



**HORTAU**  
SIMPLIFIED IRRIGATION





# Hortau's Precision Monitoring

Increase farm production through real-time crop stress management:

- Proprietary sensors
- Real-time data
- Agronomic support
- Field support



“The important thing is our vines are healthier. With a healthier vine, and more production, the bottom line is obviously going to be better.”

- John Vallat, Anthony Vineyards



# Stress Challenges

- Stress factors are constantly changing.
- Stress factors affect growth.
- Grower is left solely to react on gut instinct or past experiences.
- Grower will end up reacting too late once damage is done.
- Accumulation of stress episodes have a huge impact on yields.
- Yield may be reduced by more than 50%



# Challenge

- The main sources of plant stress are:
  - Drought
  - Waterlogging
  - Soil salinity
  - Nutrient
  - Temperature and climate
  - Pest and diseases
- To maximize yield, those stress factors must be managed tightly.
- For crop inputs: water and nutrients, supply must be kept within a narrow bandwidth.





“It’s completely  
changed how  
we irrigate  
row crops.”

- Carson Kalin, Kalin Farms

# The Precision Difference

- Monitor plant stress in real time
- Reduce water and energy use
- Improve crop health and production
- Run irrigation remotely with automation
- Track weather data, trigger alerts
- Eliminate leaching of nutrients



