How the Right Technology Helps Your Greenhouses Thrive and Grow

Commercial greenhouses make up a massive and growing worldwide industry. Like any business, reducing overhead costs, managing facilities and equipment, integrating technology, and streamlining operations, can all be challenges for managers.

But to stay competitive, commercial greenhouse managers need to be on the leading edge of production and facility operations. See how Monnit helps commercial growers remotely monitor climate controls and facility operations 24/7.

Spoiler alert: The ROI is significant in crop yield and energy savings alone. It's all easily managed using an online dashboard on a smartphone or computer. Plus, alerts via emails, texts, or calls from a wide variety of fast-install sensors and meters.

Challenges

A produce grower saw plant growth variations throughout its new greenhouses. Managers needed to know what was hindering growth in certain areas. They had to do something fast to root out the risk to affected plants. The company wanted a solution that could quickly assess the situation and get right to work to help fix the problem.

Additionally, they wanted a better overall greenhouse management solution to help them minimize energy use while preventing crop issues using basic yet robust climate controls for temperature, humidity, air quality, water detection, and lighting.

The company wanted to thoroughly monitor the climate in all of its greenhouses and avoid issues like growers unknowingly overcompensating across an entire greenhouse for any area they perceive to be outside of acceptable parameters. After some research, they felt confident that easy-to-use wireless sensors for remote monitoring were key to all of their current challenges.

Solution

The fruit and vegetable grower self-installed:

- A system of 100 Monnit® Wireless Sensors (12 to 15 sensors per hectare) to monitor temperature and humidity.
- Sensors that are attached to suspended wires above the plants and placed in a grid pattern throughout the greenhouses.
- Gateways at one end of each greenhouse to protect and communicate data sent from sensors.

Through gateways, the sensors sent information to the iMonnit Sensor Management and Remote Monitoring software on manager smartphones and computers. Using iMonnit Sensor Maps, a grower could upload a graphic showing the plant layout of the monitored areas. This allowed the grow managers to drag and drop sensor tags onto the map with live data. Then, they could see the performance of their greenhouses from an aerial view.

The sensors were set to check the temperature every few minutes and record temperatures every 10 minutes. Notifications were set up to alert staff if temperature and humidity levels fell outside of a nominal range, allowing them to adjust the greenhouse climate appropriately.

To provide an overall greenhouse management solution, Monnit added Carbon Dioxide (CO_2) and Water Detection Sensors, and Light Meters to the grower's greenhouses.

Results

Initially, the grower found that temperature and humidity levels varied widely from one part of a greenhouse to another. Some areas were warmer (partly due to the angle of sunlight), while other areas were cooler with different humidity levels. With a graphical-aerial overview of greenhouse climate, grow managers could adjust each climate while minimizing the energy being used.

ROI: Within the first month alone, they saw an increase of 14% in crop yields and a decrease in energy costs by 18%.

Using Monnit Remote Monitoring Solutions, the grower can:

- Track temperature, humidity, air quality, and water leaks.
- Maximize efficiency within its growing climates.
- Lower operating costs across the company.
- Lower energy consumption on demand.
- Increase crop yield in every greenhouse.

Monnit Sensors and Meters Prep Your Greenhouse for Growth

1

Temperature Sensors

The Monnit Standard Temperature Sensor will measure a range of conditions from -40°C to +125°C (-40°F to +257°F) and deliver time-stamped readings for easy logging and graphing.

2

Humidity Sensors

The scientific-grade Monnit Humidity Sensor remotely monitors relative humidity (RH) with a +/- 3% accuracy (between 10–90% RH), temperature, and dew point in greenhouses.

3

Carbon Dioxide (CO_2) Sensors

Carbon Dioxide is a must in greenhouses to fuel photosynthesis and growth. The Monnit Wireless CO_2 Sensor will alert you if CO_2 levels are above or below your ideal settings.

4

Light Meters

Ideal for measuring light for plants that need more than 12 hours of it, the Monnit Wireless Light Meters deliver readings on light intensity in lux (lx) from 0–83,000.

5

Water Detection Sensors

In greenhouses, there are many places a water leak can occur. A Monnit Wireless Water Detection Puck or a Wireless Water Rope Sensor along a pipe or wall can quickly alert you.

MONNIT®

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