

Development of Stress Resilient Crops Basket for Marginal Environments



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Challenges to agriculture in marginal environments



Key challenges in marginal environments



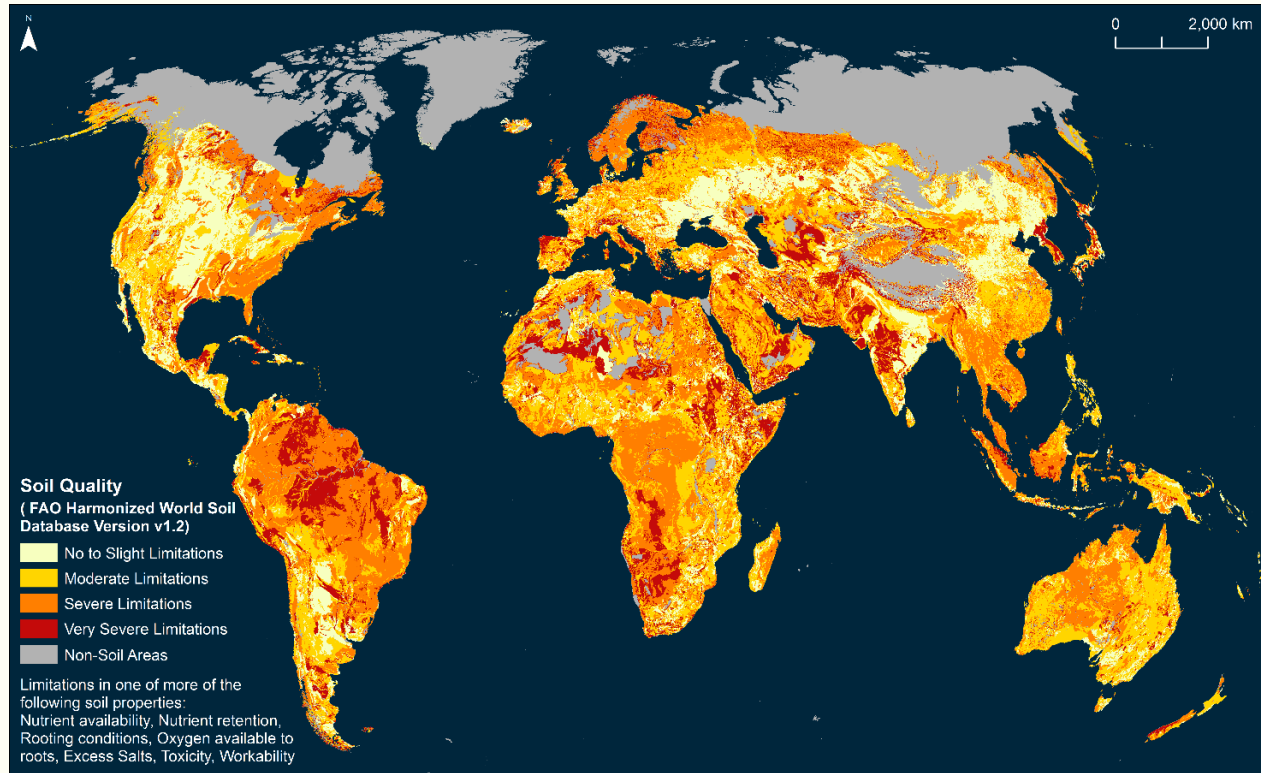
About **21% (2.74 billion ha)** of all land resources (13.5 billion ha) are marginal (water scarcity, land degradation)

Some **1.128 billion ha** are affected by salinity globally

Climate change will hit communities hardest in marginal regions

Most of **more than 820 million** undernourished people live in marginal areas

Marginal lands



Cost of salinization:

