



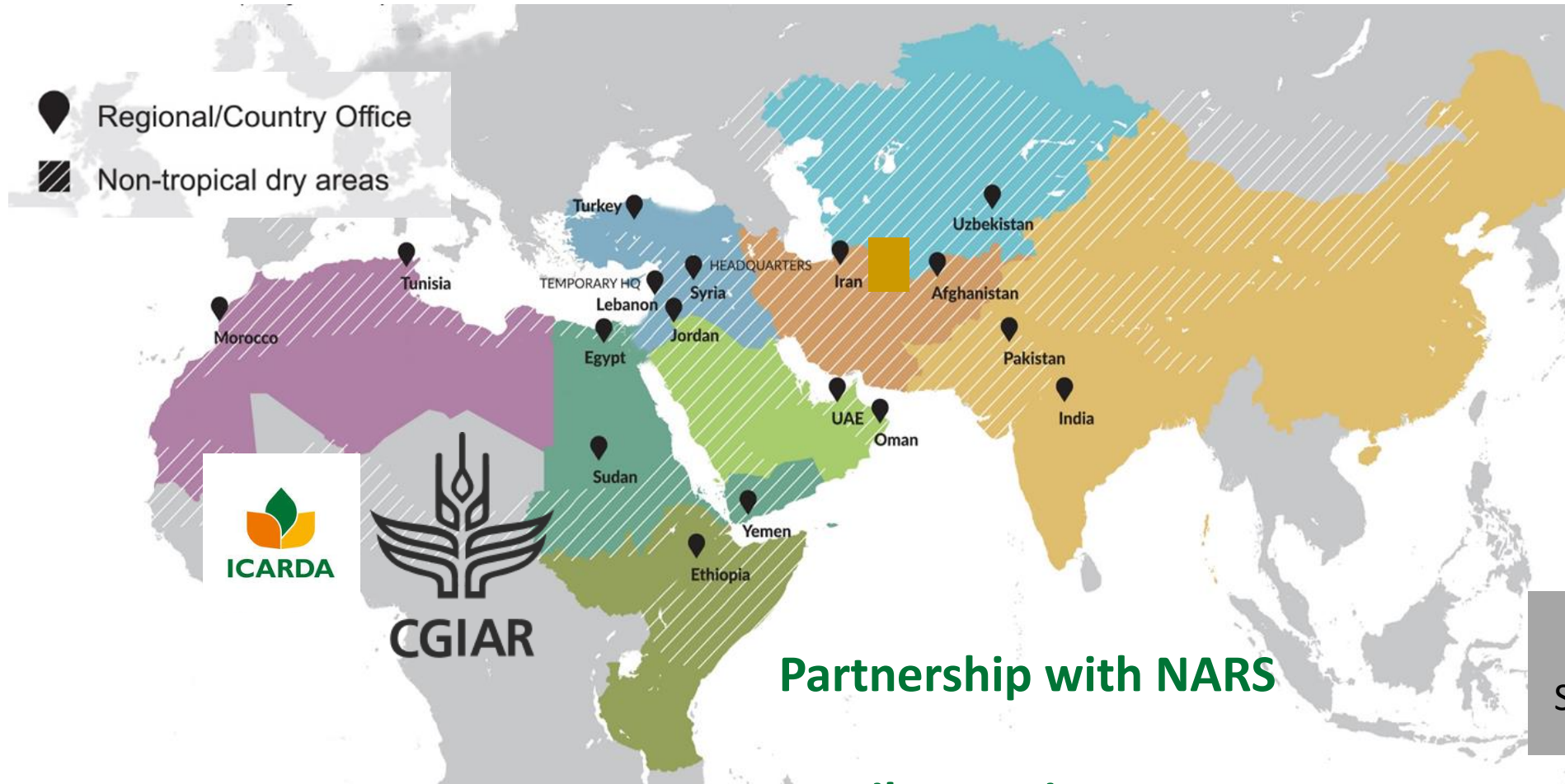
Research and Strategy

Aymen Frija & Mourad Rekik
28 August 2020

CGIAR on the ground: 15 Research Centres; over 70 Countries



ICARDA in the One CGIAR: sustainable **dryland agri-food systems under climate change**



