

The Need for Conservation and Global Plan of Action for Animal Genetic Resources



Animal Production and Health Division - FAO

Gene Banking and Cryoconservation Training Workshop

Lelystad, the Netherlands, June 2010

Animal Genetic Resources

- Essential part of biological basis for world food security
 - One billion people rely directly on livestock for major proportion of livelihood
- Diverse resource base critical to eradicate world hunger
 - adaptation
 - “raw material” for breeders
- International public good
 - role of FAO in global coordination

FAO and Animal Genetic Resources

1983	Establishment of the Commission on Plant Genetic Resources for Food and Agriculture
1993	Initiation of the Global Strategy for the Management of Farm AnGR
1995	Commission's mandate expanded to all GRFA, incl. AnGR
1997	ITWG-AnGR established
1999	CGRFA requested development of a SOW-AnGR
2004	CGRFA decided to finalize the SOW-AnGR, including Strategic Priorities for Action, at a first International Technical Conference on Animal Genetic Resources

FAO and Animal Genetic Resources

2006	4 th ITWG-AnGR recommended that the Technical Conference adopt a Global Plan of Action and a Declaration
2007	Interlaken Conference: <ul style="list-style-type: none">• Launched SoW-AnGR• Adopted Global Plan of Action through the Interlaken Declaration
2007	FAO Conference endorsed outcomes of the Interlaken Conference

