NUFFIELD INTERNATIONAL FARMING NETWORK BRAZIL

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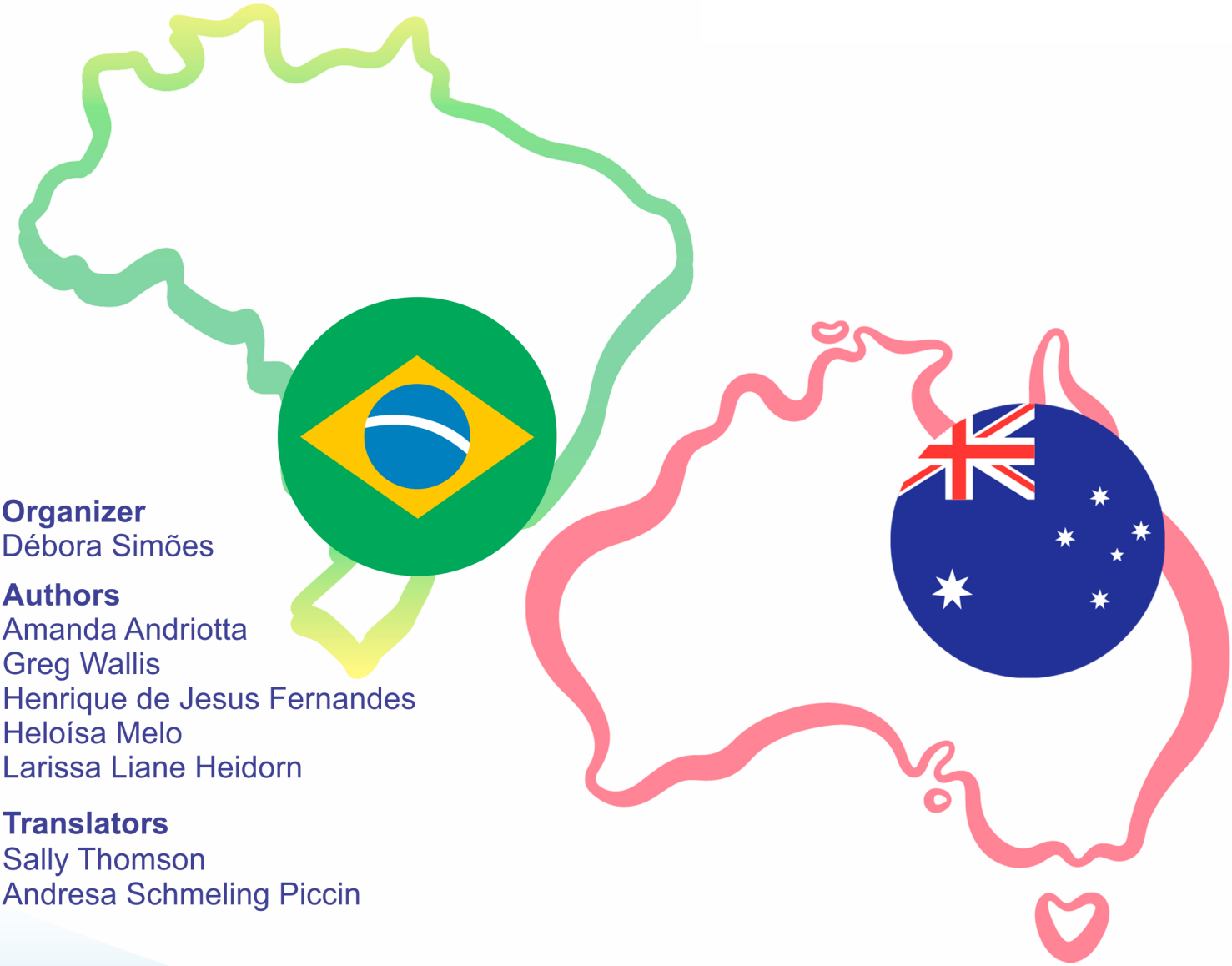

