COLLEGE OF AGRICULTURE AND LIFE SCIENCES

Yuma Center of Excellence for Desert Agriculture

Annual Report | December 2015

Purpose

To improve all aspects of desert crop production systems and economics.

The University of Arizona College of Agriculture and Life Sciences (CALS) has partnered with the desert agriculture industry to establish the Yuma Center of Excellence for Desert Agriculture (YCEDA) at the UA Yuma Agricultural Center. YCEDA is a public-private partnership that will improve all aspects of desert crop production systems and economics by providing rapid, direct value-adding responses to issues important for desert crop production systems. A university entity using private funding and guidance from an advisory council made up of donors from the agriculture industry, YCEDA brings new resources to bear on high-priority issues identified by industry, allowing the University to be more responsive to industry needs.

Mission

The Yuma Center of Excellence for Desert Agriculture (YCEDA) will provide rapid, direct value-adding responses to issues important for desert crop production systems. The Center will not duplicate the work of other entities but will flexibly complement them. Issues will include, but not be limited to, crop protection, sustainability through production efficiencies and yield maximization, technology utilization, water, labor, food safety, desert agriculture stresses and economic and environmental challenges.

In The NEWS

Featured in UA News

Through Innovative Partnership, 'Hot Shot' Team Tackles Yuma Produce Perils

Featured in Western Farm Press

YCEDA 'Hot Shot Teams' Seek Faster Solutions for Desert Agriculture

ACCOMPLISHMENTS AND RESULTS

This partnership between industry donors and YCEDA has led to progress on multiple fronts

YCEDA has worked with UA Cooperative Extension Service (UA-CES) Researchers to publish and distribute short papers for industry with practical advice on the initial focuses of plant pests and diseases such as Bagrada Bug and Fusarium Wilt of Lettuce. Additional researchers have been assigned to UA-CES to help with YCEDA projects.

YCEDA hosts annual issue-specific conferences ("Conference on Excellence in Desert Agriculture") to bring researchers and industry together to solve issues. In November 2015, the first-ever International Symposium on Fusarium Wilt of Lettuce was held in Yuma, along with commercial field trials to evaluate new resistant varieties and treatments. Drone overflights are being analyzed for early detection capabilities.

YCEDA is working with military contractors and other high-tech companies as well as UA and USDA researchers to apply new and existing high technology to precision agriculture applications such as underground imaging, real-time pathogen detection and Ag automation.

YCEDA is working to secure innovative private and public investment for new and enhanced diagnostic laboratory facilities to enable commerce and trade as well as research and education.

YCEDA is matching industry needs and desires for information and decision making tools with funding opportunities available from federal agencies and others. With our direct ties to industry and university and other resources, we find much interest from the granting agencies to fund our projects – especially those pertaining to arid lands productivity in a changing climate (fighting diseases and pests, enhancing soil health, water and nutrient management).

Working with local Economic Development organizations has put us in the middle of several projects looking to increase innovation and business startups around agriculture and food processing.

IN THE PIPELINE

- Performing trials of innovative crops, production systems and protection products. We'll ferret out what is snake oil and what is worth using.
- Compiling new data on evapotranspiration and other data needed for enhanced irrigation management.
- YCEDA is working with economic development entities to expand opportunities for complimentary industries such as food processing.
- Creating a testbed for water efficiency and productivity research. Yuma is the perfect place for arid lands productivity research, and we will partner with experts from USDA, universities, institutes, industry partners and others to perform applied research
- Exploring collaborative work with environmental groups to develop workable best management practices based on industry practices and valid research. Making these available could preempt unworkable demands from buyers.
- YCEDA is suggesting projects that could be facilitated with funding from an investment group looking to fund projects that will enhance Yuma's jobs, education and workforce.

An example being explored is a public-private partnership, including UA and the Arizona Department of Agriculture, to construct and operate enhanced laboratory facilities to meet currently unmet needs in plant pathology (diagnostics), border inspections, seed industry certifications, food safety, desert plant germplasm repository, etc.

CURRENTLY EXECUTING

Bringing new tools for fighting Fusarium Wilt of Lettuce.

- Engaged Dr. Matheron to write a status report with current knowledge for industry.
- Worked with UA Cooperative Extension to get 30% of Dr. Barry Pryor's time for plant pathology work, enhancing our Fusarium Wilt efforts and diagnostic capabilities.
- Partnered with Dr. Matheron and industry for grant-funded commercial field trials of FW resistant varieties and treatments. Collection of data with drones by Dr. Kurt Nolte was trialed, with the goal of early disease detection.
- Received grant funding to host the first-ever International Symposium on Fusarium Wilt of lettuce, which was held November 12-13 in Yuma.
  - This conference was the first "Conference on Excellence in Desert Agriculture" on specific topics affecting desert agriculture, bringing together the principal players in industry and academia to share knowledge and brainstorm paths forward.
  - Approximately 170 attended, with speakers from Japan, Italy, Brazil, California and Arizona. Attendees identified a roadmap to accomplish the most promising efforts for moving forward..