ICARDA's Strategic Plan 2017-2026



Genetic Resources



Adaptation to Climate Change



Building Resilience



Promoting Value chains, Policies



Enhancing Water and Land Productivity



**Scaling up proven
technological packages**



**Gender equality and
youth engagement**

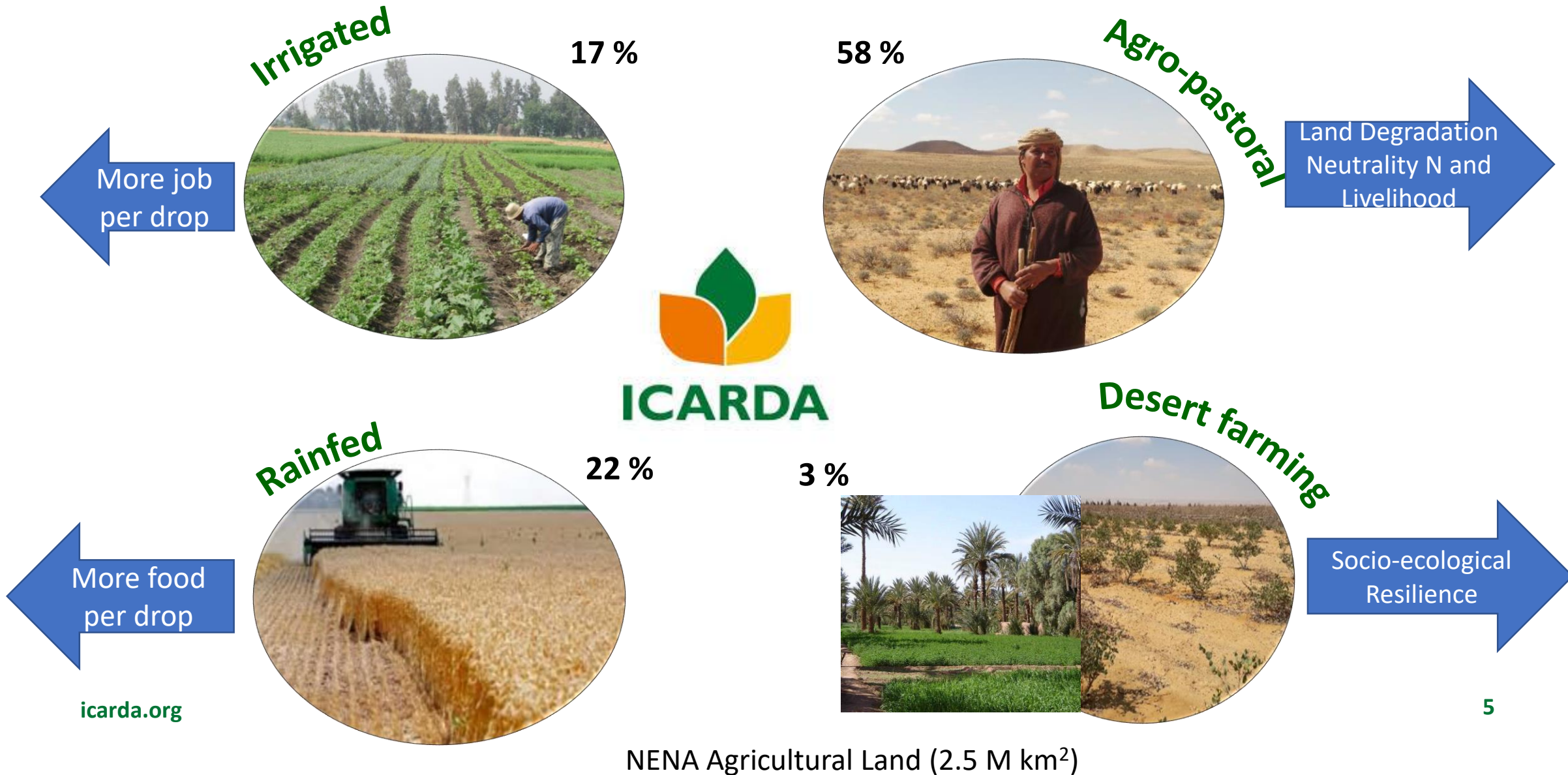


**Capacity
Development**



Big data and ICR

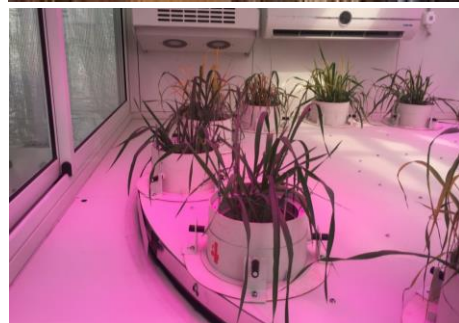
Four approaches of Food Security and sustainability in the Drylands