About **27.3 billion USD** because of lost crop production only

Some **310 million ha** of irrigated areas in arid and semi-arid regions

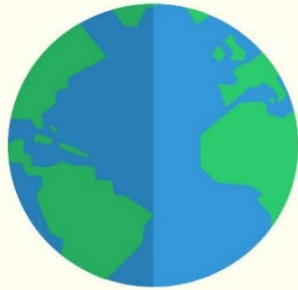
ICBA's work on plant
genetic resources



Agrobiodiversity

Agricultural biodiversity

is fundamental for coping with changing climate and securing our future of food



400,000 plant species

identified on the planet



30,000

known to be edible



only 6,000

used as food

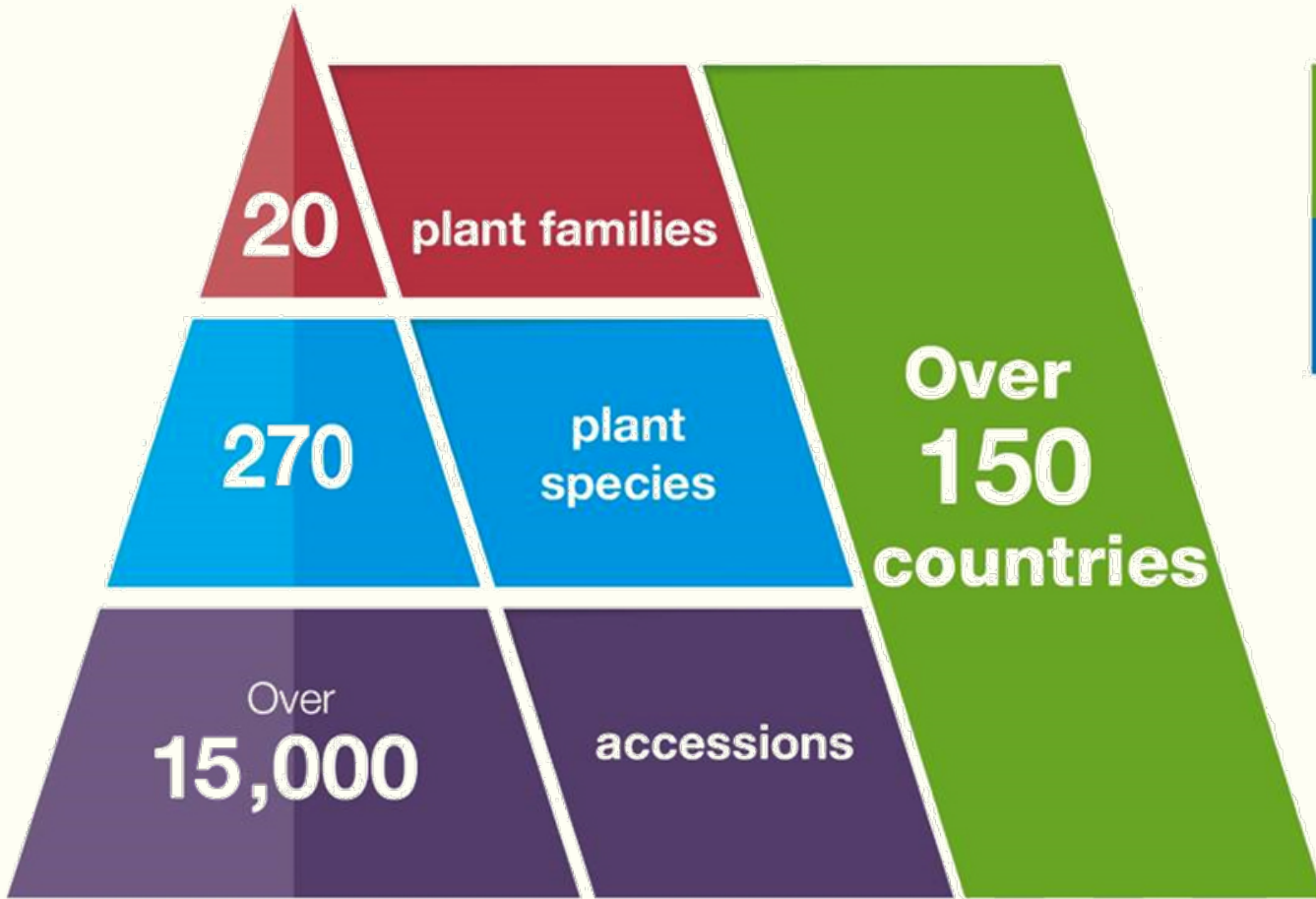
150 crops are cultivated on significant scale worldwide



