

Brazil: biodiversity and sustainable growth

Ambassador André Amado
Katholieke Universiteit Leuven
November 12th, 2012.

Brazil: the size of a continent

- **Official name:** Federative Republic of Brazil.
- **Capital:** Brasília.
- **Official language:** Portuguese
- 3rd most spoken in the West.
- 7th most spoken in the world.
- **Number of bordering countries:** 10, along 14,000 km.
- Only China and Russia have more neighbors than Brazil.



Brazil: an emerging country

- 7th largest consumer market (UN, 2010)
- 3rd largest reserves of iron ore
- world largest exporter of iron, coffee, orange juice, soybeans, beef, chicken, sugar and ethanol
- 6th largest manufacturer of automobiles
- 3rd largest producer of aircrafts and 1st producer of commercial jets (120 passengers)
- world's largest exporter and 2nd largest producer of ethanol
- world's largest commercial cattle herd, with over 198 million heads
- Brazil accounts for half of the economy of South America
- 84th HDI in the world.



Brazil: 5th largest country in the world

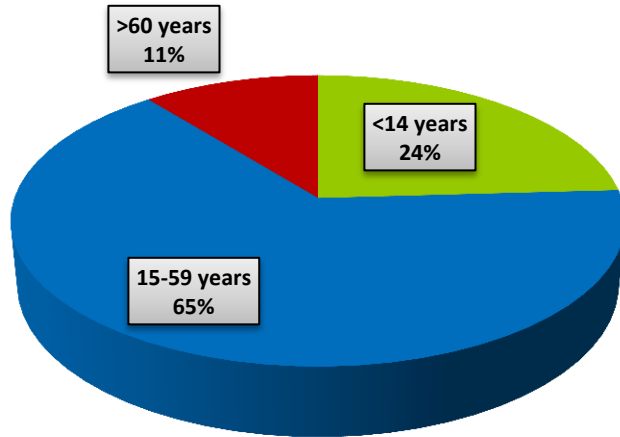
8.514.876 km²



Brazilian population (5th largest in the world)

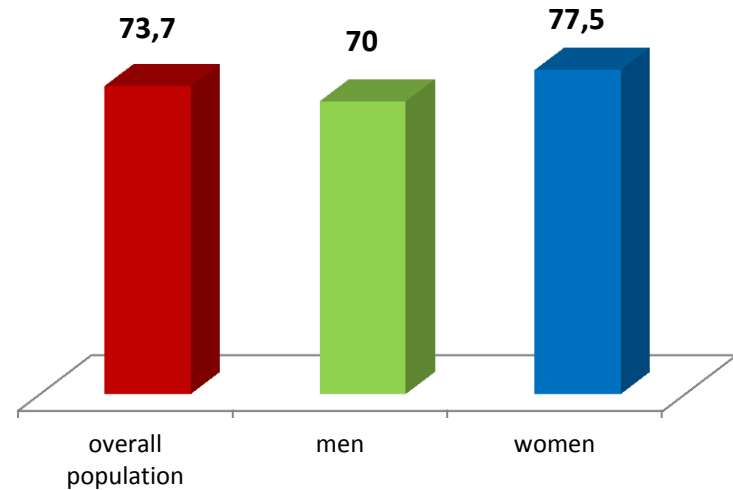
192,4 million

Age distribution



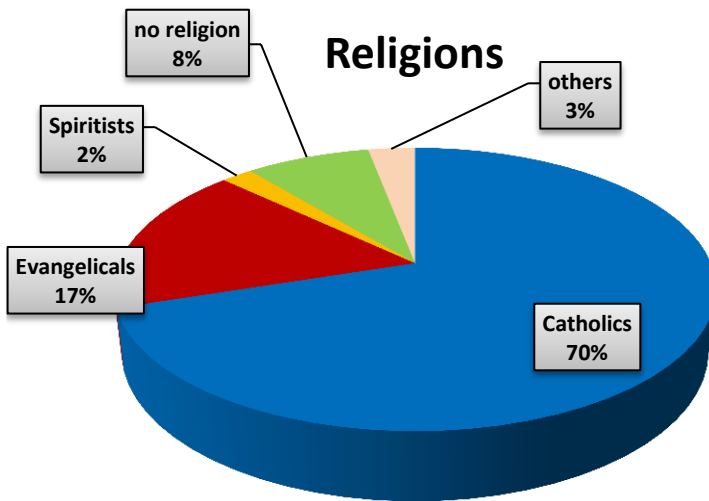
Source: IBGE, 2010 (census)

Life expectancy



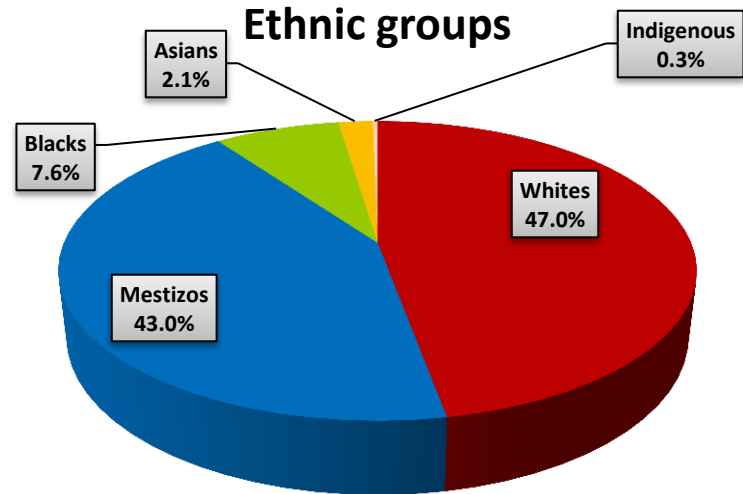
Source: IBGE, 2010 (est.)

Religions



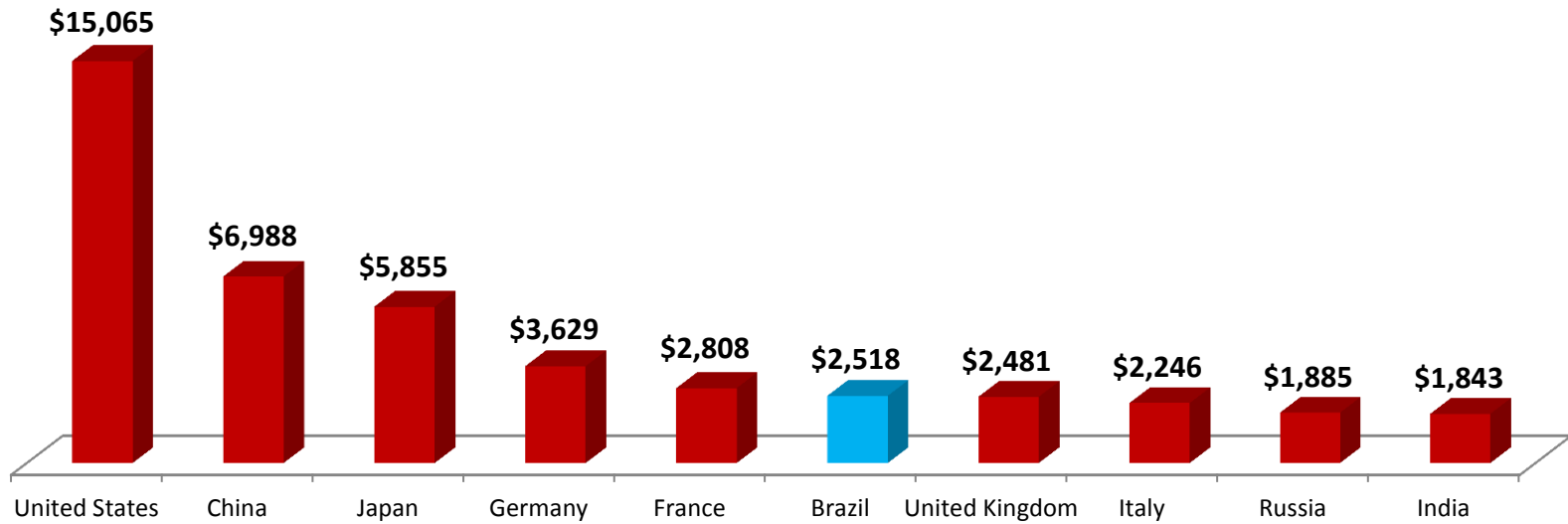
Source: IBGE, 2010 (est.)

Ethnic groups



Source: IBGE, 2010 (census)

6th GDP in the world (2011)



Brazil 20 years ago

- GDP of € 313 billion,
- international currency reserves at € 7,2 billion,
- inflation out of control (2500% in 1993),
- internal debt out of control,
- external debt at € 83 billion in 1991,
- first freely elected government after 21 years of military rule, and
- net food importer.

Brazil today (2011)

- GDP of € 1,911 billion (world's 6th),
- per-capita GDP of € 9,800 (5x larger than 1991's),
- international currency reserves at € 352 billion (18,4% of the GDP),
- inflation under control: 6,1%,
- net foreign debt: none - creditor of € 56 billion,
- 5 freely elected governments,
- 17 years of political stability,
- 17 years of consistent macro-economic policies,
- one of the world's major food supplier

Reasons for the Leap Forward

Sustainable growth measures

Economic policy

- . Real Plan, privatization of municipal banks, privatization of state industries, fiscal responsibility legislation, and
- . Land-reform and modernization of the agro-industrial sector.

Social policies

- . Zero Hunger, Family Stipend, School Lunch, Food Acquisition and Housing Programs, etc.
- . 30 million Brazilians overcame the poverty line (self-esteem, extra consumer boost).

Technological upgrade

- . Public policies deeply committed to adapting technology to tropical farming challenges, both biotic (pests) abiotic (drought, acid and saline soils, low nutrients, flooding, etc.
- . Clean energy revolution.

