

# CORNELL CONTROLLED AGRICULTURE LIGHT RESEARCH

SQ-520 USB Full-spectrum Quantum



Cornell University is using Apogee's SQ-520 Full-Spectrum Quantum Sensor (USB) to research growing vegetables in greenhouses with electric lights. Jake Holley, Graduate Student in the School of Integrative Plant Science, provided a description of the project:

Cornell's Controlled Environment Agriculture group conducts research on growing vegetables in greenhouses with the use of electric lighting. Measuring the total light in these experiments presents a challenge, as light spectra differ between electric lighting sources and natural sunlight. Apogee's SQ-520 Full-Spectrum Smart Quantum Sensor (USB) provided a solution to measuring light for this experiment, as well as logging data. Apogee's SQ-520 is ideal for this application due to the accuracy of measurements under any wavelength of light in the photosynthetically active spectrum. Different spectra of light are provided in ten treatments, and measuring this light will allow researchers to discern differences in overall light between treatments without light spectra causing any error. The data logging capability incorporated into the sensor is a critically important aspect and a powerful asset. Minute-by-minute data is needed to fully understand the influence of weather, seasonal changes, and addition of supplemental light controlled by the automated greenhouse computer systems. The ease of use and reliability of the sensors has allowed us to obtain this data. The research project will help to determine the most electrically efficient and effective lights to use for growing produce in a greenhouse setting. With the advent of new LED technology and the potential to customize electric light spectra, our research will help greenhouse growers produce healthier plants while reducing their carbon footprint.



## Application Summary

**Summary**  
Apogee Instruments' SQ-520 is helping Cornell University conduct research on growing vegetables in greenhouses using electric lighting.

**Apogee Sensors Used**  
SQ-520 USB Full-spectrum Quantum Sensor

**Organization**  
Cornell University

**Location**  
Ithaca, New York

