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Doing Agribusiness in Brazil

PwC Agribusiness Research & Knowledge Center



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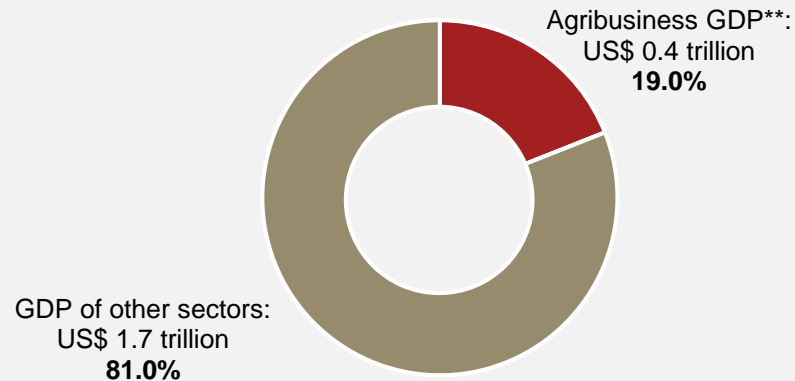
Key numbers of Brazilian Agribusiness

1

Key numbers of Brazilian agribusiness

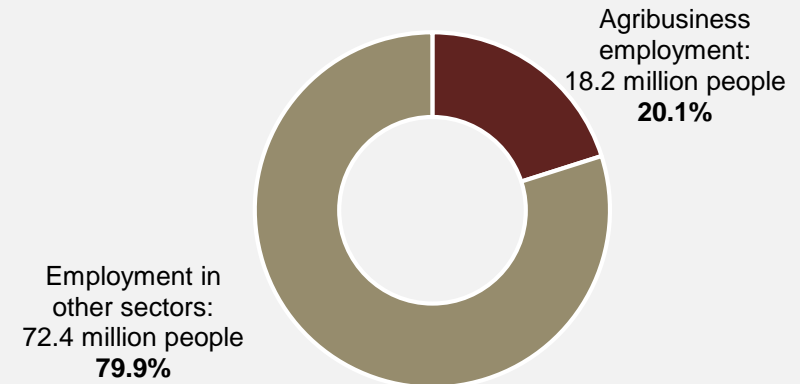
The importance of agribusiness in the Brazilian economy

Brazil's Gross Domestic Product (GDP) vs. agribusiness GDP*
Brazil's GDP in 2017: US\$ 2.1 trillion*



- *In 2017, the economic sector with the strongest growth was Agriculture***.*
- Overall Brazilian GDP increased by 1.0% compared to 2016, whilst the Agriculture sector GDP*** registered growth of 13.0%, driven mainly by soybean production.

Brazil's employment vs. agribusiness employment
Brazil's employment: 90.6 million people



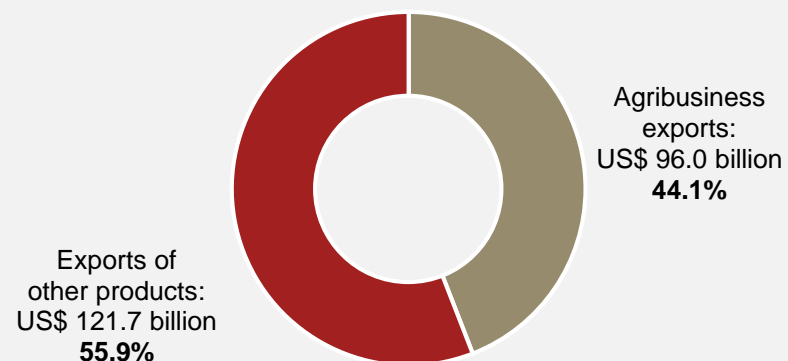
- * Average of exchange rate in 2017: US\$ 1 = R\$ 3.19
- ** Estimate.
- *** Agribusiness GDP is composed by three segments: inputs, agricultural and livestock production and processing mills and other services, such as distribution. Agriculture GDP considers just agricultural and livestock production.

Source: Cepea, CNA and IBGE (2018). Adapted by PwC Agribusiness Research & Knowledge Center.

Key numbers of Brazilian agribusiness

The importance of agribusiness in the Brazilian economy

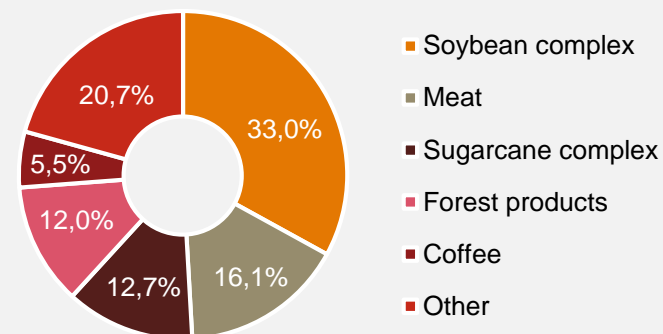
Brazil's exports vs. agribusiness exports
Brazil's exports in 2017: US\$ 217.7 billion*



- The Brazilian Agribusiness performance in exports has been ensuring the superavit of the trade balance over the years.
- Brazil is among the largest exporter of many agricultural products, such as soybean, coffee, sugar and orange juice.

