

Smartfield Science, Technology and Processes

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Cotton Inc

Tunica, MS

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Smartfield is an **INFORMATION** company

Focusing on 3 Business Areas

Commercial

- Smarter, Faster Trait Selection
- Product Positioning
- Reduce time to market for new technologies
- Intelligence from Data

Consumer

- Trusted Advisor Role
- Intervention Signals
- Irrigation Management
- Product Positioning

Forecasting

- Benefit to Insurance Companies
- Farm Land Investors
- Data produced
- Supply Side Information
- In-season Performance

The basis of our business - OPCT

- Optimum Plant Canopy Temperature (OPCT) is the basis of our business.
- Smartfield is based on a very simple premise that plant species, varieties, lines and hybrids, have a temperature at which they perform best.
- OPCT differs by Growth Stage, just as water demand differs.

Why Measure Canopy Temperatures?

- Canopy temperatures are direct, integrated measurements revealing plant health.
- Reveals how plants are responding to the environment above and below ground.
- Canopy temps are different than ambient temp
- Provides complete picture of the season.
- Smartfield tools answer the question of how is the plant performing.

Smartfield™

Growing a Greener Future

Tools and Equipment



Smartfield Tools

SmartWeather™

- turns the Smartfield Base Station into a full function remote weather station
- wind speed and direction
- solar radiation
- barometric pressure



SmartRate™

- reads flow and pressure every 5 seconds, reports 1 minute averages
- direct connect to Base Station
- reports status 1-3 pressure gauges
- reports status on 1 flow meter
- reports status on 1-24 valves



SmartPivot™

- reports pivot location via GPS
- reports water pressure

Temperature Graph

[Back To Dashboard](#)[View Base Station](#)

