METER
ENVIRONMENT

SCIENTISTS AND GREENHOUSE GROWERS COLLABORATE TO HELP THE ENVIRONMENT

Bodies of water across the world face extreme pressure from non-point source pollution. It's easy to get overwhelmed by the sheer enormity of this problem, but it didn't daunt Dr. John Lea-Cox, Research and Extension Specialist for horticulture at University of Maryland. Dr. Lea-Cox was acutely aware that agriculturally applied fertilizers threatened serious harm to the Chesapeake Bay area near his home. Using METER water content sensors, he began to put together a system that could monitor water status in nursery operations. The effort was based on the work of Dr. Andrew Ristvey (now a colleague at Maryland) who showed water savings of more than 50% during his PhD work using TDR sensors in pots growing ornamental plants. Dr. Lea-Cox and his colleagues wanted to ultimately develop a network of soil moisture and environmental sensors that would help greenhouse and nursery growers know when to turn on and off their water. Their goal was to reduce nutrient and water use through more efficient application.

CONVINCING GROWERS

One hurdle facing Dr.Lea-Cox was that water savings didn't resonate with all growers. But he soon realized that better irrigation control influenced things growers *did* care about: higher quality crops, lower mortality rate, and less spending on pesticides. Dr. Lea-Cox discovered that when he showed growers their moisture sensor data, they were hooked. One snapdragon grower, who found that he could use the soil moisture sensors to produce a more lucrative A grade crop, said he would not like to go back to the days before sensors. "My gosh, it would be like going back ten years. It would be like trying to measure the temperature in a room without a thermometer. We are totally dependent on them."

TEROS 12 soil moisture sensor

FINDING COLLABORATORS

Dr. Lea-Cox was not only good at convincing growers, but scientific collaborators as well. Building on this team's initial findings, he organized a project to develop water retention curves to tie the amount of water in pots to what was actually available to the plant for several different mixes of potting soil. He realized that moisture measurements were practically useless to growers without a mechanism for viewing them all in one place, so he began to look for collaborators who could build an integrated, wireless system to get root zone information to the nursery grower's computer and allow them to set irrigation limits and automate their systems based on soil and weather data.

The resulting collaboration was a group of diverse scientists and commercial growers who could study root behavior, plant-environmental interactions, the performance of the plants, and individual grower interaction with the system. After a few years of testing, the group received $5M in funding from the Specialty Crops Research Initiative (SCRI) Program over five years to improve horticulture for ornamental plants grown in the U.S.

Lauren Crawford, METER's soils product manager, says that the resulting collaboration was unique. "It was amazing that an instrumentation company, a research group, and commercial growers were able to work so well together. It was because of the trust we had for each other. We were very transparent about what we were doing, even when we knew that transparency would be difficult. The result was that we were able to make tremendous progress in both science and technology."

- **Note:** SCRI participants were featured in the press here: Greenhouse Product News and Greenhouse Management, and Greenhouse Grower.

- Watch two webinars highlighting SCRI research given by scientists Marc Van Iersel and John Lea-Cox. Or read John Lea-Cox's case study.

Discover METER soil moisture sensors