# FARMING-RELATED SENSITIVITY IN THE GREAT AMERICAN CHACO

*The region is considered fundamental for global food production, and highly competitive thanks to the integration of production and management technology. Argentina stands out for the production of soy, sunflower, corn and wheat; Paraguay for meat, peanuts and corn; and Bolivia is a major cereals producer.*

Climate change could affect this sector strongly with various kinds of impacts, given that agricultural production is directly dependent on the climate of an area.

The factors influencing food availability are:

- High sensitivity of traditional agricultural production to changes in temperature and precipitation
- Global food demand has undergone major changes in recent decades since world population has almost tripled.

**What changes are expected in the coming decades?**

**+1ºC**

Average temperature increases of 1°C from 2020

***extreme events spacing of rainfall***

Slight and gradual increase in average rainfall. Extreme events and large spacing between showers, which would have negative effects on crops

***decrease of water availability***

Droughts and floods of greater magnitude and frequency would compromise water availability for consumption and production

***losses on consumption crops***

Other crops such as rice and cotton stand to benefit

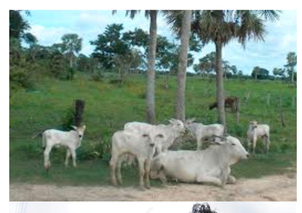
***alteration of ecosystem goods and products***

***All this can have negative effects on the Chaco's population and development***

## Criteria considered to assess the items analyzed in the study

- ✓ Acreage
- ✓ Production Value
- ✓ Number of Producers
- ✓ Number of Analysis Units
- ✓ Participation in the basic food basket
- ✓ Analysis Unit Number

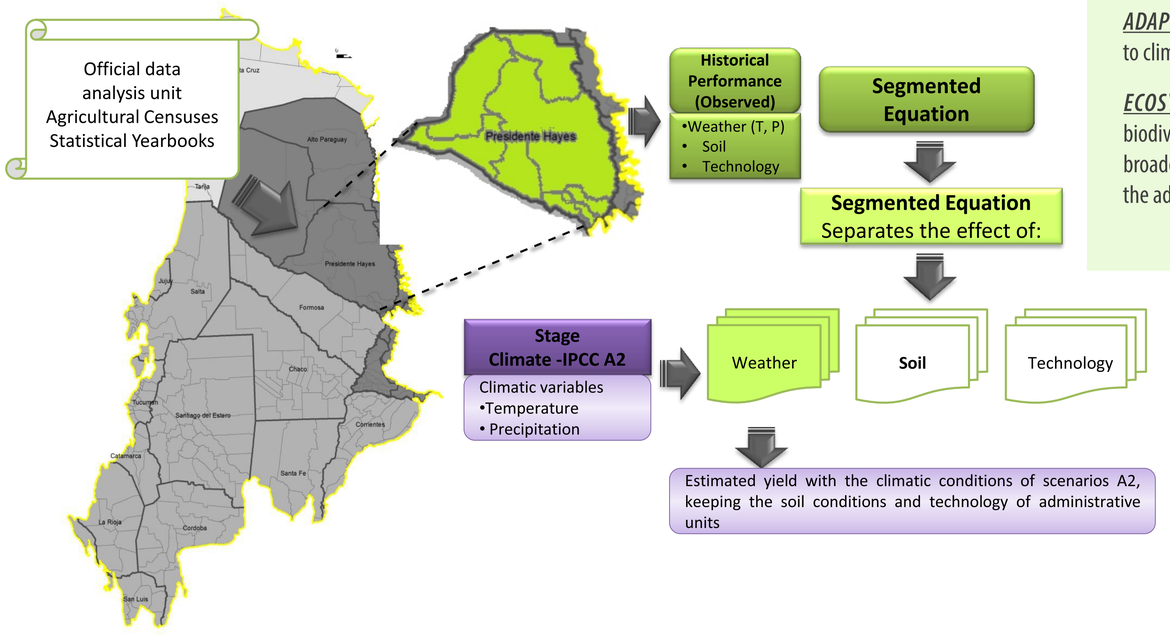
| Ítems |
|---|
| Wheat |
| Corn |
| Soy |
| Potato |
| Cotton |
| Sugar Cane |
| Bean |
| Peanut |
| Sorghum |
| Rice |



## METODOLOGY

To determine the relationship between agricultural crops yields and climate started from the observation of the series of annual returns that have agricultural statistics offices of the countries in the study.

For the variation in yield an equation that allowed relating keeping constant as soil conditions and technology of administrative units with climatic conditions (precipitation and temperature) according to the A2 scenario, accounting also phenological cycles of each culture was used.

