



Capacity building to enhance the use of Animal Genetic Resources in a multinational context





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UNIVERSIDAD
COMPLUTENSE
MADRID



Objectives of WP7 - Outreach

- Demonstrate the benefits provided by animal gene banks, and promote their visibility and transparency
- Disseminate new knowledge integrating genetic, technological and socio-economic aspects, to optimise the conservation and sustainable utilisation of livestock genetic resources in the EU
- Strengthen human resources responsible for managing Animal Genetic Resources conservation programs, both in Europe and in third countries



Focus of today's presentation

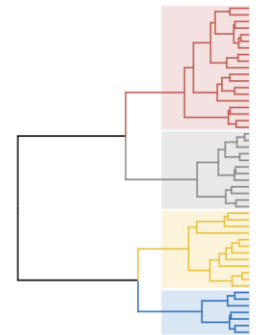
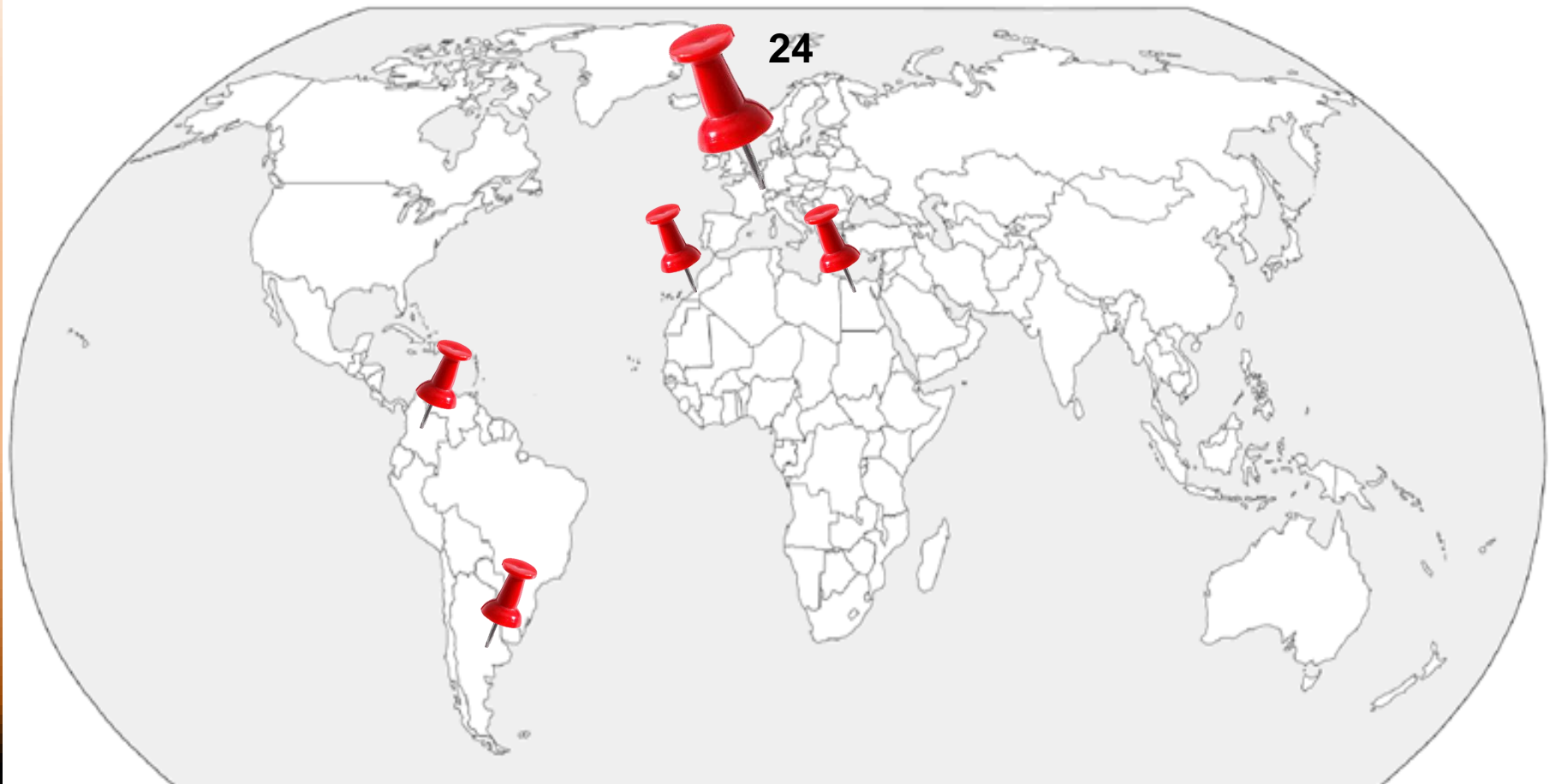