* Average of exchange rate in 2017: US\$ 1 = R\$ 3.19

Main agricultural products exported by Brazil – 2017
Value



Main destination of Brazilian agribusiness exports - 2017

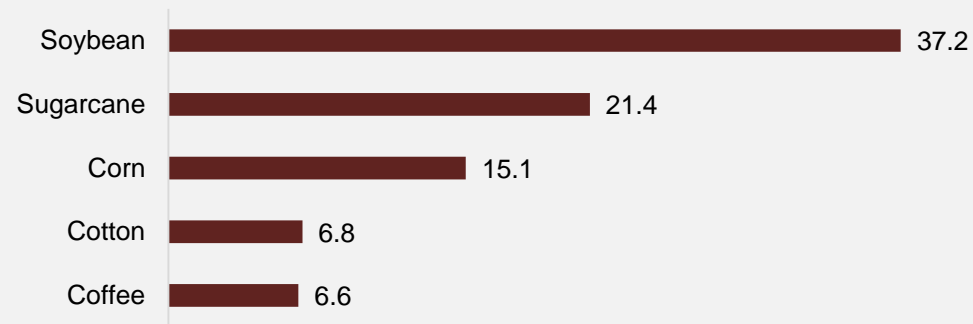
Ranking	Country	Value Billion US\$	Participation in total exported percentage
1 st	China	26.6	27.7
2 nd	European Union - 28	16.9	17.6
3 rd	United States of America	6.7	7.0
4 th	Japan	2.6	2.7
5 th	Hong Kong	2.5	2.6

Source: IBGE, Cepea, CNA, Mapa and MDIC (2017 e 2018). Adapted by PwC Agribusiness Research & Knowledge Center.

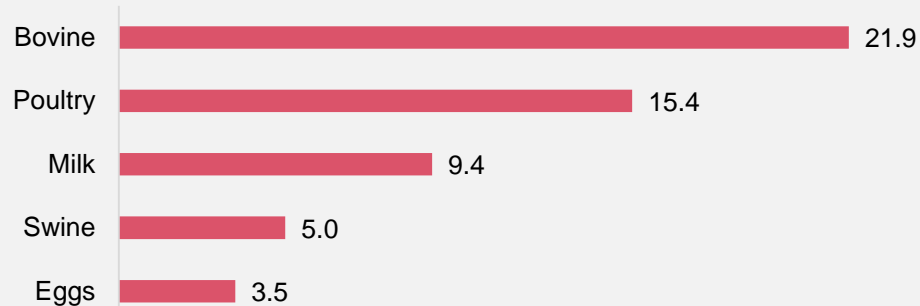
Key numbers of Brazilian agribusiness

The main agricultural products

Crops - Gross Production Value (GPV)* in 2017
Billion US\$**

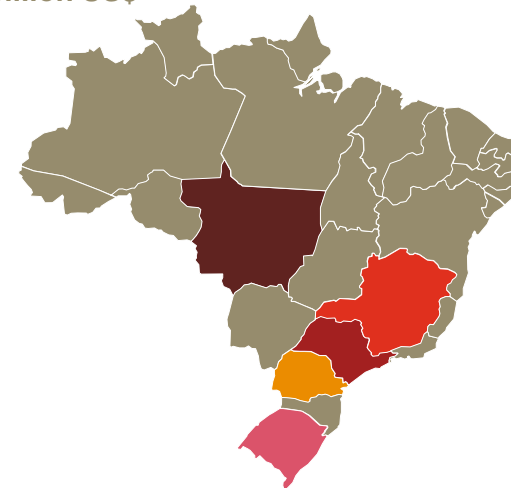


Livestock - Gross Production Value (GPV)* in 2017
Billion US\$**



Agribusiness GPV* in 2017 reached US\$ 169.4 billion. The soybean complex accounts for 22.0%, followed by beef, with 12.9%.**

States with highest agribusiness GPV in 2017
Billion US\$**



São Paulo
US\$ 22.6*

Mato Grosso
US\$ 21.9*

Paraná
US\$ 20.4*

Rio Grande do Sul
US\$ 17.5*

Minas Gerais
US\$ 17.0*

* Agribusiness Gross Production Value (GPV): it is calculated based on production and prices received by farmers of 26 products, which are the most important in Brazilian agribusiness. Inflation is discounted.