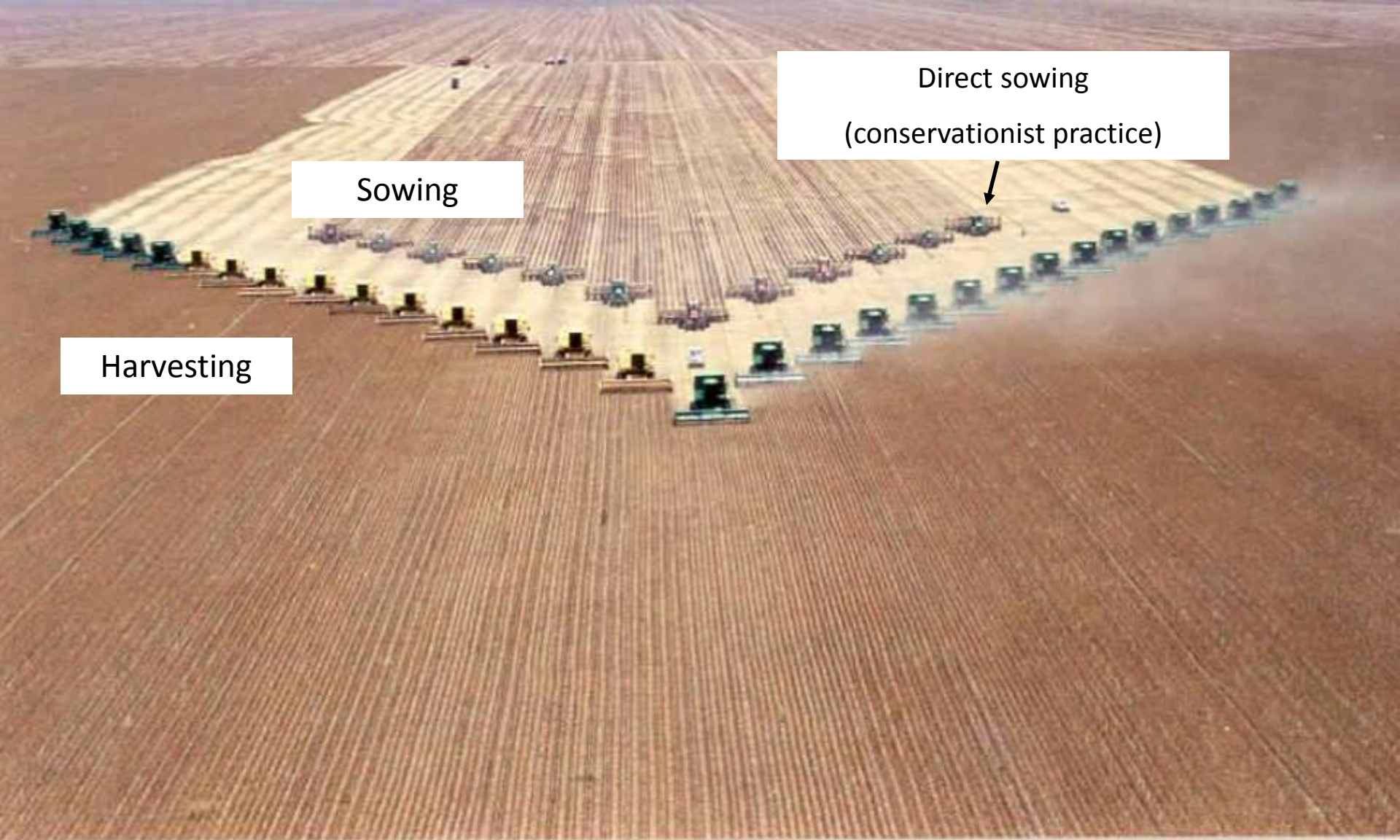
Area available for agricultural expansion

Positive

Availability of Land



	in million ha	%
Pasture and Natural Fields	172	20,2
Temporary crops	55	6,4
Permanent crops	17	2,0
Cultivated forests	5	0,6
Units of state and federal protected areas	176	20,7
Indigenous areas	107	12,6
Areas of rural settlements	77	9,0
Unoccupied areas and for other uses	171	20,1
Unexploitable areas for agriculture (excluding the Amazon Rainforest)	71	8,4
Total	851	100



Sowing

Harvesting

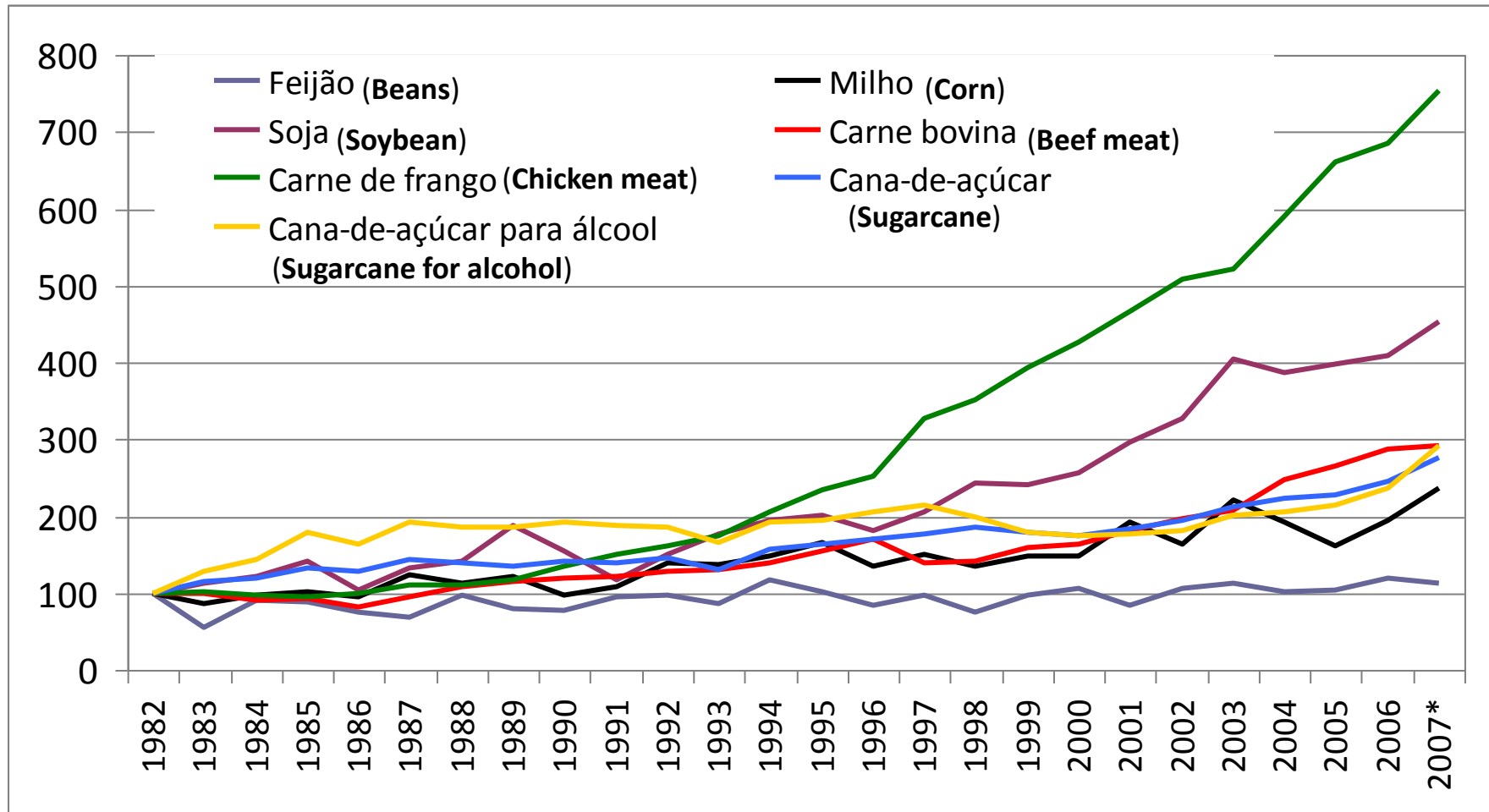
Direct sowing
(conservationist practice)

Scale, mechanization

Two crops in the a year without irrigation

Harvesting (soya) and sowing (corn) on the same day

Brazil: Agricultural production growth in the last 25 years



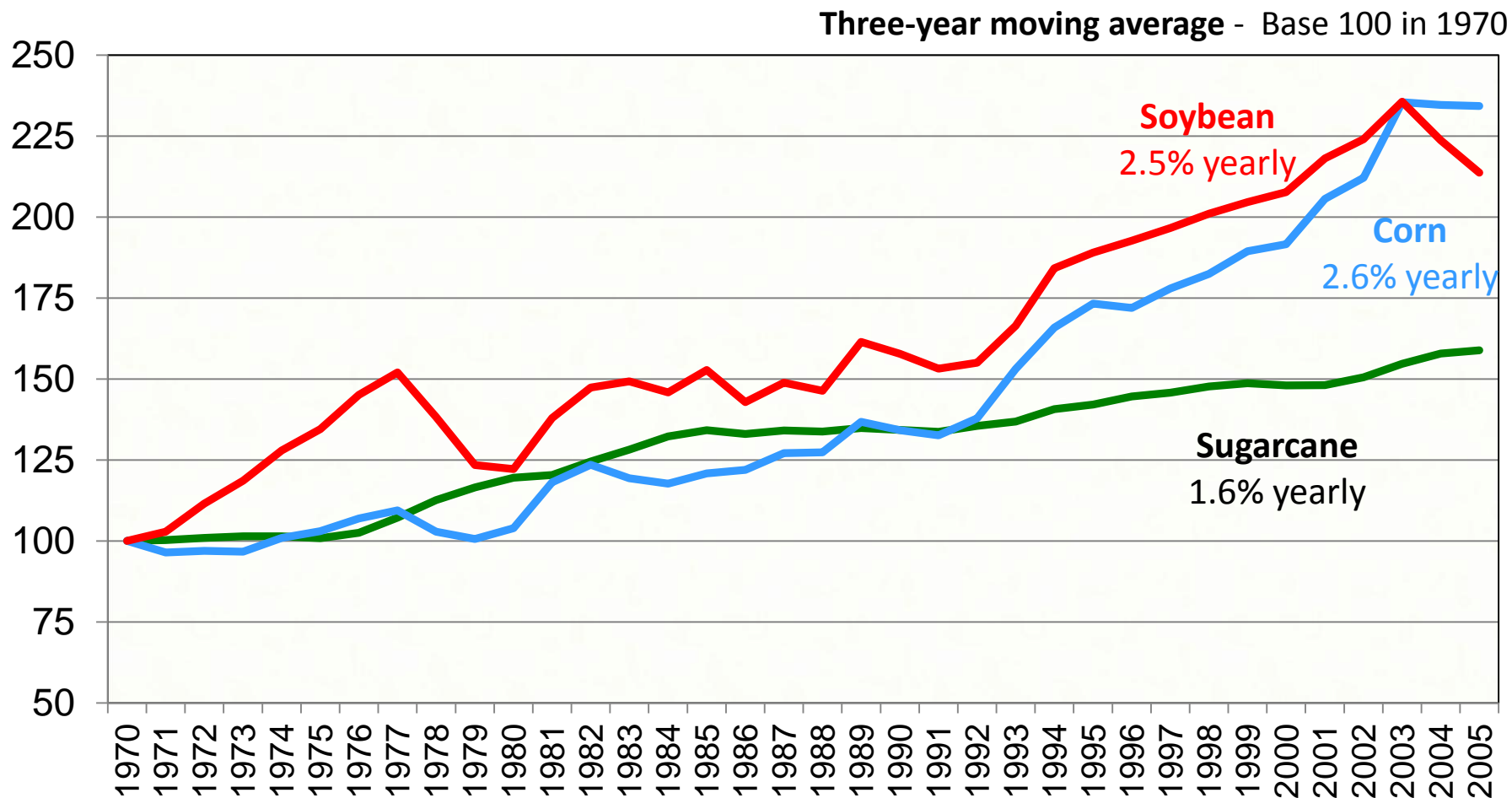
Notes: 1) * 2007 – estimates;

2) Sugarcane: includes cane destined for ethanol production, production of sugar and other purposes (animal nutrition, production of spirits, etc.)

