The Yuma Center of Excellence for Desert Agriculture (YCEDA) is an innovative public-private partnership, connecting top scientists to the desert agricultural industry. Together we put science to work, developing solutions to the challenges of arid-land crop production through systems-based problem solving and collaboration.

Our work focuses on priority issues identified by our industry stakeholders, including increasing production efficiencies through disease and water management, crop yield maximization, and technology utilization. Donor support enables us to forge alliances, initiate projects, and secure grant funding to maximize the impact of our work.
SOLUTIONS TO DESERT AGRICULTURE’S PRESSING PROBLEMS

Irrigation & Soil Salinity Management Project

Summary:
YCEDA is coordinating a large multi-institution, cross-disciplinary project with researchers from University of Arizona and USDA-ARS Arid Land Ag Research Center, as well as collaborators from the NASA Jet Propulsion Laboratory, to quantitatively track water use and soil salt balance to determine beneficial use across typical crop production systems and rotations over a three-year period.

Paul Brierley (YCEDA), Dr. Charles A. Sanchez (UA) and Dr. Andrew French (USDA-ARS) lead this multiyear, high-tech research project. The research team has deployed Eddy-Covariance (ECV) and large aperture scintillometer (LAS) instrumentation in commercial fields in Yuma County, Arizona to track water evaporation losses from fields during and in between irrigation events. Data logger with sensors record soil water, soil salinity, and soil temperature. Spatial and depth related salinity distributions are estimated using Electromagnetic surveys (EM38) augmented with soil samples. Drones with sensors will be utilized to ground truth the satellite data.

Ongoing data collection and analysis is aimed at understanding water and salt balance for multiple cropping rotations during the annual production cycle. Data will be utilized to develop mobile apps that take into account actual crop evapotranspiration (ET) and required leaching coefficient to assist growers with irrigation decisions.

Handouts available:

- YCEDA 2018 Annual Report
- YECDA Drone Program goals
- YCEDA 2018 Research Symposium Booklet
- YCEDA business cards
- 2017 Fusarium Wilt Trial Results

YCEDA is bringing UAS solutions to address industry needs! Contact Paul Brierley, YCEDA Executive Director, for more information.
OBJECTIVES
- Soil samples and maps
- Sampling and data processing
- Remote sensing (EDR, IBI)
- Field observations

STUDY LOCATION
- Lower Colorado River
- Arizona - US Salinity Laboratory Network
- USDA-ARS and Land Grant College of Ag Sciences

COLLABORATING RESEARCHERS
- Arizona State University
- Arizona State University
- USDA-ARS and Land Grant College of Ag Sciences
- USDA-ARS and Land Grant College of Ag Sciences

PROJECT SUPPORTERS
- USDA ARS
- USDA ARS
- University of Arizona

EVPAPTRANSPARATION & SALINITY MONITORED AT MULTIPLE SCALES

In the Lower Colorado River Region

Quantitative Assessments of Water and Salt Balance for Cropping Systems