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BRAZIL – AUSTRALIA

EXPLORING OPPORTUNITIES IN THE AGRIBUSINESS SECTOR

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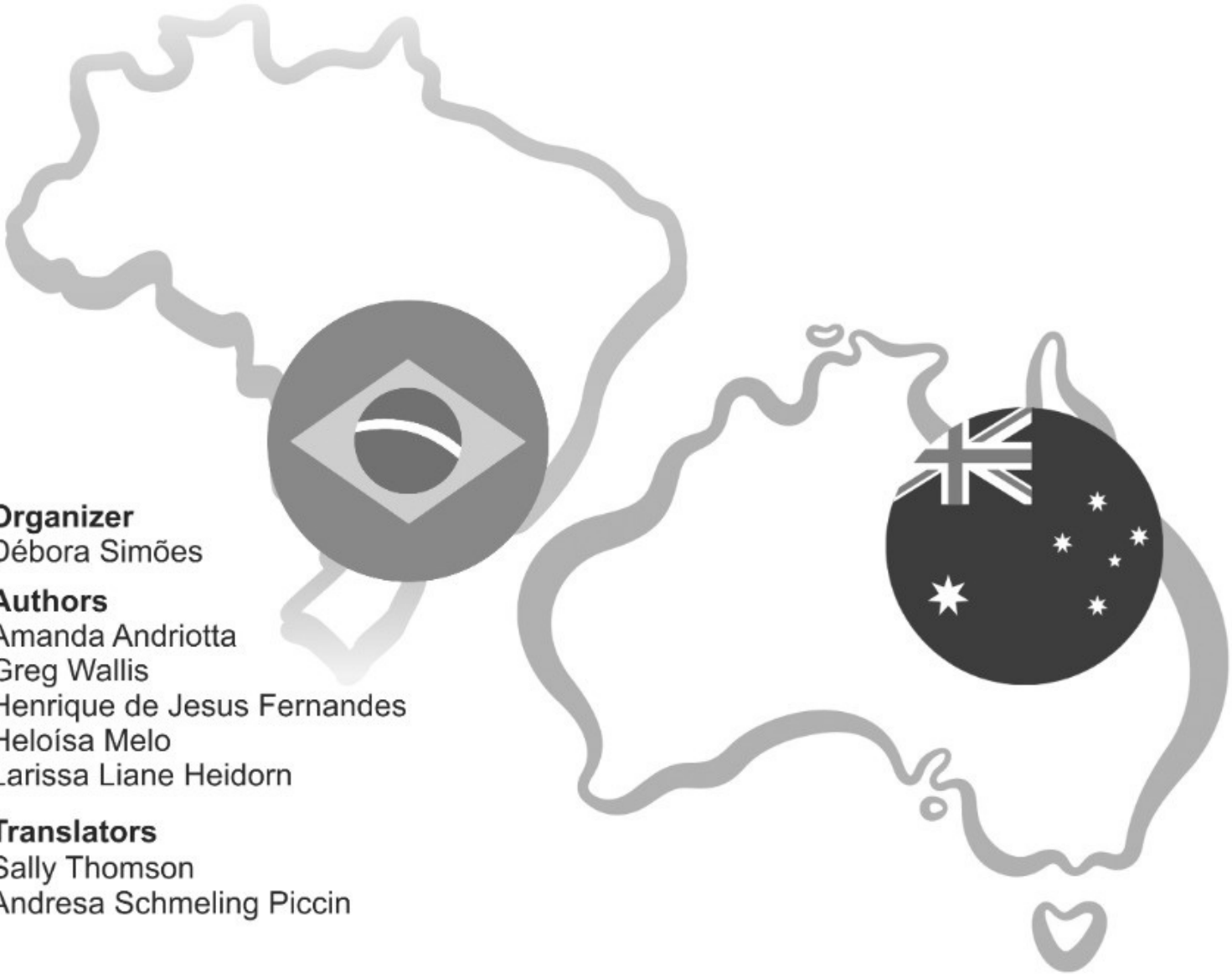

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BRAZIL – AUSTRALIA

EXPLORING OPPORTUNITIES IN THE AGRIBUSINESS SECTOR

Nuffield Brasil (NuffieldBR)
Council on Australia Latin America Relations (COALAR)

Brazil – Austrália: Exploring Opportunities in the Agribusiness Sector
(English Version. Original Version in Portuguese)

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CONTENT

PART 3: OPPORTUNITIES RELATING TO INNOVATION, P&D AND DIRECT INVESTMENTS

PREFACE

Débora Simões

"Brazil - Australia: Exploring Opportunities in the Agribusiness Sector" is the result of an initiative by Associação Nuffield Brasil (NuffieldBR) supported by the Commonwealth through the Council on Australia Latin America Relations, which is part of the Department of Foreign Affairs and Trade.

The main objective of this project is to provide an overview of selected opportunities and synergies between Brazil and Australia to strengthen commercial and cooperation relations in agribusiness. The content is organized into three main parts: (1) explain the current agricultural industries in Brazil and Australia; (2) identify some products with potential for increased trade between Brazil and Australia; and (3) discuss partnership possibilities relating to innovation, R&D and direct investments.