3) Cane intended for ethanol production estimated from data from the Ministry of Agriculture Livestock and Supply (MAPA): National Balance of cane sugar and bioenergy 2007.

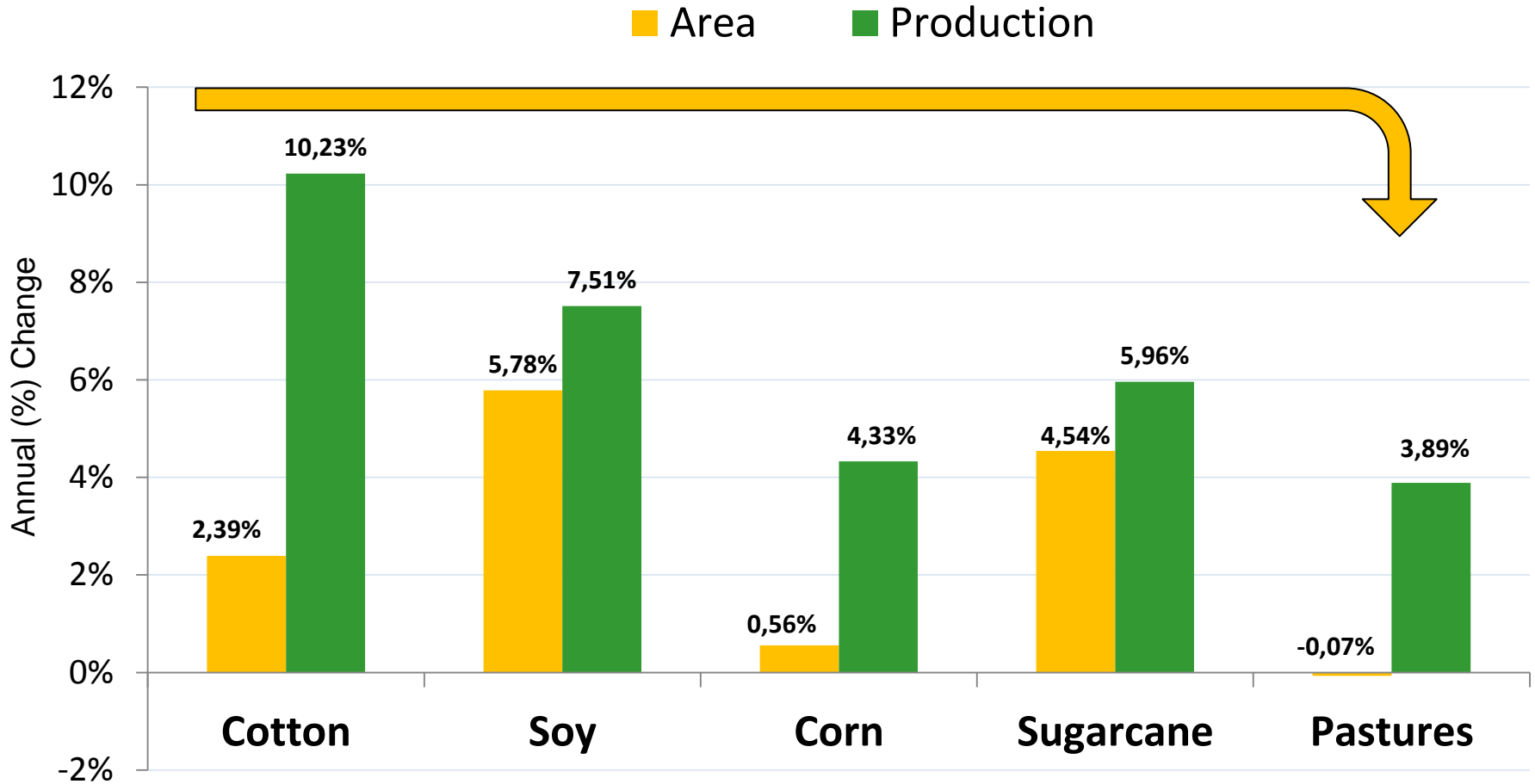
4) 1982 base = 100. Source: IBGE.

Brazil: Productivity evolution of the major crops

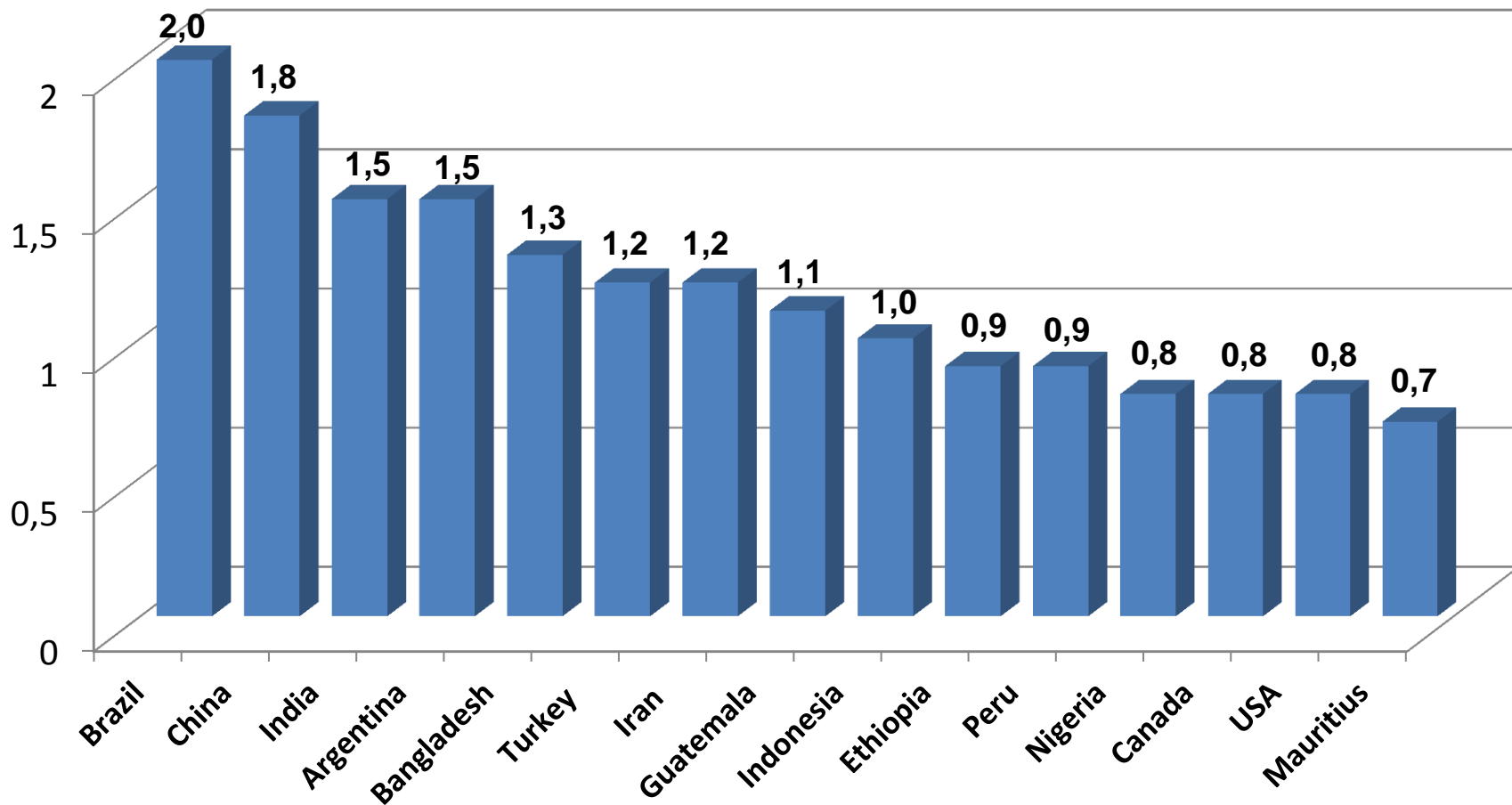


Source: IBGE (2007)

