New Challenges for Agriculture

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Content

- *Brazilian agriculture.*

- *New challenges for agriculture.*

- *Characteristics of future agriculture.*

- *Effects on production system´s management.*

- *Cattle production systems distribution (World & Brazilian).*

- *Practical results of the use of technology in Brazil.*

Brazilian Agriculture

Brazil's annual agricultural production (million tons)

Grains	145
Meats	25
Fruits	41

Contribution of Agriculture

28% GDP

37% Labour

42% Exports

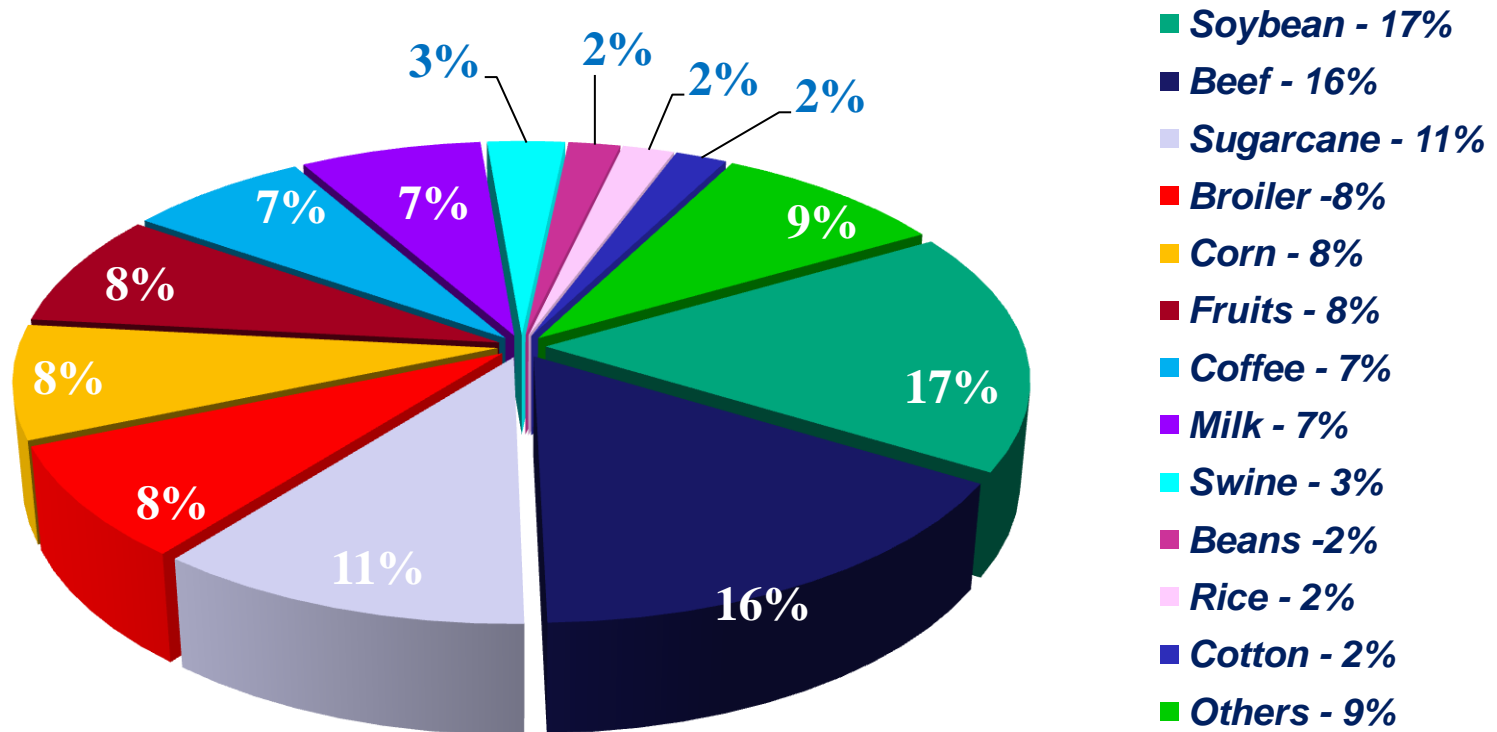**Brazil**

» *3rd largest world exporter: US$ 76 billion (2010)*

» *Largest world exporter of beef, coffee, sugar, orange juice, ethanol and poultry in 2010*