This study is not exhaustive, rather its purpose is to stimulate the curiosity of Brazilians and Australians and shorten the distance between the two countries. Reading this publication is an invitation to learn more about agriculture in Australia and Brazil and opportunities to do more together.

A curious fact about this publication is that, originally, it should have been a trip by a group of 15 to 20 Brazilians to Australia to learn firsthand Australia's agricultural industry, to encourage the sharing of experiences between Brazilians and Australians so that the participants might implement some of the opportunities perceived in their own business, or even to develop partnerships. However, the worldwide COVID-19 pandemic meant the trip was postponed until when it is safe and allowed to travel again.

The research and writing of some articles emerged as a way to learn a little more about Australian agribusiness as well as identifying synergies to foster potential trade and partnership opportunities in the search for innovative solutions for the agribusiness sector. Available in both English and Portuguese, this publication offers insight into Brazilian and Australian agribusiness and can reach people from other countries.

For this publication to become a reality in a short time, we had help and support of professionals, researchers and students who faced this journey together with the NuffieldBR team. Meetings were also held with people from different sectors to explore their views on the topics that are discussed in the following chapters. We would like to thank particularly Mr. Greg Wallis, General Consul of Australia and Senior Commissioner of the Australian Trade and Investment Commission (Austrade), and his entire team, who have provided significant support, time and information.

PART 1: THE AGRICULTURAL SECTOR IN BRAZIL AND AUSTRALIA

CHAPTER 1:

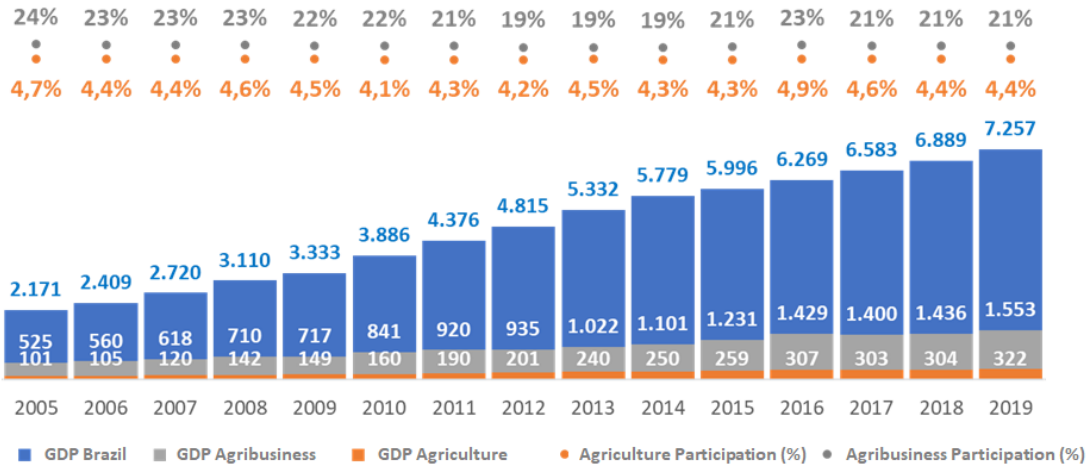
AN OVERVIEW OF BRAZIL'S AGRICULTURAL SECTOR

Amanda Andriotta, Débora Simões

1. Evolution and relevance of agribusiness for Brazil

Agribusiness is a significant and dynamic player in the Brazilian economy, contributing R$ 1.6 trillion[1] to the economy in 2019, which represents 21% of the country's Gross Domestic Product (GDP). The primary agricultural production component alone adds up to R$322 billion - 4.4% of the wealth generated in the country - with the remaining agribusiness GDP related to inputs, processing and services provided to the sector.

FIGURE 1. GDP GROWTH IN BRAZIL OVER TIME: TOTAL VALUE FROM AGRICULTURE AND FROM AGRIBUSINESS (R$ BILLION AT 2020 PRICES)