AGRICULTURE IN BRAZIL: HARVESTED AREA, YIELDS AND PRODUCTION FROM 1996-2011

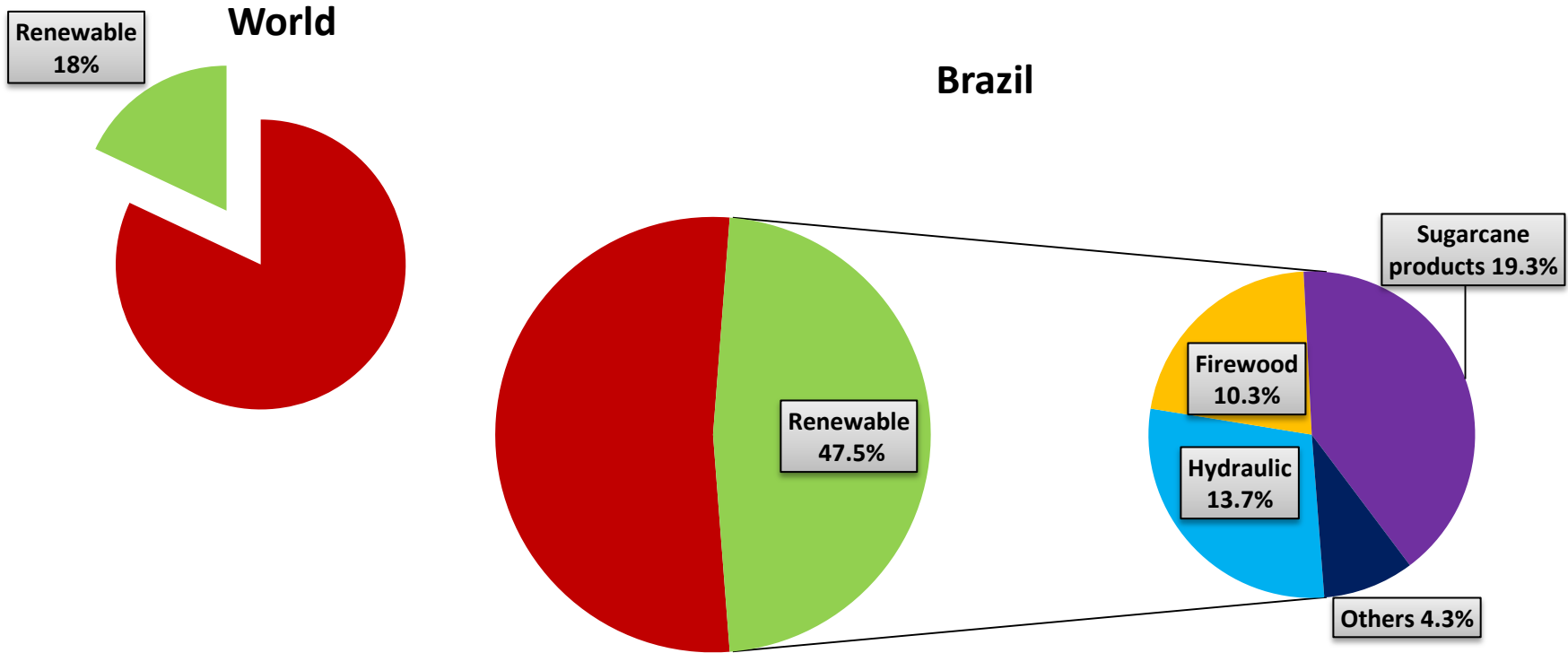


INCREASE IN AGRICULTURAL PRODUCTIVITY 1960 - 2005 (%)



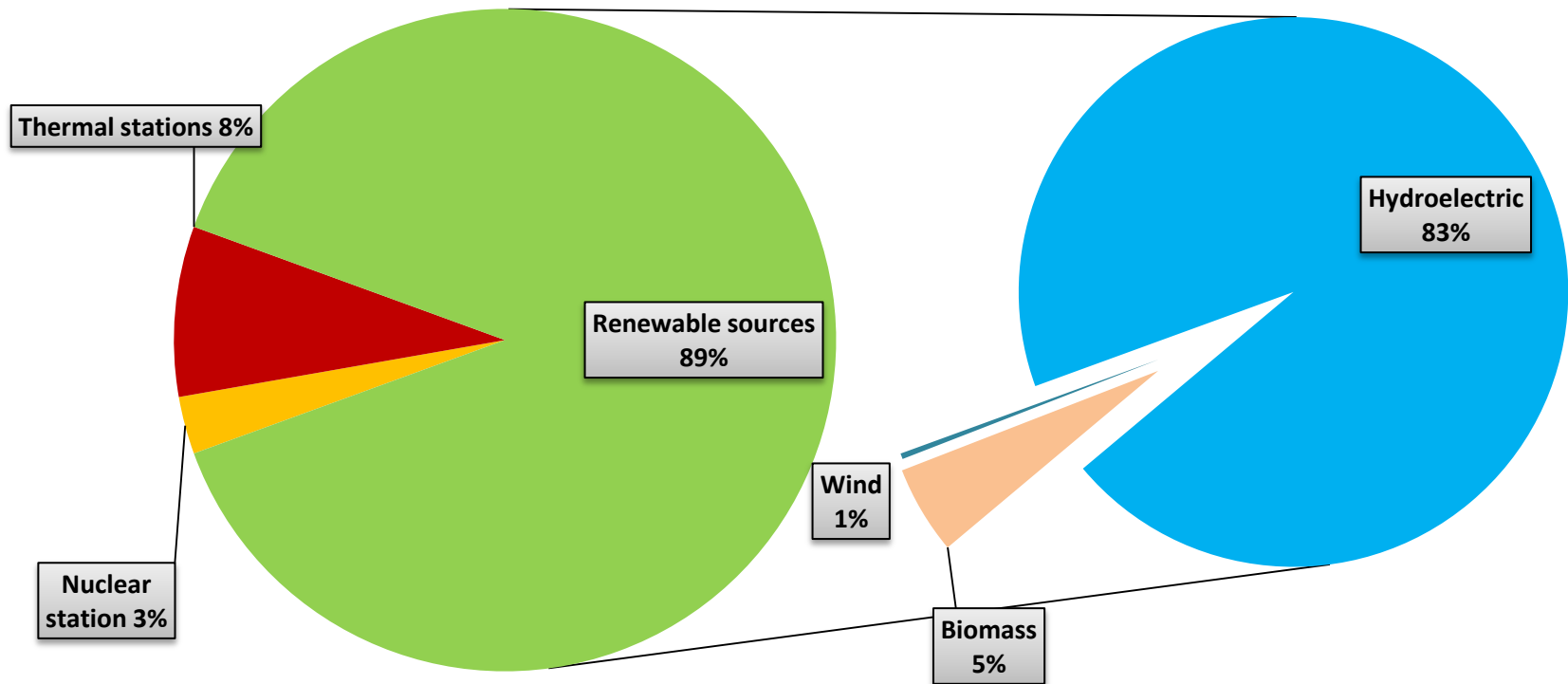
**SUSTAINABLE GROWTH MEANS
CLEAN ENERGY**

Leading in clean energy production

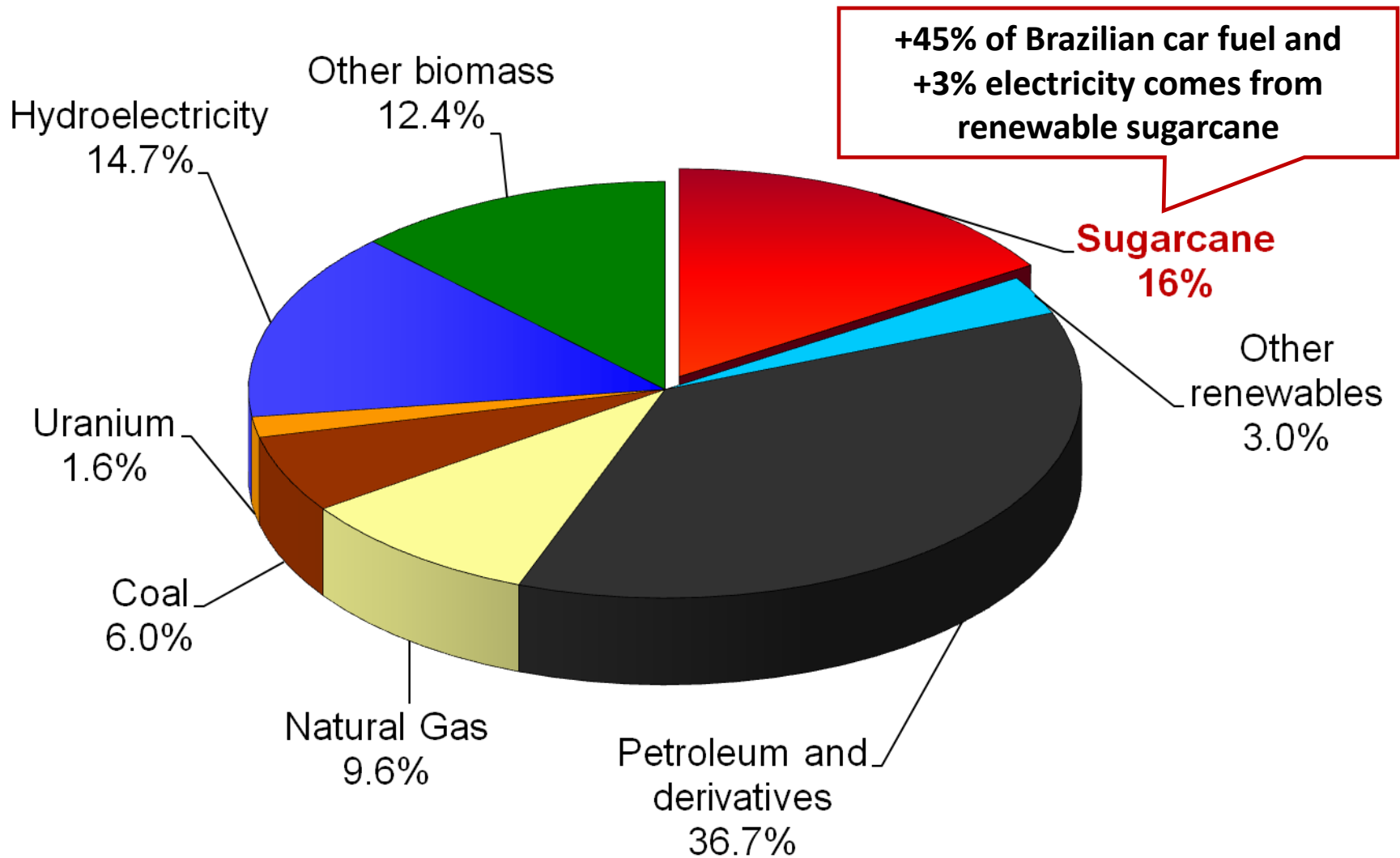


Source: Brazilian Ministry of Mines and Energy (2011)