Component research to improve food security under climate change



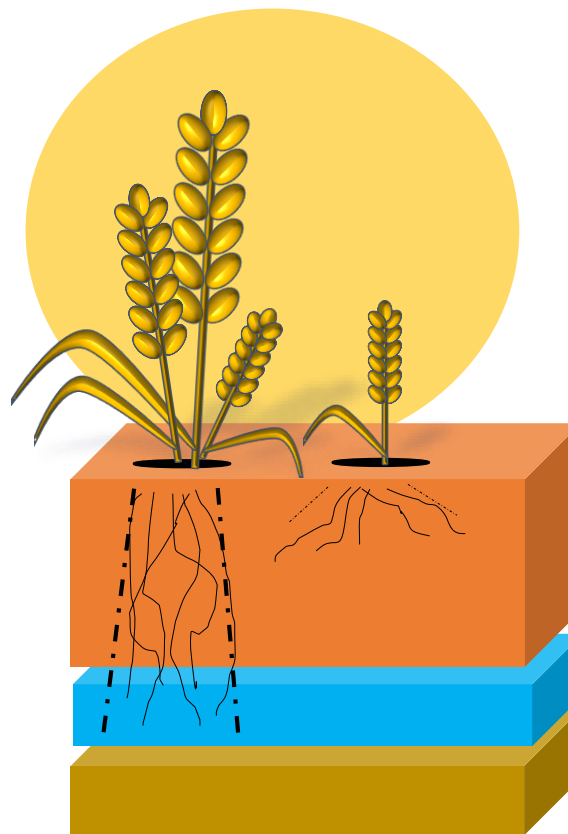
Genetic Resources



Plant Breeding



Crop Management



Soils and waters



Small Ruminants

Global mandate

Barley, lentil, faba bean, grass pea and **small ruminants**, and shares the mandate for wheat and chickpea

icarda.org

Improving crops adapted to low rainfall areas

Bread Wheat



Durum Wheat



Barley



Faba bean



Chickpea



Lentils



Grass pea

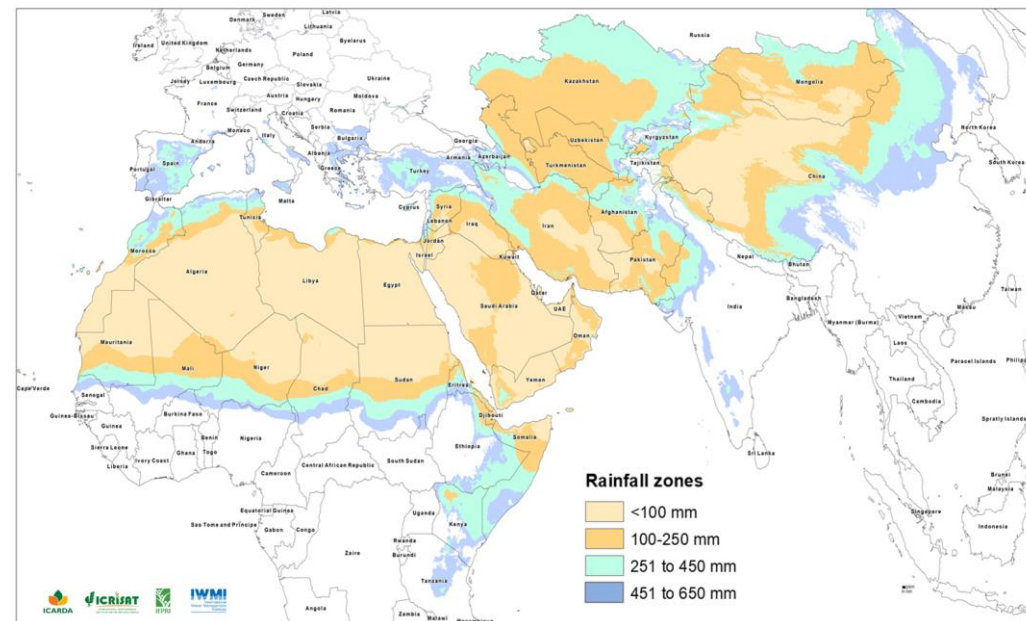
Rainfall

mm

450

250

100



Cactus



Date Palm

ICARDA in Tunisia

- About 16 ongoing projects and research activities.
- Key donors: GIZ, FAO, AFESD and IFAD
- Multi-country projects are shared with Algeria, Austria, Bolivia, Egypt, Honduras, Hungary, Italy, Iraq, Jordan, Lebanon, Malaysia, Morocco, Saudi Arabia, State of Palestine, Sudan, Syria, and Turkey.