The State of the World's AnGR

**The first-ever
global
assessment of
livestock
diversity**



The State of the World's AnGR

169

Country Reports

9

reports from international organizations

13

thematic studies



THE STATE
OF THE WORLD'S
ANIMAL GENETIC RESOURCES FOR
FOOD AND AGRICULTURE

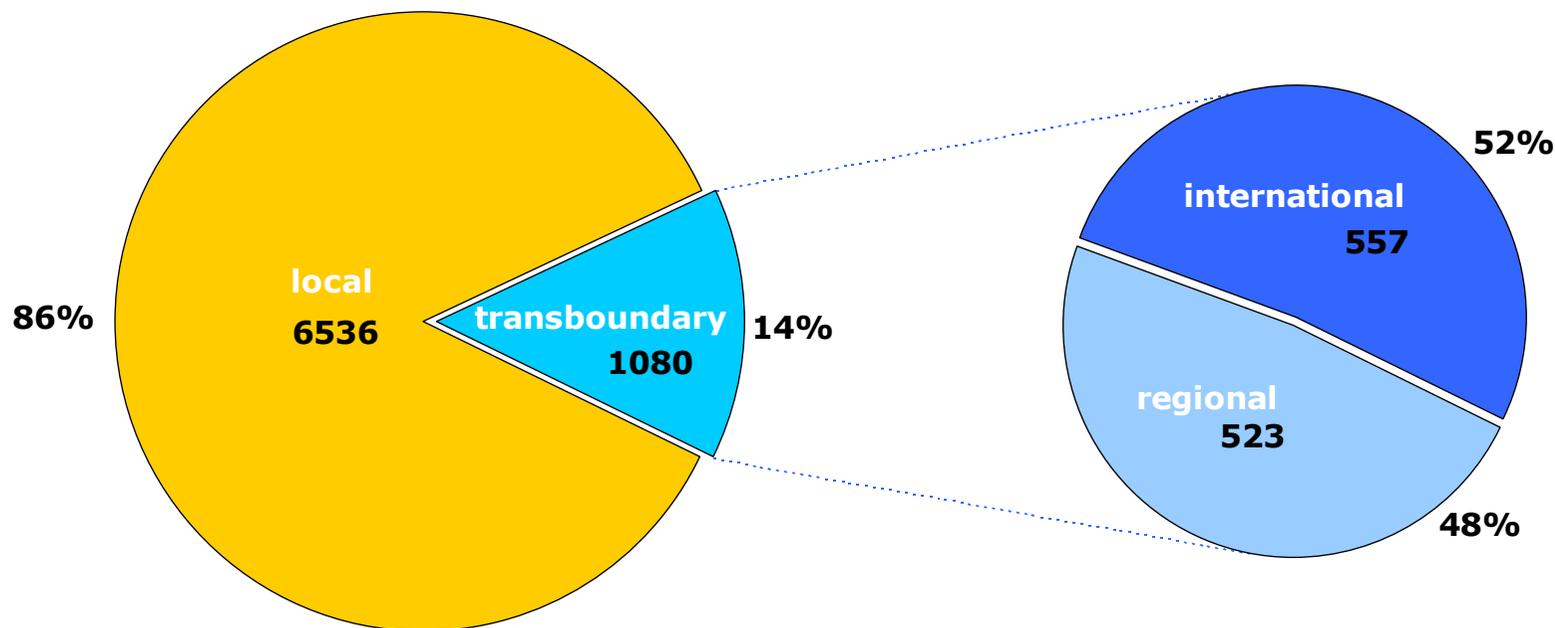
COMMISSION ON
GENETIC RESOURCES
FOR FOOD AND
AGRICULTURE



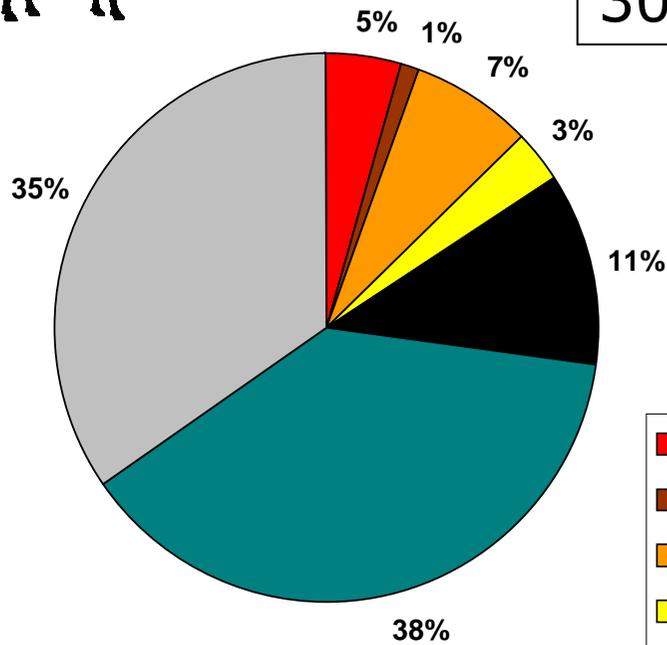
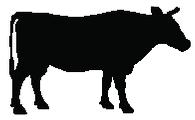

Status of AnGR

Breed diversity – the global picture

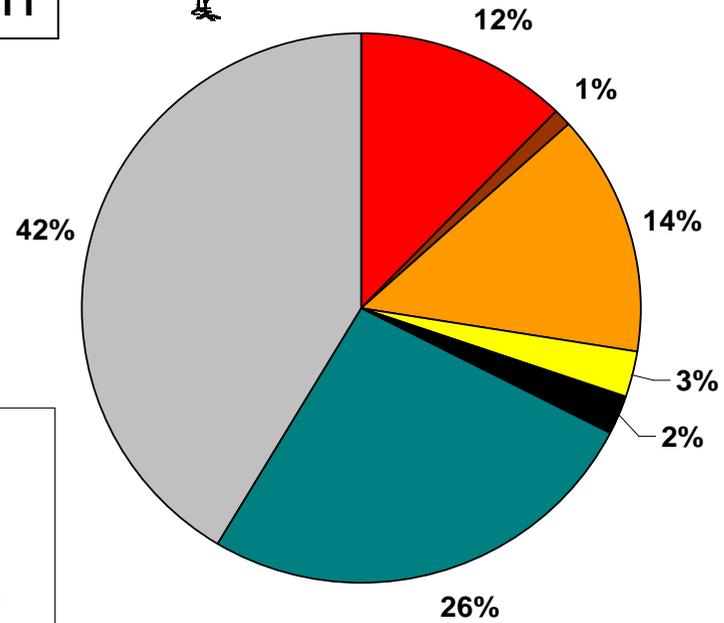
7616 breeds reported, of which 690 are extinct