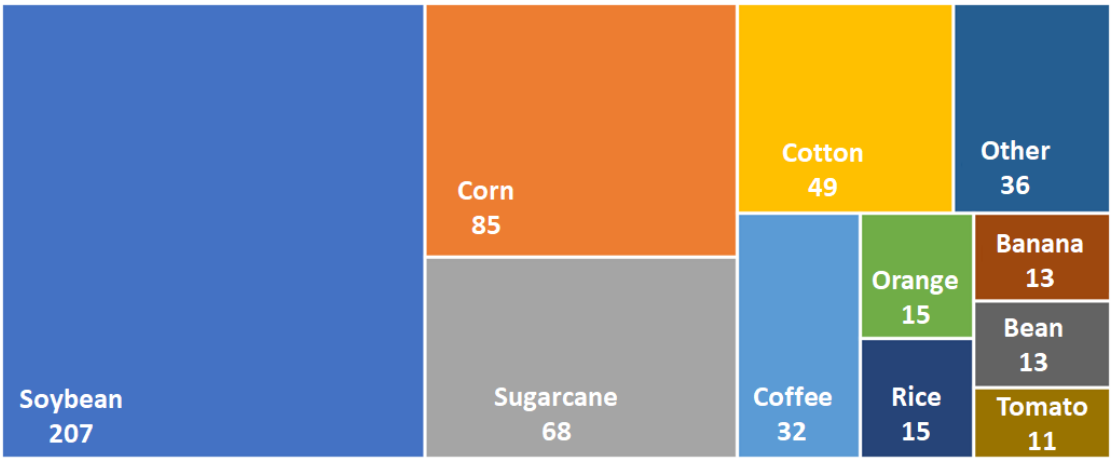
Source: IBGE, CEPEA.

Total primary Brazilian agricultural production, including both plant and animal origin activities, generates an estimated revenue of R$ 807 billion, as measured by the Gross Value of Production (GVP).

The plant sector represents 66% of the total GVP, adding up to R$ 543 billion. The five main crops produced by the country corresponds to R$ 441 billion, or 81% of the plant GVP. Within the cropping sector, soybeans generate R$ 207 billion (38%), followed by corn (16%), sugar cane (12%), cotton (9%) and coffee (6%).

[1] 1 R$ = 0,25 US$ = 0,36 A$ (2019 average).

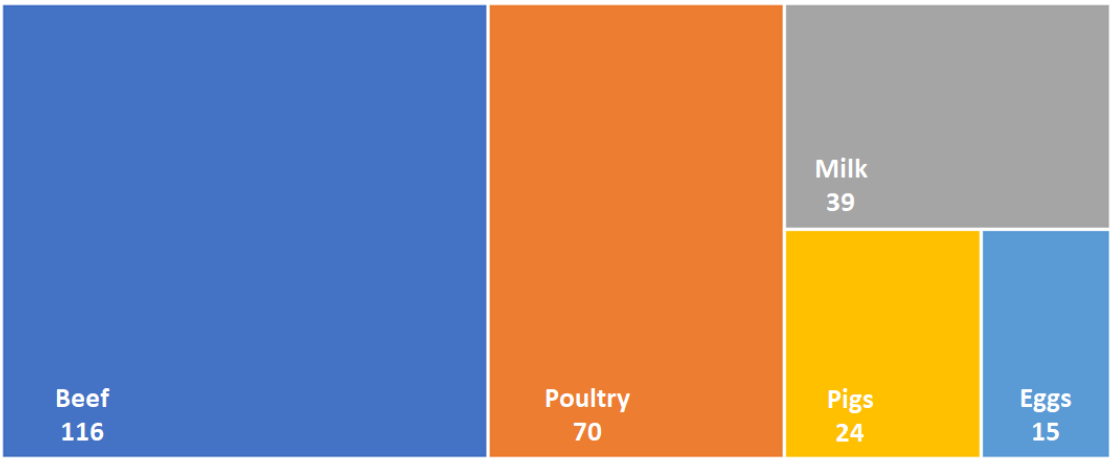
FIGURE 2. GROSS VALUE OF BRAZIL'S TOP PLANT PRODUCTION SECTORS (R$ BILLION) – 2020



Source: MAPA.

From the R$ 807 billion generated by primary agricultural production, R$ 264 billion (33%) is made from products of animal origin. Beef cattle are responsible for 44% of the revenue from livestock products, followed by chicken (27%), milk (15%), pigs (9%) and eggs (6%).

FIGURE 3. GROSS VALUE OF KEY SECTORS OF BRAZIL'S ANIMAL ORIGIN PRODUCTION (R$ BILLION) – 2020

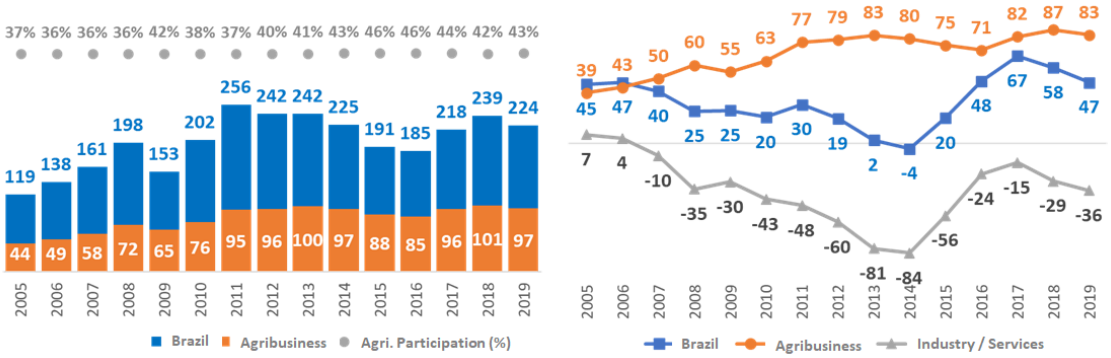


Source: MAPA.