Brazilian electricity generation by source

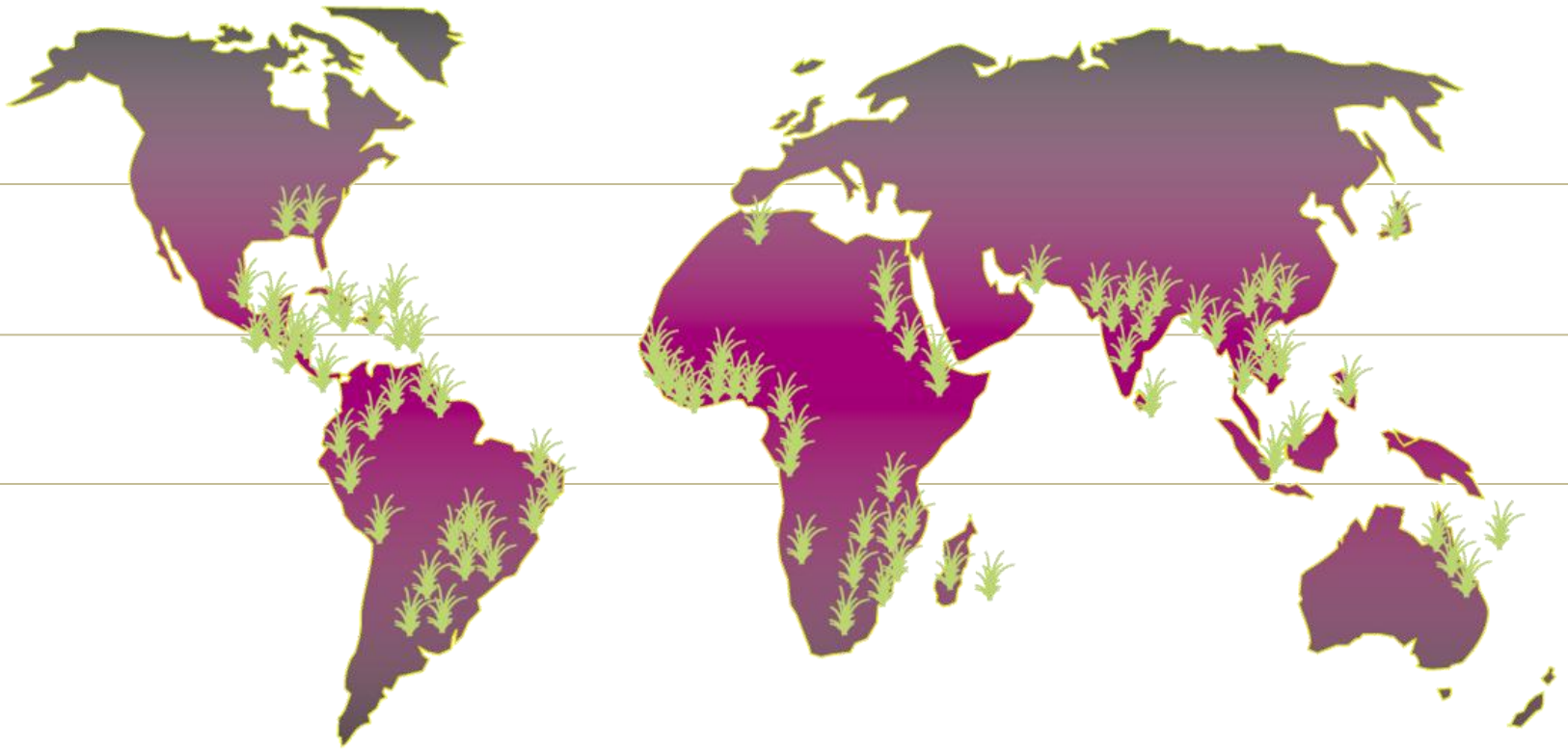


BRAZIL ENERGY MATRIX INPUT (2007)



Source: Brazilian Ministry of Mines and Energy (MME)

WORLD SUGARCANE MAP



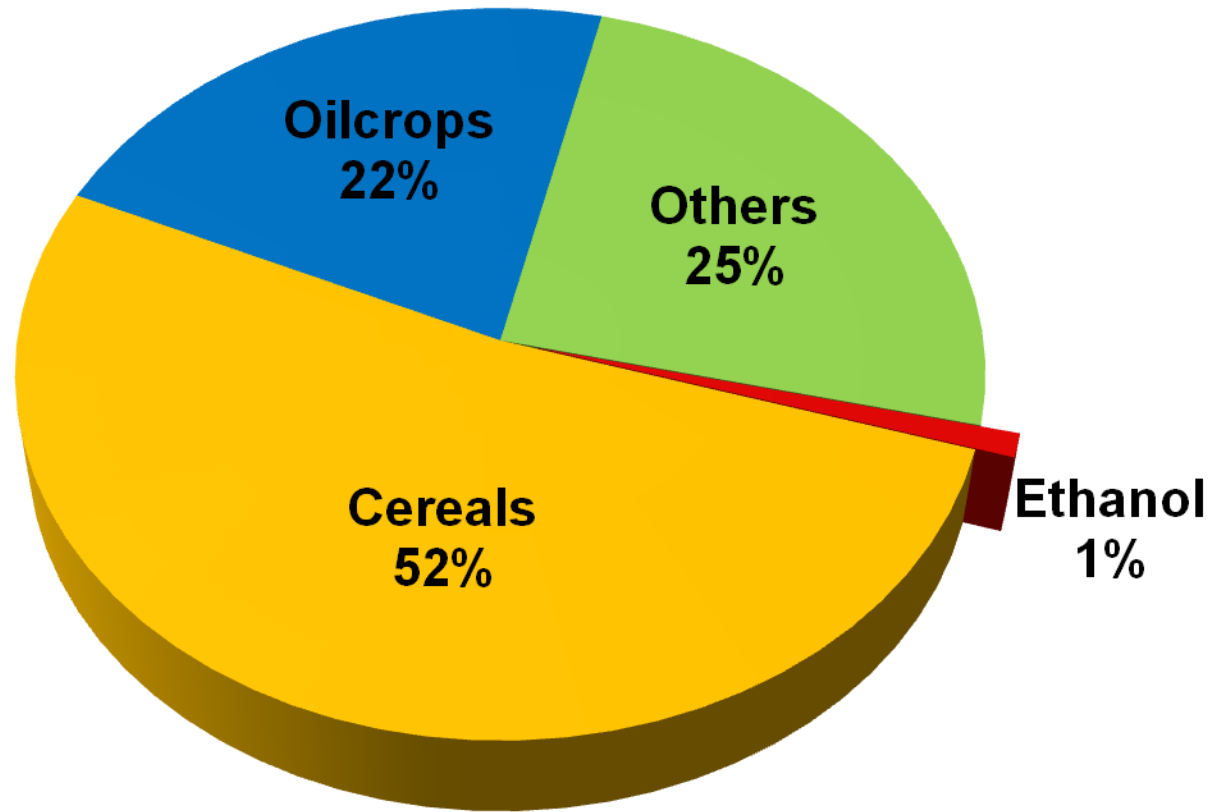
**100 countries could supply biofuels to 200 nations,
while currently 20 oil producers provide fossil fuels.**

LAND USE IN BRAZIL

Millions of hectares (2007 _e)			
BRAZIL	851		% of arable land
TOTAL ARABLE LAND	354.8	% total	
1. . Crop land – total	76.7	9.0%	21.6%
Soybean	20.6	2.4%	5.8%
Corn	14.0	1.6%	3.9%
Sugarcane	7.8	0.9%	2.2%
Sugarcane for ethanol	3.4	0.4%	1.0%
Orange	0.9	0.1%	0.3%
2. Pastures	172.3	20.2%	48.6%
3. Available area [Available area - (crop land + pastures)]	105.8	12.4%	29.8%

Source: IBGE. Elaboration: UNICA.

WORLD LAND USE



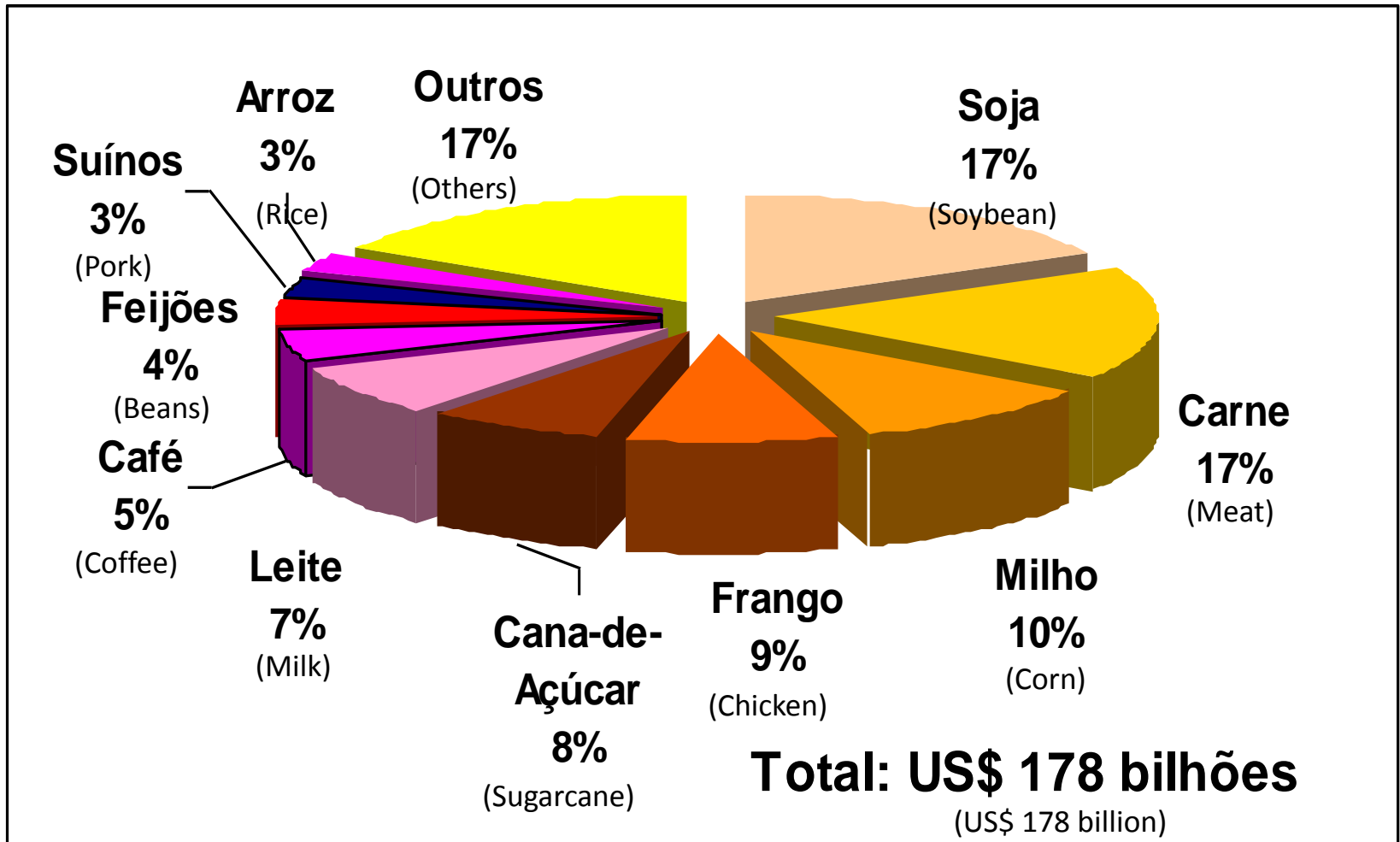
**The world's total harvested agricultural area is 1.4 billion hectares.
Only 15 million hectares are devoted to ethanol production.**

