Steckler Grant Phase 3 Awarded to UA Team

The University of Arizona was awarded the NASA Ralph Steckler/Space Grant Space Colonization Research and Technology Development Opportunity Phase 3 Grant! The entire team of 26 in USA and 10 International collaborators were pleased to learn in April that of the 2 awards for Phase 3 of the NASA Steckler Space Grant, our team was chosen. Everyone involved should be congratulated for their exceptional work to complete Steckler Phases 1 & 2, and to now be awarded Phase 3. This award makes a statement about the great interest, perseverance, tolerance and achievements of such a massive, multi-disciplinary, multi-institutional, international, small business, and aerospace businesses collaboration. It meets expectations of how to move forward, and it satisfies their professional and educational obligations. And, NASA agrees! We thank everyone who has helped along the way and wish the best of continued success with Phase 3 and beyond. Stayed tuned for more information on the Lunar Greenhouse and the Steckler Grant as the project begins again in July.

LGH-OTM at Biosphere 2

Thanks to Phil Sadler of SadlerMachine Co, the Lunar Greenhouse Outreach and Teaching Module has been displayed and operated since November 2014 at Biosphere2 as part of an educational exhibit about BLSS (Bioregenerative Life Support System) for supporting 4 persons on Lunar or Martian surface habitat. Activities for CEAC students include operating/maintaining of the module and serving as volunteer tour guides. Funds were provided by Dean Shane Burgess, CALS, and Joaquin Ruiz, College of Science.

CEAC Launches New Website

We at the CEAC are happy to announce the launch of our new website: http://ceac.arizona.edu. Please give the new website a look and see what you think. The website features a new menu that makes it very easy to find information. Explore our research, learn more about hydroponics, find information about one of our events, and much much more! The new website helps us show our passion for CEA and our desire to teach the world. Please email Aaron Tevik at atevik@email.arizona.edu with any comments or suggestions for the new website, it will be updated weekly.

CEAC Hosts LED Lighting Symposium

Many of the premier educators and industry professionals in the field of LED Lighting in Agriculture to came to Tucson for the LED Lighting Symposium February 19 – 20. The CEAC classroom was filled to capacity with 60 attendees with almost 100 additional attendees tuning in online. Presentations covered many topics relating to LEDs in agriculture. The picture above shows speakers (L to R) Michael Dzakovich (Purdue University), Erik Runkle (Michigan State University), Bruce Bugbee (Utah State University), Chieri Kubota (University of Arizona), and Celina Gomez (Purdue University) in the middle of a Q & A session. The exhibiting companies included Philips, Valoya, and Heliospectra. More information about LED Research, publications, and the conference in general can be found at: http://leds.hrt.msu.edu.
Dr. Hernandez Accepts Position at North Carolina State

Dr. Ricardo Hernandez has accepted a tenure track faculty position at North Carolina State University in the department of Horticulture. His areas of research will be controlled environment horticulture (high tunnel, greenhouse, plant factory), sustainable horticultural nutrition (conventional and organic, bio-film management, hydroponic organics), and horticulture energy management (energy budgeting, carbon footprint).

Ricardo came to work at the CEAC on January 2011 under the advice of Dr. Chieri Kubota, after 2.5 years he completed his PhD focusing on plant responses to light quality and light intensity using light emitting diodes in greenhouse growing conditions. After graduation Ricardo continued working as a Postdoctoral Research Associate with Chieri looking at plant responses to light quality under closed-type production. He also co-founded a propagation company in 2013 focusing on the production of grafted vegetable transplants in closed conditions (vertical farming) for the commercial and retail markets (www.graftedgrowers.com).

We are so happy for Ricardo and his family, but it is difficult to see him leave because he has been such vital member of the CEAC team. Ricardo is very thankful to the CEAC and wanted to share the message that “The CEAC has been my home for the past 4.5 years. I can credit this center and in particular my adviser, Dr. Chieri Kubota, with my excellent training in the area of plant physiology and biosystems engineering that allow me to evolve from a curious student to a scientist. I now embark on a new adventure knowing that my family at CEAC will always be there for me”. Congratulations Ricardo, and good luck!

Online Professional Greenhouse Physiology & Technology Course

Dr. Chieri Kubota will again be teaching an Online Professional (non-credit) Course Greenhouse Plant Physiology & Technology. It is a 9 week course which will be from August 24 to October 25 of this year. The Online Course will present students the foundational information on the major greenhouse environmental factors affecting plant growth and development. The deadline for enrollment in the course is August 17th. More information at: http://ceac.arizona.edu/sites/ceac/files/greenhouse_plant_physiology_course_updated.pdf or by emailing Dr. Kubota at ckubota@email.arizona.edu.