** Average of exchange rate in 2017: US\$ 1 =R\$ 3.19

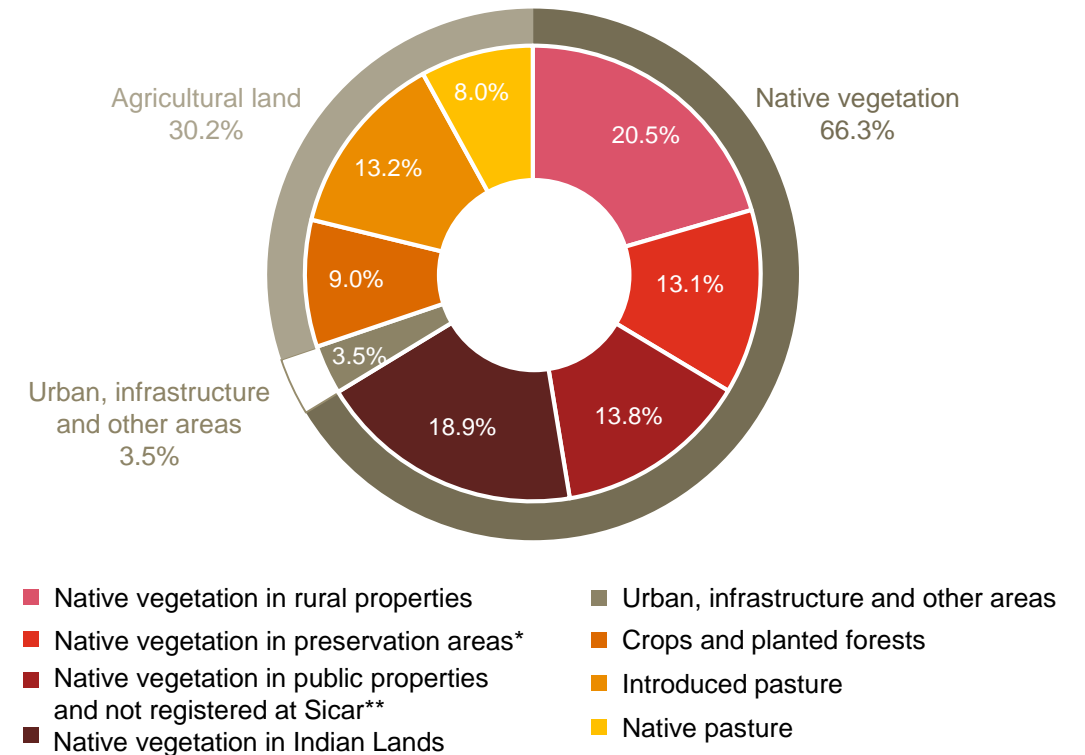
Source: Mapa (2018). Adapted by PwC Agribusiness Research & Knowledge Center.

Key numbers of Brazilian agribusiness

Land use

- From **8.5 million km² (850 million ha)** of total area, Brazil uses around **30% of its territory in agricultural and livestock production**.
- **Agricultural production** (pastures and forests are not included) accounts for **7.6%** of national territory, approximately **64 million ha**.
- According to Nasa, **most countries** use between **20% and 30%** of their land for agricultural production. In **Europe Union**, this number ranges between **45% and 65%**, **18.3% in the United States**, **17.7% in China**, and **60.5% in India**.
- Brazil is a benchmark in environmental resources preservation. Around **560 million ha of Brazilian territory is native vegetation**.

Source: CIA and GITE EMBRAPA (2017), IUCN (2016 and 2017) and World Bank (2017). Adapted by PwC Agribusiness Research & Knowledge Center.



* Preservation areas are bounded by the State and legally recognized as relevant environment resource.

** The National System for Rural Environmental Registration (Sicar) is an online platform in which landowners and land users are obliged to register themselves and provide information about the use of their lands.



Key agribusiness value chains

2

Key value chains

Brazil is a key player in many agribusiness value chains

Agriculture - Harvest 2016/17	Brazil's share of world production percentage	Brazil's share of world exports percentage
Soybean	2 nd 32.5	1 st 42.9
Corn	3 rd 9.2	2 nd 21,9
Coffee	1 st 35.3	1 st 25.4
Sugar	1 st 22.8	1 st 48.3
Ethanol	2 nd 27.4	-
Orange juice	1 st 64.8	1 st 77.6
Meat - Year 2016	Brazil's share of world production percentage	Brazil's share of world exports percentage
Beef	2 nd 15.4	2 nd 18.0
Poultry	2 nd 14.5	1 st 36.4

1st 2nd 3rd Brazil's position in world rankings

Source: USDA, OCDE and RFA (2017). Adapted by PwC Agribusiness Research & Knowledge Center.

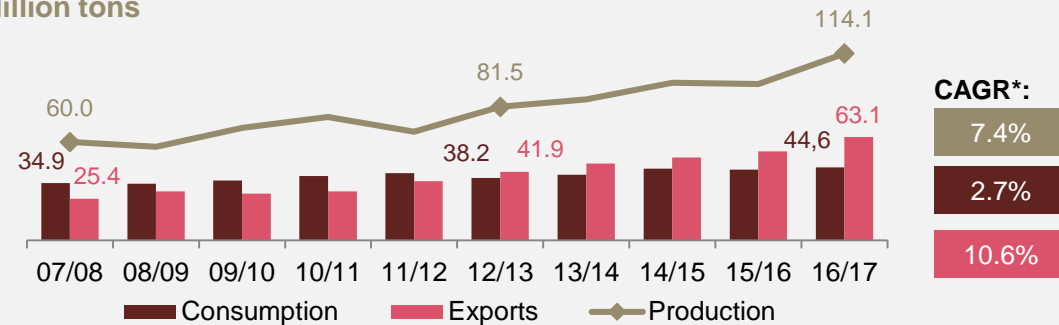


Key value chains

Soybean overview

Evolution of soybean production, consumption and exports in Brazil

Million tons



*Compound Annual Growth Rate

Evolution of soybean planted area and yield

Harvest	Planted area Million ha	Yield Ton/ha
07/08	21.3	2.8
12/13	27.7	2.9
16/17	33.9	3.4

CAGR: 5.3% (Planted area)
 CAGR: 2.2% (Yield)

- Soybean is really important to Brazilian economy, especially for the trade balance. The **soybean complex** (soybean grain, oil and meal) is the **Brazilian most exported agricultural product**.
- The **evolution of the soybean production** has been driven by **the international market growth**. In 2016/17, 55.3% of production was exported, and 78.1% of this volume was sent to China.
- About **80% of Brazilian production** is concentrated in the **Midwest and South regions**. Mato Grosso and Paraná are the main producing states.

