



# BRAZILIAN CONTRIBUTION TO THE CHALLENGE OF SUSTAINABLE GLOBAL FOOD SUPPLY

# BRASIL

## SUSTAINABLE PRODUCTIVITY GROWTH

### BRAZIL IMPLEMENTS LOW-CARBON TROPICAL AGRICULTURE

#### THREE FACTORS ENSURE THE VIABILITY AND SUSTAINABILITY OF AGRICULTURE AND LIVESTOCK FARMING IN BRAZIL

#### 1. CONTINUED PRODUCTIVITY GROWTH

##### A SCIENCE-BASED TROPICAL AGRICULTURE AND ANIMAL PRODUCTION SYSTEMS

. Since the creation of Embrapa (the Brazilian Agricultural Research Corporation), innovative techniques and scientific advancements have been developed specifically for tropical agriculture.

. Investment in research optimizes tropical semiarid soils, making better use of the advantages that the Cerrado biome offers, overcoming the soil acidity and poor fertility.

. Cattle raising productivity, in terms of weight per hectare per year has been increasing, helping to reduce the pasture areas. The reduction has allowed a continuous conversion of land use, from pastures to agricultural production.

### INTEGRATED CROP, LIVESTOCK AND FORESTRY (ICLF): THE CARBON-NEUTRAL BRAZILIAN BEEF REVOLUTION

Brazil is a pioneer in implementing ICLF which is a production system integrating the crop, livestock and forest components in rotation, combination or succession in the same area.

The objective of ICLF is to change the system of land use, basing it on the integration of productive system components to achieve increasingly higher levels of product and environmental quality.

#### BENEFITS



Optimization and intensification of soil nutrient cycling



Increased production of grains, meat, milk, timber, and non-timber products in the same area



Greater efficiency in the use of resources (water, electricity, nutrients and capital) and increased energy balance



Applicable to farms of all sizes and profiles



Improvement of animal welfare due to greater thermal comfort



Greenhouse gas mitigation

A research commissioned by the ICLFI Development Network and carried out by the Kleffmann Group during the 2015/2016 harvest estimated that 11,468,124 hectares (ha) of land in Brazil are used for integrated agricultural production systems.

Source: Embrapa, 2017.

## 2. SECOND CROP: higher production without increasing planted area

### 28% of the area planted with grains and pulses in Brazil is used for a second harvest each year

Routine crop rotation enables the land to remain fertile, as not all of the same nutrients are used every season.

Rotating crops helps to improve soil stability by alternating between crops with roots of various lengths. Pests are also deterred by eliminating their food source on a regular basis.

In Brazil, the first crop to be planted is usually soy since it is the most profitable. But crops such as maize, wheat, beans and peanuts are planted after the soy harvest. Second crop maize is mostly prevalent.

It is estimated that over 74% of the total maize available during the 2018/2019 harvest year to be second crop maize.



Source: Conab, 2019



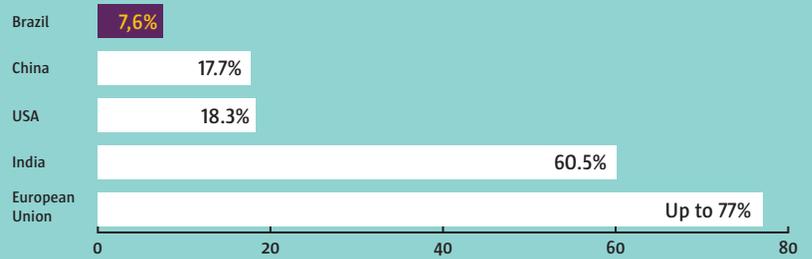
## 3. POLICIES TO PROTECT NATIVE VEGETATION

### A GUARANTEE OF CONSERVATION IN PUBLIC AND PRIVATE AREAS: CONSERVATION AREAS AND THE NEW FOREST CODE

A 2017 study by the United States Geological Survey (USGS), in partnership with NASA, revealed that the Brazilian planted crop areas cover only about 7.6% of its territory. <sup>1</sup>

<sup>1</sup> The USGS estimates are the world's leading data for comparison of land use between countries. Nevertheless, their estimates (7.6% of crop area in Brazil) slightly vary from the EMBRAPA data (7.8%), used in other factsheets of this series.

### PLANTED CROP AREAS / TOTAL AREA /COUNTRY



### PROTECTING NATIVE BRAZILIAN VEGETATION



#### FOREST CODE PROTECTION ON PRIVATE LAND

The Forest Code mandates permanent protection reserve/preservation units in Brazil. These are areas of specific interest aimed at conserving natural resources around waterways, lakes, ponds and springs, as well as restinga and mangrove coastlines/ coastline biomes. In the Amazon biome, rural properties can explore up to the maximum of 20% of their lands for economic purposes.

The remaining, namely at least 80%, must be set aside for the native vegetation maintenance by law. In the other regions of Brazil, the mandatory legal reserve ranges from 20% to 35%. Legal reserve areas cannot be used for traditional economic activities, such as agriculture, livestock farming or forestry. Sustainable forestry management is the only economic activity allowed in those areas.



#### RURAL ENVIRONMENTAL REGISTER: A NATIONWIDE, DIGITAL, PUBLIC REGISTER OF ALL FARMS THAT ENSURES COMPLIANCE WITH THE FOREST CODE

The Rural Environmental Register (Cadastro Ambiental Rural, CAR) is the main instrument for agricultural and environmental monitoring and transparency. Permanent conservation areas and legal reserve areas are reported by landowners through the Rural Environmental Register, a digital database which stores and processes georeferenced rural estate data, supporting Brazil's environmental management.



#### CONSERVATION UNITS AND INDIGENOUS LAND PROTECTION ON PUBLIC LAND

National System of Conservation Units, the 'SNUC', was created in 2000. It provides for two major categories of protected public land: (i) Full Protection Conservation Units, which are publicly owned and where people are not allowed to live, and Sustainable Use Conservation Units, which allow the direct use of natural resources under a management plan.

The SNUC also includes a Natural Heritage Private Reserve category, which allows for the establishment of a protected area managed by private parties interested in environmental conservation.

#### 10% OF BRAZILIAN TERRITORY CONSISTS OF CONSERVATION UNITS, WHICH PRESERVE NATIVE VEGETATION. THEY ARE DISTRIBUTED OVER 2,288 AREAS COMPRISING ALL OF THE BRAZILIAN BIOMES.

Between 2000 and 2018, conservation units grew in number from 969 to 2,228.

#### INDIGENOUS LANDS COVER 13.8% OF BRAZILIAN TERRITORY, WITH 462 REGISTERED AREAS

## BIOSAFETY LAW

### BRAZIL IS A SIGNATORY OF THE CARTAGENA PROTOCOL, IN EFFECT SINCE 2003

The Cartagena Protocol in Biosafety establishes safety standards and mechanisms to monitor activities involving genetically modified organisms (GMO) and their derivatives. CTNBio, a multidisciplinary collegial body, which provides technical consultation and advice to the formulation, updating and implementation of the National Biosafety Policy for activities involving the development, experimentation, cultivation, handling, transportation, sale, consumption, storage, release and disposal of GMOs and their derivatives.