Smartfield Science, Technology and Processes

Tom Speed, VP Agronomic Services

Cotton Inc

Tunica, MS

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Growing a Greener Future

Smartfield is an **INFORMATION** company
Focusing on 3 Business Areas

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

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

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

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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.

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Tools and Equipment

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Smartfield Tools

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

SmartPivot™
- reports pivot location via GPS
- reports water 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

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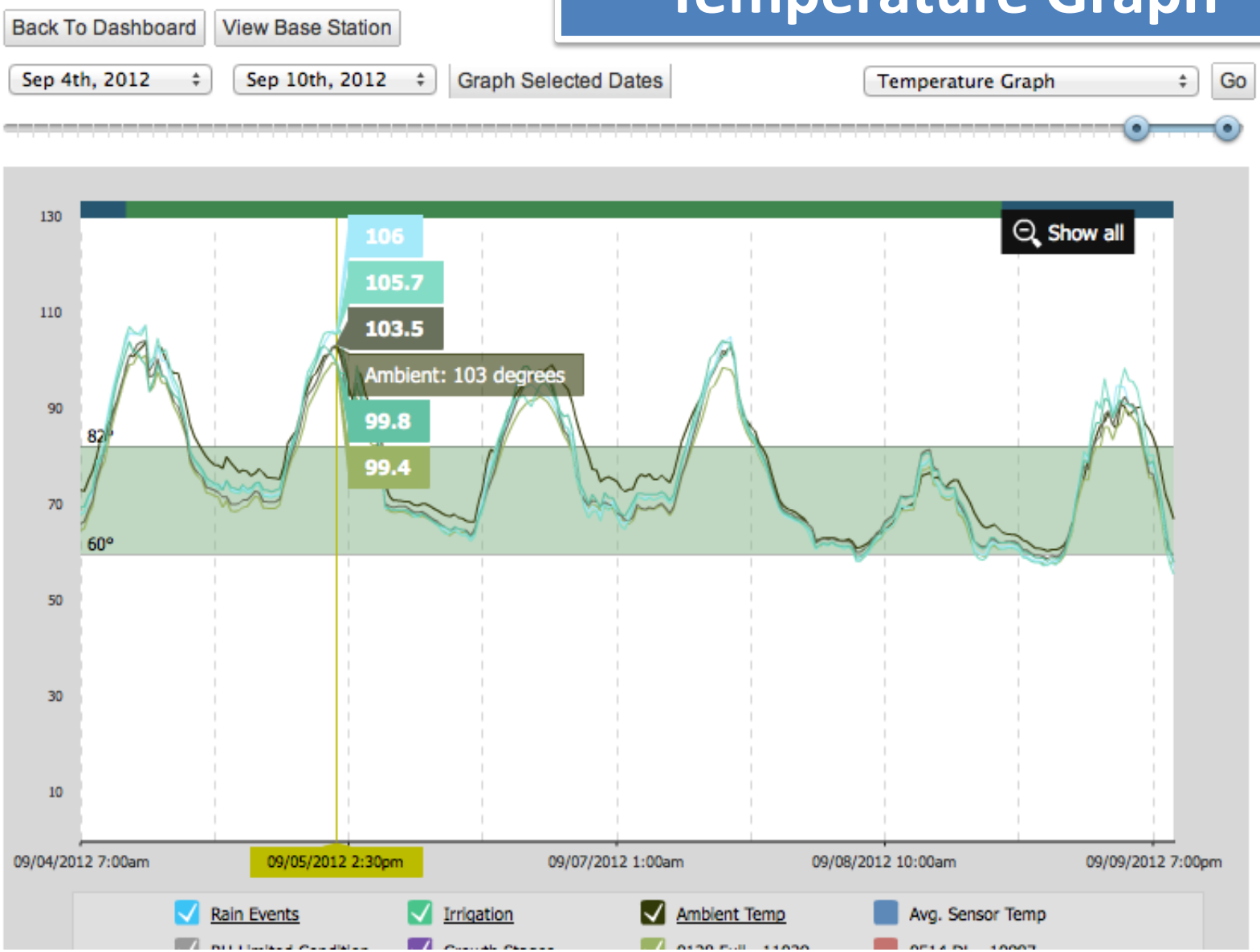
Temperature Graph