List of selected Bilateral Projects

Project Title	Donor (T)	Date from	Date to	Project Leader
In vitro culture and genomics-assisted fast track improvement of local landraces of wheat and barley in Morocco, Tunisia and Algeria for enhancing food security and adaptation to climate change	FAO	09/01/2016	08/31/2019	Udupa, Sripada
Mind the Gap: Improving Dissemination Strategies to Increase Technology Adoption by Smallholders	GIZ	04/01/2016	12/31/2019	Rudiger, Udo
Establishing and Operating a Regional Network for Field Measurement of Actual Crop Water Consumption (Evapotranspiration)	FAO	12/23/2018	11/30/2020	Swelam, Atef
ICT2Scale – Access to E-Learning and Cell phone -based Services to Strengthen Extension Services for Smallholder Farmers in Tunisia	GIZ	04/10/2019	03/31/2021	Rudiger, Udo
Conservation of Pollinator Diversity for Enhanced Climate Change Resilience	GFME	06/01/2017	05/31/2022	Christmann, Stephanie
Use of Conservation Agriculture in Crop-Livestock Systems (CLCA) in the Drylands for Enhance Water Use Efficiency, Soil Fertility and Productivity in NEN and LAC Countries	IFAD	04/03/2018	06/30/2022	Rekik, Mourad
Enhancement of Food Security in Arab Countries, Phase III	AFESD/OFID	09/20/2018	12/31/2022	Halila, Mohamed Habib
Development of Integrated Web-Based Land Decision Support System Aiming Towards the Implementation of Policies for Agriculture and Environment (LANDSUPPORT)	EC	05/01/2018	10/31/2022	Zucca, Claudio
New tools and germplasm for Australian pulse and oil seeds breeding programs to respond to changing virus threats (DAN00202)	GRDC, Australia	42186	30/06/2020	Safaa, Kumari

List of Consortium Research Program (CRP) activities

CRP-s	Research Activities	Funded by	ICARDA FP
1. CGIAR Research Program on Livestock – Livestock & Environment Flagship	Rangeland Restauration	CRP livestock – Led by ILRI	Mounir Louhaichi
2. CGIAR Research Program on Livestock – Genetic Flagship	Research Activities on Introgression of prolificity Gene into Barbarine Sheep	CRP livestock – Led by ILRI	Aynalem Haile (Project Leader)
3. CGIAR Research Program on Livestock – Genetic Flagship	Resistance of Tunisian Sheep Breeds to Parasites and Ticks' Infestations	CRP livestock – Led by ILRI	Aynalem Haile (Project Leader)
4. CGIAR Research Program on Livestock – Health Flagship	Developing Risk Models/Maps for Emergence of Animal Diseases with Particular Reference to Ticks, Tick-Born	CRP livestock – Led by ILRI	Mourad Rekik
5. CGIAR Research Program on Livestock – Feed and Forages		CRP livestock – Led by ILRI	Rudiger, Udo
6. The Consortium Research Program (CRP) on Policies, Institutions, and Markets (PIM), Phase II	Governance of Natural Resources: Enhancing Rangeland Tenure Security in Tunisia	CRP-PIM – Led by IFPRI	Aymen Frija
7. Foresight Modeling. Beyond agriculture: the role of agriculture in the larger economy	Modeling Future Agriculture Employment in East, West and North Africa	CRP-PIM – Led by IFPRI	Aymen Frija
8. Modeling Wheat Yield Gap under different agro-ecologies in Tunisia and Morocco	Modeling Yield Gap in rainfed agriculture and identify the scope of CA for closing part of this gap	CRP Wheat – Led by CIMMYT	Aymen Frija

Partnership

List of ICARDA project delivery partner types (Source: MEL 2019, Elaboration: MEL)