IMAGE participants



Challenge

- Capacity building programs designed to strengthen the activity of gene bank managers and other stakeholders involved in managing AnGR
- Very diverse groups/needs in terms of:
 - Role played
 - Gene bank managers, PhD students, researchers, etc.
 - Scientific background
 - From highly skilled to practical technicians
 - Geographical location
 - “Language barrier”



Accomplishments so far

- **Training and Capacity building organized by IMAGE**
 - Europe (1)
 - 3rd countries (2)



ARGENTINA

5 al 9 de marzo
de 2018

Unidad Integrada Balcarce
(Facultad de Ciencias Agrarias UNMdP - EEA INTA Balcarce)
Ruta 226 km 73,5

CURSO DE POSGRADO

Conservación de recursos zoogenéticos

Destinado a Estudiantes de posgrados en Ciencias Agrarias, Veterinarias
y/o carreras afines y profesionales relacionados a la temática.

CONTENIDO

- Caracterización de los Recursos Genéticos Animales.
- Métodos de conservación.
- Tipos de bancos de genes, implementación, uso y mantenimiento.
- Foro con productores (viernes 9).

Desarrollado en el
marco del proyecto



Ministerio de Agroindustria
Presidencia de la Nación

PREINSCRIPCIÓN

mail: ruberto.monica@inta.gob.ar

☎ 02266-439104

(hasta el 01/03/2018)

Cupo Limitado. Máximo 35 personas

ARANCEL SIN COSTO

Organizado por



Argentina - Course participants



Local organizers

INTA

Maria Rosa Lanari

Lilia Mellucci

22 participants “in situ”

16 Argentina (Various parts)

3 Peru

2 Uruguay

1 Bolivia

3 Lecturers from IMAGE groups

Roswitha Baumung (FAO)

Maria Wurzinger (BOKU)

Luis Gama (ULisbon)

All lectures in Spanish



Course in Argentina

- Participants “ex situ”



Course available to Colombia by Skype



Created with mapdata 9



Additional activities

- Field trip - Creole cattle herd



- Stakeholders meeting (32 participants)



Colombia

October 1-6, 2018

AGROSAVIA

Corporación colombiana de investigación agropecuaria

MINAGRICULTURA

GOBIERNO DE COLOMBIA

Lo invitan a participar del curso de posgrado:
**“Conservación y Gestión
 de Recursos Zoogenéticos”**

Fecha: 1 al 6 de octubre de 2018

*Dirigido a curadores de Bancos de Germoplasma animal,
 estudiantes de posgrado en Veterinaria,
 Zootecnia y profesionales afines.*

Mayor información

Preinscripciones abiertas hasta el 15/09/2018.

Correo: lrugles@corpoica.org.co ; clucero@corpoica.org.co

Teléfono: **57-1-4227300** Ext: **1577; 1575**

Cupo Limitado: **Máximo 30 personas**

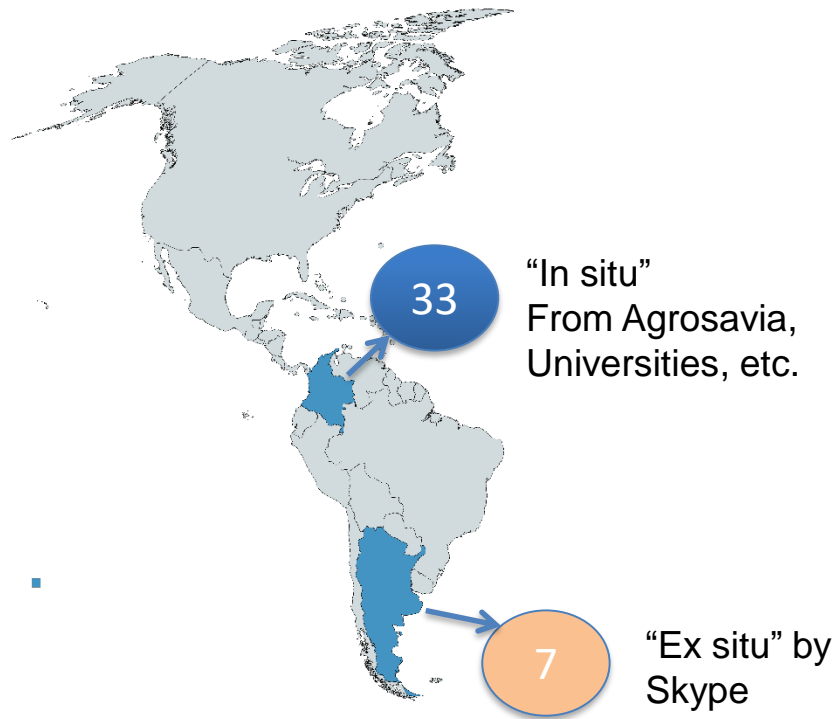
ARANCEL SIN COSTO LA INSCRIPCIÓN



Course in Colombia - Participants



Course participants



Local organizers

AGROSAVIA (Carlos Lucero et al.)