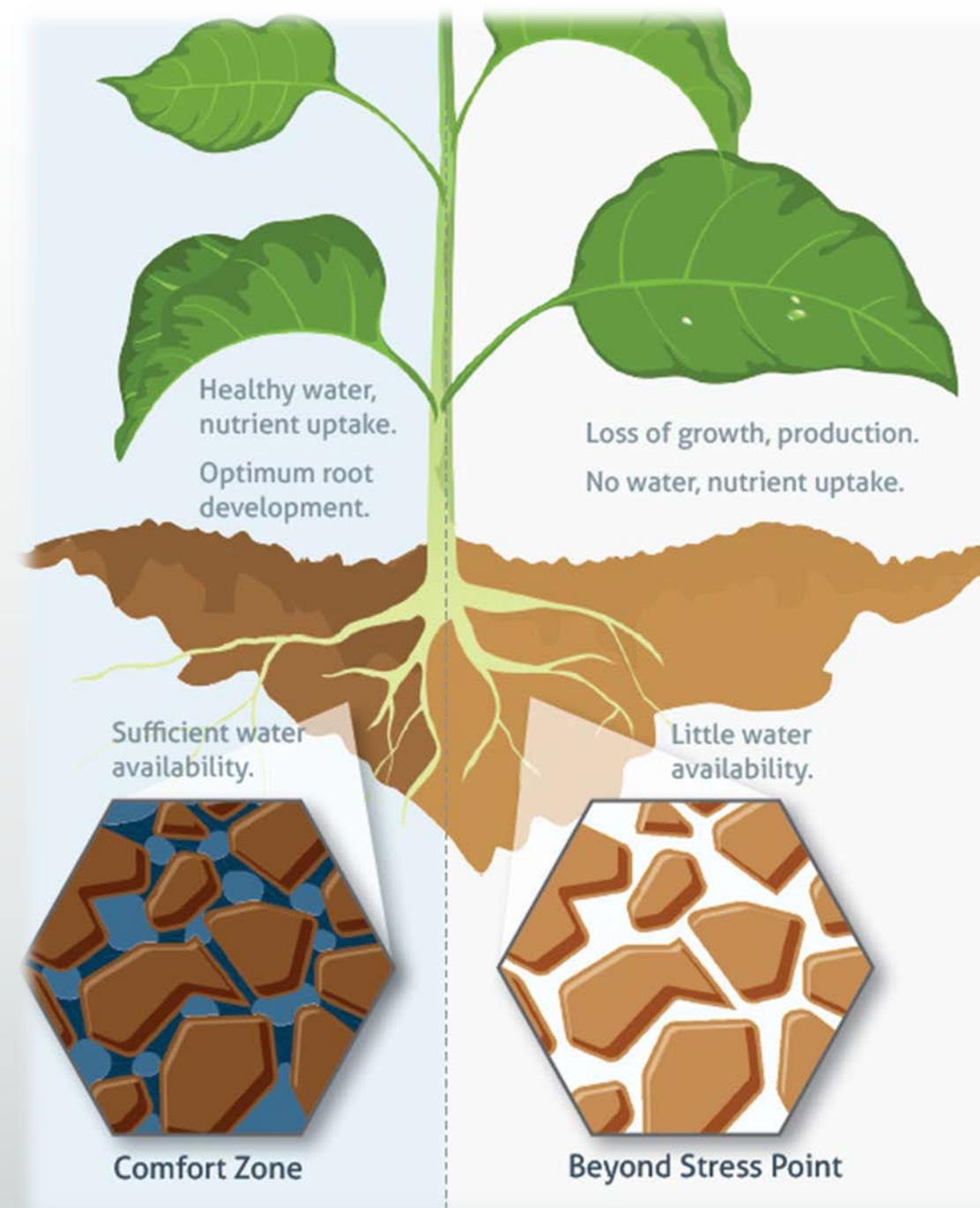


“It’s been the most used tool for our water management program. It just saves us time and gives us the information I’m looking for on a daily basis.”

- Pal Halstead, El Rio Farms

# Soil Tension

- Soil tension is defined as the suction exerted by soil particles on the water they hold.
- To extract water from the soil, plants must exert suction on that water.
- As the soil dries, its tension increases, and it becomes harder for plants to extract water from the soil.



# Soil Tension vs. Water Content



Soil: Sandy Soil  
Water Content: 20%  
Soil Tension: 5 cbar  
Result: **Non-stressed Plant**



Soil: Clay Soil  
Water Content: 20%  
Soil Tension: 60 cbar  
Result: **Stressed Plant**

**Same water content, two different stress situations**



“Since we’re not watering as much as before, it definitely helps save on gas, diesel, maintenance, and has a lot of benefits all the way around.”