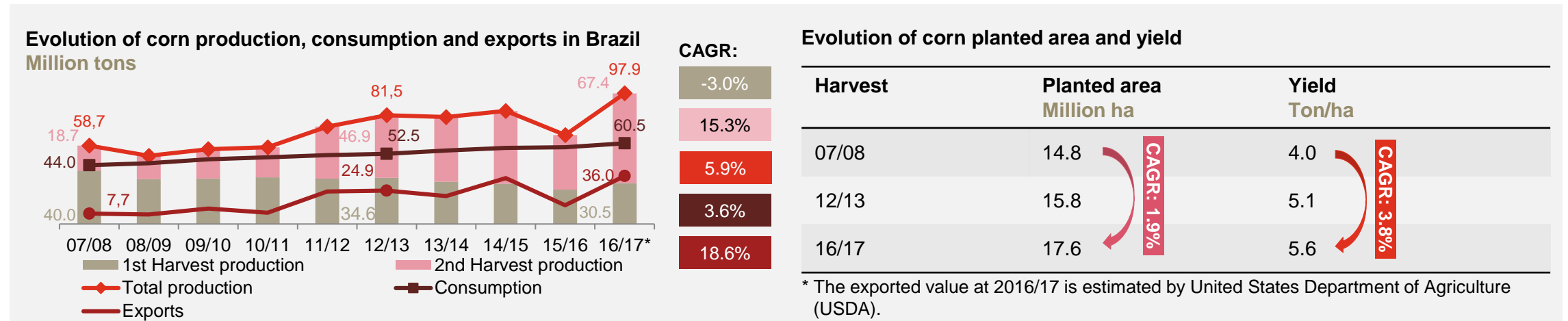
- The **rise in consumption** is linked to the **meat industry** growth and **oil demand**, especially for human consumption and biodiesel production.
- Soybean competes directly with **corn for area**. In the past years, the oilseed has presented higher profitability compared to the cereal. As a result, the soybean planted area has increased, occupying areas traditionally planted with corn.
- Brazilian soybean farmers have **access to technology** and **crop yields** are **high, comparable with those achieved in the USA**.

Source: CONAB, MDIC and USDA (2017). Adapted by PwC Agribusiness Research & Knowledge Center.



Key value chains

Corn overview



- There are **two corn harvests** during a year in Brazil. Brazilian farmers produce corn in a **crop rotation system**, mainly with **soybean**.
- **First harvest corn has decreased while the second harvest volumes has increased considerably**. In the first harvest, farmers have chosen to plant soybean, because of its better profitability. Therefore, corn production is concentrated in the second harvest, known as “**safrinha**”.
- The **increase in corn production** allowed the country to become the **second largest exporter** and meet high domestic demand, which is mainly driven by the animal feed sector.

- **Midwest** and **South** regions are the **largest producers** in Brazil, accounting for more than 75% of the total.
- In the Midwest region, the farms are larger, and corn production is concentrated in the second harvest. In the South region, the number of farms is much higher, but they are smaller, and the production is well distributed between first and second harvests.
- In the last 10 years, **corn yield increased** due to higher **technology adoption** and **better agricultural practices**. Nevertheless, yield in Brazil is still low, compared to the USA – the world’s largest producer – with 11.0 ton/ha in the last harvest, twofold of Brazilian yield.

Source: CONAB, MDIC and USDA (2017). Adapted by PwC Agribusiness Research & Knowledge Center.

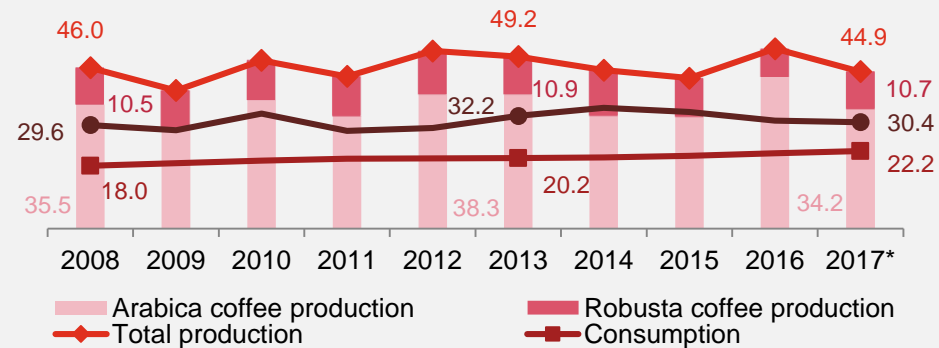


Key value chains

Coffee overview

Evolution of coffee production, consumption and exports in Brazil

Millions of 60 kg bags



Evolution of coffee yield and planted area

Harvest	Planted area Million ha**	Yield Ton/ha
08	2.4	21.2
13	2.3	24.4
17	2.2	24.1

CAGR: -1.0% (Planted area), 1.4% (Yield)

* Estimate

** Total planted area include fields in two different development stages: vegetative and productive.

- **Coffee total production and exports have been stable** over the last years.
- **The fluctuation in production** occurs due to the natural **biennial cycle** of coffee trees, with high production in the first year and lower production in the next year.
- The **main producing regions** are located in the **Southeast** region. **Minas Gerais state** concentrates the Arabica coffee production, and **Espírito Santo state** concentrates the Robusta coffee production.
- **Green coffee** accounts for approximately 90% of Brazilian coffee exports. The main destination of Brazilian exports is European Union.
- Drinking “cafezinho” (a small cup of coffee) is part of the **Brazilian culture**. However, **special coffees, coffee pods** and **coffee-based beverages** segments have been **growing** substantially, reinforcing a new market trend.
- Planted area has been decreasing, while yield has been increasing. Producers have adopted **new technologies**, such as irrigation and new varieties, to increase profitability and gain **competitive advantages**.