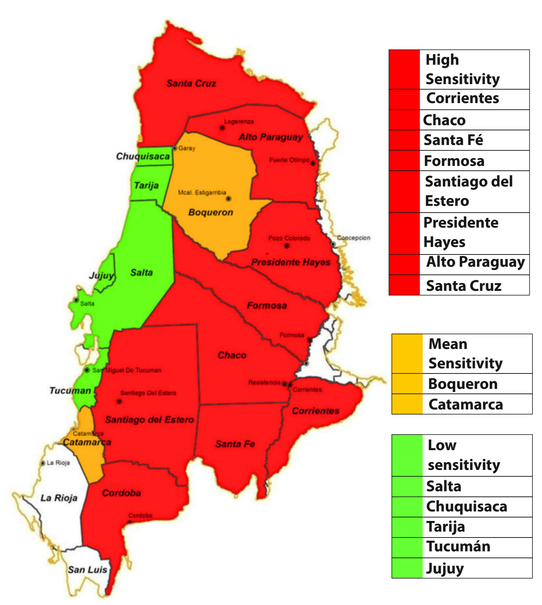



## SENSITIVITY OF AGRICULTURAL SECTOR

Increase of agricultural sensitivity especially for corn, peanuts and beans, in the last decade of the study

| Items | Cotton | Rice | Sugar cane | Corn | Peanut | Bean | Potato | Soy | Sorghun | Wheat |
|---|---|---|---|---|---|---|---|---|---|---|
| Argentina | | | | | | | | | | |
| Bolivia | | | | | | | | | | |
| Paraguay | | | | | | | | | | |

| | |
|---|---|
| | High |
| | Moderate |
| | Low |




Marked increase in sensitivity in agricultural departments of Argentina and Paraguay. The departments of Bolivia are less sensitive

The departments of Bolivia are less sensitive

## SENSITIVITY OF LIVESTOCK SECTOR

### Beef Production

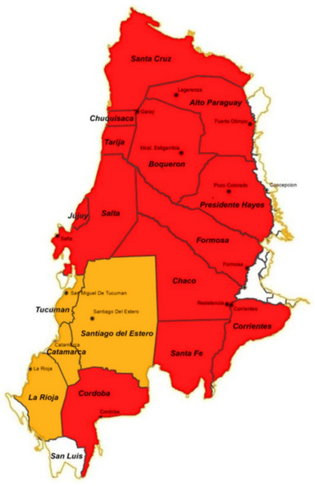
One of the environmental conditions influencing in milk production variation is temperature, which along with moisture determines what is called the effective temperature

| | |
|---|---|
| Argentina | |
| Bolivia | |
| Paraguay | |

### Milk production

The direct impact of rainfall, mainly in spring, on grass is critical for the productive performance of animals.

| | |
|---|---|
| Argentina | |
| Bolivia | |
| Paraguay | |



## What to do to improve adaptation to climate change?

**Good Agricultural and silvopastoral practices**

Silvopastoral systems offer greater resilience to climate variability: plants can then serve as a dietary supplement and alternative forage.

These systems also provide environmental services, such as shade for the animal, reducing the temperature for livestock. They also retain soil moisture, preserving biological activity.

**Recovery of ancestral knowledge and agroecological approach for sustainable and organic farming**

The recovery of traditional knowledge in the use of alternative systems for production, friendlier to the worldview of indigenous peoples, promotes greater acceptance of these systems.


Centro de Conocimiento para el Gran Chaco Americano y Cono Sur

MAIN RESULTS OF THE STUDY ON VULNERABILITY AND IMPACT OF CLIMATE CHANGE ON THE GREAT AMERICAN CHACO


*Some relevant concepts (IPCC, 2007)*

Exposure + Sensitivity − Adaptive Capacity = *Vulnerability*

***VULNERABILITY***: degree to which a system is able or not to address the negative effects of climate change, including climate variability and extreme events. Its evaluation is based on three factors: exposure, sensitivity and adaptive capacity.

***EXPOSURE***: degree of climate stress on a unit of analysis. It can be represented by changes in climate conditions, including magnitude and frequency of extreme events.

***SENSITIVITY***: degree to which a system is affected positively or negatively by climate-related stimuli.

***ADAPTIVE CAPACITY***: ability of a system to adjust to climate change.

***ECOSYSTEM-BASED ADAPTATION (EBA)***: use of biodiversity and ecosystem services as part of a broader adaptation strategy to help people adapt to the adverse effects of climate change.


To read the full study go to:
http://www.cambioclimatico-regatta.org/index.php/es/
http://kp.iadb.org/Adaptacion/es/Cono-Sur/Paginas/