- Henry Ito, Ito Ranch

# Tension Response Curve

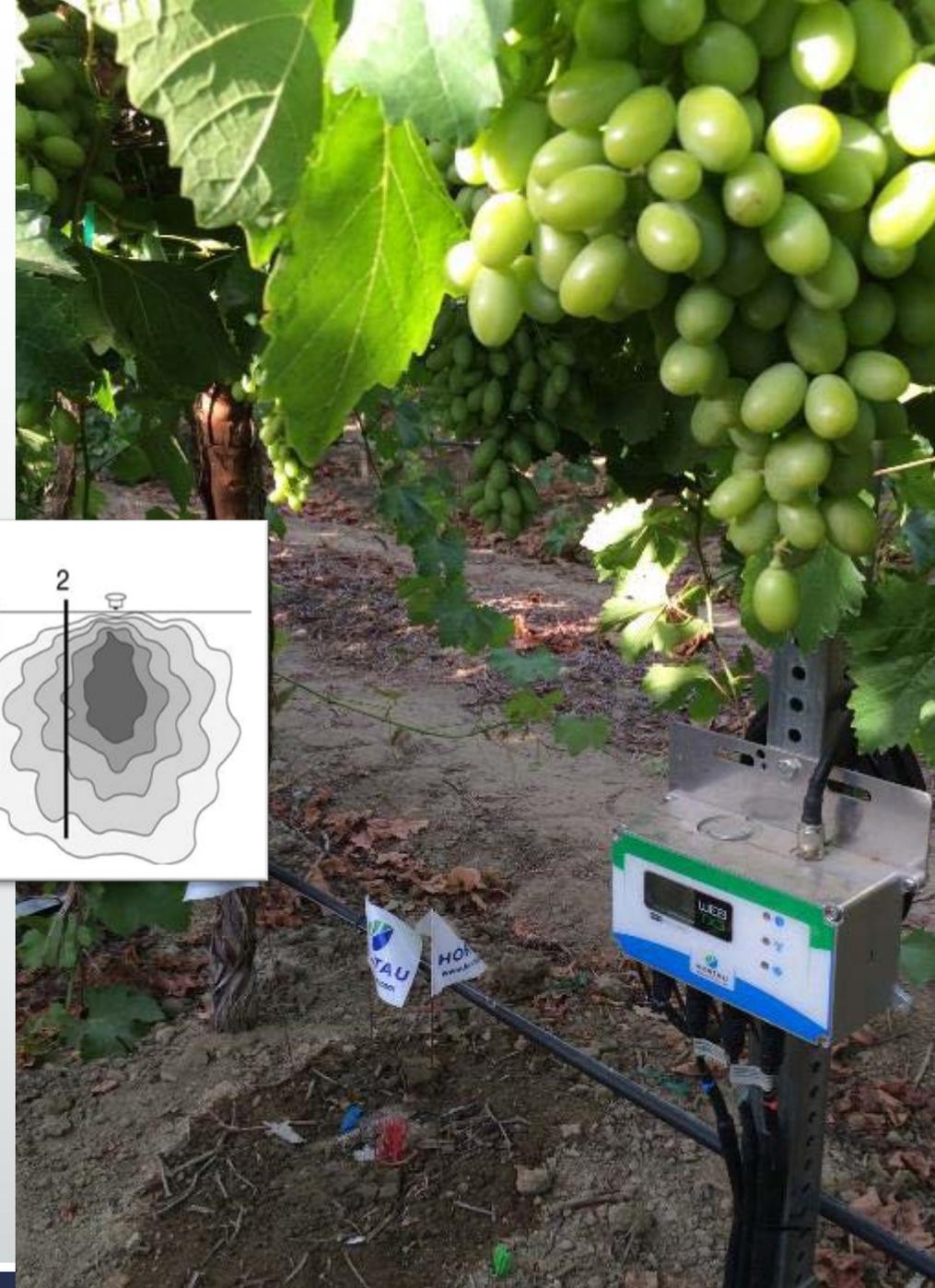
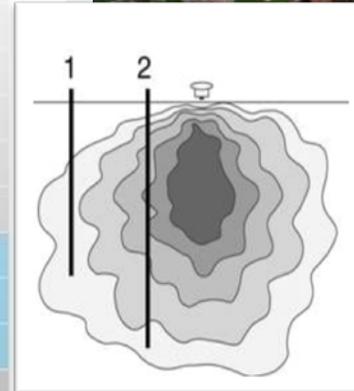


A man with a beard, wearing a green baseball cap and sunglasses, is shown in profile, looking towards the left. He is wearing a blue and white vertically striped short-sleeved button-down shirt. The background features a clear blue sky, distant mountains, and a gravel area in the foreground. The image is split vertically, with the left side being a darker, semi-transparent overlay containing text.

“This has been the  
most important  
agronomy tool  
we’ve used to  
date.”

- Dave Gill, Golden Eagle Farms

# Maximize Fertilizer Efficiency



“This is a very rugged piece of equipment, which it has to be. This station coexists with our agricultural practices.”

- Will Gerry, Coastal Calif.  
Blueberry Farm



# Our Products

- Soil Tension Monitoring

Smart field stations are solar powered and monitor data from 2 to 8 sensors, sending data to the cloud in real time via cell networks.

- Weather Data & Alerts

Hortau weather stations provide a wealth of measurements:

- Wind speed
- Wind direction
- Rainfall intensity
- Cumulative rainfall
- Temperature
- Relative humidity
- Barometric pressure
- Solar radiation
- Evapotranspiration
- Degree days
- Chilling hours
- Chill portions



# Components

- Soil-tension probes
- Complete weather stations
- In-line pressure switch
- Soil temperature probe
- Air temperature, relative humidity



“Hortau has made things so much more easy that it saves me more time and allows me to spend more time with my family.”