The agricultural sector has consolidated as a strategic activity for the Brazilian economy, also positively impacting the country's trade indicators. Agribusiness exports in 2019 were US$ 97 billion, representing 43% of Brazilian exports. In addition, the agricultural sector is a major contributor to Brazil maintaining positive trade balance[2] over the years. In 2019, the trade balance of agribusiness represented US$ 83 billion, doubling its value in the last fifteen years, while the country's overall trade balance was US$ 47 billion, a similar level to what was observed in 2005.

[2]Trade balance = exports – imports.

FIGURE 4. EVOLUTION OF BRAZILIAN EXPORTS AND THE TRADE BALANCE: TOTAL AND AGRIBUSINESS (US$ BILLION)



Source: SECEX, MDIC, MAPA.

The performance of Brazilian agriculture has also enabled the country to emerge as a key player in the international agricultural landscape, notably in export commodity production. It is ranked number one in soybean and coffee production and export marketing of corn, sugar, cotton and beef, chicken and pork. In the case of soybean, the country is responsible for 37% of world production and 56% of total exports. Regarding the world corn market, despite having only 9% of production, Brazil is responsible for 20% of international shipments of the product.

FIGURE 5. RELEVANCE OF BRAZIL IN THE WORLD MARKET FOR SELECTED AGRICULTURAL PRODUCTS

Product	Indicator	Production	Export	Product	Indicator	Production	Export
Soybean (million ton)	World	337	165	Coffee (million bags 60 kg)	World	175	141
	Brazil	126	92		Brazil	65	41
	Ranking	1	1		Ranking	1	1
	Participation	37%	56%		Participation	37%	29%
Corn (million ton)	World	1.116	171	Meat, Beef and Veal (million ton)	World	61,6	10,9
	Brazil	102	34		Brazil	10,2	2,3
	Ranking	3	3		Ranking	2	1
	Participation	9%	20%		Participation	17%	21%
Sugar (million ton)	World	180	56	Chicken Meat (million ton)	World	99,3	11,8
	Brazil	30	20		Brazil	13,7	3,8
	Ranking	2	1		Ranking	3	1
	Participation	16%	35%		Participation	14%	32%
Cotton (million bales 480 lb)	World	122	41	Pig Meat (million ton)	World	102,0	9,3
	Brazil	13	9		Brazil	4,0	0,9
	Ranking	4	2		Ranking	4	4
	Participation	11%	22%		Participation	4%	9%

Source: USDA.

Brazil's positive agribusiness performance and consolidation can also be observed in the country's overall economic and commercial indicators.

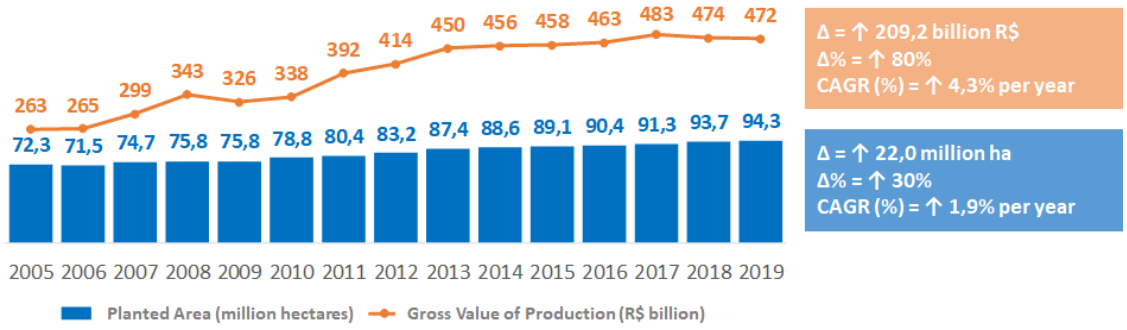
2. Growth and development in Brazilian cropping sector 2005 – 2019

Brazilian agriculture has grown significantly over the past years, with a particular increase in grain production. Between 2005 and 2019, the total planted area in Brazil grew at an average rate of two percent per year, while the planted area destined for grains[3] grew at a rate of two and a half percent per year. Over this same period, the total planted area increased from 72 million hectares to 94 million hectares. It is important to note that agricultural production has

[3] Cotton, peanuts, rice, oats, canola, rye, barley, beans, sunflower, castor, corn, soybeans, sorghum, wheat, triticale.

grown more sharply than the cultivated area. The gross value of agricultural production was R$ 472 billion in 2019, increasing on average about 4% per year. This indicates that the increase of area has had the same impact as the increased production per area.

