

# **New genomic research facility to support food security efforts in the UAE and abroad**

## **ICBA, BGI partner to establish Desert Life Science Laboratory**

**Dubai, UAE, 29 September 2021** – A new advanced genomic research facility was inaugurated today at the headquarters of the [International Center for Biosaline Agriculture](#) (ICBA) to further genomic research on, among other things, healthier, more nutritious, and resilient crops for sustainable food systems.

As a joint venture between ICBA and BGI, the world's largest genomic research institution, the [Desert Life Science Laboratory](#) (DLSL) will help to fast-track the discovery and development of food and other crops suited to marginal environments, that is agroecosystems constrained by a range of factors such as water scarcity, soil and water salinity, heat and drought, among others.

H.E. Mariam bint Mohammed Almheiri, Minister of Climate Change and Environment of the UAE, said: “The Desert Life Science Laboratory is a vital initiative and one that is a significant addition to the UAE’s food security efforts, as enshrined in the country’s National Food Security Strategy 2051. Increased desertification as a result of climate change is expanding marginal environments, so finding crops with a food value that can not only tolerate but thrive in these environments is a strategic priority.”

Her Excellency added: “The Desert Life Science Laboratory, through its advanced research into more resilient and nutritious crops, can assist other countries that have large marginal areas. This enables the UAE to play an important role in helping to meet the United Nations Sustainable Development Goals, in particular SDG 2 – zero hunger by 2030.”

The establishment of the DLSL is a result of strategic collaboration between ICBA and BGI and is in line with their shared objective of addressing global challenges such as hunger and poverty through use of cutting-edge science and technology.

## **DLSL to cater to public- and private-sector stakeholders**

The DLSL will serve the needs of both public and private entities for various types of sequencing services in the UAE and other countries. It is specially designed to conduct whole genome resequencing, genotyping-by-sequencing, metagenomics, transcriptomics, and other omics studies.

It is equipped with some of the latest biotechnological equipment, including the next-generation sequencing platform (DNBSEQ-G400RS); M220 Focused-ultrasonicator™; Agilent Bioanalyzer 2100; and the Applied Biosystems™ Real-time PCR.

The laboratory also features such tools as a Qubit 4 Fluorometer; PCR machines (Bioer and Applied Biosystems™); high-speed centrifuges; an autoclave; laminar flow hoods; and growth chambers.

Dr. Tarifa Alzaabi, Acting Director General of ICBA, said: “At ICBA, our goal is to provide solutions – from crops to technologies - to wide-ranging problems affecting agriculture and food production in marginal environments worldwide. With the aid of the DLSL, we hope to be able to serve better the needs of our stakeholders, including smallholder farmers, scientists, and policymakers, for such

solutions both in the UAE and elsewhere. Not only will the DLSL facilitate research on breeding more resilient food and other crops, but it will also act as a hub for knowledge transfer. More specifically, researchers, specialists and students from the UAE and other countries will have opportunities to improve their knowledge and gain practical skills by participating in various genomic studies and experiments. What is more, the laboratory will be able to help to protect local plant breeders' rights by providing services in plant variety registration, identification, and validation. Ultimately, it will bolster ICBA's research and development capacity for developing plants which produce more food with fewer resources in harsh environmental conditions to boost food and nutrition security."

Dr. Ren Wang, Special Advisor to the Chairman of BGI, said: "The support to the joint ICBA-BGI laboratory by the government of the UAE and the ICBA management truly reflects a strategic vision to not only bring the plant research capacity of the center to a new level, but also scale up efforts of developing solutions to the challenges in the world's marginal environments. In today's genomics era of plant science, the state-of-the-art equipment of the joint lab will also boost the exchange and collaboration between ICBA and China. There are about 100 million hectares of salinity-prone agricultural land in China. We are excited about the potential of the joint lab to help China to combat such challenges as climate change, drought and salinity to ensure sustainable agriculture and food security."

The laboratory is intended to carry out the complete gamut of genomic research from genome-wide association studies to soil metagenomic analysis.

### **DLSL to contribute to UAE's food security agenda and foreign aid programs**

The DLSL will directly support strengthening the resiliency of food security and plant genetic resources.

More specifically, it will facilitate work on breeding improved varieties of crops which are suitable for local conditions and are more resource-efficient. It will also be used for the molecular characterization and genomic analysis of plant genetic resources available at ICBA's genebank, which stores some 15,140 accessions that belong to 270 drought-, heat- and salt-tolerant plant species from more than 150 countries and territories, including about 270 seed samples of 70 wild and cultivated plant species from across the UAE. The laboratory can also provide similar services to genebanks in other countries within the framework of bilateral and multilateral cooperation.

Moreover, the DLSL can function as a diagnostic facility for assisting with plant variety registration and determining if certain varieties fall under plant variety protection regulations. This will help to safeguard plant varieties and plant breeders' rights within the country and outside.

The DLSL will also offer opportunities for strengthening the capacities of scientists, specialists and students in genomic research in the UAE and abroad. More importantly, it will promote use of genomic and biotechnological approaches and tools through individual and institutional capacity development.

In addition, the DLSL will indirectly contribute to the UAE's international development assistance programs by making available to farmers and other stakeholders new genotypes of different crops adapted to local conditions.

Ultimately, through collaboration with BGI, the laboratory will give a new impetus to ICBA's efforts to make food systems more resilient and sustainable, and thus enhance food security, nutrition, and livelihoods of rural farming communities around the world.

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**About ICBA**

The International Center for Biosaline Agriculture (ICBA) is a unique applied agricultural research center in the world with a focus on marginal areas where an estimated 1.7 billion people live. It identifies, tests and introduces resource-efficient, climate-smart crops and technologies that are best suited to different regions affected by salinity, water scarcity and drought. Through its work, ICBA helps to improve food security and livelihoods for some of the poorest rural communities around the world.

[www.biosaline.org](http://www.biosaline.org)

**About BGI**

BGI was established in 1999 with the vision of using genomics to benefit mankind and has since become the largest genomics organization in the world with a focus on research and applications in the healthcare, agriculture, conservation, and environmental fields. BGI's goal is to make state-of-the-art genomics highly accessible to the global research community and clinical markets by integrating the industry's broadest array of leading technologies, including BGI's own sequencing platform, economies of scale, and expert bioinformatics resources. BGI's services and solutions are available in more than 60 countries and regions around the world.

<https://www.bgi.com/global/>