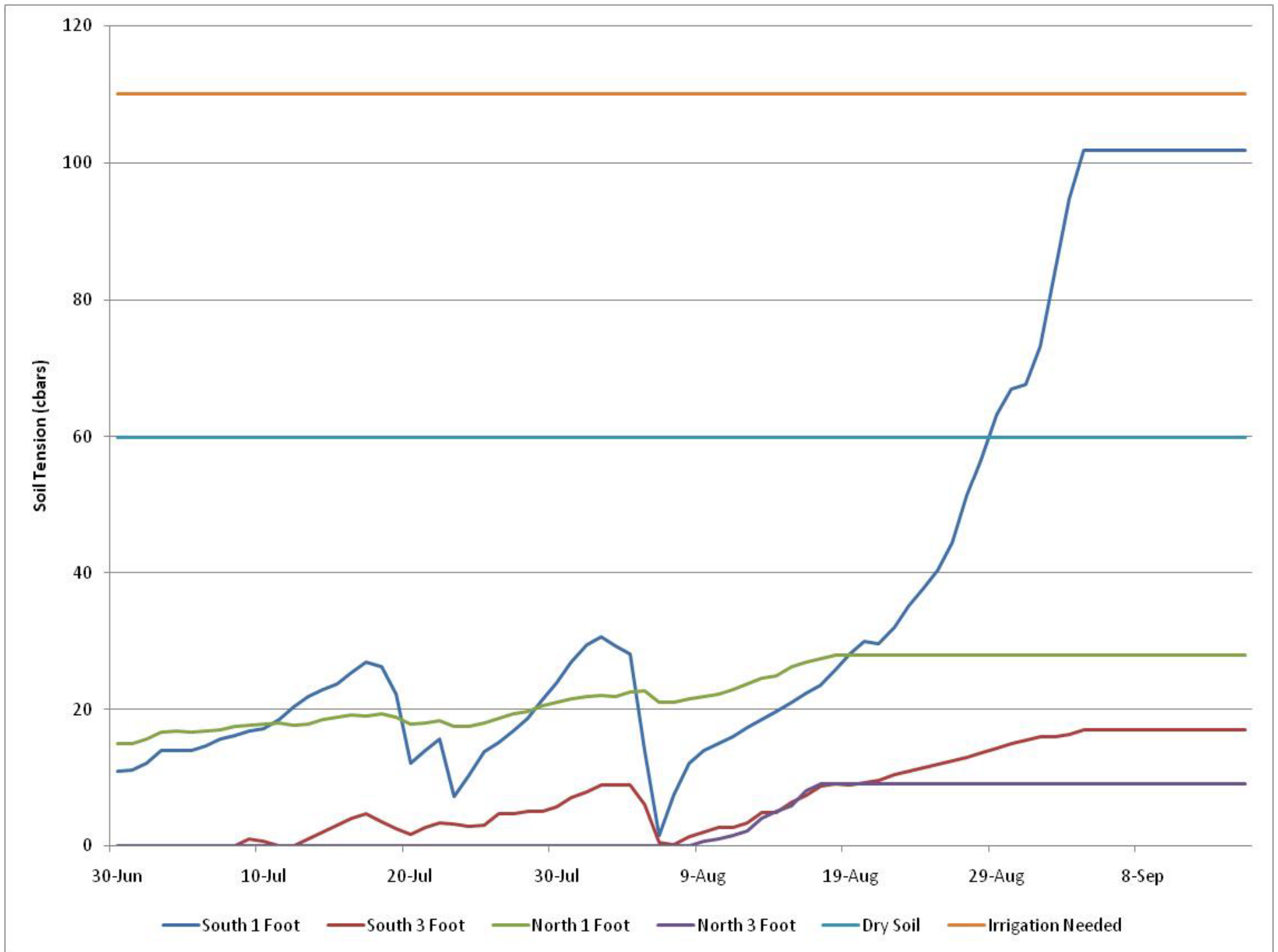


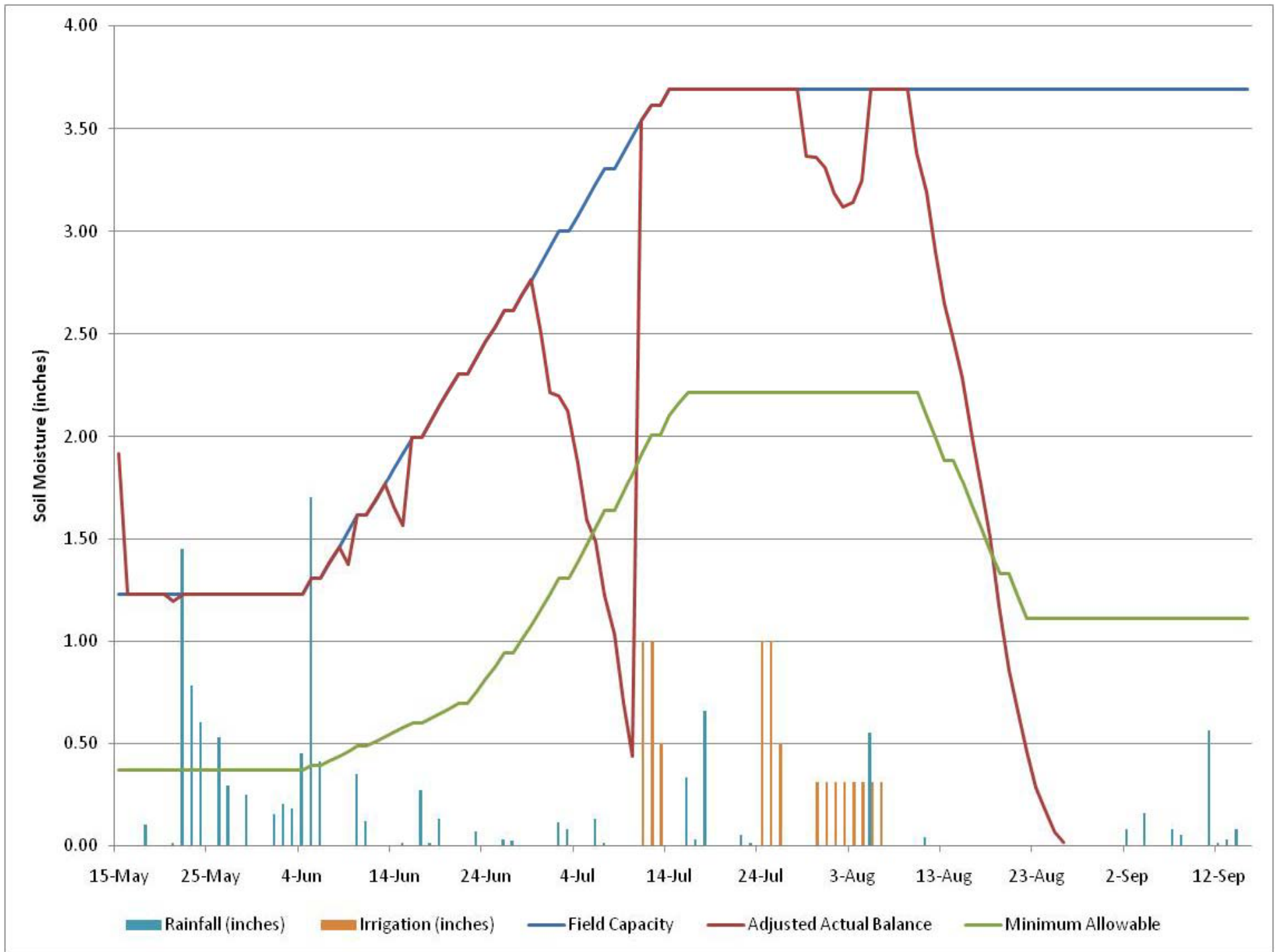


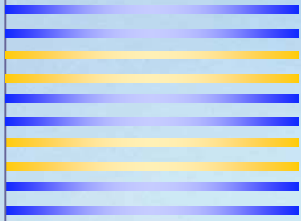












Cooperators

- ❖ **Need to have internet access**
- ❖ **Need to be EQIP eligible**
- ❖ **Willingness to teach and learn**



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2009 Schedule

- ❖ **April 1 – Finalize list of cooperators**
- ❖ **April – Visit all sites, collect soil samples, and install soil moisture sensors**
- ❖ **May – Begin collecting soil moisture readings**
- ❖ **May – Meet individually with cooperators to set up on-line application**



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