University of California - UC
Agriculture and Natural Resources - ANR
Desert Research and Extension Center – DREC

2022-2023 Research Projects and Educational Programs

Dear Stakeholders,

In the fiscal year 07/2022-06/2023 we conduct 25 projects in the following areas: Plant Breeding and Variety Trials (7), Irrigation and Fertilizer Management (6), Pest and Disease Management (3), Environmental Studies (1), Food Safety (1), Livestock (2), and Outreach and Educational Programs (5). Lead academics are from the University of California system (ANR, Davis campus, and Riverside campus), Cornell University, the US Department of Agriculture, and Canada. Research at the center tackles current diverse issues in the top 10 agricultural and livestock commodities in the Imperial County. The center invested over $300,000 in equipment to improve field operations and expand services including: forage harvester, forklift, skip loader, high clearance tractor, electric tractor, and drone with thermal, panchromatic and multispectrum cameras.

Our Farm Smart educational program increased donations, expanded programing, reached to new stakeholders, and secured competitive grants from the Imperial County Children and Families First Commission and U.S. Department of Agriculture. The program hired a new Community Education Specialist (CES) and currently has three CESs. Farm Smart provides internship opportunities to more than ten local college students. The Farm to Preschool Festival hosted over 1,000 participants and volunteers on Saturday, January 28th, 2023. The 0-5 youth and families that participated in the event directly benefited by learning about fruits and vegetables through crafted activities in their farm-to-Preschool kits and harvesting their own vegetables to take home and enjoy with their families. The Imperial County Farm-To-School Community Engagement Initiative is implementing new curriculum for children, hosting a conference and field trips during the second year of the grant. You can learn more about our Farm Smart programs at: https://drec.ucanr.edu/Farm_Smart/.

In the next pages you will find a complete list of our current projects, goals, and contact info of project leader. Feel free to contact project leader for specific questions you may have. I am happy to help connect with them as well.

Sincerely,

Jairo Diaz

Jairo Diaz
Director

Plant Breeding and Variety Trials

Project/Goal	Leader
Winter nursery for new cereal varieties. To evaluate genetic lines of barley, wheat, and triticale that have potential for genetics and commercial applications.	Mike Oro, Field Crop Development Centre, Olds College - Canada, 403-391-8671, moro@oldscollege.ca
Wheat breeding for the Imperial Valley. The overall goal of this project will continue to be the production and evaluation of new durum varieties and improved germplasm to be distributed to growers, breeders, and other researchers.	Jorge Dubcovsky, UC Davis – Plant Sciences, 530-752-5159, jdubcovsky@ucdavis.edu
Carrot germplasm. The objectives of the project are to establish a winter carrot nursery and to have commercial carrot varieties from various seed companies planted in side by side comparisons for a carrot field day.	Jaspreet Sidhu, UCCE Kern County, 661-868-6222, jaksidhu@ucdavis.edu
Breeding baby leaf spinach for California growers. To screen and evaluate breeding populations in conventional and organic fields in the Salinas Valley (spring-fall) and Imperial Valley (DREC in winter), and continue to develop the breeding program pipeline for cultivar delivery.	Charles Brummer, UC Davis – Plant Sciences, 530-574-6133, ecbrummer@ucdavis.edu
Okra variety trials. Evaluate okra cultivars provided by the Known-You Seed America Corporation.	Jairo Diaz, UC ANR DREC, 760-791-0521, jdiazr@ucanr.edu
Potato winter nursery. Evaluate potato cultivars provided by Simplot Plant Sciences.	Jairo Diaz, UC ANR DREC, 760-791-0521, jdiazr@ucanr.edu
Carrot winter nursery. Evaluate carrot cultivars provided by Illinois Foundation Seeds, Inc.	Jairo Diaz, UC ANR DREC, 760-791-0521, jdiazr@ucanr.edu

