

# NCERA-101 Station Report 2016 - Percival Scientific, Inc.

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Henry Imberti, Sr Vice President of Engineering, Percival Scientific, Inc.  
505 Research Drive, Perry, IA 50220  
himberti@percival-scientific.com

## **1. New Facilities and Equipment**

Percival is working with researchers from Iowa State University to develop an "Enviratron"--an advanced, high-throughput phenomics facility to study the factors that impact plant growth. The facility uses an array of sensing and imaging equipment to track plant health at many points throughout the lifetime of the plant. A series of growth chambers permits the control of multiple environmental variables at a time: temperature; light duration, quality and quantity; wind speed and air patterns; humidity; carbon dioxide levels and water potential. The layout of the facility and the environmental chambers are designed to accommodate a rover with the monitoring equipment attached to a robotic arm, allowing the rover to non-destructively collect data while the plants remain in the environment. Chamber installation has already begun and will continue until the end of the year.

## **2. Unique Plant Responses**

No findings to report.

## **3. Accomplishment Summary**

As of early August, the first controlled environment was installed inside the Enviratron building located at the Iowa State University Ag Engineering and Agronomy Research Farm.

In a separate project with Iowa State University, twenty large walk-in Percival chambers will be used in a state of the art bioscience facility for advanced teaching and research. The chambers will be shared among several departments and expose students to applications requiring controlled environments.

Percival was recognized for its commitment to plant research around the globe by receiving the President's "E" Award for Exports. Percival chambers can be found in 79 different countries, aiding researchers worldwide in a broad spectrum of projects using precisely controlled conditions.

## **4. Impact Statements**

The Enviratron project will be used to study the impact of a changing climate on plant performance and health. This is the first step in solving tomorrow's threats to agriculture and food security.

Percival is committed to customizing environmental chambers to meet the research needs of any customer. This approach to manufacturing allows plant scientists and growers set up experiments with chambers tailored to their exact needs.