only 3 crops


maize, wheat and rice supply nearly **60%** of our daily protein and calories

ICBA's genebank



$\text{Na}^+ \text{Cl}^-$
Over 75%

are either salt-tolerant or with potential salt tolerance


15-20%

are drought-tolerant


15-20%

are heat-tolerant



270 accessions of wild and cultivated plant species from UAE

70 plant species



Temperature: 4°C
Relative humidity: 30-40%

Quinoa and barley accessions

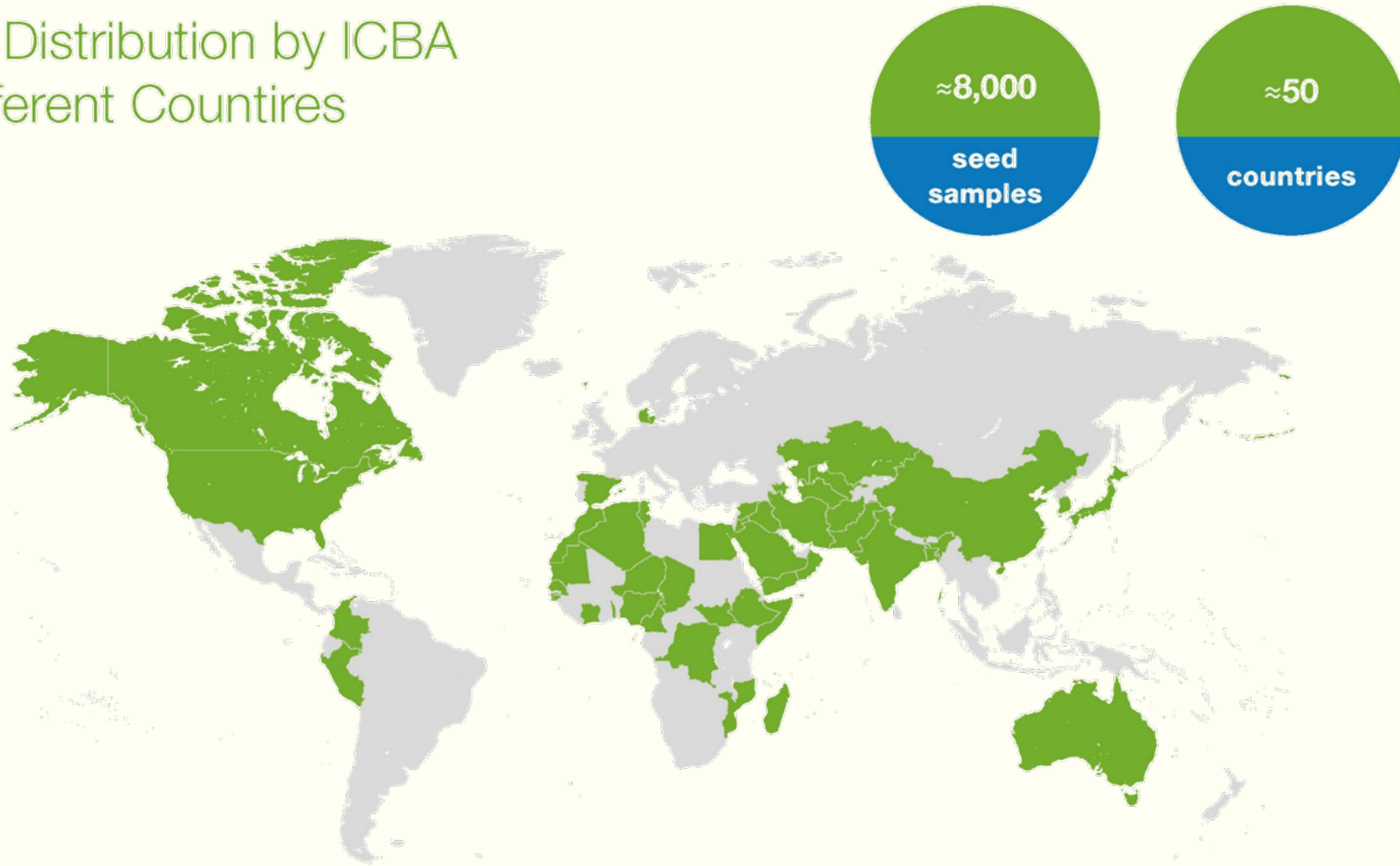
- ICBA stores about **4,900 accessions** of barley that represent more than **100 countries** of the world.
- It is one of the largest collections of barley in the world.