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Brazilian Agriculture
Gross Production Value – 187 billion in 2011

- Soybean - 17%
- Beef - 16%
- Sugarcane - 11%
- Broiler -8%
- Corn - 8%
- Fruits - 8%
- Coffee - 7%
- Milk - 7%
- Swine - 3%
- Beans -2%
- Rice - 2%
- Cotton - 2%
- Others - 9%

Source: MAPA-Ministry of Agriculture and CNA-Brazilian Confederation of Agriculture, 2011

Brazilian Agriculture

Contribution of Family Farming

» *Farming area: 106.8 million hectares*

» *12 million producers (1/3 of them are women)*

» *24% of agricultural area*

» *84% of land owners in Brazil*

» *Cassava.......* *87%*

» *Milk..............* *58%*

» *Beans............* *70%*

» *Beef.........* *30%*

» *Poultry.....50%*

» *Corn........ 46%*

» *Pork...... 59%*

» *Rice........ 34%*

Source: Ministry of Agrarian Development

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Brazilian Agriculture

Food, fibers and energy production

|	Million (km^2)	%
Brazil Area	8,5	100
Preservation	4,6	54
Urban Area	0,2	2
Agriculture	2,7	31
Area to Expand	1,0	12

Presentation slides updated in October 2011.

New Agricultural Challenges

Sustainable increase in agricultural production for food, fiber, energy and several other purposes

The Agriculture should answer to the demands:
- *society, living the information wave*
- *consumers in transformation*