Source: FAO, F.O. Licht, Datagro, USDA, EC, UNICA

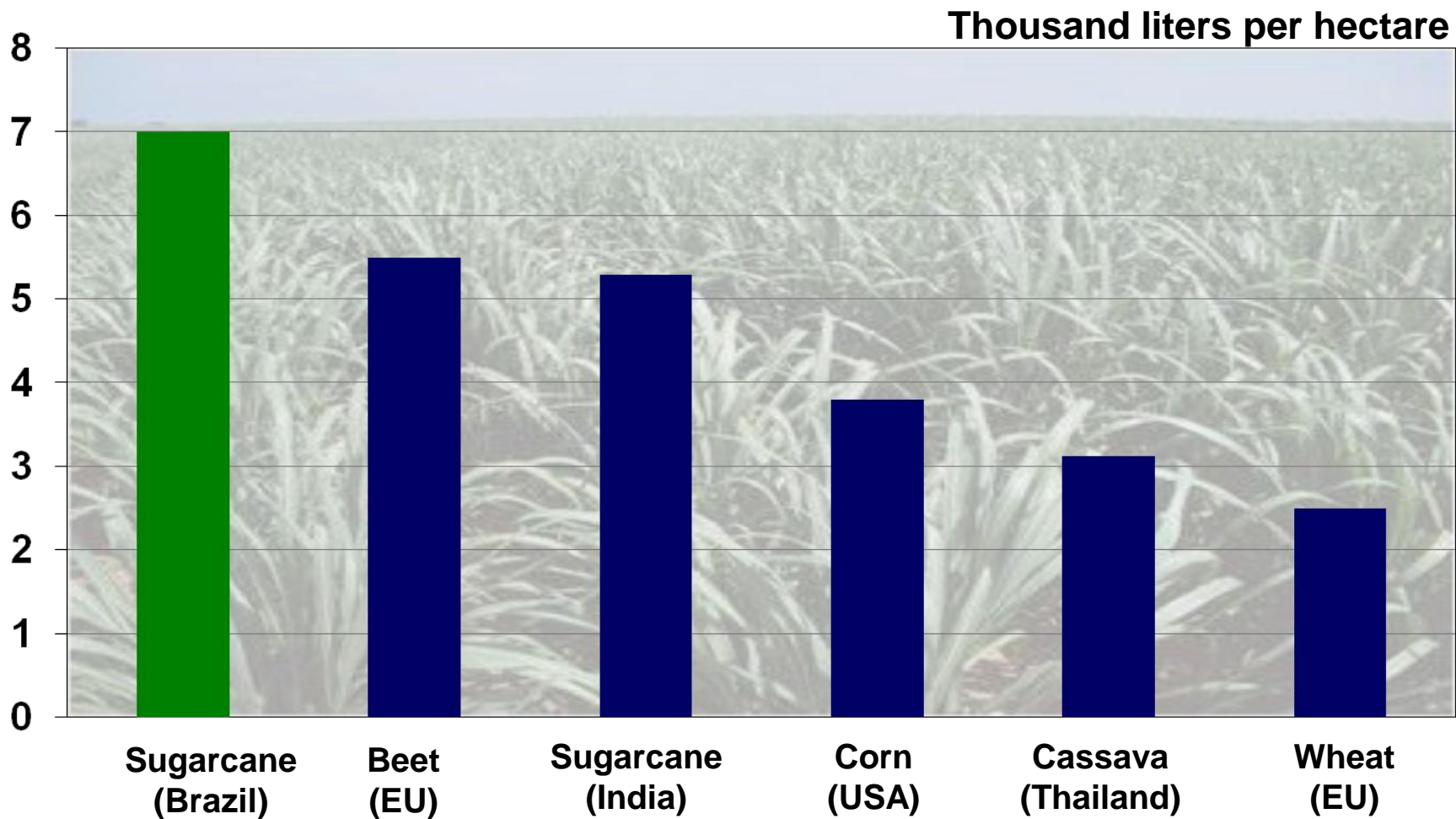
Note: "Others" include the harvested area for the remaining crops like fruits, fibers, nuts, roots and tubers, spices and other vegetables .

Brazil: Major Brazilian Agricultural Products Gross Value of Production

(April 2008)



ETHANOL PRODUCTIVITY

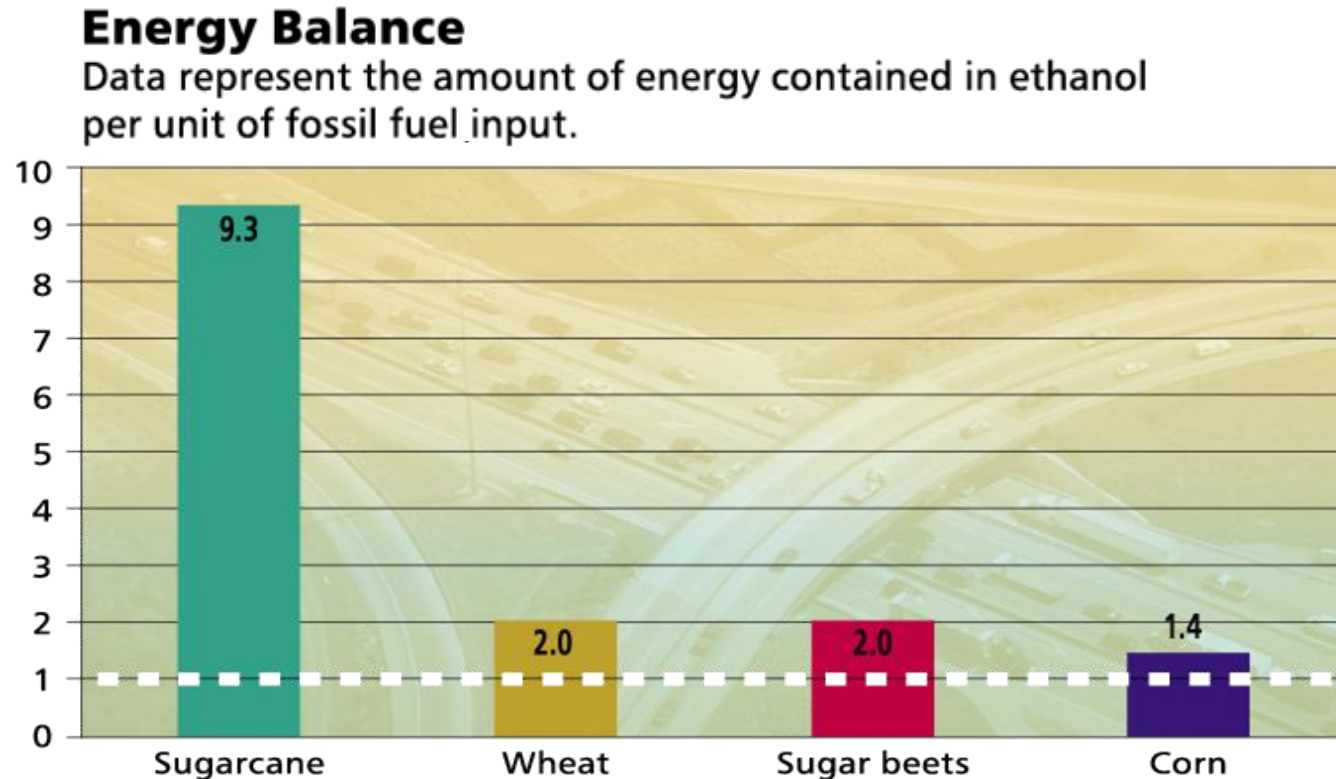


Source: IEA – International Energy Agency (2005), MTEC and UNICA.
Elaboration: UNICA

MITIGATING GLOBAL WARMING

Energy Balance

The energy balance of Brazilian ethanol is 4.5 times better than that of ethanol produced from sugar beet or wheat, and almost seven times better than ethanol produced from corn.



Note: estimated data

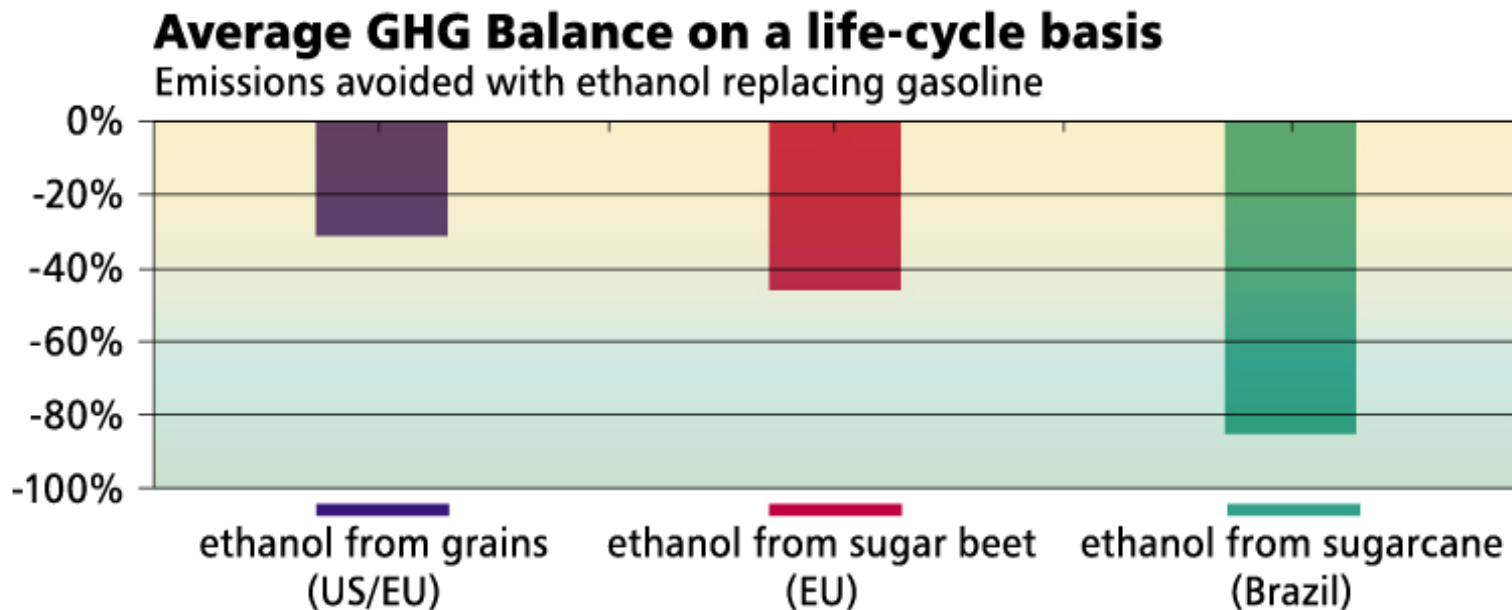
Source: World Watch Institute (2006) and Macedo et al (2008).