Fighting the Bagrada Bug

- Engaged Dr. Palumbo to write a status report with current knowledge for industry.
- Bringing resources to support Dr. Palumbo's work on new tools against the Bagrada Bug in conventional and organic production.

Developing tools to avoid heavy metals in leafy greens.

- YCEDA is working with the Center for Produce Safety and the California Leafy Greens Research Program to fund research by Dr. Charles Sanchez and others in California and Arizona to correlate soil levels of cadmium with tissue levels of spinach at harvest.

YCEDA is identifying new and existing technologies to solve the problems of desert agriculture. Discussions with Raytheon Missile Systems and their partners have led to two current projects:

- We have partnered with CA/AZ growers and Earth Knowledge to match industry needs in the areas of fighting diseases and pests, enhancing soil health, irrigation management, maximizing crop yield and quality and sustainability. The desert Ag industry is perfectly positioned to get funding to produce new and innovative decision tools for growers aimed at productivity in the face of drought and climate change. YCEDA will pull together hotshot teams to put grant funding to use in solving problems.
- YCEDA is working with miniaturized wireless sensor maker nMode Solutions, Inc. and others to apply innovative technology to precision agriculture areas such as underground imaging, pathogen detection and Ag mechanization.

YCEDA works with UA CALS to educate our political representatives on the issues that are critical to agriculture. This includes tours, meetings, town hall Q&A sessions with donors and other industry players, etc.

PROJECTS FOR THE FUTURE

Spinoffs, licensing and patents will provide new resources to the Ag industry and give income to support and grow YCEDA's capabilities.

Development of new technologies to allow underground imaging and phenotyping could lead to a facility for plant breeding research and development that could be used by researchers and industry to develop drought- and pest-resistant crop varieties.

Partnering with UA and private investors to expand the UA Yuma footprint, bringing additional educational opportunities to our future workforce, which will need new skills to operate in the coming world of Ag technology.

UA-YUMA COOPERATIVE EXTENSION EFFORTS

FIGHTING PESTS, DISEASES, WEEDS AND FOOD SAFETY THREATS

Dr. Barry Pryor – 30% Extension Appointment to work with YCEDA on Fusarium Wilt of Lettuce and Plant Pathology Diagnostics. Partnered with YCEDA on the International Symposium and will spearhead follow-up efforts.

Dr. Mike Matheron – Jointly conducted FW Trials (commercial varieties, experimental varieties and experimental treatments – including bio-controls). Published Fusarium Wilt update paper.

Dr. Kurt Nolte – Working on drone monitoring of disease, testing of products such as bio-fertilizers and soil rejuvenation (from salt) products, and water management.

Dr. John Palumbo – Working together on Bagrada Bug, Whitefly and other pest issues. Published Bagrada Bug update paper.

Dr. Paula Rivadeneira – Working on food safety issues, including wildlife and insect contamination of fresh produce fields.

Dr. Mark Siemens – Working on ag engineering and mechanization projects.

Dr. Glen Wright – Working on Citrus research projects.

Dr. Barry Tickes – Working on weed control research.

"WHO BENEFITS"

The global desert agriculture industry benefits from university efforts that are more focused on solving their pressing issues. The university benefits from new resources made available by private funding of their efforts. The environment and world populations benefit from more efficient, sustainable and productive agricultural production in the 40% of the world where food is produced in arid lands.

IMPLEMENTATION

YCEDA was established with a three-year initial funding commitment from 27 agriculture businesses and organizations in Arizona and California. Donations are tax deductible, and fund professional staff, operating expenses and underwriting of research and other initiatives recommended by the advisory council. An advisory council of eight agriculturalists plus the CALS dean advises the YCEDA Executive Director on future trends and issues which will affect the industry. The council also works to grow collaborative networks with business and industry.

Yuma Center of Excellence Founding Members

Amigo Farms
***Barkley Ag Enterprises, LLP**
C&E Cattle Co.
Church Brothers
***D'Arrigo Brothers Co. of California**
Doug Mellon Farms
Duda Farm Fresh Foods
Farm Credit Services Southwest – Yuma/Imperial Valley
Four Little Devils Farms
***Gowan Company**
The Growers Company
Helena Chemical
***JV Farms**
***Keithly-Williams Seeds**
***Martori Farms**
Nunes/Foxy
Ocean Mist
Ott Farms
Pasquinelli Produce Co.
Patricia Ware Farms
Select Seed of Arizona
***Smith Farms Co. of Yuma**
SMT Farms & TFT Farms
Sunterra Farms
T & P Farms
***Tanimura & Antle**
Taylor Farms California
Tim Dunn Farms

*(*Advisory Council Member)*

The Advisory Council members have teamed with

LIMELIGHT creative group

to launch a new marketing plan for 2016.

Yuma Center of Excellence for Desert Agriculture
Paul Brierley, Executive Director | 928-920-4983 | PaulBrierley@email.arizona.edu
yceda.cals.arizona.edu

FIND Us On
facebook.com/yceda
@YCEDA_DesertAg