



MACS-G20 Technical Workshop on Climate Change
August 3rd, 2022

***Building climate resilient pathways in
Argentina***



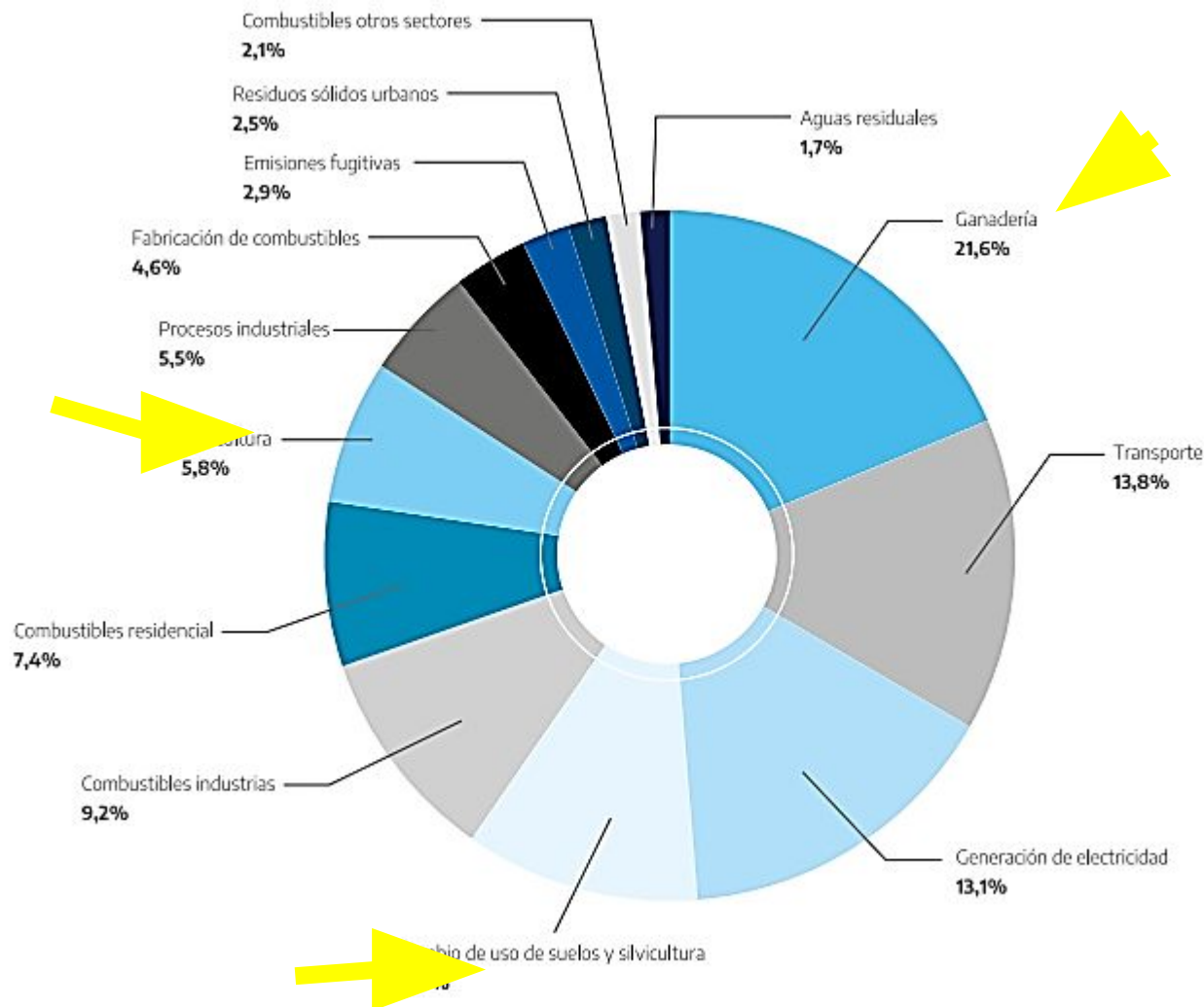
Ministerio de Agricultura,
Ganadería y Pesca
Argentina

