

# Agriculture for Tomorrow

## ICBA Research Opportunities

# What we do

Our scientists work on a number of technological innovations, including use of conventional and non-conventional water such as saline, treated wastewater, industrial water, agricultural drainage and sea water; water and land management technologies; and remote sensing and modeling for climate change adaptation.

Our scientists have wide-ranging backgrounds and research interests in soil, surface water, groundwater and salinity management, plant genetic resources, field and forage crop systems, agronomy, irrigation and drainage, integrated water resources management, water governance and policy, remote sensing, GIS and climate modeling.

Our research is focused on



## Assessment of natural resources

We employ modeling and analytical tools to assess land and water resources in marginal areas under different agricultural production systems, and to recommend best management practices to farmers, policymakers and other practitioners. Our scientists carry out soil and water analysis, hydrological modeling, and study sea water intrusions and impact on groundwater quality. We test innovative technologies to save water, desalinate saline water and use treated wastewater and to improve controlled irrigation systems and soil properties in marginal environments.



## Climate change impact and management

Our researchers investigate the impact of climate change in marginal and saline environments with a focus on early drought monitoring, and formulate recommendations for adapting agricultural production systems. Through space-based earth observations and dynamic modeling, our scientists contribute to a better understanding of future climate conditions, availability of water resources and possible changes in crop production.



### Crop productivity and diversification

We are a leading research center for long-term field trials on palm tree, production of forages (grasses and halophytes), and stress-tolerant crops like sorghum, pearl millet and quinoa.

At our gene bank, we have a unique collection of genetic resources of plant species from a wide range of marginal environments. These genetic resources help our researchers to develop new high-yielding and resilient crop varieties through genetic engineering.



### Aquaculture and bioenergy

We work to develop best management practices for bio-fuel integrated aquaculture systems, in which brine and desalinated water are reused. Our scientists also investigate how to use sea water to cultivate micro- and macro-algae for biomass and energy production.



### Policies for resilience

We analyze policies and undertake socioeconomic studies on food security and nutrition, as well as water and land management in marginal environments, in order to provide recommendations to national, regional and global partners. Our center has been supporting GCC governments in drafting strategies on soil and water salinity management. We also assess ways of enhancing agricultural value chains.

# What we offer



Innovation and capacity building are at the heart of everything we do. We innovate to deliver solutions for assessment of natural resources, climate change adaptation, crop productivity and diversification, aquaculture and bioenergy, and policies for resilience. We help to develop skills and knowledge of our partners across different continents. Thousands of people have benefitted from our training programs in more than 15 countries.

As knowledge is our main product, we are committed to making sure that knowledge we generate is freely available to everyone, today and tomorrow.

We aspire to serve as a knowledge hub on sustainable management and use of resources for agricultural production in marginal and saline environments.

In 2013, our center started a post-doctorate program and we are open to collaboration with universities and research institutes. We welcome aspiring scientists and postgraduate students from all over the world.

We know that world-leading research requires top-class facilities and technology. So we continue to invest in building new and improving current facilities at our center.

Our head office, laboratories and training facilities are spread out on an area of 30 ha. They include Central Analytical Laboratory; Plant Genetic Resources Laboratory; Plant Biotechnology Laboratory; Gene Bank; training facilities; greenhouses and shade houses; and Soil Museum.

Our Central Analytical Laboratory offers high-quality services in chemical, physical, engineering and nutritional

analysis of soil, water and other materials using internationally recognized standards and procedures.

The Plant Genetic Resources Laboratory is designed for research on seed conservation, distribution and documentation. It is equipped with technology to determine moisture content, assess seed purity, test germination and pack seeds.

The Plant Biotechnology Laboratory is used for research into different aspects of plant molecular biology and genetic engineering, including gene discovery and generation of new crops tolerant of abiotic stress.

Our Gene Bank holds more than 12,000 accessions of about 220 species of salt-tolerant plants from around 130 countries.

Our training facilities include multifunctional meeting and training rooms equipped with state-of-the-art technology.

We have four air-conditioned plastic greenhouses, two net greenhouses with mist cooling systems, and two shade houses to provide different types of conditions for plant experiments, hardening, propagation, and establishment.

Our Soil Museum showcases landscapes and soil diversity from around the world. The museum's main purpose is to raise awareness about the importance of different soils for food production.

We also have about 35 ha of land that remains untouched, serving as a valuable resource for studies of the indigenous flora and fauna.



## What our research fellows say

Dr. Dionyssia Angeliki Lyra is an agronomist with a Ph.D. in Agricultural Sciences from Greece. She joined our center in 2013 as a post-doctoral researcher working on the screening and evaluation of halophytic populations as potential crops for biosaline agriculture and the development of a farming system that integrates aquaculture and agriculture components.

Here is what she says about her experience at our center:  
*"When I joined the program, I received all the support and*

*guidance I needed from the staff to conduct my research. What I like about ICBA in particular is that there are many networking opportunities as you get to know lots of people as part of your work. I was given the chance to attend several conferences that helped me increase my scientific networking circles and as a result through successful partnership I managed to get a grant from USAID to support one of my projects."*

# Who we are

We are an international non-profit agricultural research center, based in Dubai, the UAE. Our center was established in 1999 by the Islamic Development Bank, the Government of the United Arab Emirates, the Organization of the Petroleum Exporting Countries Fund, and the Arab Fund for Economic and Social Development.

Originally focused on the problems of salinity and using saline water for irrigated agriculture, our center has evolved over the years into a world-class research facility with a team of international scientists conducting applied research and development to improve agricultural productivity and sustainability in marginal and saline environments.

We are committed to working in partnership with organizations across the globe to develop and deliver agriculture and water scarcity solutions for marginal and saline environments.

Together with national, regional and international partners, our center carries out applied research and helps to develop sustainable agricultural solutions for resource-poor populations in marginal and saline environments. Our scientists test and introduce improved technologies and crops to increase agricultural productivity and incomes of smallholder farmers and other land users.



For more information on research opportunities at ICBA, please contact us at:  
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