- Alan Weidenbach,  
Weidenbach Farms



# Automation & Flow Monitoring

- Hortau's field control units allow growers to remotely start and stop diesel engines or electric motors for pumping.
- The stations can also remotely open and close valves, read flow meters and pressure in irrigation lines.
- Automation ensures optimal irrigation across the board.

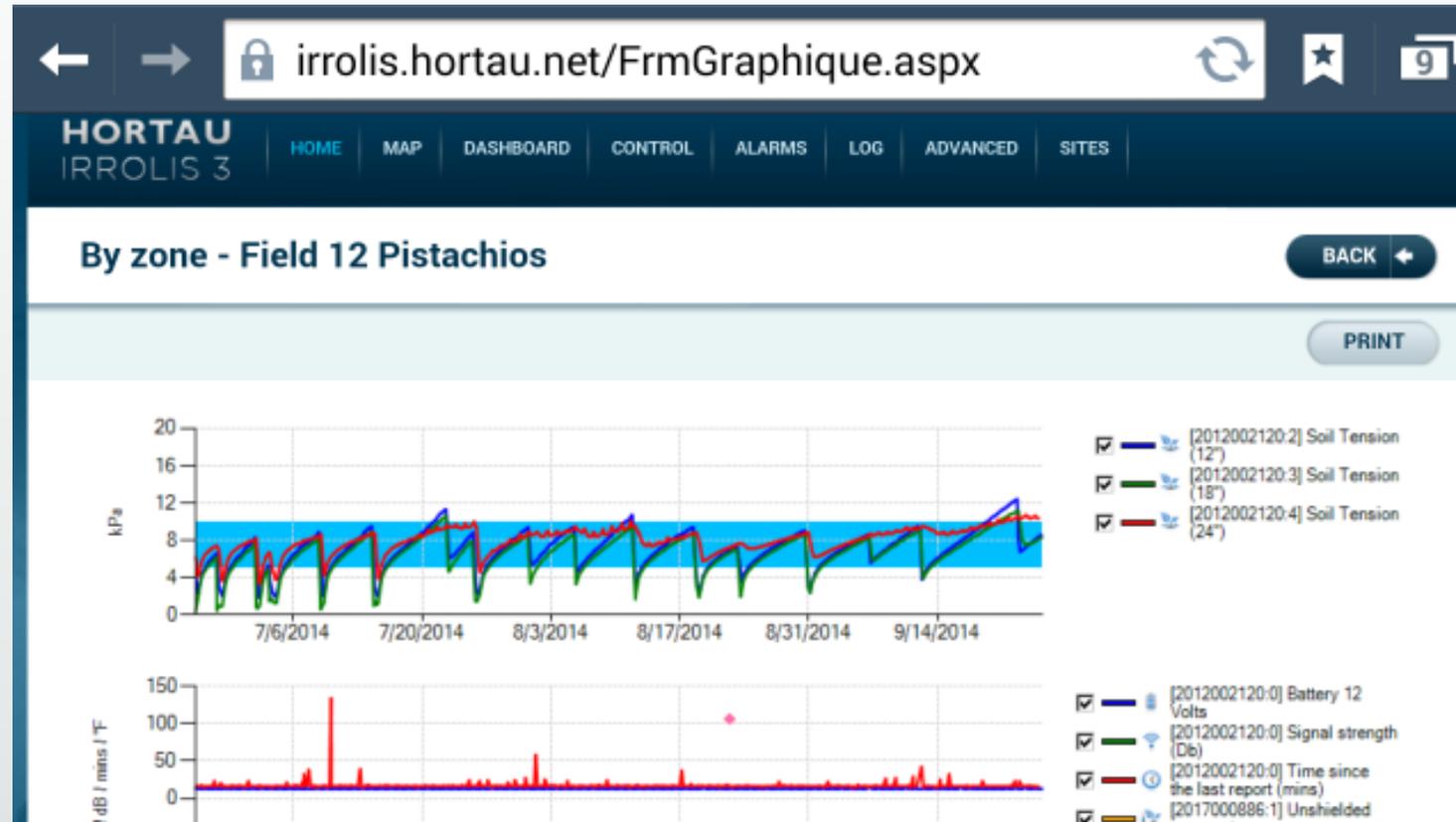


A man in a pink checkered shirt stands in a vineyard. In the background, there is a weather station mounted on a metal pole. The scene is outdoors with many green grapevines.

“The customer service has been outstanding. Hortau really manages these units on the equipment side, so it’s been a great help.”

- Dominic Zaninovich, VBZ Grapes

# Easy To Use Software



## Data by type



TEMPERATURE



SOIL TENSION



HUMIDITY



COMMUNICATIONS



12V BATTERY



3V BATTERY

## Weather Station



TEMPERATURE

98 °F



WIND SPEED

0 MI/H



WIND DIRECTION

NORTH



HUMIDITY

19 %



DAILY RAIN FALL

0.0 inches/day



ATMOSPHERIC PRESSURE



ANNUAL RAIN FALL

2.4 inches/year



SOLAR RADIATION

875 W/m<sup>2</sup>



EVAPOTRANSPIRATION

0.1 inches/day



DEGREE DAYS

3,365 °F day



CHILLING HOURS



“This is almost like cheating. It’s a really good tool.”

- Rick Bradford, Bradford Farms

Name : Frost Alert

Alarm type : Sensor Temperature

Phone

Telephone numbers: 8055882490  
 Max 150 characters  
 Example: 4182274854;4158945555x212;7158845679  
 You can provide an extension on a number using an x :  
 4185551234x228

Action : Delay between calls: 0 minutes (Enter 0 for simultaneous calls)  
 Note : Sequence stops calling numbers upon acknowledgement