Knowledge/Information society

Agriculture

Innovation

Evolution of society
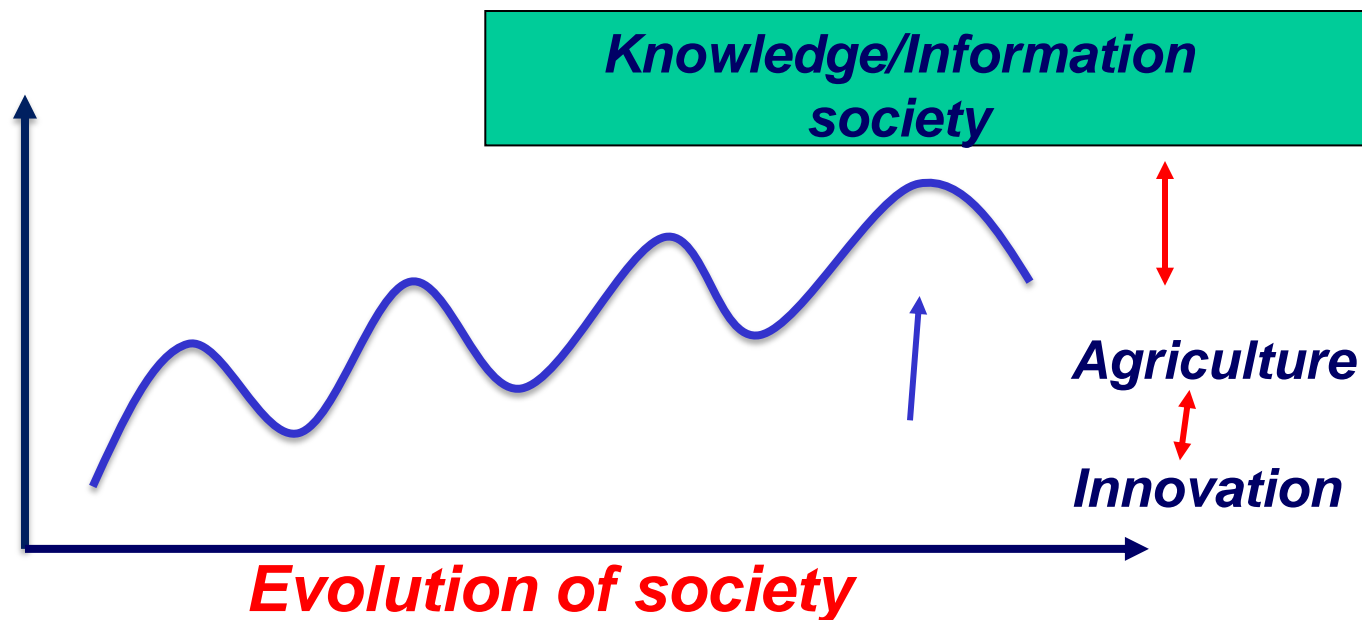
- **Well informed society demands:**
  - *agriculture with greater role*
  - *products with assured quality*
- **Consumer in transformation impose:**
  - *new vision of agriculture*
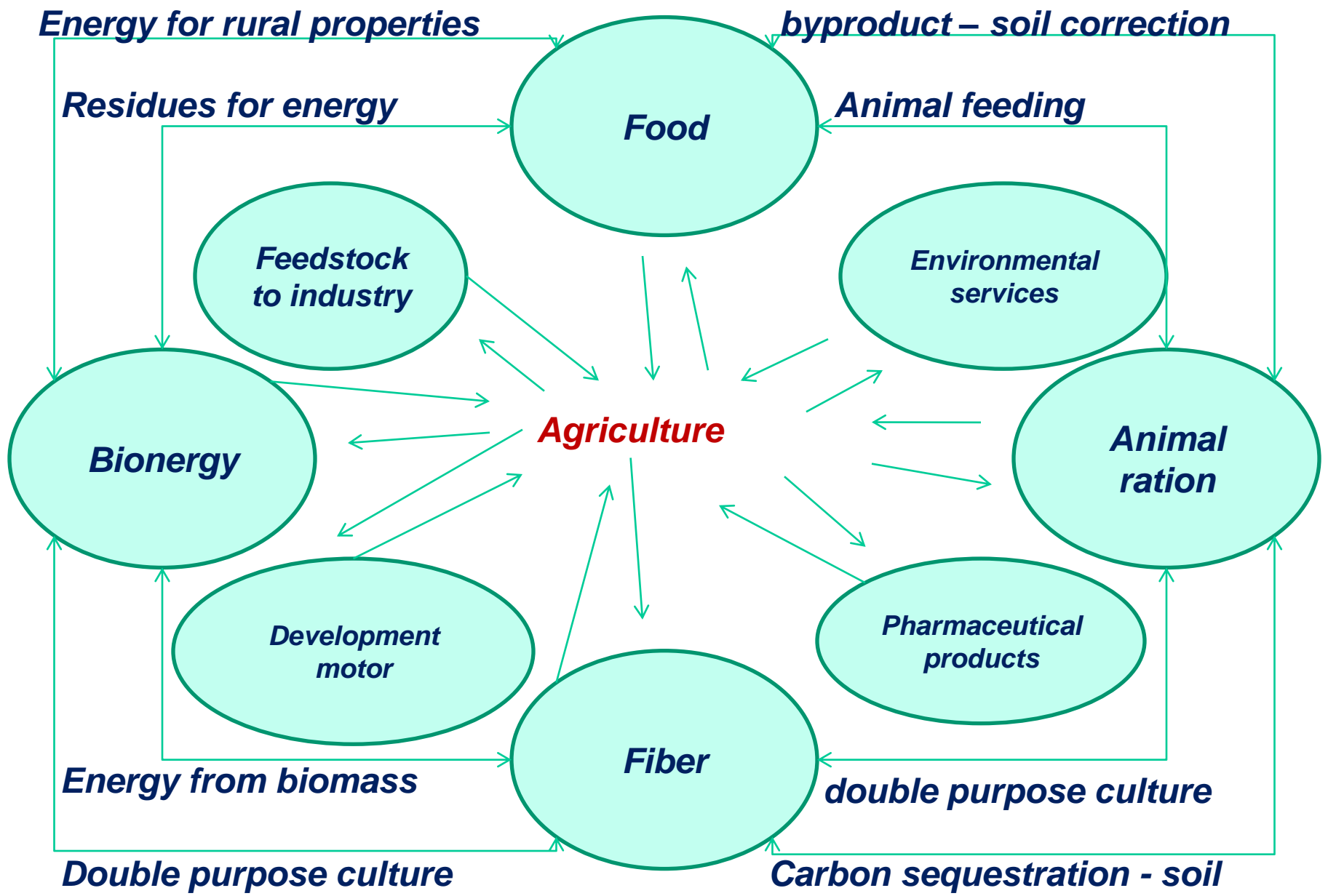
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Energy for rural properties · byproduct – soil correction