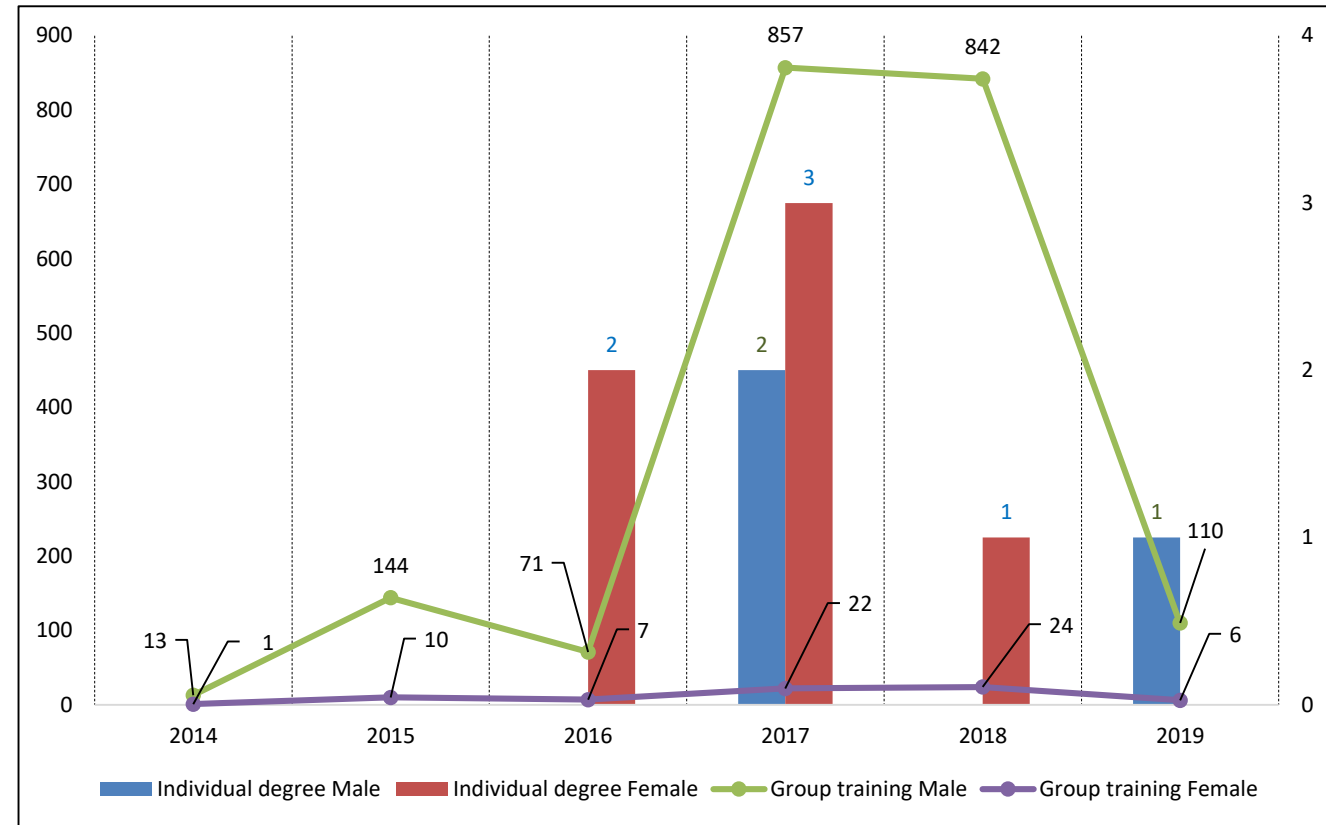
Partner type	Number
Academic institutions (Universities, colleges, e.t.c)	25
Advanced Research Institutions	3
Community Based Organization	1
Government	14
International Agricultural Research Centers	1
National Agricultural Research System (NARS)	10
Non-Governmental Organizations (NGOs)	4
Regional and sub-regional Organizations	1
TOTAL	59



Thank you!