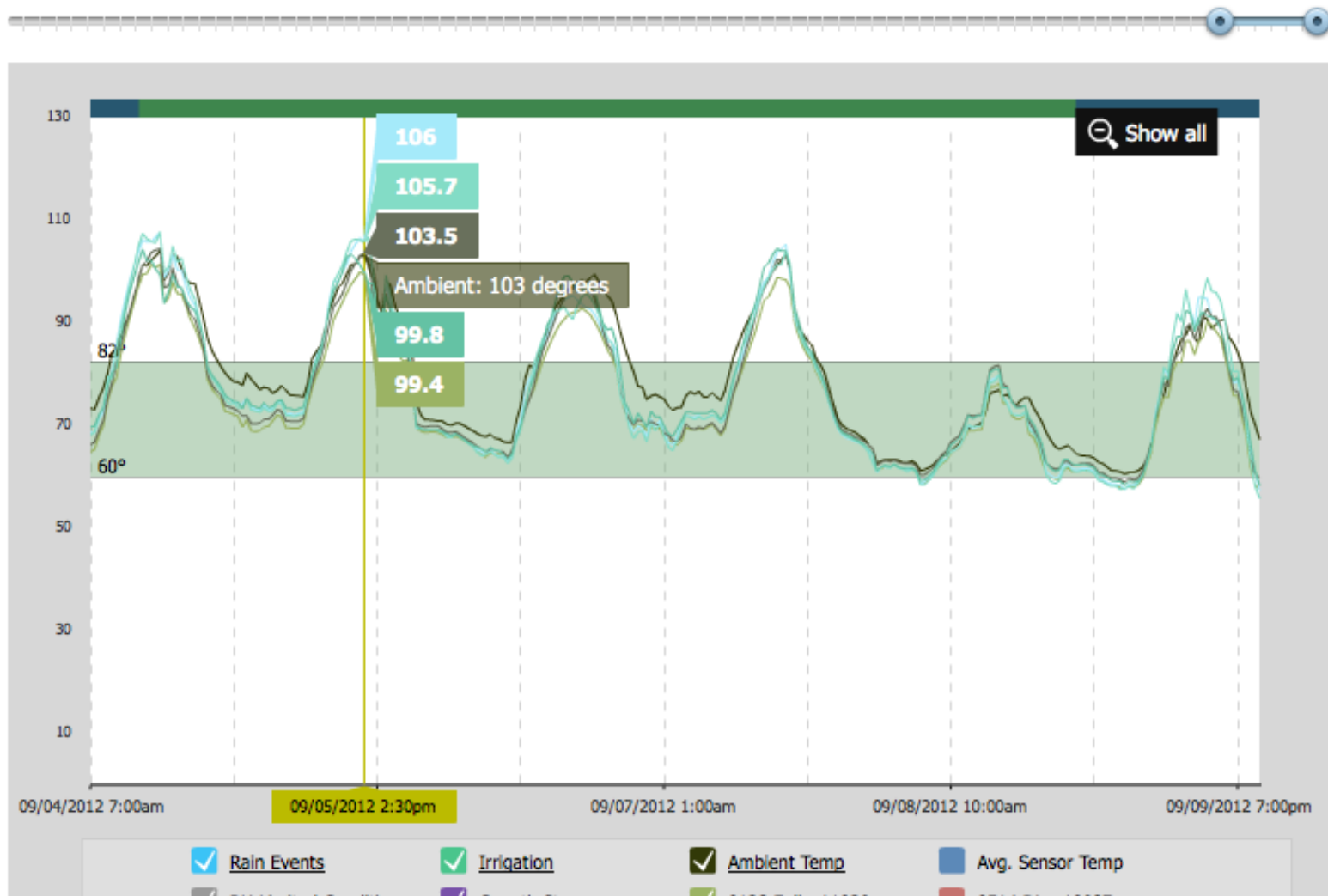
Sep 4th, 2012 ▾

Sep 10th, 2012 ▾

Graph Selected Dates

Temperature Graph ▾

Go



Consumer Application

Wheat



Peanuts



Commercial Application

Soybeans



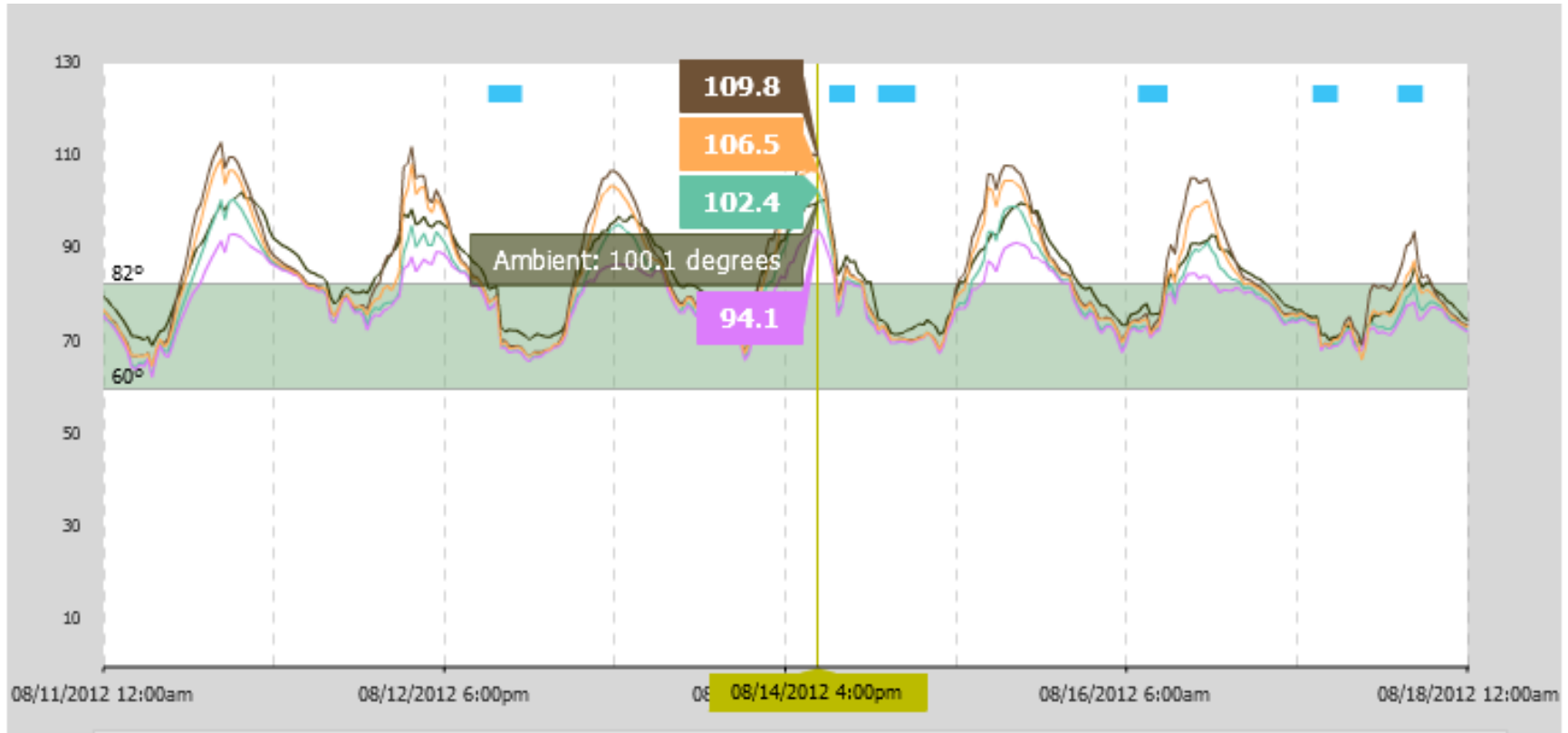
Cotton



Corn



Ambient, Non-Irr, .08", .16", .25"/day



A 7 day snapshot of canopy temperatures from different irrigation treatments. The black line in the middle is ambient, the other colors represent various daily irr levels.