Source: CONAB, Euromonitor and USDA (2017). Adapted by PwC Agribusiness Research & Knowledge Center.

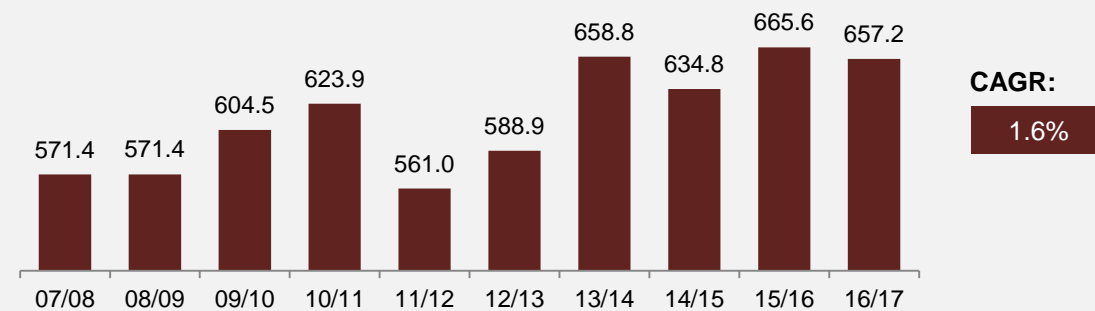


Key value chains

Sugarcane overview

Evolution of Brazilian sugarcane production

Million tons



Evolution of sugarcane yield and planted area

Harvest	Planted area Million ha	Yield Ton/ha
07/08	7.0	81.5
12/13	8.5	69.4
16/17	9.0	72.6

CAGR: 2.8% (Planted area)
CAGR: -1.3% (Yield)

- Brazil is a traditional sugarcane producer since the 16th century. Governmental incentives, such as the Brazilian Alcohol Program (PROÁLCOOL), allowed sugarcane to become the **third most relevant agricultural crop in Brazil in terms of Gross Production Value (GPV)**.
- Over the last years, **low international sugar prices, higher production costs and government intervention in gasoline prices** have boosted mills' indebtedness, reduced investments and led the industry to a **crisis**.
- The lower level of investments **has decreased the renewal rate of sugarcane fields**, resulting in aged fields with **lower yields**.
- The Center-South region responds **for 93.2% of Brazilian sugarcane production and 89.3% of planted area in 2016/17 harvest**. São Paulo is the main producer state of this commodity.

Source: CONAB (2017), Fundace (2014), Novacana and UDOP (2017). Adapted by PwC Agribusiness Research & Knowledge Center.

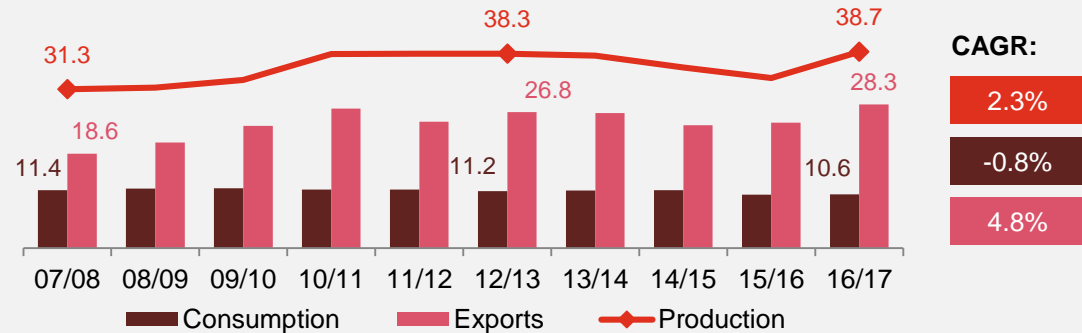


Key value chains

Sugar and ethanol

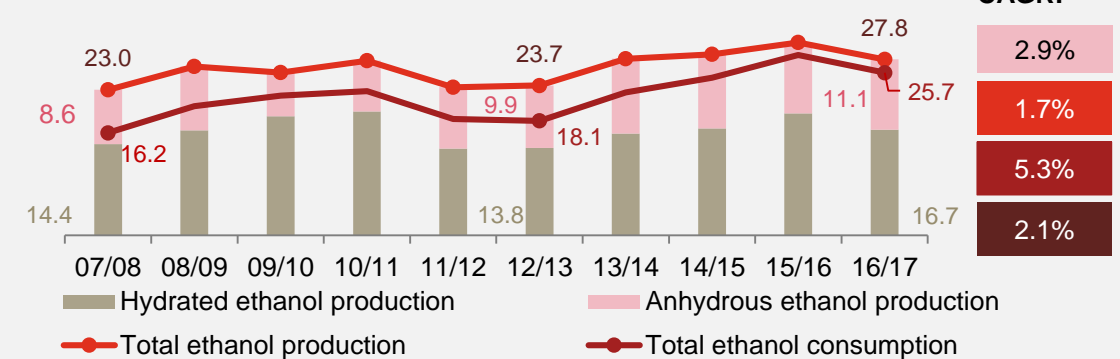
Evolution of sugar production, consumption and exports