Message when below minimum trigger :  
 There is a frost in the field . Please log to  
 Irrolis3 online and check the temperatures.

Message: Max 500 characters  
 Message when over maximum trigger :  
 There is a frost in the field . Please log to  
 Irrolis3 online and check the temperatures.

- Available
- 2000017112:1 : Artichokes Block 18 (Block 18) : Unshielded tempera



- Selected
- 2000014715:1 : Artichokes Block 52 (Block 52) : B52 Soil Temperatu
  - 2000014726:1 : Artichokes Block 5 (Block 5) : B5 Air Temperature

Trigger when value is under : 35 °F

Trigger when value is over : 220 °F

Hours before rearming : 12

Repeat:  
 If no one acknowledges the alarm in the call sequence, repeat the sequence 0 minutes after the sequence end for a maximum of 0 repetitions.

# Powerful Agronomic Solution

- Give the crop a voice – a way to communicate its needs
- Prevent stress before it occurs
- Save water and energy
- Keep fertilizer in the root zone
- Promotes plant health
- Crop performance





“We’re always  
trying to improve,  
and Hortau helps  
us better manage  
our water  
resources.”

- Claude Goddard,  
Goddard Farms

# Thank You

Learn more about Hortau:

- Grower Testimonials: [hortau.com/videos](https://hortau.com/videos)
- Whiteboard Presentation: [hortau.com/whiteboard](https://hortau.com/whiteboard)
- Email: [vburgers@Hortau.com](mailto:vburgers@Hortau.com)
- Media Coverage: [hortau.com/media](https://hortau.com/media)
- Free whitepaper feat. Hortau by B of A & Merrill Lynch on “Using technology to prevent weather-related losses in Ag”: [hortau.com/whitepaper](https://hortau.com/whitepaper)