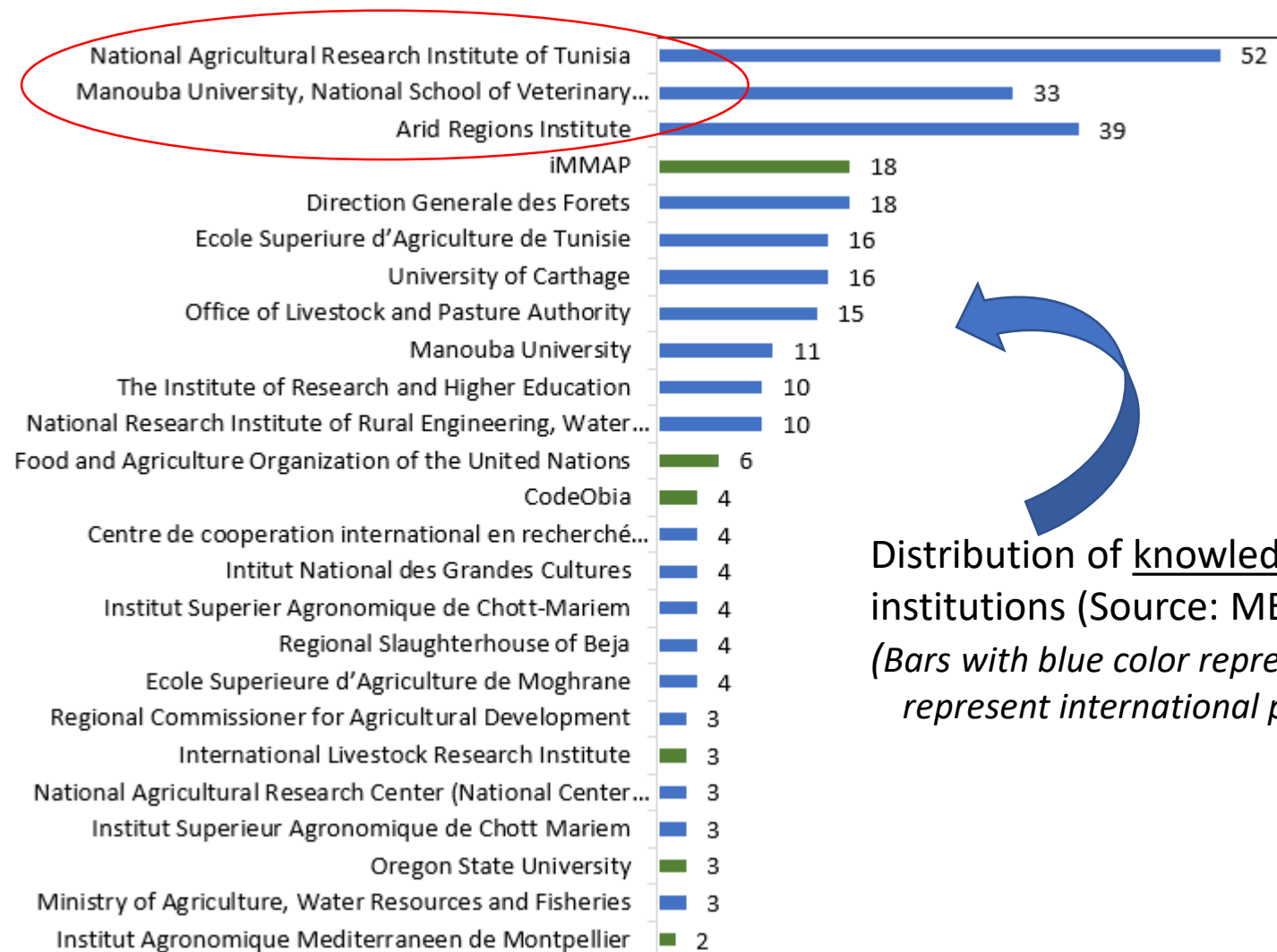
Capacity development

- In Tunisia, ICARDA capacity development work (since 2014) have involved the training of more than 2100 trainees through short-term group trainings, and 14 individual advanced degree trainings