Residues for energy · Animal feeding

Food

Feedstock to industry

Environmental services

Agriculture

Bionergy

Animal ration

Development motor

Pharmaceutical products

Fiber

Energy from biomass · double purpose culture

Double purpose culture · Carbon sequestration - soil

Source: Lal, 2007

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General Characteristics of Agriculture – 2030/2050

- **Intensive in knowledge and technology.**

- **Integrated with sustainable supply chains.**

- **Aligned with the demands of the leaders of value chains.**

- **Integrated with social agriculture nets.**

- **Assured food security**
  - **safety and functional food.**

- **Contribute to the wellbeing of rural and urban population.**

General Characteristics of Agriculture – 2030/2050

- **Use efficiently the natural resources, including the genetics**
  - *contributing to conservation & improvement*

- **Based on technologies which assured:**
  - *mitigation*
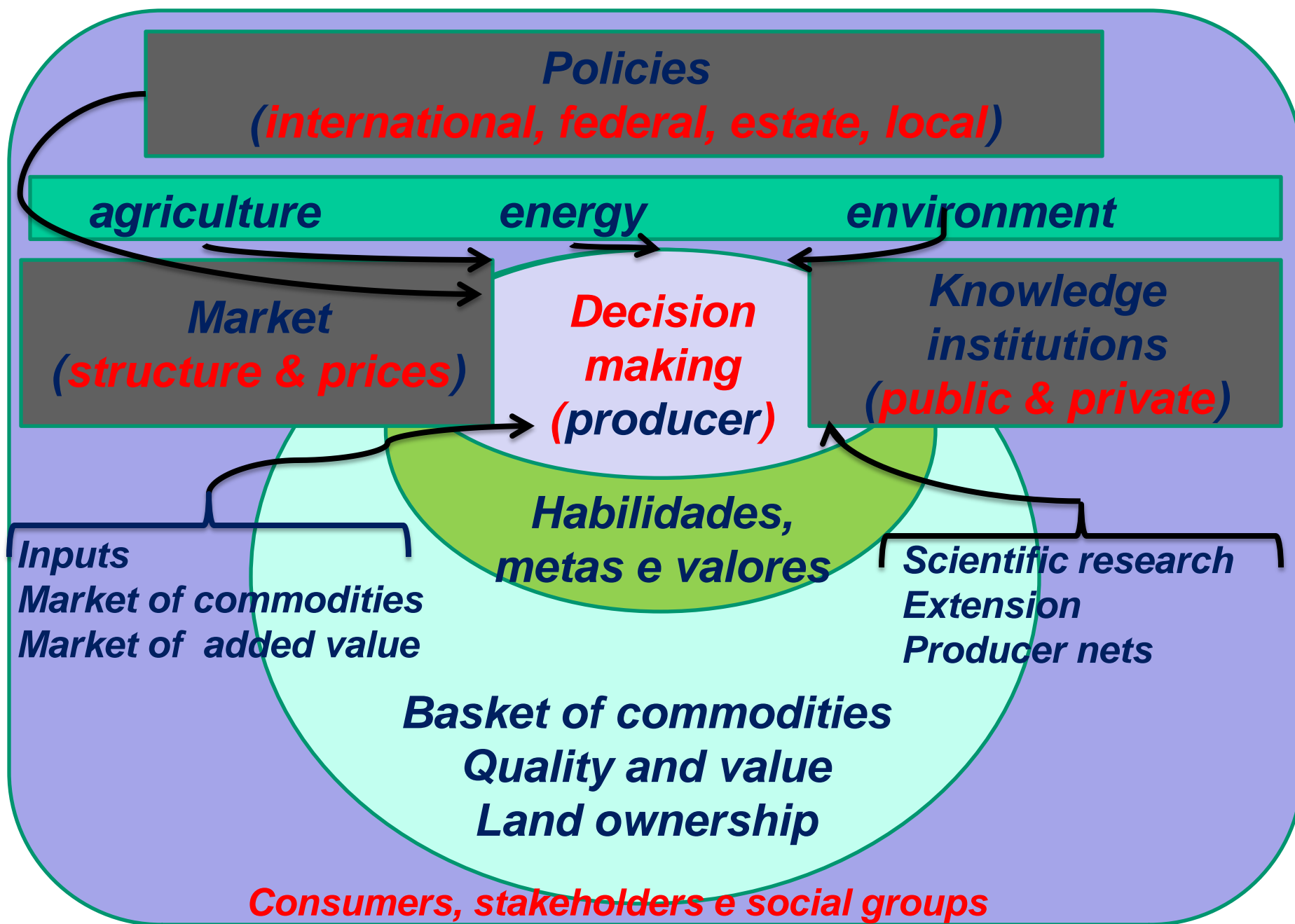 - *adaptation*