Million tons



Evolution of ethanol production and consumption

Billion liters



- Brazil has about **360 sugarcane mills in operation**. Most of them produce both, **sugar and ethanol, simultaneously**. The **production mix** is directly **impacted** by the sugar and ethanol **prices**. The mills change their mix according to the profitability of these products.
- Oscillations in the **international sugar prices** and **government policies related to fuel prices** are the main factors that impact the decision making.

- On the one hand, Brazilian **sugar** is mainly destined to the **external market**. On the other hand, ethanol production is primarily for domestic consumption.
- Recently, Brazil has approved **RenovaBio**, a government programme to stimulate biofuel production and help the country meet its commitment under the Paris Agreement. With RenovaBio, **new investments are expected in the sugarcane industry until 2030**.

Source: ANP, CONAB and USDA (2018). Adapted by PwC Agribusiness Research & Knowledge Center.

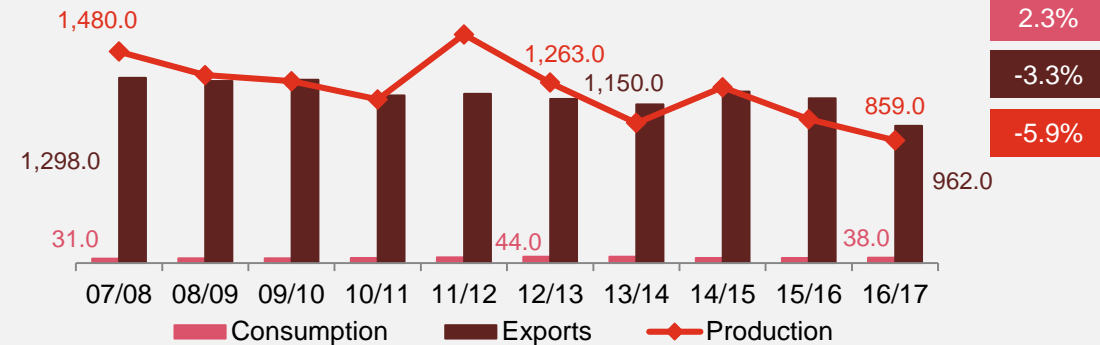


Key value chains

Orange

Evolution of orange juice production and consumption

Thousands of tons



Evolution of orange production, harvested area and yield

Harvest	Production Millions of boxes of 40.8 kg	Harvested area Thousands of ha	Yield boxes of 40.8 kg/ha
2008	454.4	836.6	543.1
2013	430.1	702.2	612.6
2017	457.5	629.8	726.5

CAGR: 0.1% (Production), -3.1% (Harvested area), 3.3% (Yield)

- **Orange juice** production in Brazil is mainly *destined* to the **external market**, especially to **European Union** and **USA**.
- **Brazilian orange processing industry** is well established and **controlled by few players** with huge infrastructure and global market share.
- **Production has declined** due to **slowdown in juice consumption** both in the domestic and international markets.

- **Competition with other beverages**, such as flavored waters, coconut water and isotonic drinks, is the **main reason for the slowdown** in orange juice consumption.
- **Severe diseases in orange field**, such as greening, citrus canker and citrus sudden death, represent a challenge for the sector.
- The increased costs with crop defense has driven total production cost up and, as a result, the sector has been facing a **discouraging scenario**, with many farmers exiting the **orange** business.

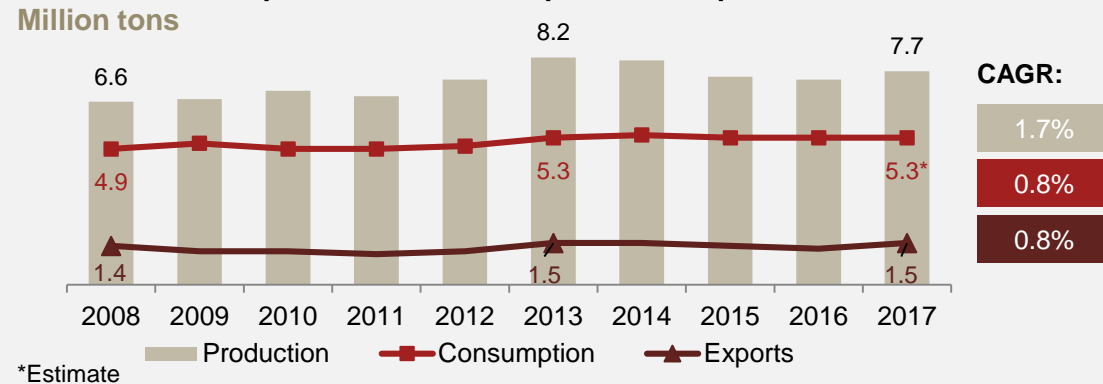
Source: Agrianual, CitrusBr (2017), Folha de S. Paulo (2016), Gazeta do Povo (2017), IBGE and USDA (2018). Adapted by PwC Agribusiness Research & Knowledge Center.