CEO of Priva Gives Presentation for Students

After attending the 3rd indoor Agricultural Conference in Las Vegas, NV from March 31 to April 1, we were priviledged to have CEO Meiny Prins of Priva Greenhouse Climate Control Systems, come to Tucson to visit the CEAC. Meiny and Gene Giacomelli met at Indoor Ag Con where Meiny was giving the keynote presentation and Gene was on a panel discussion.

International Vegetable Grafting Field Trip Opportunity

The USDA SCRI (Specialty Crop Research Initiative) Vegetable Grafting Technology Workshop Group presents two unique opportunities for primarily US propagators to visit selected nurseries around the world to learn about commercial vegetable grafting operations. The first trip has been finalized and will be to Taiwan and Japan from August 16 – 23. The second trip will be to Italy and Israel and is set for the Spring semester of 2016. The official dates are coming soon. More information on these trips including cost, registration, and organizers can be found at: http://www.vegetablegrafting.org/wp/wp-content/uploads/2014/01/usda-scri-intl-grafting-field-trip-flyer-and-agenda-apr-15.pdf.

Please email any questions regarding the grafting field trips to Dr. Chieri Kubota at ckubota@email.arizona.edu.

While in Tucson, Meiny toured the CEAC facilities with Gene. She also visited main campus and provided an insightful presentation about the Greenhouse industry to the Plant Science and Biosystems Engineering students on April 2. Thank you Meiny for taking the time to talk with our students who are part of the future of the CEA industry!
UA-CEAC hosted the meeting of the USDA Regional Committee on Resource Management in Commercial Greenhouse Production (NE 1335) during March 26-28. The Committee Members, as representatives of agricultural experiment stations of their institutions, made presentations about their research activities addressing to resource management issues related to water and nutrient applications, as well as to energy use in greenhouse production systems. The participants also attended a social welcome event, toured CEAC facilities, and visited a commercial greenhouse operation as part of the meeting program.

Conferences Attended

-Drs. Gene Giacomelli and Murat Kacira were invited to attend and gave lectures at the 2015 High-level International Forum on Protected Horticulture (HIFPH 2015) in Shouguang city, China April 19-22, 2015. The presentations and discussions at the forum included topics related to energy savings, resource use efficiency, information and communication technologies, system designs, automation, LEDs in greenhouse and indoor plant production systems. Giacomelli and Kacira also joined opening of the 16th China International Horticulture Fair and toured greenhouses and plant factories in operation and demonstration. Their host and chairman and organizer of the forum was Dr. Qichang Yang, Institute of Environment and Sustainable Development in Agriculture at the Chinese Academy of Agricultural Sciences (CAAS).

-Drs. Gene Giacomelli (as member of organizing committee) and Murat Kacira (invited researcher) attended to a workshop on April 16, 2015, on the Food, Water and Energy Nexus. The workshop was funded by the National Science Foundation (NSF) and organized by the University of Arizona.

The workshop brought together a select group of representatives from academia, government and industry convened at Biosphere 2 in Tucson to identify the top scientific questions that address the pressing global need to secure the availability of energy, water and food for future generations. The workshop enabled several discussions to foster collaborations and establish an interdisciplinary broad-based approach to address the scientific and engineering challenges in energy, water, and food systems that impact society.

-Dr. Gene Giacomelli was invited by Dean Burgess to participate in the meeting organized by the University and Industry Consortium (UIC) in Yuma, AZ in February. The UIC is an organization of 47 members, comprised of 27 Land Grant Universities, 1 Canadian University, 19 global agricultural companies and the USDA-ARS. Gene was one of the ‘Leading Edge Speakers and Key Leaders in Agriculture’ for the “Precision Ag / Decision Ag Panel”, and thus had the opportunity to meet other prominent speakers who addressed key topics incorporated into the agenda and the opportunity to network with and discuss emerging issues of agriculture with key leaders.