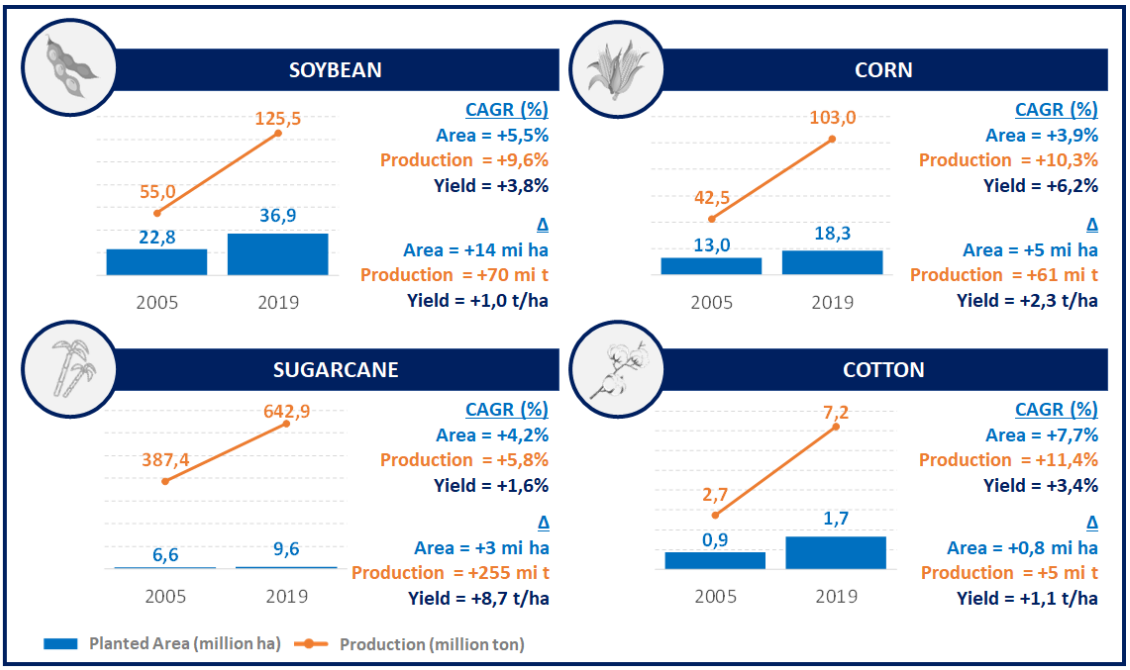
FIGURE 6. TOTAL CULTIVATED FARM AREA (MILLION HECTARES) AND GROSS VALUE OF PRODUCTION (R$ BILLION) IN BRAZIL



Source: Conab, MAPA.

Of the main crops, average soybean yields in Brazil increased 40% from 2.4 t/ha in 2005 to 3.4 t/ha in 2019. During the same period, corn yields increased 71% on average, going from 3.3 t/ha to 5.6 t/ha. Cotton yields increased grew by 26% on average, moving from 3.2 t/ha in 2005 to 4.3 t/ha in 2019, while sugar cane obtained a 15% average yield increase, from 58 tons per hectare to 67 t/ha (Figure 7).