Key value chains

Beef overview

Evolution of beef production, consumption and exports in Brazil



Evolution of beef cattle herd and number of slaughtered animals

Year	Beef cattle herd Million heads	Number of slaughtered animals Million heads
2008	140.3	28.7
2013	165.0	34.4
2017	186.4	30.8

CAGR: 3.2% (Beef cattle herd)
 CAGR: 0.8% (Number of slaughtered animals)

- Beef cattle market is cyclical. In times of **low profitability in the sector**, the **breeders slaughter females** to increase income. The consequences are a decline in calves supply and, later, cattle herd reduction.
- **Low cattle supply increases prices** and encourages **breeders to raise** more females and **stop slaughtering**. As a consequence, the surplus increases and price decreases. A new cycle starts again, with female slaughtering.

- **Beef consumption** is highly **linked** to **population income growth**. The economic crisis, intensified after 2015, reduced Brazilians purchase power. This scenario, combined with cattle herd reduction, decreased domestic beef consumption in the past years.
- In 2017, the industry faced the **"Weak Flesh"** scandal, in which slaughterhouses were accused of paying inspectors to ignore meat safety procedures. However, the scandal involved less than 0.5% of the slaughterhouses. Many associations involved and government were quick to respond and restored credibility to the sector.

Source: Banco Mundial, Beefpoint, Gazeta do Povo, IBGE, OCDE, Scot Consultoria and USDA (2018). Adapted by PwC Agribusiness Research & Knowledge Center.

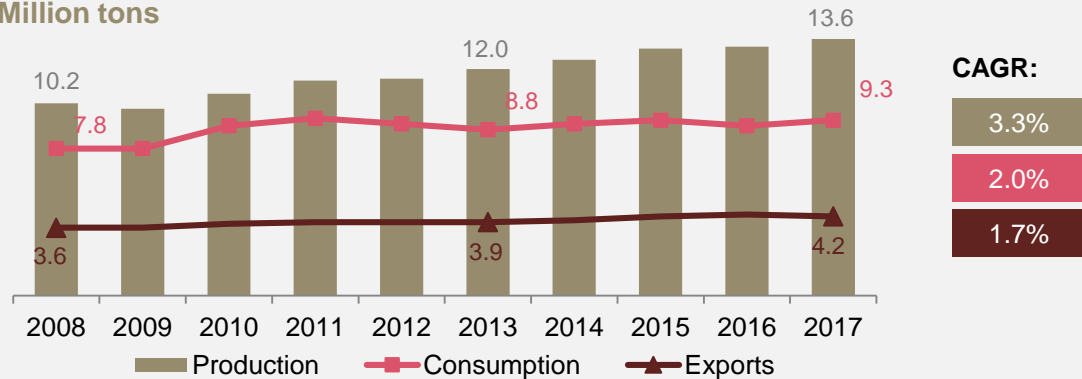


Key value chains

Poultry overview

Evolution of poultry production, consumption and exports in Brazil

Million tons



Evolution of beef cattle herd and number of slaughtered animals

Year	Poultry slaughtered Billion heads
2008	4.9
2013	5.4
2017	5.8

CAGR: 1.9%

- **Poultry production** is mainly *affected by production costs*, especially soybean and corn, which are the main ingredients to poultry feed.
- Brazilian consumer market is strong, and **poultry is the most consumed meat**, because it is one of the cheapest protein sources.
- The **integrated production system is highly developed** in the country. It is based on partnership agreements between slaughterhouses and farmers.
- The **slaughterhouses provide inputs and technical assistance to farmers**, who deliver their production at a prefixed price.

- This **model is essential for aviculture growth and modernization**.
- The **South is the main poultry producer region**, which also has significant corn and soybean production. Nevertheless, the large grain production in **Midwest region has been attracting meat companies**.
- In 2017, the industry was also affected by the **"Weak Flesh"** scandal. As a result, several countries temporarily closed their market to Brazilian poultry. In spite of this, in the following months, exports recovered and domestic consumption increased, pushing poultry production to better results in comparison to 2016.

Source: Gazeta do Povo, IBGE and USDA (2018). Adapted by PwC Agribusiness Research & Knowledge Center.



SWOT analysis

3

SWOT analysis

Strengths and Weaknesses

Strengths

- Agribusiness is responsible for **19% of GDP** and **44% of exports**, contributing to the trade balance surplus.
- **World leader** in the production and exports of several commodities: sugar, coffee, orange juice, poultry, soybean, corn and beef.
- Diversified agriculture (**high productivity**).
- Favorable production variables: **available land, water, soil, variety of biomes**.
- Agricultural production with **low level of subsidies**.
- Support of public and private internationally renowned **Research and Development (R&D) institutions**.
- **Solid legislation** guarantees right of property and intellectual property rights (trademarks and patents).
- Strong and world leading **multinationals** already operating in the country.

Weaknesses

- **Lack of long term strategic** plans for the sector.
- **Corruption and fraud** still present along several agribusiness value chains.
- Lack of bilateral and free trade agreements.
- Reliance on **imported inputs**, mainly fertilizers.
- Bureaucracy and inefficiency in the approval of new crop defense molecules and genetically modified organism (GMO) seeds.
- Low **storage capacity both private and government owned**.
- Inadequate **logistic and transport infrastructure** as a result of decades of limited investments and lack of long term planning.
- Critical shortage of **human capital**, boosting production costs.
- Complex and inefficient **tax and labour structure**.

