



BASQUE CENTRE
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Agricultural Biodiversity and Adaptation

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Agricultural Biodiversity

- Crop and Livestock Genetic Resources for Food and Agriculture (GRFA)
 - Diversity of traits and characteristics found within and across crop varieties, crop wild relatives, domesticated livestock breeds, and wild breeds.



Importance of Genetic Resources for Food and Ag (GRFA)

- Essential part of evolutionary processes that generate and sustain the capacity of crops and livestock to adapt to changes.
- Provide traits and characteristics relating to taste, productivity, nutrition, and the ability to withstand extreme conditions.
- For farmers in rural areas:
 - Insurance and risk management options
 - Cultural Services



Trends Toward Loss and Degradation of GRFA

- 12 plant species provide 75% of the world's food
- 75% of plant GRFA has been lost since the early 1900s
- 62 livestock breeds went extinct between 2001 and 2007, a further 20% of currently existing breeds are at risk of extinction.

(FAO1996, 2007)



Climate Change and GRFA

- Exacerbating the existing threats to GRFA through the initiation of a diverse range of stressors.
- Implications for GRFA, farmers, and governments:
 - Decreased meat and milk productivity in livestock
 - Decreased yields in crops
 - Increased vulnerability to pests, diseases, and extreme events
 - Shifting geographic ranges of GRFA



Conservation and Use of GRFA

- Ex-situ and In-situ Conservation
- How do farmers use conserved GRFA for adaptation to current and future climate change? What initiatives are helping to facilitate that use, and how?



Utilizing GRFA for Adaptation

- Focused on Smallholders
 - Community Seed Banks
 - **Seeds for Needs**
 - Participatory Plant Breeding
 - Evolutionary Plant Breeding
 - **Champion Livestock Farmers**
 - Improved Utilization of Animal GFRA
- Technological Advances/ Tools
 - **Genetic Modification**
 - **Genomics**



Remaining Challenges

- Data collection, monitoring, and integration with climate predictions.
- Economic considerations
- Governance challenges
- Understanding GRFA and broader ecosystems



Eskerrik asko!!
Gracias!!
Thank you!!