National context: **Republic of Argentina**

- **Total Land Area** 3.761275 km²
(2.791.810 km² belonging to the American Continent)
- **Population:** 47.000.000 inhabitants
- **Arable land:** 40.000.000 ha (12.5 %)
- **Crop Production:** 140.000.000 tons
- **Native forest Area:** 48.000.000 ha
- **Cultivated forest Area:** 1.200.000 ha
- **Livestock (Cattle):** 53.400.000 heads



GHG Inventory of ARGENTINA: contribution by economic sectors



- 37.2% of emissions come from agriculture, livestock and other land uses (Argentina Second NDC - December 2020)

Argentina is working on the **Long Term Strategies for low emission production systems and carbon neutrality**

- **Country level**

- Strengthening of ecosystem protection policies (forests, wetlands, etc.).
- Forest monitoring, to reduce deforestation, and to promote cultivated forests.
- Land degradation measuring to contribute to Land Degradation Neutrality.

- **Landscapes level**

- Diversification of production systems and practices, increasing Ag production without significant expansion of the cultivated area.
- Restore and recover native forests
- Environment services driven
- Carbon neutral integrated productive systems

- **Farm level**

- Increased yields in livestock and agriculture through the use of new technologies based on the knowledge economy and sustainable intensification.

Adaptation & Mitigation Strategies in **Agriculture**

Adaptation

- Increased crop rotation between grass and legume crops
- Integrating livestock with crop production systems.
- Inclusion of cover crops
- Improving soil and water conservation
- Minimizing off-farm flows of nutrients and pesticides
- Implementing more efficient irrigation practices
- Windbreaks made of native or cultivated forest

Mitigation

- More efficient fertilizer application technologies
- Biological nitrogen fixation in some crops
- Nitrogen inhibitors
- Crop rotation with grasses
- Zero-tillage
- Biofuel production - boost policies

Example: No till cropping system

Benefits

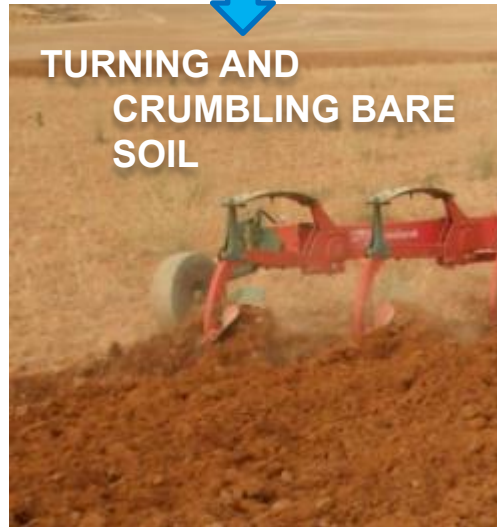
- Biological Diversity
- Reduction in GHE
- Increase Carbon and Organic Matter in Soil
- Water Use Efficiency
- Wind and Water Erosion Control
- Less Energy
- Stability of Yields and Higher Productivity

A key tillage system to implement **the increase in the soil carbon stock and to contribute to achieving the long-term objective of mitigation** the effects of climate change

CONVENTIONAL TILLAGE



TURNING AND CRUMBLING BARE SOIL



NO TILL



SLIGHTLY DISTURBED PERMANENT COVERAGE



Adaptation & Mitigation examples in **cattle production**

- Integrated beef, timber and grain farming
- Forage species selection and improvement for climate extremes
- Development of circular systems for beef and dairy production
(advantages of beef-grain-byproducts integrated systems)
- Animal genetics for emission efficiency (genomics assisted information-based selection)
- Precision management (information and automation technologies)
- Acceleration of animal growth rate and individual performance



Adaptation & Mitigation strategies in **Forestry**

Genetics of plantations
adapted to stress and pests
(molecular genetics)