Irrigation and Fertilizer Management

Project/Goal	leader
Automation of surface irrigation systems in the Imperial Valley. This project will demonstrate the potential use of innovative automation technology in water conservation to increase irrigation efficiency and demonstrate the use of this technology to growers in the Imperial Valley.	Khaled Bali, UC ANR Specialist, 559-646-6541, kmbali@ucanr.edu
Olive production practices in the Imperial Valley. The objective of this research is to study the efficiency and the economic feasibility of various olive production practices in the Imperial Valley with emphases on water use efficiency and the possibility of the reuse of surface and subsurface drainage waters to supplement crop water needs.	Khaled Bali, UC ANR Specialist, 559-646-6541, kmbali@ucanr.edu
Best nitrogen and irrigation management practices in California low desert carrots. The project aims to develop knowledge and information on improving and promoting adaptation of management practices that optimize N and irrigation water use efficiency in California low desert carrots.	Aliasghar Montazar, UCCE Imperial County, 442-265-7707, amontazar@ucanr.edu
Improved irrigation strategies for alfalfa production in California. Develop and improve irrigation strategies to increase water use	Khaled Bali, UC ANR Specialist, 559-646-6541,

efficiency in alfalfa production in California across different soil and climatic conditions.	kmbali@ucanr.edu
Nitrogen fertilizer and irrigation best management practices for the low desert sundangrass production systems. Develop improved N and irrigation management strategies for Sudan grass production in the low desert.	Oli Bachie, UCCE Imperial County, 442-265-7700, obachie@ucanr.edu
Developing Information on the Best Nitrogen and Water Management Practices in Desert Lettuce. Develop knowledge and information on improving and promoting adaptation of management practices that optimize N and irrigation water use efficiency in the California's Low Desert Lettuce Production Systems under drip irrigation.	Aliasghar Montazar, UCCE Imperial County, 442-265-7707, amontazar@ucanr.edu

Pest and Disease Management

Project/Goal	leader
Evaluation of weather-based models for management of onion downy mildew. Evaluate the utility of five epidemiological models of onion downy mildew as fungicide application advisory tools.	Alexander Putman, UC ANR Specialist, 951-827-4212, alexander.putman@ucr.edu
Alternatives to chlorpyrifos for sugarbeet production in the Imperial Valley. Compare the effects of new, alternative and/or unregistered chemistries with chlorpyrifos on sugarbeets on pests and on crop growth and yields.	Stephen Kaffka, UC ANR Specialist, 530-752-8108, srkaffka@ucdavis.edu
Enhancing virus control in melons by optimizing immunity priming approaches. Evaluate at least two of the most effective elicitor treatments for cucurbit yellow stunting disorder virus (CYSDV) and cucurbit chlorotic yellows virus (CCYV) control (identified through greenhouse work) in combination with high risk (grower standard) and reduced risk (alternative standard) insecticide application regimes in two cultivars of melon.	Kerry Mauck, UC Riverside AES Faculty, 951-827-5444, kerry.mauck@ucr.edu

Environmental Studies

Project/Goal	leader
Catalyzing Negative Carbon Emissions. Examine effects of single additions and combinations of soil amendment technologies across a variety of crops (corn, alfalfa) on C sequestration, yield, crop health, soil health, water use efficiency, nitrogen fertilizer efficiency, and N2O and CH4 reductions.	Ben Houlton, Cornell University Professor, bzhoulton@cornell.edu

Food Safety

Project/Goal	leader
Understanding and Enhancing the Safe Use of Biological Soil Amendments in Fresh Produce Production. Through this work, we anticipate the discovery of new strategies to reduce introduction of microbial hazards into leafy green fields during pre-harvest production, which will benefit industry stakeholders and protect consumers.	Michele Jay-Russell, UC Davis, Western Institute for Food Safety & Security, 530-219-4628, mjay@ucdavis.edu

Livestock

Project/Goal	leader
Cattle nutrition and management. Project objectives are to investigate the effects of feeding different levels of metabolizable protein, and the effects of feeding a blend of essential oils on calf-fed Holstein growth performance and carcass characteristics.	Richard Zinn, UC Davis – Animal Sciences, 760-356-3068, razinn@ucdavis.edu
Amino acid supplementation during finishing period for Holstein steers in the feedlot. Determine the interaction of bypass lysine and methionine and supplemental ractopamine in the late finishing phase on performance and carcass characteristics of Holstein steers in the feedlot.	Brooke Latack, UCCE Imperial County, 442-265-7700, bclatack@ucanr.edu

Outreach and Educational Programs

Project/Goal	Leader
Farm Smart educational programs. The program promotes a better understanding of agriculture, the source of our food, fiber and energy, and its impact on our economy and daily lives, as well as protecting natural resources and cultivating healthy people and communities. Information about our programs can be found at **http://drec.ucanr.edu/Farm_Smart**	Stacey Amparano, UC ANR DREC, 760-356-3067, scwills@ucanr.edu