

1. Cooperative/interdisciplinary projects

- Evaluation of growth and development of safflower under semiarid greenhouse conditions. [Kubota and Giacomelli]
- High lycopene tomato production: Effects of consumption on human plasma lycopene levels and oxidative stress. [Kubota and Thomson]
- Evaluation of antioxidants in tomato during postharvest [Javanmardi, Fonseca, Kim and Kubota]
- Analysis of ventilation and cooling in semiarid greenhouse [Sase, Kurata, Kubota, and Giacomelli]
- Designing elicitation strategies for production of chemicals from hydroponic and cell-culture systems [Cuello and Van Etten]
- Design of algal photobioreactor for hydrogen gas production [Cuello]
- Performance testing of water-cooled LED arrays [Cuello]
- Design of prototype for phytometric light meter [Cuello, Costa and Prevatt]
- South Pole Food Growth Chamber project [Giacomelli and Sadler]
- Optimization of evaporative cooling in semiarid greenhouse [Sabeh and Giacomelli]

2. Workshops/colloquia/symposia

- A **2005 NCR-101 meeting** was held in Tucson, AZ, for March 12-15, 2005.
- A **Greenhouse Crop Production and Engineering Design Short Course** was held for January 19 to 22, 2006, as a continuing professional education short course from the University of Arizona. The course programs can be viewed at <http://www.ag.arizona.edu/ceac/>. The meeting included a tour to EuroFresh Co. (Willcox, AZ).

3. Publications in 2005

Costa, G.J.C. and J.L. Cuello. 2005. Phytometric System of Light Units for Plants. In *Iluminacao Economica*, 3rd ed. G.J.C. Costa, ed. EDIPUCRS: Porto Alegre, Brazil.

Hoshino, T. and J.L. Cuello. 2005. Environmental Design Considerations for Somatic Embryogenesis. In *Somatic Embryogenesis*. A. Mujib and J. Samaj, eds. Springer-Verlag: Berlin. 257-266.

Hoshino, T. and J.L. Cuello. 2005. Regulating Radiation Quality and Intensity Using narrow-Band LEDs for Optimization of Somatic Embryogenesis. *Proceedings of the 2005 ASABE Annual International Meeting*. July 17-20. Tampa, FL.

Ikeguchi, A., S. Sase, M. Ishii, K. Kurata, C. Kubota, S. Yokoi, N. Sabeh, and G.A. Giacomelli. 2005. Efficient greenhouse cooling in semiarid climate (II) Natural ventilation measurement with gas tracer method in a single-span double-polyethylene greenhouse. p. 11-16. *Proceedings of International Conference on Research Highlights and Vanguard Technology on Environmental Engineering in Agricultural Systems Joint Meeting on Environmental Engineering in Agriculture 2005*, September 12 - 15, 2005, Kanazawa University, Japan

J. L. Cuello and G.J.C. Costa. 2005. Bringing Fallacies to Light Part 2: Further Debunking Radiation-Measurement Misconceptions for Plant Photosynthesis. *Resource: Engineering & Technology for a Sustainable World*. 12(9): 13-14.

J. L. Cuello and G.J.C. Costa. 2005. Bringing Fallacies to Light: Debunking Radiation-Measurement Misconceptions for Plant Photosynthesis. *Resource: Engineering & Technology for a Sustainable World*. 12(2): 9-10.

Javanmardi, J. and C. Kubota. 2006. Variation of lycopene, antioxidant activity, total soluble solids and weight loss of tomato during postharvest storage. *Postharvest Biology and Technology*. (in press)

- Kubota, C., C.A. Thomson, M. Wu, and J. Javanmardi. 2006. Controlled environments for production of value-added food crops with high phytochemical concentrations: High lycopene tomato as an example. HortScience (in press)
- Sase, S., M. Ishii, A. Ikeguchi, K. Kurata, C. Kubota, S. Yokoi, N. Sabeh, and G.A. Giacomelli. 2005. Efficient greenhouse cooling in semiarid climate (I) Fog cooling in combination with natural ventilation in a single-span double-polyethylene greenhouse. p. 207-210. Proceedings of International Conference on Research Highlights and Vanguard Technology on Environmental Engineering in Agricultural Systems Joint Meeting on Environmental Engineering in Agriculture 2005, September 12 - 15, 2005, Kanazawa University, Japan

4. Internet Sites

- The University of Arizona Controlled Environment Agriculture Center home page: <http://ag.arizona.edu/ceac>
- Tomato Live! Website: <http://ag.arizona.edu/ceac/tomlive/index.htm>
- Worldwide Greenhouse Education Website: <http://www.uvm.edu/wge/>

5. Video/Software

- Greenhouse Environment Simulator (USDA HEC grant program)
- Visual VETH (ventilation-evaporation-temperature-humidity analysis in greenhouse)

6. New course

PLS 579/ABE 579 Applied Instrumentation for Controlled Environment Agriculture [Kubota, 3 units]