Data compiled by Icone and Unica

MITIGATING GLOBAL WARMING

GHG Reduction

Several well-to-wheel estimates show that Brazilian sugarcane ethanol reduces emissions of greenhouse gases (GHG) by up to 90%, when used instead of gasoline.



Note: Reductions in well-to-wheel CO²-equivalent GHG emissions per km, from bioethanol compared to gasoline, calculated on a life-cycle basis.

Source: IEA – International Energy Agency (2004).

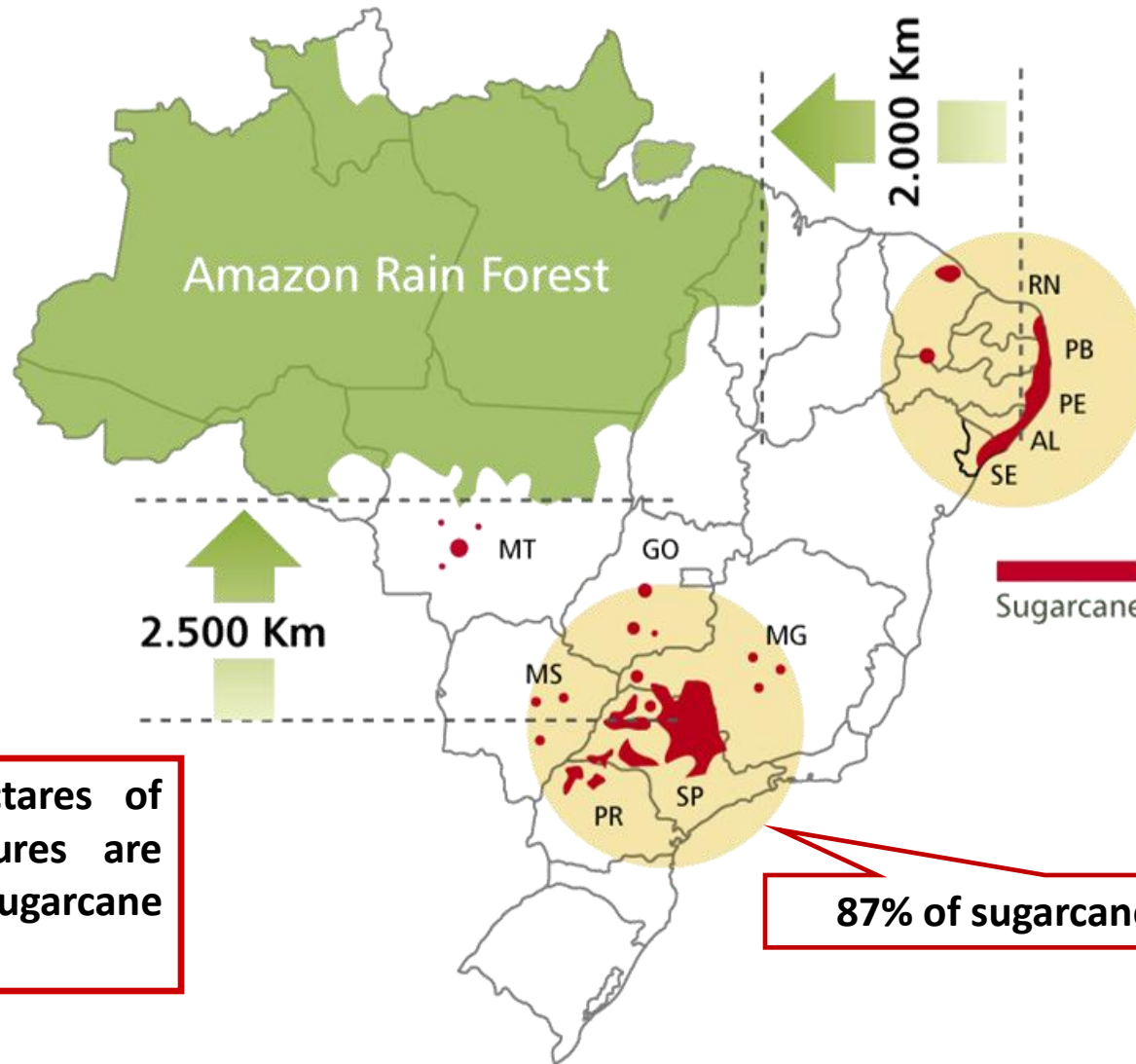
Data compiled: by Icone and Unica.

FLEX FUEL VEHICLES (FFV) IN BRAZIL



- Introduced in the Brazilian market on March 2003.
- These vehicles are designed to be fueled with gas, ethanol, or any blend of gas and ethanol (today from E23 to E100).
- In São Paulo alone, in 4 years (2004-08), flex fuel usage contributed to preventing the emission of 35 million tons of CO₂, the same amount a 118 million tree forest would have saved.
- Thirteen brands and 63 models.
- 33.000 gas stations all over the country with at least one dedicated E100 pump.