- **Based on local and regional characteristics.**

General Characteristics of Agriculture – 2030/2050

- *Provider of environmental services of quality.*

- *Contribute for improvement of income and quality of life of producers.*

- *Carried out with efficient management and for qualified.*

Will require private & public organized efforts
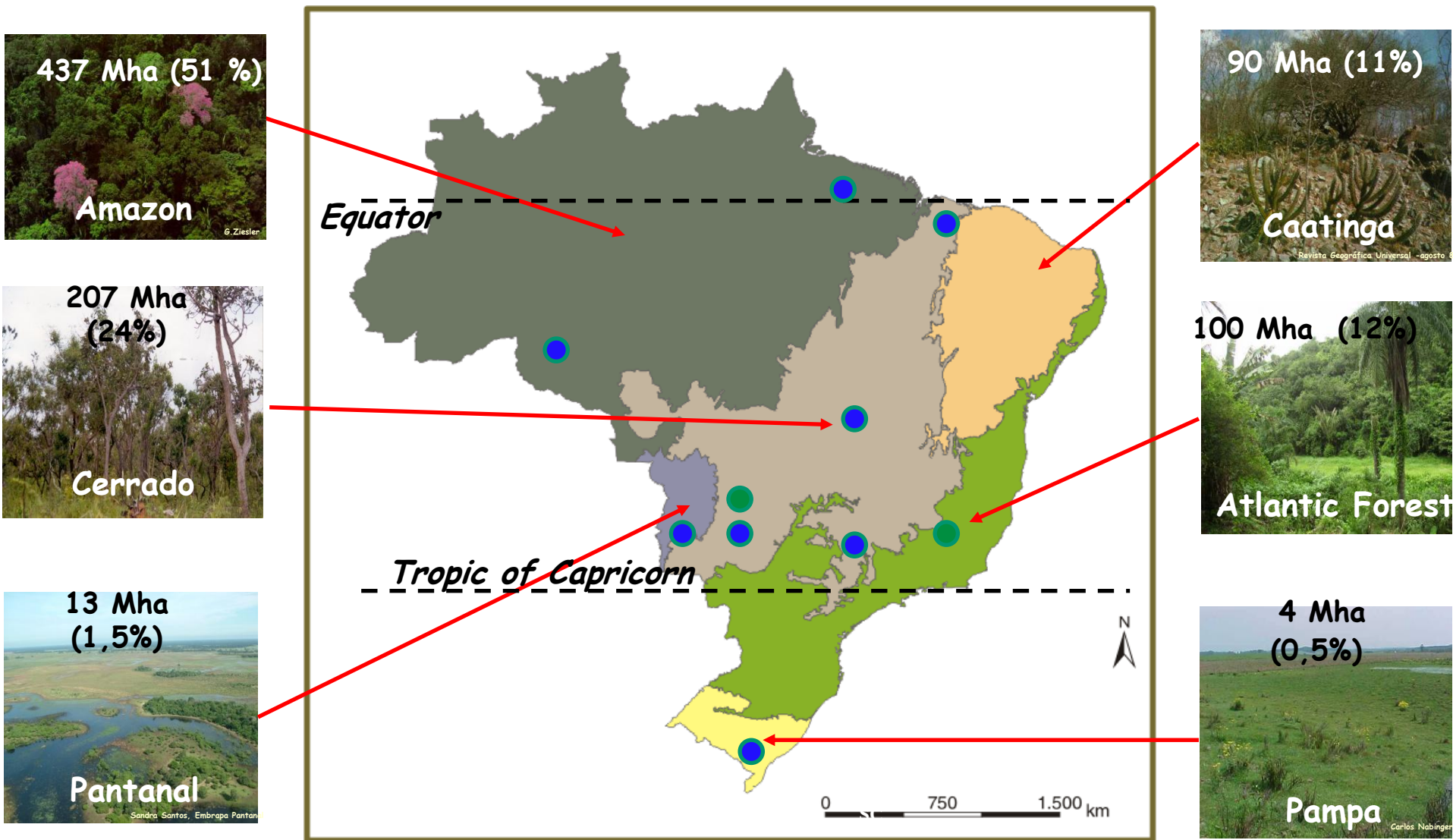
Effects on Production Systems Management