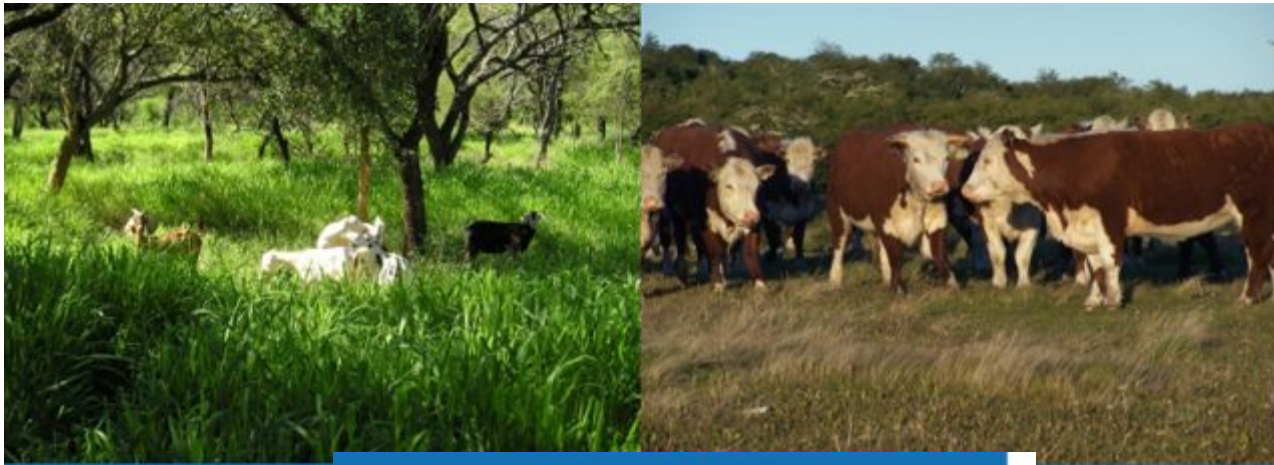
More resilient production systems

Adapting the intensity and types of
silvicultural treatments to climate
change,



Management of irregular Forest
structure with more complex in
composition and structure

Example: National Forest Management Plan with Integrated Livestock



Institutional Agreement
Ministry of Agroindustry - Ministry of
Environment and Sustainable Development -
National Agricultural Institute (INTA)



1. Contribute **sustainable** use of native forest
2. Strengthen the Provinces by promoting capacity building for implementing MBGI
3. **Monitoring system**

Principles:

1. Maintain the productive capacity of the ecosystem
2. Maintain the integrity of **ecosystem services**
3. Farmer and communities welfare

The Role of **Biotechnology** in Sustainable Agriculture

How Biotechnology contributes to mitigation and adaptation?

1. Any increase in yield or more efficient use of inputs, reduces the carbon footprint in production.
2. Any productive use on less suitable land reduces the pressure on land use change and indirectly on the carbon footprint



Adaptation and Mitigation

- Crops tolerant to drought or high temperatures
- Crops with a higher rate of photosynthesis
- Crops with resistance to biotic factors (reduced emissions by reducing agrochemical spraying)
- Crops with greater efficiency in the use of nutrients
- Feed and Probiotics designed to reduce methane emission in animal production
- Nitrogen fixing bacteria and PGPRs with low NO emissions

