YCEDA INVESTORS

AMIGO FARMS
BARD VALLEY DATE GROWERS ASSOCIATION
BARKLEY AG ENTERPRISES, LLC
BRAGA FRESH
D’ARRIGO BROTHERS CO., OF CALIFORNIA
DUDA FARM FRESH FOODS
FARM CREDIT WEST
FOUR LITTLE DEVILS FARMS
GILA VALLEY FARMS
GOWAN COMPANY
THE GROWERS COMPANY
J/V SMITH COMPANIES
KENTLY-WILLIAMS SEEDS
Advisory Council Member

LEE FARMS PRODUCE, LLC
NUNES VEGETABLES/Foxy Produce
NUTRIEN AG SOLUTIONS
OCEAN MIST FARMS
PASQUE’S AERIE, LLC (formerly York, Certain of Pasqua Produce)
RDO EQUIPMENT CO.
SAINT ISIDORE S, LLC (formerly York, Certain of Pasqua Produce)
SMITH FARMS COMPANY OF YUMA
SMT FARMS
TAP FARMS
TANIMURA & ANTEL
TAYLOR FARMS

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2021 Annual Report
FROM THE DIRECTOR

What a year 2021 has been for us all! At YCEDA, we continue to push forward, expanding our efforts to impact the pressing problems of our investors and stakeholders in the desert agriculture industry. In addition to our major efforts to improve Irrigation and Soil Salinity Management, Fusarium Wilt of Lettuce, INSV, Workforce Protection through Melon Trials and Soil Health as outlined in this report, there are many other areas we are impacting.

Food Safety is always critical, and more technology is urgently needed. We have partnered with the West Region Innovation and Technology and the Center for Produce Safety to host “AgTechX Food Safety” a year-long effort to accelerate technology for prevention and rapid diagnostics.

Broadband connectivity is a necessity whether it’s drones, automated equipment, in-field or satellite remote sensing, or mobile applications. YCEDA continues to invest in multiple efforts to expand fiber-optic services to rural areas throughout Yuma County. We also represent agriculture in various meetings and public forums -- bringing science to the narrative about Ag issues the public cares about.

With the ongoing support of our investors and the university, our staff will continue our dedicated efforts to address the issues identified by our stakeholders. Our Small Research Grants program continues to fund researchers to work in desert agriculture by providing seed funding for research that is too risky for other concepts. We wouldn’t be as effective as we are without collaboration and, our door is always open to discussing new problems and new ways to address them. There’s nothing we can’t solve – together!

Wishing you all the best for 2022.

Paul E. Brierley
YCEDA Executive Director

IRRIGATION & SOIL SALINITY MANAGEMENT

Fusarium wilt of lettuce mitigation continues to be a priority for YCEDA and we have brought in new expertise to assist Yuma growers. 2021 was the sixth year that YCEDA conducted field trials were conducted. These trials have grown over the past three years and three goals have emerged:

1. Provide information to growers to inform planting decisions
2. Facilitate the breeding of new tolerant and resistant varieties
3. Test advanced cultural and chemical control strategies

In the 2021 trials, forty iceberg and thirty-eight romaine varieties were planted, and to facilitate breeding efforts, forty-three advanced breeding lines from UC Davis and six from the USDAOARS were planted in demonstration plots for breeders to evaluate. All trials are available to breeders for integration into their programs. In collaboration with UC-Davis Cooperative Extension, small plot trials were conducted to independently evaluate advanced varieties from public and private breeding programs. A field day in early December provided trial results and allowed collaborators from the University to walk our trial plots. We planted one trial evaluating a chemical control treatment using commercial application methods, and a non-chemical control method will be evaluated in 2022. Results from our trials will be published and presented at educational events.

Two important projects are in progress with collaborators from the University of California and Arkansas; one evaluates biosolids as a method to remove the Fusarium wilt pathogen from the soil and the other is evaluating the pathogen population in Arizona and California to detect changes that could impact the lettuce industry. Nearly $400k in funding has been awarded to fund this research. We expect to have results from these projects starting in the second half of 2022.