Policies
(international, federal, estate, local)

agriculture   energy   environment

Market
(structure & prices)

Decision
making
(producer)

Knowledge
institutions
(public & private)

Habilidades,
metas e valores

Inputs
Market of commodities
Market of added value

Scientific research
Extension
Producer nets

Basket of commodities
Quality and value
Land ownership

Consumers, stakeholders e social groups

Fonte: reganold et al., 2011

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Cattle Production Systems in Brazil & World

Beef Cattle Research in Brazilian Biomes

437 Mha (51 %)
Amazon

207 Mha (24%)
Cerrado

13 Mha (1,5%)
Pantanal

90 Mha (11%)
Caatinga

100 Mha (12%)
Atlantic Forest

4 Mha (0,5%)
Pampa

Equator

Tropic of Capricorn

0   750   1.500 km

Estimated Global Distribution of Cattle

Great percentage of tropical grazing area is under some degree of degradation, demanding:

- *recovery*
- *pasture renovation*
- *improve management*
- *intensification*

Solution portfolio:

- *knowledge and technology*
- *government policies*
- *efficient extension services*
- *adequate technology transfer strategies*
- *training/qualification*

Some General Actions launched for Brazilian Government related to area recovery: Embrapa & Brazilian Ministry of Agriculture, Livestock and Food Supply (MAPA)

- *Government policies*
  - *agriculture of low carbon emission - ABC*
  - *crop/livestock/forest integration systems*
  - *best practices for livestock*

Some General Actions launched for Brazilian Government related to area recovery: *Embrapa and MAPA*

- **Research Projects:**
  - **sustainable livestock:** pecus network
  - **environmental services in agricultural landscapes**
  - **crop/livestock/forest integrated systems**
  - **climatic risks zoning for   farming, bioenergy and pastures**

Some General Actions launched for Brazilian Government related to area recovery: *Embrapa and MAPA*

Research Projects:

- conserving the national genetic resources of Brazil
- measuring the environmental, social and economic impacts of beef industry
- animal and forage breeding programs
- biological fertilizer

ABC Program

Action	Total area (M ha)	GHG reduction M CO2-eq./y	Total cost (R$ billion)
No tilage	8	16-20	2,40
Biological N fixation	5,5	16-20	0,30
Recovery of degraded pastures	15	83-104	19,65
Integrated crop-livestock-forest systems	4	18-22	34,20

Practical results of the use of technology in Brazilian Cattle Production Systems

Factors of Growth in Beef Cattle Production (1950-2006)

Beef Production   (**3.36%**)

Pasture Area   **X**   **Animal Productivity**

(**~ 21%**)   (**~ 79%**)