FIGURE 7. AREA PLANTED AND YIELDS OF MAJOR CROPS PRODUCED IN BRAZIL[4]: SOYBEAN, CORN, SUGAR CANE AND COTTON



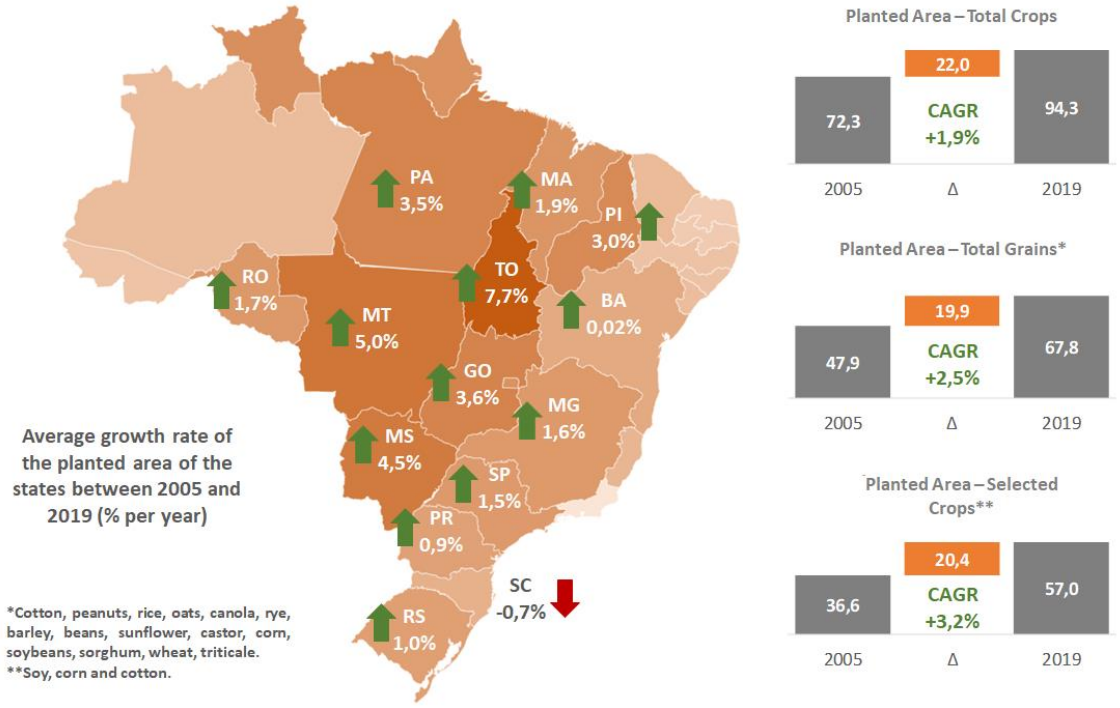
Source: Conab.

[4] Four main products of Brazilian agriculture in terms of gross production value.

Growth in Brazilian arable agriculture occurred in the existing key production states. The highest growth occurred in the middle of the country, notably the states of Mato Grosso, Mato Grosso do Sul and Goiás, with an average increase in planted areas of 5.0%, 4.5% and 3.6% per year respectively. It is also worth mentioning the agricultural frontier known as MAPITO (composed of the states of Maranhão, Piauí and Tocantins) which together show an average growth of 3.6% per year from 2005 to 2019. Other states including São Paulo, Minas Gerais, Bahia, Paraná and Rio Grande do Sul expanded more moderately, since cropping in these places is already consolidated (see Figure 8 and Table 1).

One important aspect of the increased areas of cropping that part of the increased areas being planted comes from double or triple cropping the same area in one season rather than expanding and cropping into new areas that were not previously being cropped.

FIGURE 8. CHANGE IN TOTAL PLANTED AREA IN BRAZIL BY STATE (%) AND NATIONALLY FOR THE MAIN CROPS OF BRAZILIAN AGRICULTURE (MILLION HECTARES)



Source: Conab.

TABLE 1. TOTAL PLANTED AREA IN BRAZIL BY STATE (MILLION HECTARES)

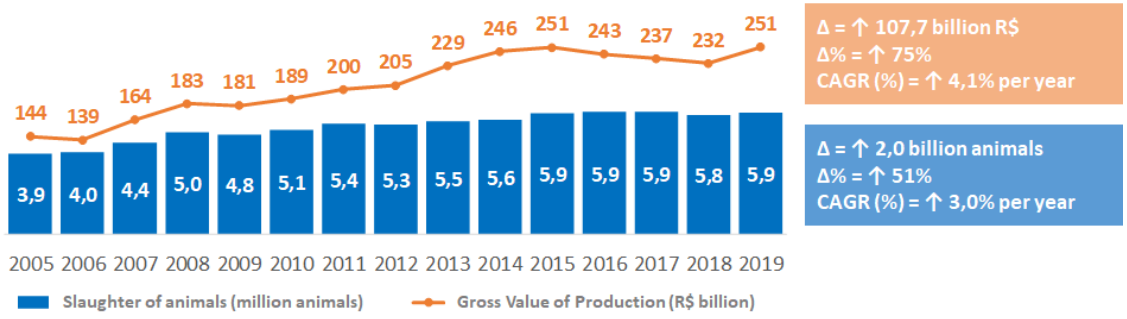
State	Abb.	2005	2010	2015	2016	2017	2018	2019	State Share (%) - 2019
Mato Grosso	MT	8,6	10,2	15,0	15,7	16,0	16,8	17,2	18%
Paraná	PR	10,8	11,4	12,3	12,2	11,8	12,3	12,2	13%
São Paulo	SP	8,7	10,1	10,6	10,6	10,7	10,7	10,7	11%
Rio Grande do Sul	RS	8,9	8,9	9,9	10,0	10,0	10,1	10,2	11%
Minas Gerais	MG	6,6	7,1	8,0	8,1	8,1	8,2	8,2	9%
Goiás	GO	4,6	5,6	7,0	7,1	7,1	7,4	7,5	8%
Mato Grosso do Su	MS	3,5	4,2	5,9	5,9	6,1	6,3	6,4	7%
Bahia	BA	5,4	5,6	5,3	5,0	5,3	5,4	5,4	6%
Pará	PA	1,4	1,3	1,8	2,0	2,2	2,2	2,3	2%
Maranhão	MA	1,7	2,0	1,8	2,0	2,2	2,2	2,2	2%
Santa Catarina	SC	2,4	2,3	2,2	2,3	2,2	2,2	2,2	2%
Piauí	PI	1,2	1,4	1,5	1,6	1,7	1,8	1,8	2%
Tocantins	TO	0,6	0,8	1,5	1,6	1,6	1,7	1,7	2%
Rondônia	RO	0,6	0,7	0,6	0,7	0,7	0,8	0,8	1%
Outros	-	7,3	7,2	5,5	5,5	5,6	5,6	5,5	6%
Brazil Total	-	**72,3**	**78,8**	**89,1**	**90,4**	**91,3**	**93,7**	**94,3**	**100%**

