# The reduction of greenhouse gases and the increase in productivity as a driving force to achieve sustainable agriculture.

ARGENTINA / CHILE / COLOMBIA / SPAIN / URUGUAY / BRAZIL













Webstory

## The technological solution

The generation of greenhouse gases by agriculture accelerates climate change, increasing temperatures and decreasing precipitation, which in turn has an effect on agriculture itself.



### **Description**

In this project, we have found a way to genetically improve inoculants without using genetically modified microbes. The goals pursued are the obtaining of spontaneous mutations and new microbial isolates that improve the productivity, nutritional quality, and environmental quality of the main crops.



#### Results

The sequencing and genomic analysis of the 18 main inoculants used in Latin America and the Caribbean demonstrated that the majority of these bio-inputs can be potential emitters of nitrous oxide.

Genetic variability was obtained for some of the responsible clusters in certain microorganisms, leading to the identification of 7 inoculants that reduce nitrous oxide emissions in crops.

It was confirmed that these strategies do not have negative economic impact; in fact, some of these microbes also improve the nitrogen content in soybean plants.

Crop productivity was improved through various mechanisms in microorganisms, including increased herbicide tolerance, greater nutrient availability, and increased pathogen tolerance.

**-99%** 

Reduction of N2O emissions in alfalfa.

+8 %

Increase in nitrogen content in soybean.

Supported doctoral

**-20** %

Reduction of N2O emissions in soybean.

**Glyphosate-tolerant** rhizobia for soybean.

Countries engaged in improvement.













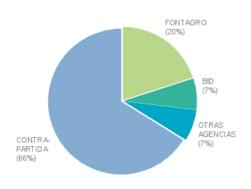


#### **ABOUT FONTAGRO**

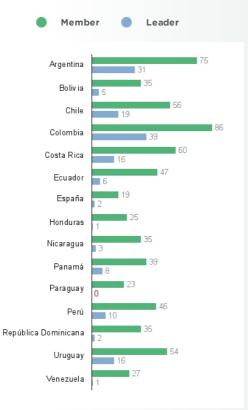
FONTAGRO is a unique cooperation mechanism for agricultural innovation in Latin America and the Caribbean (ALC) and Spain, that works through regional platforms. It is composed of 15 countries that have contributed capital exceeding 100 million dollars and the Inter-American Development Bank (IDB), which is its legal representative.



PARTICIPATION AND ROLE IN CONSORTIUMS SINCE 1998



- Counterpart contribution 93.177.555
- **FONTAGRO** 28.989.468
- IDB 9.922.700
- Other agencies 9.809.078



Number of projects 193 approved

amount US\$

9.8

other agencies

15

New technologies for ALC

8

Technology of global relevance

MEMBER COUNTRIES