Land-saving effect: 525 M ha

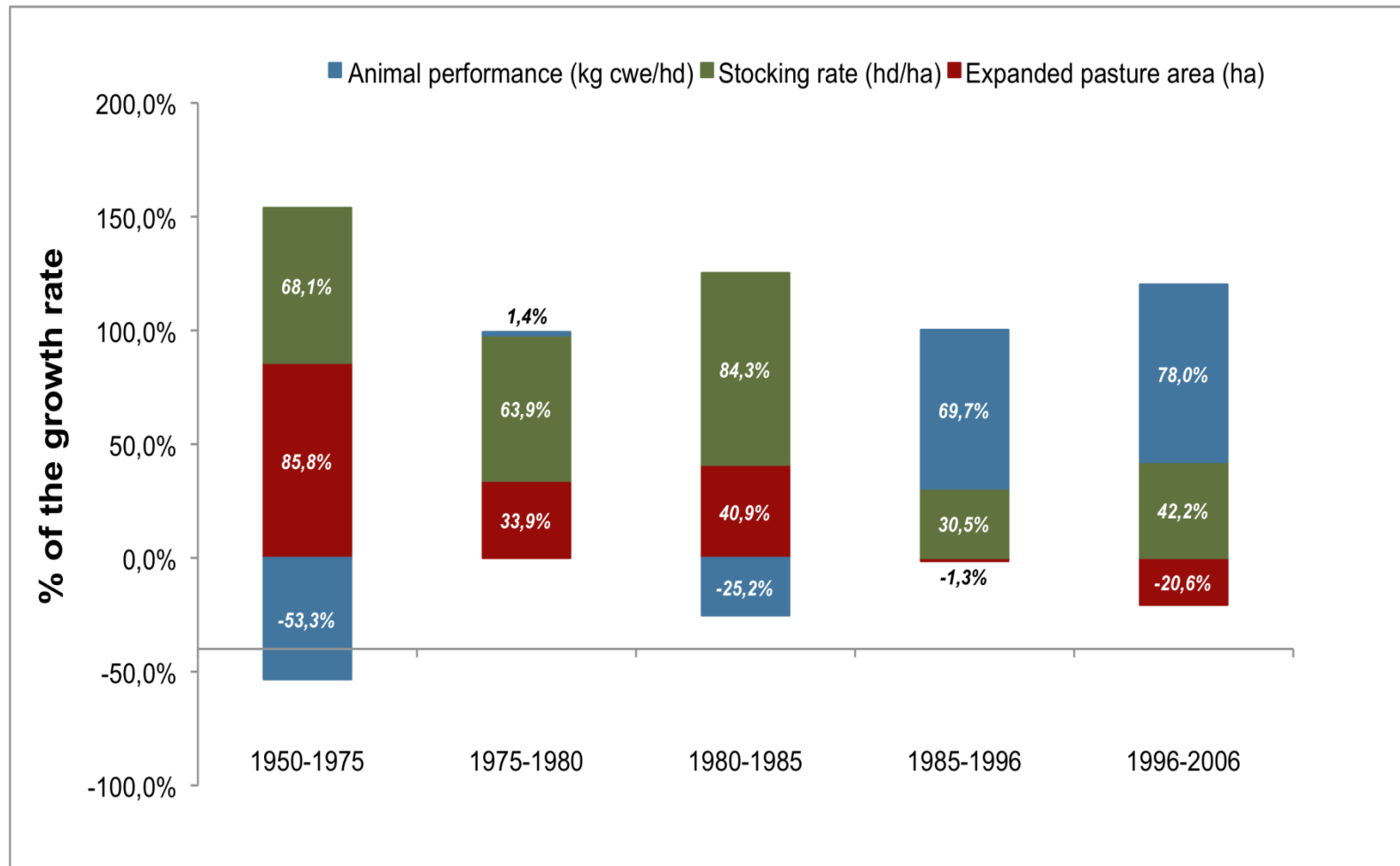**Animal performance**   **X**   **Stocking rates**

(**~ 38%**)   (**~ 62%**)

Martha, Jr. et al. (Agricultural Systems, 2012).

Factors of Growth in Brazilian Beef Production

Martha, Jr. et al. (Agricultural Systems, 2012).

New Challenges for Agriculture

Thank you

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