Alerts, Triggers and Reports

Daily Stress Updates

Update Stress Alert for TTU Quaker LBB Water Regression 2012 - 10279 (.04 IRR)

Crop: Cotton

	Field Season Target	
24H	1525 	2750
3D	763 	2750
YTD	3334	2750

Trusted Advisor
Critical
Information

Update Stress Alert for TTU Quaker LBB Water Regression 2012 - 10279 (.16 IRR)

Crop: Cotton

	Field Season Target	
24H	730 	1750
3D	365 	1750
YTD	2392	1750

Update Stress Alert for TTU Quaker LBB Water Regression 2012 - 10279 (.25 IRR)

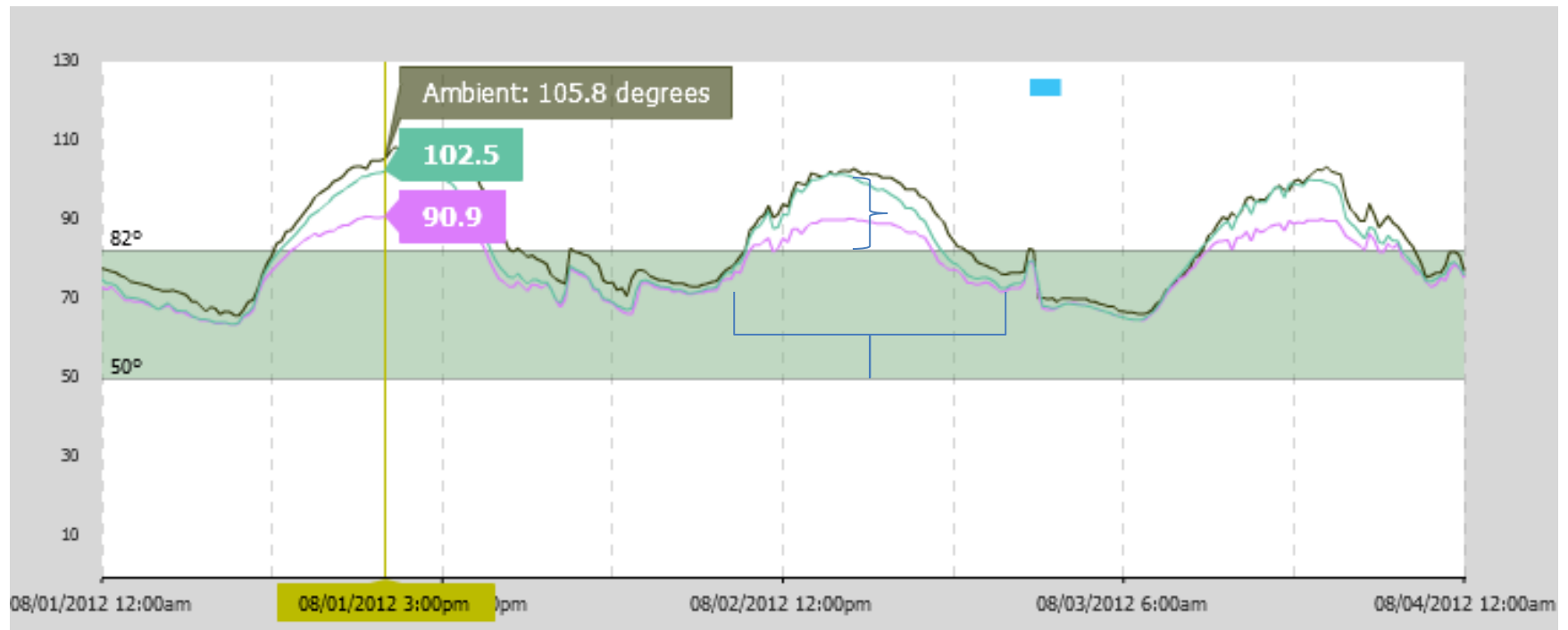
Crop: Cotton

	Field Season Target	
24H	776 	750
3D	388 	750
YTD	1864	750

Forecasting

- Yield is $f(n)$ of seasonal environment and inputs (Stress)
- Timing or Growth Stage
- Intensity or Severity
- Duration
- Canopy Temps = Integrated Measurement
- Inverse relationship between stress and yield

Timing, Intensity & Duration of Stress



Summary

- New tools allow for new insight
- Powerful, decision making data
- Immediate, real time feedback
- Predictive Information