MELON VARIETY TRIALS

YCEDA partnered with Texas A&M and UArizona scientists on a five-year USDA-funded project aimed at improving consumer appeal (taste and smell) and food safety for domestic melon production. We have grown melon variety trials at the Yuma Ag Center from 2018-2021 with eighteen experimental varieties. We sent more than 1,500 ready-to-harvest melons from commercial fields, with corresponding environmental samples, to research laboratories in Texas and Tucson for food safety and consumer preference testing annually. Lab analysis will be completed in 2022, and research results are being published to help breeding programs improve the safety and appeal of U.S.-produced melons.

INSV PROJECTS

When Impatiens Necrotic Spot Virus (INSV) was first found on lettuce in Yuma in March 2021, there was little known about how long the virus would persist in desert and how it might impact future crops. INSV has many hosts, including weed species found in the Yuma area. In cooperation with Dr. John Palumbo (UArizona) and Dr. Daniel Hasegawa (USDAOARS), YCEDA conducts an informal epidemiological survey in the spring and summer. Weeds were collected weekly until the virus had not been detected for several weeks in July. In September we started our survey again with funding from the Arizona Iceberg Lettuce Research Council. Two thousand weed samples were collected and tested for INSV before the Yuma lettuce season and no INSV was detected. The results of our survey suggest the virus cannot persist in the desert environment over the summer. Weeds will be monitored for disease throughout the season to determine what weeds are potential in-roads for the virus and therefore are a risk to a lettuce crop in adjacent fields. Our goal is to understand the vector transmission of INSV better which is a significant problem in the desert.

COVID MONITORING

In response to a special donation from Jesus Tovar of Tovar Farms to help the Ag workforce get back to work safely for the COVID-19 pandemic and recover from COVID-19, YCEDA joined into action -- ultimately creating a microbiology lab for community-wide wastewater surveillance of COVID-19 and hiring national experts as visiting researchers. This tool enables detection of SARS-CoV-2 in wastewater several days prior to infected individuals displaying symptoms and becoming contagious.

Our team collected and analyzed wastewater samples twice weekly throughout 2021. Findings were communicated within twenty-four hours. In a packing house or salad plant, this allows for clinical testing and isolation of infected employees before they infect co-workers. In a municipal setting, it provides lead-time for public health officials and impacted communities to prepare for expected outbreaks in COVID-19 cases.

We initiated a collaboration with the Translational Genomics Research Institute (TGen) to incorporate monitoring for emerging variants, and we are working on obtaining funding to bring genetic sequencing capabilities in-house, as well as expanding our monitoring capabilities beyond COVID to other threats.

For more information on YCEDA and our projects, visit DesertAgSolutions.org

SOIL HEALTH

We continue to develop projects and apply for funding for projects that will help us understand the health of the desert agriculture industry. One important area that we are focusing on is soil health. We have assisted developers with project development and funding of projects to better understand soil health and we will continue to search for opportunities in this area.

SMALL GRANTS PROGRAM

One of the ways YCEDA attracts research and technology development and implementation to desert agriculture is by providing rapid funding for short-term research and proof-of-concept projects. To date, we have provided funding for 15 projects covering topics such as food safety, soil health, irrigation management, automated disease phenotyping, new crop trials, and AgTech communications infrastructure.
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IRRIGATION & SOIL SALINITY MANAGEMENT

Achieving the proper water and salt balance is critical for agricultural sustainability and in climates. Over the past five years, YCEDA has collaborated with researchers from UA/Arizona, USDA, and NASA on a series of field trials and soil salinity management project. The data collected provides a unique and robust set of crop water use and soil salinity measurements over seventeen of the major cropping rotations in the Lower Colorado River Basin. UA/Arizona and USDA scientists are working on publishing research results, which will help inform agronomic and public policy decisions regarding water use.

Additionally, an irrigation and soil salinity management mobile App, DesertAGWise, is in development to assist growers in making field-specific irrigation decisions utilizing the Dataset, weather, and satellite data. DesertAGWise tracks irrigation and rainfall and recommends optimal timing and amount of future irrigation. It also tracks soil salt balance over multiple seasons, providing estimates of water required for leaching excess salts. We appreciate the partnership of USDA-ARS, USDA-ARS, irrigation districts, and UA/Arizona CALS Communications and Cyber-technologies in these efforts.

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**YCEDA**

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