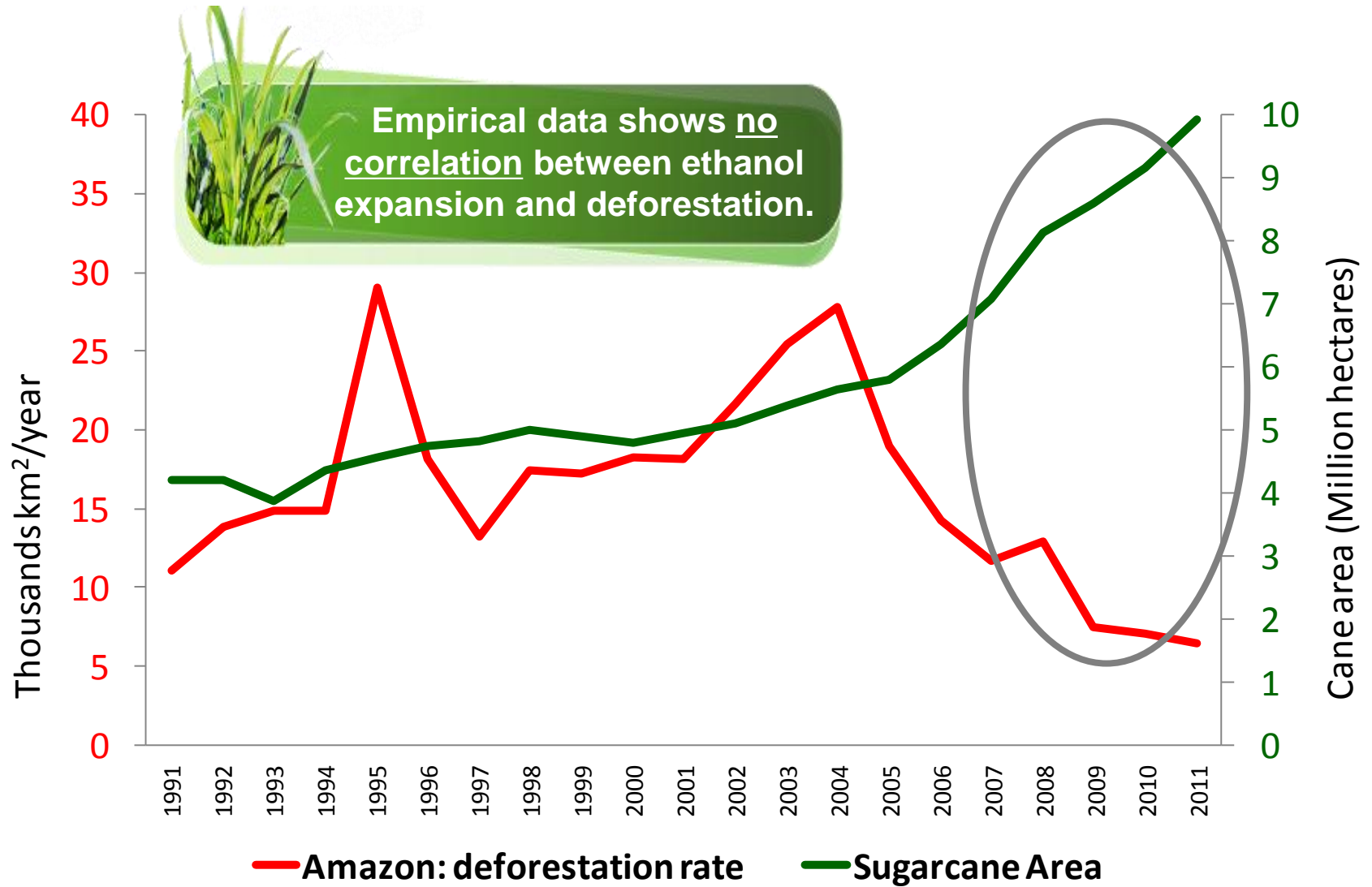
SUGARCANE PRODUCING REGIONS IN BRAZIL



25 million hectares of degraded pastures are available for sugarcane expansion

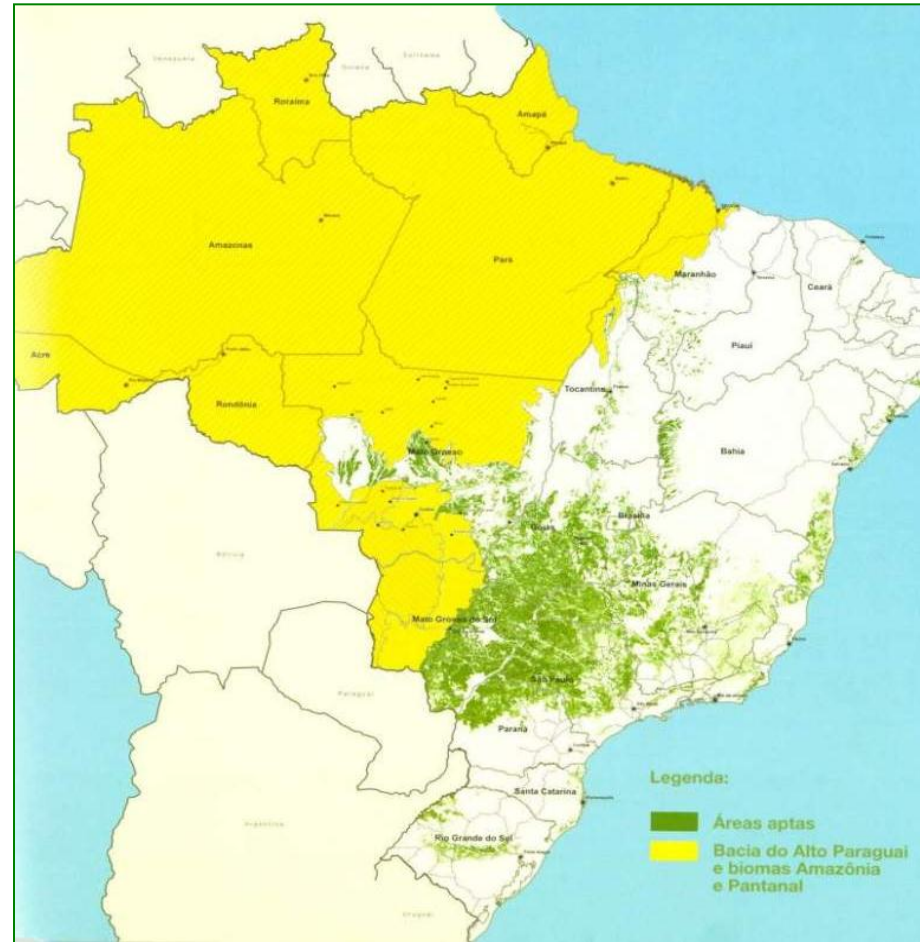
87% of sugarcane production

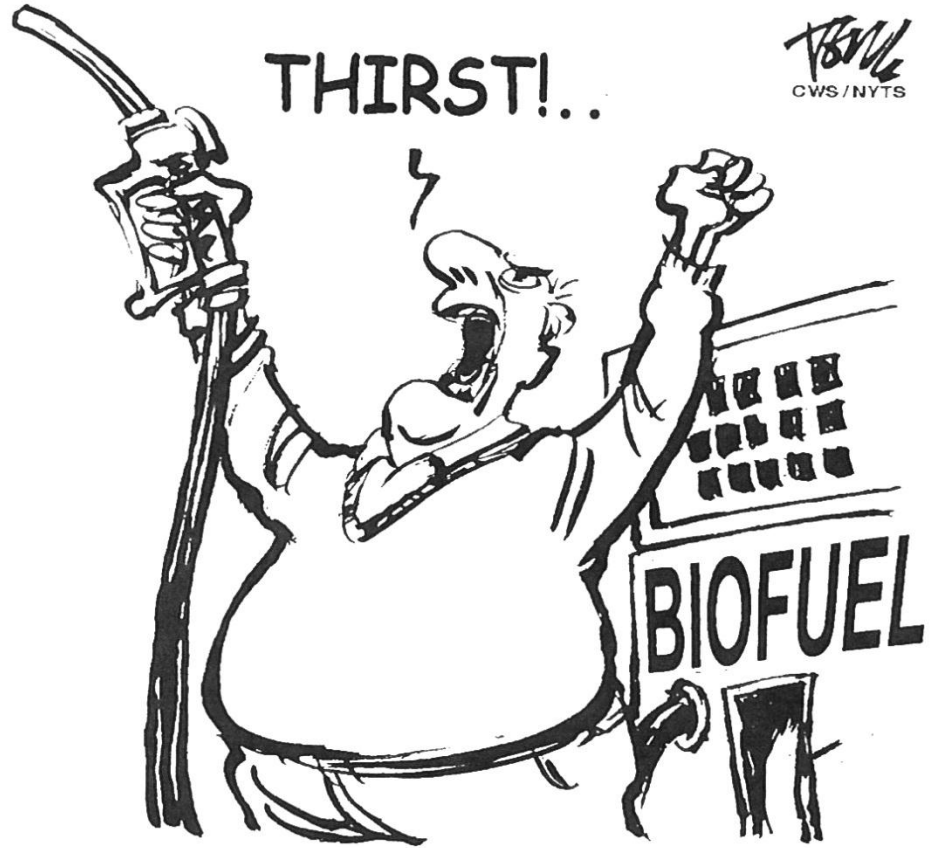
SUGARCANE AREA AND ANNUAL DEFORESTATION RATE IN THE "LEGAL AMAZON"



SUGARCANE AGROECOLOGICAL ZONING IN BRAZIL

1. Excludes sugarcane production in the most sensitive biomes, e.g. Amazonia and Pantanal.
2. Excludes any type of native vegetation for sugarcane expansion, e.g. Cerrados, Campos.
3. Available area for sugarcane expansion: 64.7 m hectares, or 7.5% of the Brazilian territory. Currently 1% is used for sugarcane.



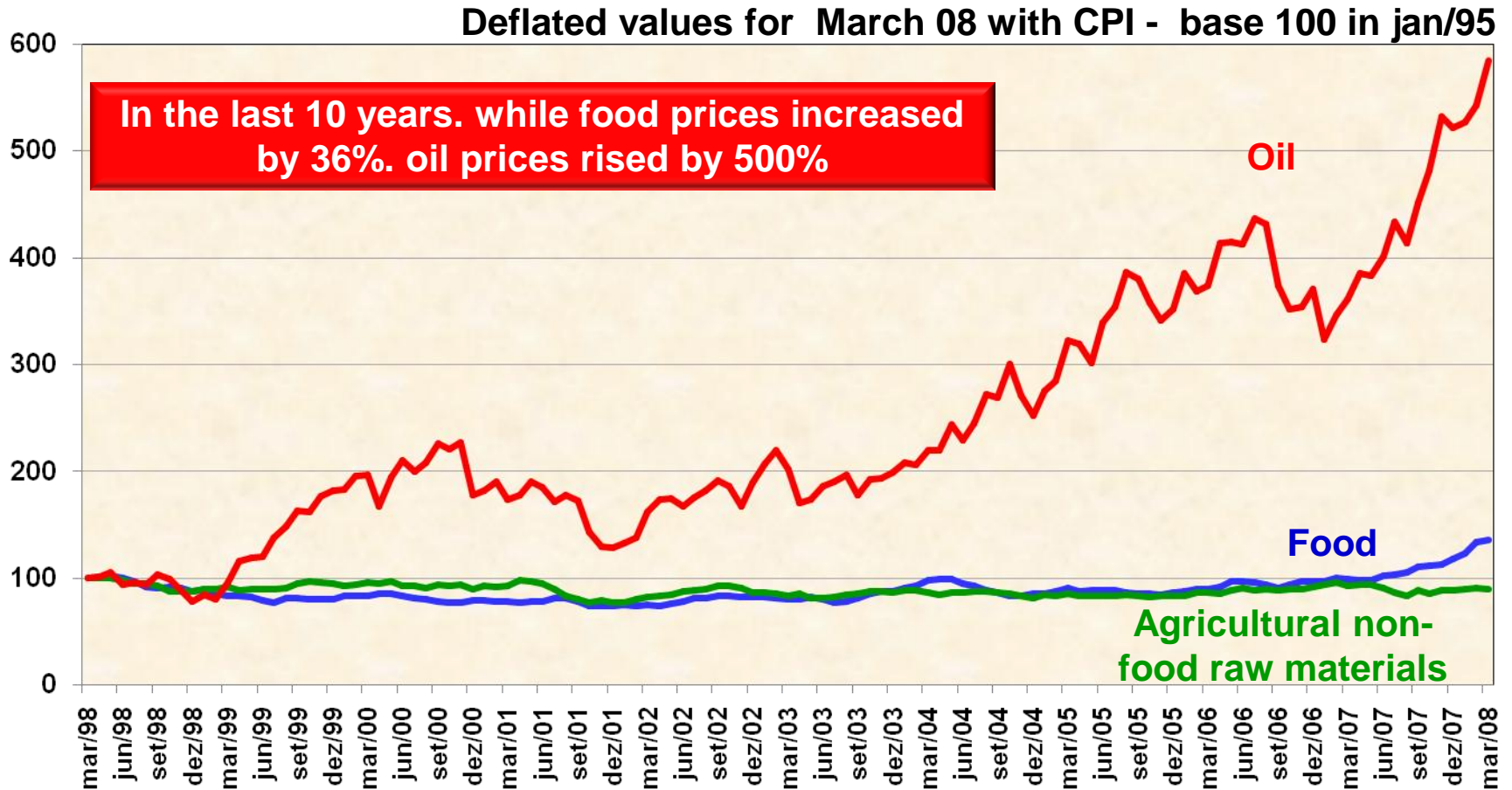


THE FALLACIOUS DILEMMA OF FOOD VS. BIOFUEL

Criticism regarding the impact of biofuel production on food prices are not based on **scientific arguments** and lead to deceptive conclusions, that:

1. Do not distinguish between the different feedstock used to produce ethanol.
2. Ignore the new challenge of the XXI century: global warming and how to mitigate its effects.
3. Ignore the impact of higher oil prices on food prices.
4. Do not include the effect of financial speculation on commodity prices.
5. Do not consider the impact of the rapidly increasing demand for food from emerging economies (India and China).
6. Disregard adverse climatic conditions in several agricultural producing countries.
7. Underestimate technological improvements.
8. Ignore the benefits that biofuel production provide for developing countries (generation of clean and renewable electricity, reduced oil imports bills, diversification of producer's income, export opportunities, and job creation in rural areas).

EVOLUTION OF OIL AND AGRICULTURAL COMMODITIES PRICES



Note: "Agricultural non-food raw materials" include cotton, wood, wool, timber, and leather.
 Sources: FMI (2007) and US Bureau of Labor Statistics (2007). Elaboration: UNICA .

International cooperation needed
to overcome food security
challenges

International Cooperation I

- Recent OECD and FAO studies coincide in that there should be a 60% increase in world food production by 2050 to feed 9 billion people. This figure reaches 100% in developing countries.
- Brazil has been doing her home-work:
 - . The real price of the Brazilian food basket declined from an index of 100 to 51.
 - . Agricultural production increased 10 times more than arable land use.
 - . Sustainable agricultural practices favor low carbon agriculture, which fosters a carbon credit market, lower interest rates to stimulate carbon sequestration, the reduction of green house gas emissions and of soil degradation, and the integration of crop, livestock and forest systems.
- Much more is needed from the international community.

International Cooperation II

- Access to markets.
 - . Oftener than not, tariffs for agricultural products are 3 times higher than industrial goods, which end up with higher prices to the consumers.
 - . Trade protection is also implemented through distortions like subsidies, not to mention a huge amount of non-tariff barriers, such as sanitary and phytosanitary measures, animal welfare standards, etc.
- Sustainable expansion of arable land use.
 - . Feasibility studies to identify the most adaptable crops to local conditions, so that traditional land (savanah, grassland) can be used for agricultural production.
 - . Partnership, not aid.