SWOT analysis

Opportunities and Threats

Opportunities

- Until 2026, Brazil can add about **10 million ha** for agriculture and livestock expansion.
- The states of Maranhão, Piauí, Tocantins and Bahia (Mapitoba) emerge as the **last agricultural frontier land**.
- **New consumer market and trends:** product differentiation looking at health and wellness, convenience, value added and nutritional value.
- **Consolidation** of several agribusiness segments and **internationalization** of Brazilian companies.
- Increasing demand for **agriculture driven technologies:** digital agriculture, harvest mechanization, biological crop protection products, specialty fertilizers, irrigation, seeds varieties, precision agriculture and others, making production viable in areas previously non conducive to agriculture.
- **Privatization** of roads, ports and modal terminals.

Threats

- **Volatile exchange rate** in comparison to developed countries.
- **High interest rates** and lack of viable financing options driving farmers to high levels of debt.
- **Non-tariff barriers** in international trade.
- Restriction on **land purchases** by foreign entities.
- Increased **land and inputs' prices**.
- **Environmental movements** with strong political trend.
- Increased international and domestic requirements and **market standards**, raising production costs.
- Scandals such as “Weak Flesh” raising doubts about the quality and credibility of Brazilian products.
- Unpredictability of **governmental policies**.

Source: PwC Agribusiness Research & Knowledge Center.



PwC Brazil: Agribusiness

4

PwC Brazil: Agribusiness in focus

PwC Brazil Agribusiness Center of Excellence (CEA)

- PwC has been geographically present in the northwest region of São Paulo State for **more than 40 years**, with an agribusiness specialized office in Ribeirão Preto.
- In 2007, believing in the agribusiness potential, PwC expanded its activities in this industry, rebranding the Ribeirão Preto office as the **Agribusiness Center of Excellence (CEA)**.
- The PwC Brazil agribusiness team seeks to better understand the **main challenges** in the agribusiness sector, the particularities of each and every company and possible solutions. We also use our decades of multitasking knowledge to offer high quality services.
- We are able to work with **very diverse players of the agribusiness value chain**. Our main services include external audit, corporate advisory and consulting services related to tax and corporate structure. The solutions offered are adapted to the needs of each company, supporting our client's development process.



The Center of Excellence is responsible for disseminating agribusiness knowledge to other offices and countries.

PwC Brazil: Agribusiness in focus

PwC Brazil Agribusiness Center of Excellence (CEA)



- In 2017, in alignment with the strategy to expand to the Midwest and agricultural frontier regions, *PwC Brazil launched the Agribusiness Center of Excellence (CEA) in Cuiabá, Mato Grosso State.*
- Cuiabá is the *17th PwC office in Brazil* and an extension of the Ribeirão Preto office. Mato Grosso GDP growth rate is high, and the region is considered the heart of soybean and animal protein production in Brazil.
- *The CEA in Cuiabá is supported by a specialized team with an accumulated knowledge of over 40 years providing services to agribusiness clients.*

PwC Brazil: Agribusiness in focus

PwC Agribusiness Research & Knowledge Center (R&KC)

- In addition to professionals with extensive knowledge in corporate advisory, audit, tax and corporate structure, the CEA has a business *intelligence team, known as Agribusiness Research & Knowledge Center (R&KC), which provides competitive advantage to our business.*
- The R&KC team is composed by agronomists and economists, bringing technical knowledge to the business environment. The experts also are aligned with the *main trends and key aspects of the agribusiness industry.*
- Through market researches, trade analysis and business development, the area *supports our project* teams, bringing updated content required to better service our clients. Technical orientations and training in various agribusiness sectors are also offered by the R&KC.
- Our specialists have *expertise* in economy, market and competitive analysis, international trade, price and costs studies. The area also brings agronomic knowledge related to production, productivity and agricultural business models.



PwC Brazil: Agribusiness in focus

PwC Brazil Agribusiness produces and disseminates agribusiness knowledge in national and international media



PwC Brazil: Agribusiness in focus

PwC Brazil Agribusiness is a benchmark and a relationship promoter with other countries



*Agribusiness Center of Excellence

PwC Brazil: Agribusiness in focus

Our key people



Mauricio Moraes

Partner – Agribusiness Leader Brazil

Over than 20 years experience in audit services in Agribusiness clients and expertize in the sugarcane value chain.



Daniela Coco

Senior Manager, Knowledge Coordinator

15 years experience and expertise in the dairy value chain. Degree in Agronomy from ESALQ and Master Degree in Business Management from Massey University, New Zealand.



Raphael Garrone

Agribusiness Senior Analyst

4 years experience and expertise in the grain value chain. Degree in Agronomy and Master Degree in Biology in Agriculture from ESALQ.



João Gambardella

Agribusiness Analyst

4 years experience and expertise in the citrus value chain. Degree in Agronomy and Master Degree's student in Economics from ESALQ.

PwC Brazil: Agribusiness in focus

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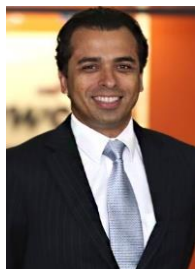
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PwC Brazil: Agribusiness in focus

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Thank you!

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