- ICBA has about **1,200 accessions** of quinoa that come from almost all the regions where the crop is cultivated.
- It is one of the largest collections of quinoa accessions outside South America.

Germplasm distribution

Seed Distribution by ICBA
to Different Countries



ICBA's program on crop
diversification



Genome-wide association studies in quinoa



190 genotypes of quinoa

Collaboration with the **Max Planck Institute**, Germany, and the **BGI Group**

Multi-environment trials



Bhutan



Egypt



Laos



Mozambique



Togo



Tunisia



Uzbekistan



UAE

ICBA's projects and programs in OIC countries



Diverse and nutritious resilient crops



Cumin; buckwheat; proso millet; finger millet; foxtail millet; fonio

Value chains for resilient crops



Fodder, dairy and quinoa value chains in Egypt



Quinoa value chains in Morocco



Salicornia value chain in UAE



Climate-smart agriculture in Uzbekistan



Desert Life Science Lab



Desert Life Science Lab at ICBA

Desert Life Science Lab:

- Is an advanced genomic research facility established jointly with BGI, the world's largest genomic research organization
- Has some of the latest biotechnological equipment, including the next-generation sequencing platform (DNBSEQ-G400RS)
- Conducts whole genome re-sequencing, genotyping-by-sequencing, metagenomics, transcriptomics, small RNA sequencing and other types of research



Capacity development

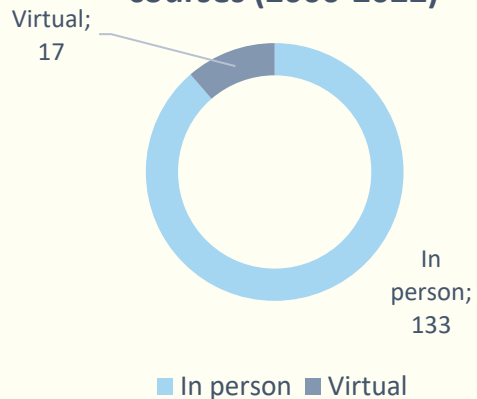


Capacity development statistics

Around **9,200** participants in various capacity development programs

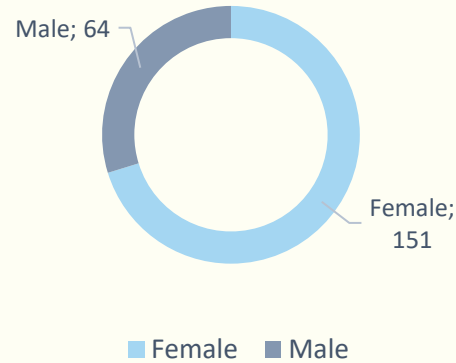
Beneficiaries from **93** countries

Number of technical training courses (2000-2022)

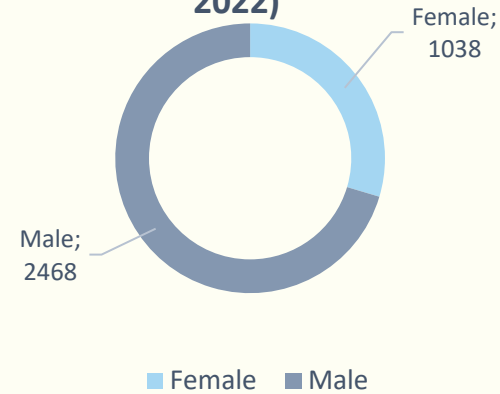


Virtual started in 2020

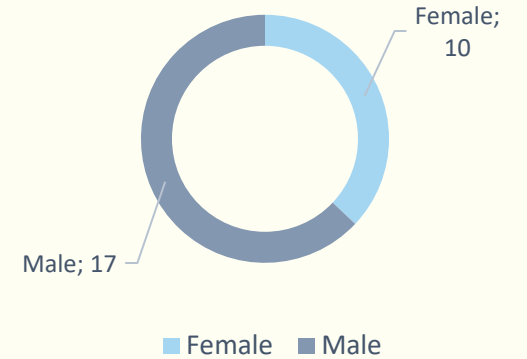
Interns (2014-2022)