Risk Status - the global picture



20% at risk
30% unknown



- critical
- critical-maintained
- endangered
- endangered-maintained
- extinct
- not at risk
- unknown

Threats to AnGR

- Globalization, intensification and mechanization
- Changing cultural practices, erosion of customary institutions and social relations
- Population pressure, loss of access to resources, overgrazing, resource degradation



The State of Capacities

- In most developing countries there is a lack of:
- capacities and basic institutions for characterization, inventory & monitoring, breeding & conservation
 - development policies & legal structures
 - structures for national, regional & international cooperation
 - interest in NARS and national Non-Governmental Organizations
 - interest in international donor community

The International Response

The Global Plan of Action for Animal Genetic Resources



Aims of the *Global Plan of Action*

- support and increase the overall effectiveness of national, regional and global efforts for the sustainable use, development and conservation of animal genetic resources,
- contribute to the development of a comprehensive framework for the management of agricultural biodiversity
- facilitate international cooperation and the mobilization of resources

The Global Plan of Action

23 Strategic Priorities for Action

4 Strategic Priority Areas:

- 1.** Characterization, Inventory and Monitoring
- 2.** Sustainable Use and Development
- 3.** Conservation
- 4.** Policies, Institutions and Capacity-building

The Global Plan of Action

23 Strategic Priorities for Action

4 Strategic Priority Areas:

1. Characterization, Inventory and Monitoring
2. Sustainable Use and Development
- 3. Conservation**
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Why is Conservation Important?

Livestock genetic diversity is decreasing

- ~20% of breeds at risk
- status of many others unknown
- Genetic diversity is necessary for adaptation
 - changing environments
 - production systems
 - climate
 - changing markets
- Genetic diversity is necessary for continued genetic improvement
- Cultural and historical reasons

The Interlaken Declaration on Animal Genetic Resources



Interlaken Declaration

Through the Interlaken Declaration countries have committed themselves to:

- Implementing the Global Plan of Action in accordance with national priorities and capacities
 - provide assistance to developing countries
- Facilitating access to AnGR and the fair and equitable sharing of benefits arising from their use

FAO Role in GPA Implementation

- Promote international cooperation
- Development of partnerships
- Monitoring of AnGR – format and criteria for breeds at risk (DAD-IS) - Early-warning and response
- Technical guidelines and policy support
 - research priorities
- Training workshops

AnGR Conservation: European Need

Wealth of AnGR

- Origin of many cosmopolitan livestock breeds
- Greatest number of local breeds
 - $\geq 50\%$ of world's rabbit, chicken, sheep and horse breeds

AnGR at Risk

- Greatest number of breeds at risk
- 75% of all extinct breeds

AnGR Conservation: European Need

The “good news”

- Good capacity for AnGR management
 - 88% of world’s “at-risk maintained” breeds
- Excellent technical capacity in many countries
- History of cooperation
 - EU policies to support AnGR
 - strong Regional Focal Point

Next Steps

- Disperse capacity to all member countries
- Expand networks of collaboration

Objectives of this Workshop

- Raise awareness on the importance of animal genetics resources and need for their conservation
- Introduce options for conservation of AnGR
 - emphasis on cryoconservation
- Discuss the decision to start gene banking
 - identify situations and factors favoring cryoconservation
 - objectives of cryoconservation
- Share experiences from existing gene banks

Objectives of this Workshop

- Provide scientific background on gene banking
 - animal reproduction
 - cryobiology
 - genetics and breeding
 - new technologies
- Discuss policy issues for gene banking
 - EU sanitary framework
 - EU regulations for AnGR Conservation
- Overview of practical aspects of gene banking
 - use of molecular data
 - use of banked germplasm in breeding schemes
 - cost-effective gene banking

Objectives of this Workshop

- Gain “hands on” experience
 - cryopreservation of animal germplasm
 - use of pedigree and genomics information
- Present national activities in AnGR conservation
- Discuss possibilities for future regional collaboration
- Evaluate workshop and FAO CryoGuidelines

Thank you