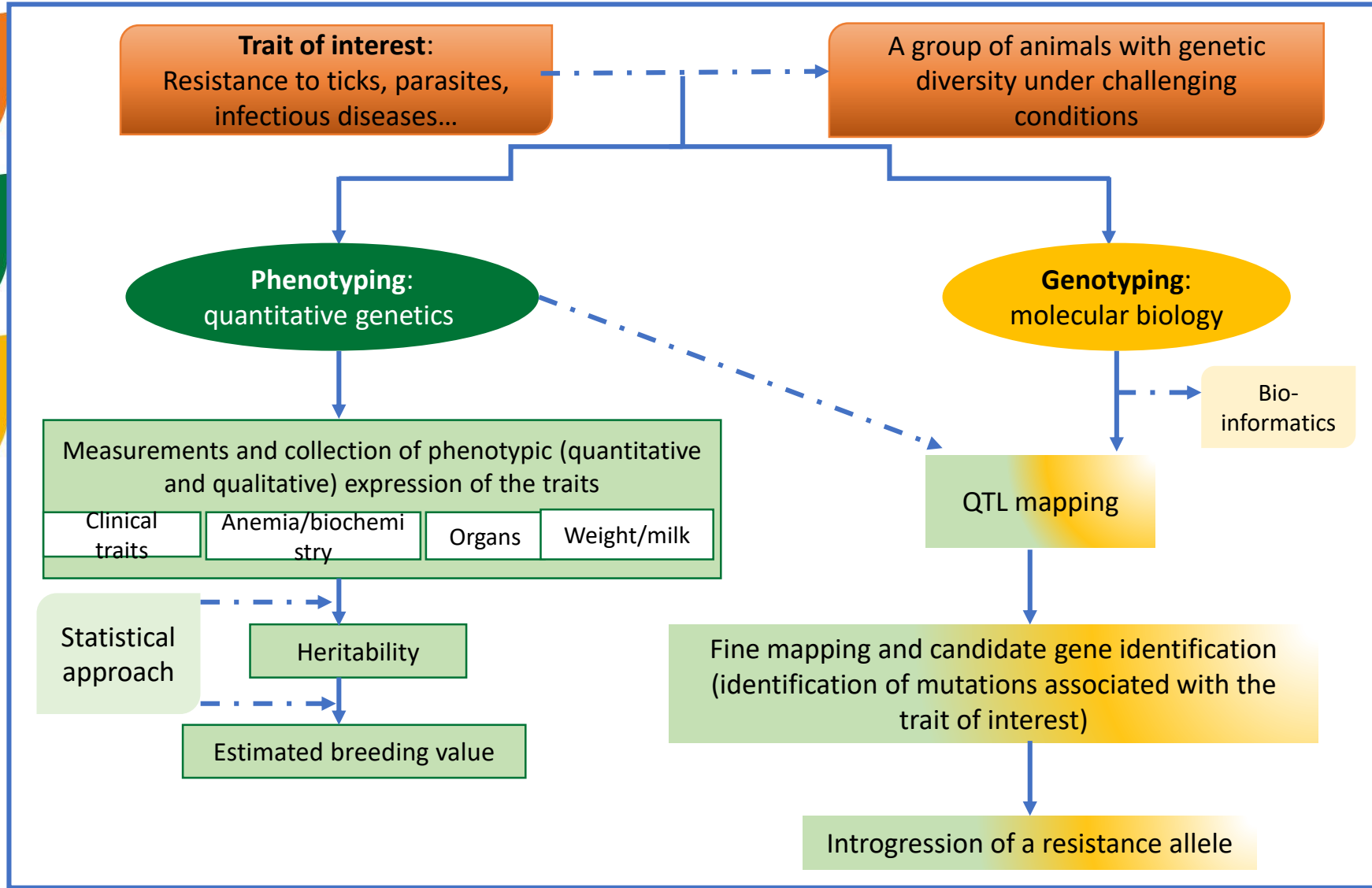
Capacity Development in Tunisia

Partnership



Distribution of knowledge product collaborations amongst institutions (Source: MEL 2019, Elaboration: MEL)
(Bars with blue color represent local partners and bars in green represent international partners)

Genetics of resistance to diseases



Resistance to abomasal parasites

DOI: 10.1002/vms3.310

ORIGINAL ARTICLE

WILEY

Individual variability among autochthonous sheep in Northern Tunisia to infection by abomasum nematodes and *Babesia/Theileria* parasites

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Limam Sassi¹ | Mokhtar Dhibi¹ | Mourad Rekil² | Aynalem Haile³ | Joram M. Mwacharo³ |
Barbara Rischkowsky³ | Mohamed Aziz Darghouth¹ | Mohamed Gharbi¹