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Consumer Application

Wheat

Peanuts

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Commercial Application

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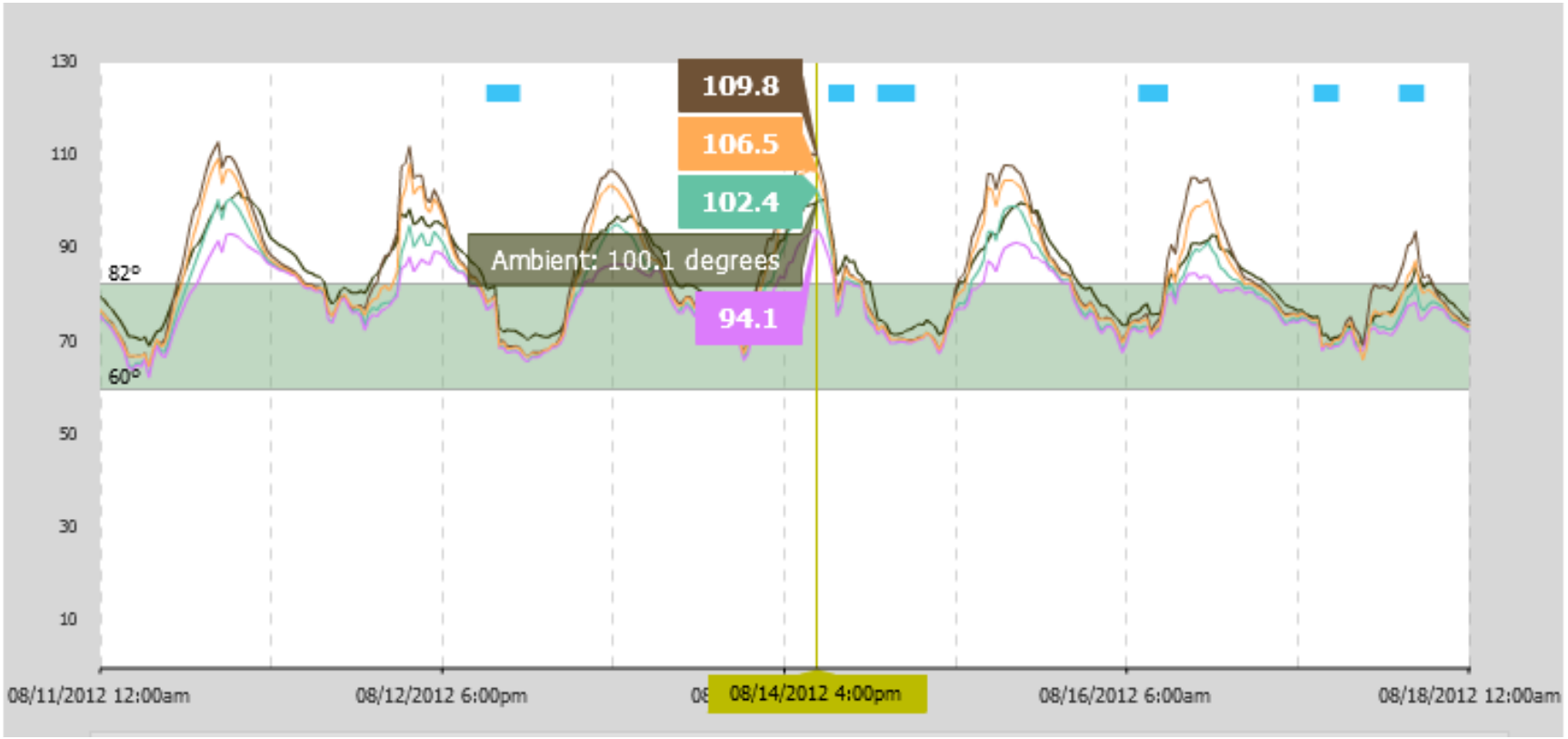
Ambient, Non-Irr, .08”, .16”, .25”/day



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.

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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

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

Trusted Advisor Critical Information

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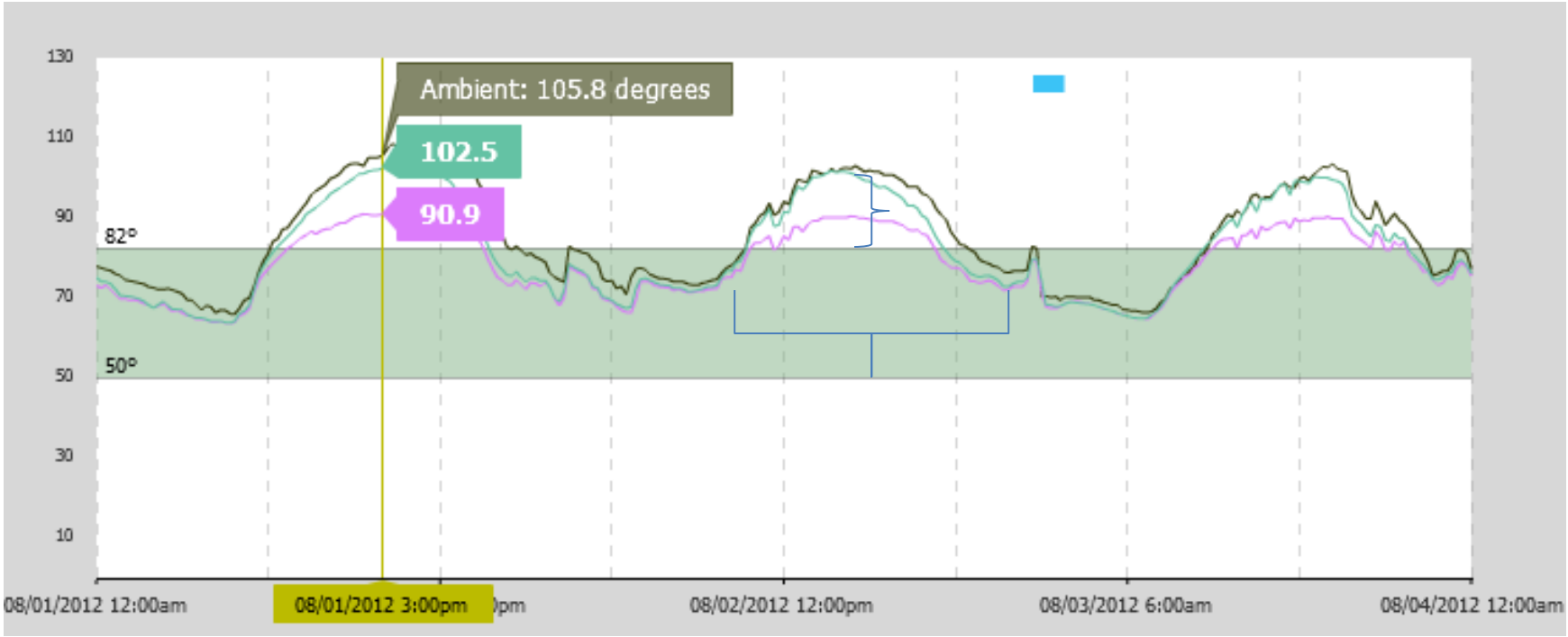
Forecasting

- 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



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Summary

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