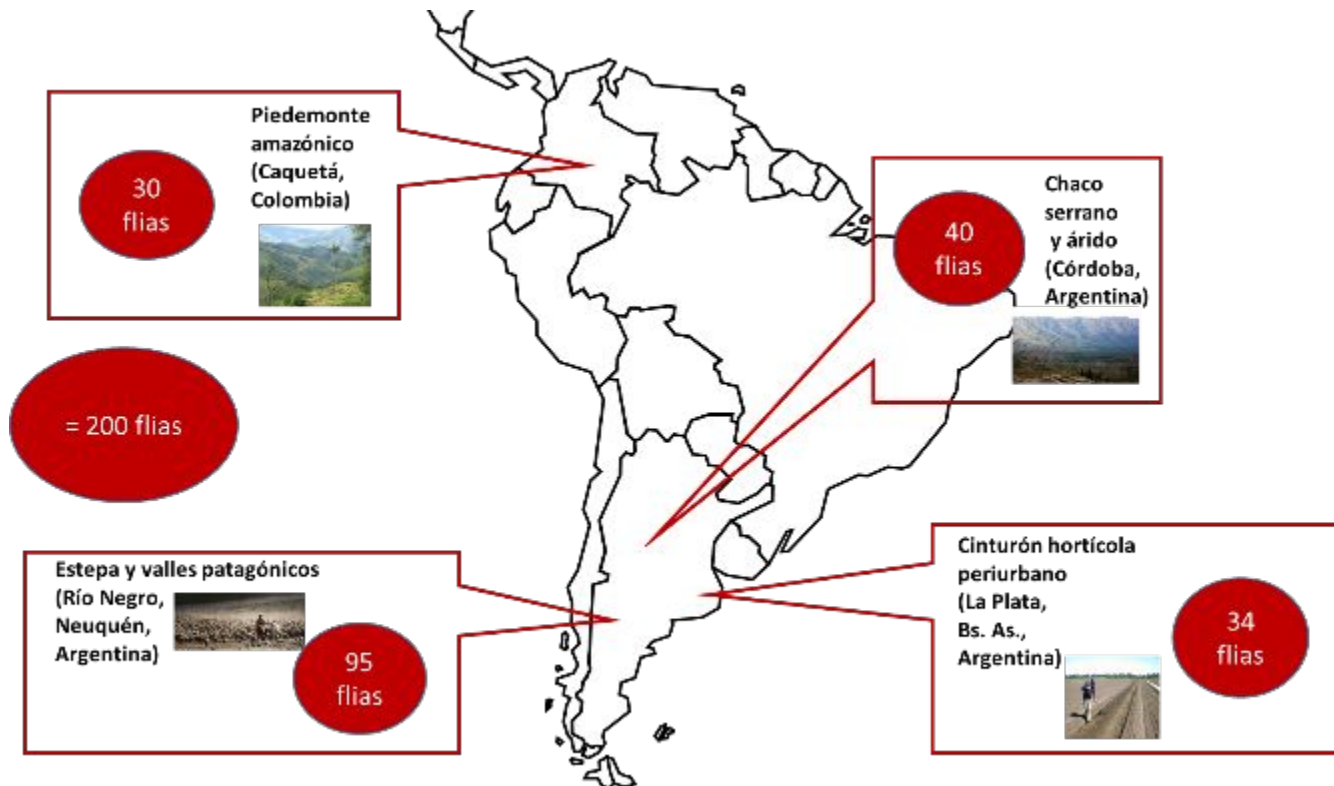
“Resilientes”: expanding the adoption of climate-smart practices



Financiado por
la Unión Europea

Resilient Food

Resilient food production in horticulture-livestock systems for **Family Farming in climatically vulnerable regions** of Argentina and Colombia.



70 adaptation measures identified, planned and implemented

Working together



Instituto Nacional de
Tecnología Agropecuaria



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ADAPTATION FUND



SUSTAINABLE DEVELOPMENT
SOLUTIONS NETWORK
A GLOBAL INITIATIVE FOR THE UNITED NATIONS



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Federal Ministry
for the Environment, Nature
and Nuclear Safety



Challenges ahead

- Argentina is currently producing food for more than 450 million people.
- The agricultural sector is also the country's main source of income.
- Argentina accounts for less than 1% of GHE globally. Agriculture, Forestry and Other Land Uses sector, for 37%
- Argentina has enhanced its ambition, with new target emissions reduction of 25.7%, 359 MtCO₂ emissions (incl. LULUCF) by 2030.
- Argentina is part of the United Nations Climate Ambition Alliance, which is working towards net-zero CO₂ emissions by 2050
- However, extreme weather and climate events have increased in frequency, intensity and severity in our country.

Vulnerability to CC: **Observed and expected impacts**



Drought more frequent, consecutive seasons, longer in duration, and broader in area

extreme hydrological events,
Paraná River, severe dryness for three years



reduced supply of water from melting snow

increased number of fires and hectares burned



Updating Priorities

- Argentina requires international funding from countries that are the largest contributors to carbon dioxide emissions, in order to implement broad **climate-resilient programs that combine adaptation and mitigation**, at both landscape and farm scales, and in a very diverse productive system.

Our strategic vision that guides new initiatives and projects at INTA:

- *Agriculture must be part of the solution*
- *Agricultural production systems “neutral now”*
- *Determining **local emission factors**, as a long-term research priority for estimating emissions / country inventories*

Thank you !

Terima kasih banyak



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Presidencia de la Nación

Argentina

Presented by: Dr. Pablo Mercuri - Director Natural Resources Research Center INTA
mercuri.pablo@inta.gob.ar