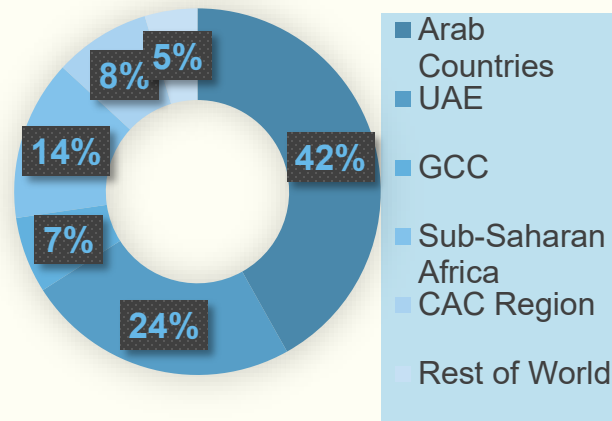
Technical training (1999-2022)



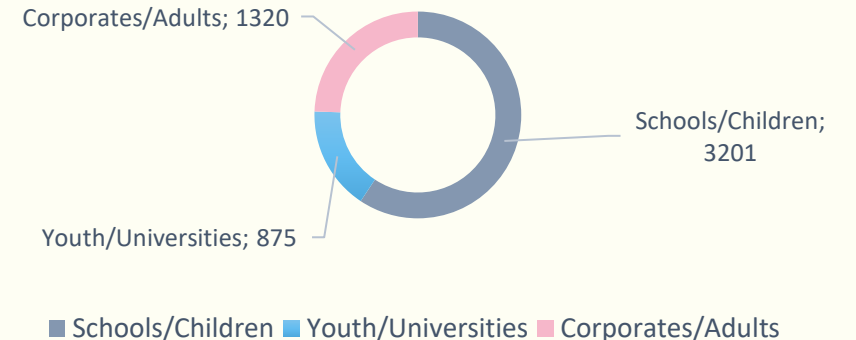
Post-doc fellows (2010-2022)



ICBA Capacity Development by Country/Region

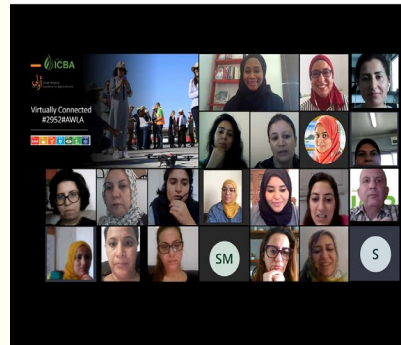


Capacity development at ESM (2017-2021)



Capacity development offerings

- Technical training courses
- Post-doctoral, doctoral and master's research
- Internships
- Farmers' field schools
- Knowledge hubs
- Emirates Soil Museum
- Arab Women Leaders in Agriculture
- Youth Engagement Society
- Community Initiatives and Awareness



Certification programs



Certified agri-entrepreneurship professional diploma in partnership with **Gracia Group** and **Dubai Entrepreneurship Academy**

GG
GRACIA GROUP

DEA
أكاديمية دبي لريادة الأعمال
Dubai Entrepreneurship Academy
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The Educational Arm of Mohammed Bin Rashid Est. for SME Development

ONLINE COURSE
zoom

Certified AGRI-ENTREPRENEURSHIP Professional Diploma

A specialized program that aims to build the entrepreneurs' capabilities and enable them to start their projects in the agricultural entrepreneurship sector in solidarity through theoretical and practical training to reinforce participants' skills.

Please click or scan the QR Code to know more & to download the brochure:

ICBA
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For Registration
Please visit our website:
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Date	June 6 th - July 28 th , 2021
Time	05:00 - 08:00 PM
Language	Arabic
Fees	AED 3,150 (Discount for UAE Nationals: AED 2,205 including VAT & Accredited Certificate)

ACCREDITED CERTIFICATE

In partnership with
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Technical courses are certified according to continuing professional development requirements by the **CPD Certification Service, UK.**



*The content of the following has been certified by the
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E-learning course on "Water Resources and Irrigation
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Online Training Course

INTERNATIONAL CENTER FOR BIOSALINE
AGRICULTURE (ICBA)
(015185)

Date:

January 2022

Certificate No:

A033166

Key takeaways



Takeaway messages

- Prioritize R&D for sustainable food systems
- Harness the untapped potential of agrobiodiversity and unconventional water and land resources for food and feed production
- Diversify food systems and diets
- Invest into youth and women empowerment initiatives



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