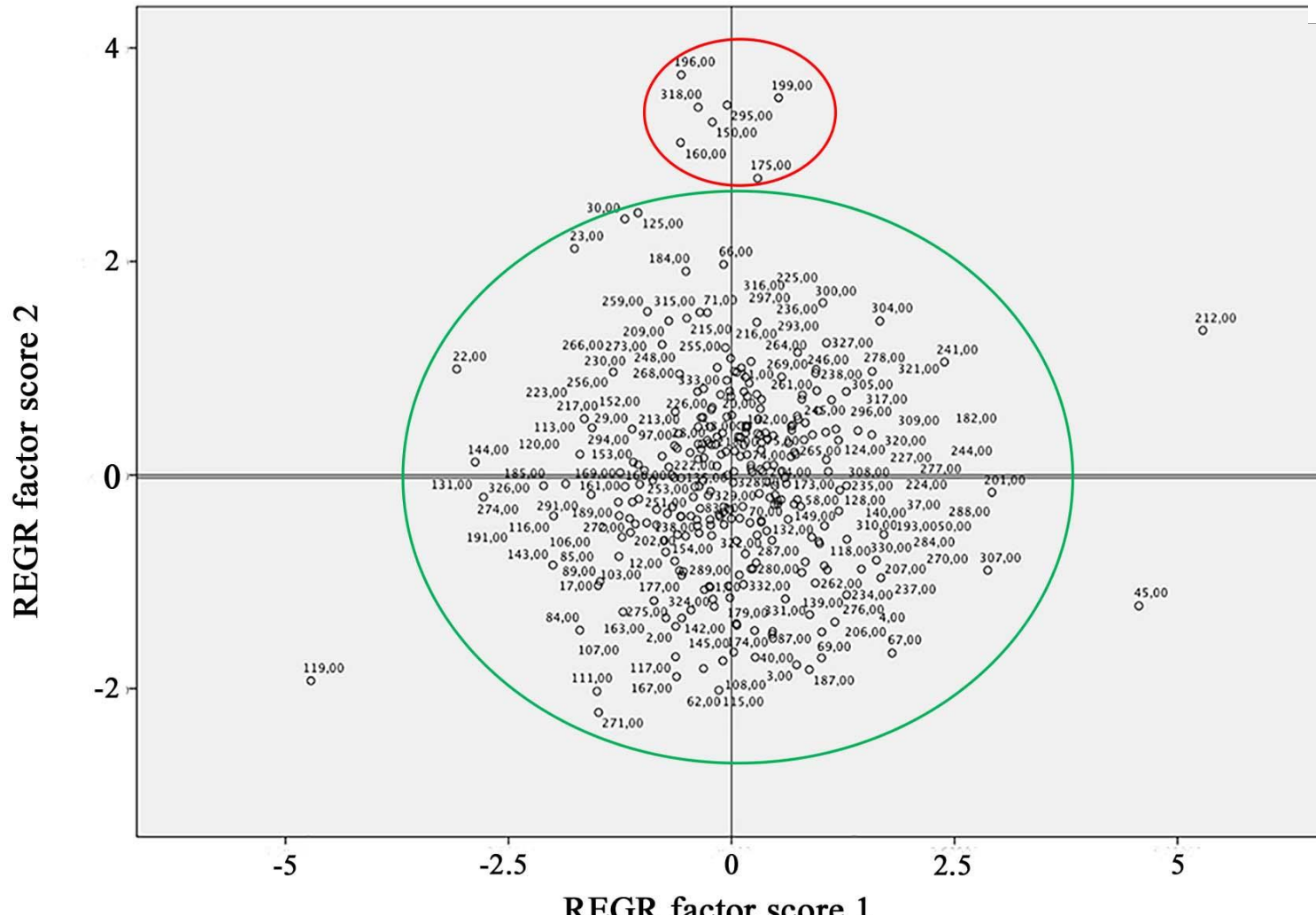
¹Laboratoire de Parasitologie, Université de la Manouba, Sidi Thabet, Tunisia

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Abstract

In Tunisia, livestock plays an important role in the economy; unfortunately, Tunisian sheep population faces several health challenges. The aim of this trial was to study phenotypic variability of four local sheep breeds and strains to abomasum nematodes infection and to *Babesia/Theileria* parasites. Faeces, blood and abomasum contents



Dispersion of observation plots using PCA:

Red cluster: Animals with a suspected form of resistance having positive *Babesia/Theileria* PCR, presence of abomasal worms, normal values of albumin and normal haematological parameters (RBC, Hb and PCV).

Green cluster: All the other observations with less resistant animals

Thank you



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