3+1 Lecturers from IMAGE groups

Oscar Cortes (UCM)

Michel Naves (INRA)

Luis Gama (ULisbon)

Paul Boettcher (FAO) – By Skype

All in spanish



Outline of the course

- What is genetic diversity and why it is important
- Characterization of genetic diversity
- Basic concepts of Molecular Genetics and their relevance in the application to the conservation and characterization of AnGR
- Basic concepts of Population Genetics applied to the conservation and characterization of AnGR
- Organization and construction of pedigree data
- Characterization of population structure by pedigree analyses
- Characterization of population structure by molecular markers
- Genomic characterization
- Landscape Genetics/Genomics
- Conservation of AnGR
- FAO mission on AnGR (by Skype)
- Examples of conservation programs
- *Presentations by participants*



Presentations by participants

- *Using their own data*
 - Pedigree analysis of the Criollo San Pedreño pig breed
 - Pedigree analysis of Romosinuano cattle
 - Pedigree analysis of a Romosinuano cattle herd in Armero Tolima
 - Genetic characterization with microsatellites of two Creole sheep breeds in Colombia
 - Analyses of genetic diversity in different cattle breeds using SNP chips
 - Genomic characterization of the Simmental breed in Colombia
 - Genetic diversity in Creole pig breeds from Argentina assessed with microsatellites



Additional activities

- Field trip – Villavicencio (AGROSAVIA Center)

Sanmartinero
cattle



Mulefoot
pig

- Hands-on training on long-term conservation of boar semen
 - Dr. Angel Poto (Murcia, Spain)
 - Contribution to germplasm bank



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Wageningen course

- Lecturers from various IMAGE groups

- Hendrik-Jan Megens
- Jack Windig
- Mirte Bosse
- Gabor Meszaros
- Steffen Weigend
- Michèle Tixier-Boichard

Course received the 2018 Education Prize of the Wageningen Graduate School of Animal Sciences!!!

Country	No. students
Argentina	1
Belgium	2
Brazil	1
France	3
Germany	6
Italy	1
Netherlands	5
Slovenia	1
South Africa	2
Sweden	3
Switzerland	1
UK	1
USA	1
Total	28



Wageningen course - Outline

- Welcome & intro Linux and HPC
- Intro genomic diversity
- Measures of genomic diversity
- Genetic diversity across breeds
- Genetic introgression
- Population Structure
- Adaptive introgression
- Functional genomics
- Optimal contribution
- Building gene bank collections
- Prioritization for conservation
- Management of small populations



Upcoming training activities

(last 6 months of IMAGE)



- **Training session for population managers and users of genebanks**
- Nov. 20-22, 2019
- Goal
 - To facilitate the use of gene bank collections and to show a range of possibilities, featuring real case scenarios of gene bank management for different species, using the MoBPS software to simulate possible use scenarios before deciding which material to take out of the gene bank.



Wageningen



- **Characterization, management and exploitation of genomic diversity in animals**
- Date: 9-13 December 2019
- Level: post-graduate
 - experience with SNP data is required
- Course content and instructors similar to last year's
- More information
 - www.wur.eu/wias



Morocco

- **Post-graduate IMAGE Training course**
 - 21 - 24 January 2020
 - Beni Mellal, Morocco
- **Aim**

Disseminate the usage of novel methods in genomics and biobanking for a sustainable management of farm animal genetic resources (FAnGR) and investigate practical cases
- **Participants**
 - PhD students, post-docs and researchers
- **Lectures in french**
 - Instructors from other IMAGE groups (INRA, etc.)



Egypt



- Course on "Gene Bank implementation, Managment, and Sustainability“
- Some difficulties in organizing this activity
- Tentatively planned for November 2019



Colombia



- Local colleagues requested that a follow-up course be organized, as a continuation of last year's
 - With their own budget
- Tentatively in the first week of December
- Under consideration



Conclusions

- IMAGE has successfully organized various training activities
 - Usually one-week courses with high quality standards
 - Efforts to be in a language best fit to each group
 - Involving lecturers and students from several IMAGE partners
 - Aimed to build capacity in conservation and management of AnGR using novel technologies.



Conclusions

- Goal of developing the skills of researchers and managers engaged in conservation genetics and population management
- Nearly 100 participants from 17 different nationalities (in Europe, Africa and America) attended the courses
- Five additional courses foreseen before the end of the project
- Training materials will be openly available after the end of the project





WELCOME EAAP 2020

**71ST ANNUAL MEETING OF EUROPEAN FEDERATION
OF ANIMAL SCIENCE**

Porto, Portugal - 31 Aug. to 4 Set. 2020