Visiting Scholars at CEAC

Visiting Scholars Drs. Catherine Baxevanou & Dimitris Fidaros of the Center for Research & Technology Hellas (CERTH) and Institute for Research & Technology Thessaly (IRETETH) in Greece were hosted by Dr. Murat Kacira at CEAC during March-April, 2015. Their visit was under the frame work of international consortium project “Smart CEA systems” funded by European Union Marie Curie Researcher Exchange Program. The project aimed to form an excellent center of synergy in research, innovation and technology transfer in the area of agriculture production under controlled environments. Drs. Baxevanou and Fidaros participated in the ongoing research studies, attended CEAC annual engineering and crop production short course, and visited center and university research and teaching facilities and gave seminar presentations during their visiting program at the University of Arizona.
Student Awards & Accomplishments

-Dr. Tollefson and 4 Students attend PMA in California

Through a competitive application process, University of Arizona undergraduate students (L to R above) Jip Rodenburg (Agricultural and Resource Economics), Bill Artwohl (Sustainable Plant Systems), Angela Cordova (Sustainable Plant Systems-Yuma), and Conner Mog (Agricultural Technology Management) were recently chosen to participate in the Produce Marketing Association (PMA) Foundation’s Career Pathways Program. These students, along with faculty mentor Dr. Stacy Tollefson, traveled to Monterey, California May 11-13, 2015 to attend the program which was held during the Tech Knowledge industry symposium! The goal of the Career Pathways Program is to attract the best and brightest students to choose careers in the produce and floral industry. Each student was paired with an industry mentor and they participated in customized education sessions, as well as general sessions given during the Tech Knowledge symposium. Students learned about the many, and varied, career opportunities available in the produce industry and networked with new and veteran professionals. They also experienced new and emerging technologies for growing produce and for food safety assurance. Congratulations to those students!

-The CEAC is proud to welcome 4 new student workers for the Summer of 2015. These students will be working on three separate projects. Ysabella Rongo and Ella Anquianno will be working on the DeRuiter Tomato Variety Project under CEAC staff member Tilak Mahato. Martina Mitchell will be working on the Lunar Greenhouse for Dr. Gene Giacomelli, while Hayley Odom will be working with Dr. Giacomelli on a lettuce production systems evaluations project and a seed corn variety trial. We are glad these exceptional students will be spending their Summer in Tucson!

-CEAC Masters student Will Kacheris will be starting a research project titled “Feasibility of a Rooftop Hydroponic Operation using a Cost Production Analysis Model” More specifically, Will’s project will be researching an in-depth cost of production analysis centered on a high-density rooftop hydroponic operation. Through the combination of on-site crop trials and industry data, he will compile the costs and outputs of a hydroponic operation suited for an urban area. A cost of production prediction model will be constructed which will allow more informed selection of proper urban sites for agricultural production. This research comes as cities become more and more densely populated and food security and logistics issues are becoming more important to consumers.

-Congratulations to CEAC student Erica Hernandez for coming in 5th place in the American Poolplayers Association (APA) 9 Ball National Singles Championship in Las Vegas. She competed in the highest skill level tier (black tier) at the Riviera Casino and Hotel on May 1st and took home a cash prize along with some APA merchandise. Erica has been a student at the CEAC since 2012, and has worked extensively on the Lunar Greenhouse Project and done research on hydroponic lettuce production. Erica has been very busy in 2015 ensuring that the LGH-OTM is running properly at Biosphere 2. She also participated in the “NASA Space Horizons 2015 “McMurdo on the Moon (and Mars)” Workshop in Rhode Island in February, where she presented 2 posters of her collaborative studies of the Prototype Lunar Greenhouse. Erica was recently accepted to participate in the Summer Research Institute (SRI), a 10-week summer program which include a stipend, and class credit activities while she works on the project within the NASA Steckler Program. This goes to show you that our students can have some fun while still excelling in school!

Will Kacheris with Dr. Merle Jensen in the hydroponic lettuce production greenhouse
Additional Grants Awarded to CEAC

-Dr. Ricardo Hernandez and John Jackson of Grafted Growers, LLC have been awarded a Phase I USDA-SBIR grant. SBIR (Small Business Innovation Research) grants support technology innovation by providing federal research funds to help grow small technology-based businesses. With this award, Grafted Growers, LLC will be working in collaboration with Dr. Chieri Kubota and Dr. Murat Kacira as a multi-disciplinary team with a goal of creating a sustainable indoor growing system for grafted vegetable transplants. The project is set to begin in June 2015.

-Dr. Murat Kacira will be working with Dr. Takashi Nakamura of Physical Sciences Inc., California, on another Phase I USDA-SBIR funded project evaluating a concept with a greenhouse design that is generating electricity and heat for use in the production system. This project will also start in June 2015.

Students Participate in College of Engineering Recruitment Video

CEAC Aquaponics graduate students Brunno Cerozi and Giovanna Hesley participated in the filming of a University of Arizona Engineering School Graduate Student Recruitment Video, where they highlighted the graduate student activities at the UA-CEAC. Stay tuned for the full video coming out soon!