

## University of Kentucky - NCR-101 Station Report

### ***New Facilities:***

The construction for a complex of six research greenhouses started last year and will be completed summer 2007. This is an off-campus facility that will have six replicated 24' x 60' greenhouses. The control system for the complex will be installed during the summer/fall of 2007.

A 10' x 10' x 14' insulated chamber with temperature and humidity control (Parameter Generation and Control, Black Mountain, NC) has been installed. This is the second such chamber for our dept. An HPS lighting system is currently under development. The first chamber still has the sulfur microwave lamps in use.

### ***Equipment / Sensors / Control Systems:***

- Campbell Scientific CR1000 datalogger is being used with 27 Decagon TE sensors for an irrigation optimization study. The TE sensors are digital and monitor soil moisture, temperature, and EC of the soil.

### ***Unique Plant Responses:***

- Low oxygen fumigation work continues as we quantify the effects of the treatment on whole plants. The treatments can damage plant leaves, so quantifying leaf area to determine effectiveness would not be useful. The gas monitoring system has been updated to track CO<sub>2</sub> changes. This will allow a comparison of photosynthetic rates to evaluate the treatments. Testing is on-going.

### ***Committees / Panels:***

USDA Small Business Innovative Research (SBIR) Review Panel Member

USDA NE-1017 Committee Member - Developing and Integrating Components for  
Commercial Greenhouse Production Systems

USDA NCERA-101 Committee Member - Controlled Environment Technology and Use

ASAE Structures and Environment Division - Environment of Plant Structures (SE-303)

ASAE Structures and Environment Division – Nursery and Greenhouse System Engineering  
(SE-406)

### ***Visiting Scientists:***

No report.

### ***Recent Publications:***

Kim, H.-H., **J. H. Norikane**, R. M. Wheeler, J. C. Sager, and N. C. Yorio. 2006. Electric Lighting Considerations for Crop Production in Space. *Acta Horticulturae* (accepted).

### ***Website:***

Biosystems & Agricultural Engineering Dept.: <http://www.bae.uky.edu/BAEHome.htm>

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