Source: Conab.

3. Growth and development in Brazil's livestock industry 2005-2019

Developments in livestock are analyzed by the number of animals slaughtered. From the period of 2005 to 2019, animal slaughter - including cattle, pigs and chicken – increased from some 4 billion head to 5.9 billion head, growing at an average rate of 3.0% per year. Another indicator is the change in gross value of livestock production, which went from a total of R$ 144 billion to R$ 251 billion in the same period, growing at a rate of 4.1% per year over the same period.

FIGURE 9. CHANGE IN NUMBER OF ANIMALS SLAUGHTERED (BILLIONS OF HEADS) OF CATTLE, PIGS AND CHICKENS AND GROSS VALUE OF LIVESTOCK PRODUCTION (R$ BILLION) IN BRAZIL FROM 2005 TO 2019

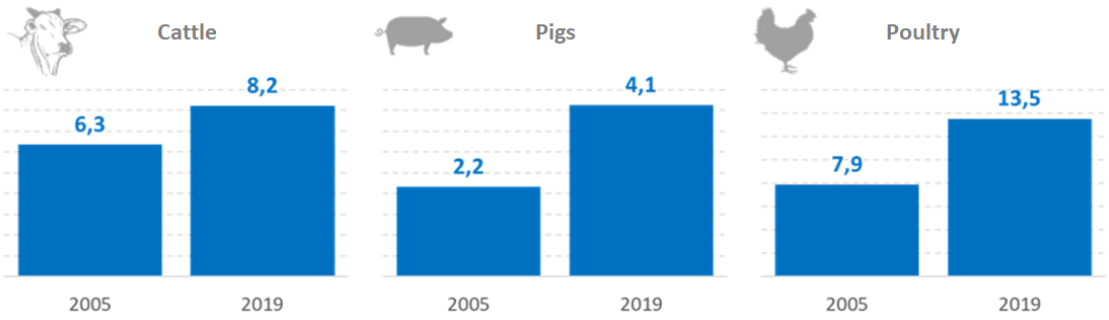


Source: MAPA, IBGE.

Over the period of 2005 to 2019, the pig industry experienced the highest increased in slaughter rates, seeing an additional 23 million head, or doubling of numbers, over this period. This equates to an average growth of 5.0% per year. The number of chicken and cattle slaughtered increased by 3.0% and 1.1% per year respectively, with an increase of 1.9 billion and 4.4 million head slaughtered for the period.

Focusing on Brazilian meat production volumes, beef production has grown at an average rate of 1.9% per year between 2005 and 2019, reaching 8.2 million tons in 2019. In the same period, the cattle herd grew by only 0.3% per year, from 207,2 million head to 214,900 million head. In the case of pigs, meat volumes produced grew at an average annual rate of 4.7%, doubling volumes in the period. Over the same period, the herd grew at an average annual rate of 1.3% per year, increasing from 34.1 million head to 40.6 million head. In the same period, chicken meat production also doubled in quantity, growing at an average rate of 3.9% per year, compared to an increase in the chicken herd increasing at an average rate of 2.8% per year, seeing a physical increase from from 999 million head to 1.5 billion head.

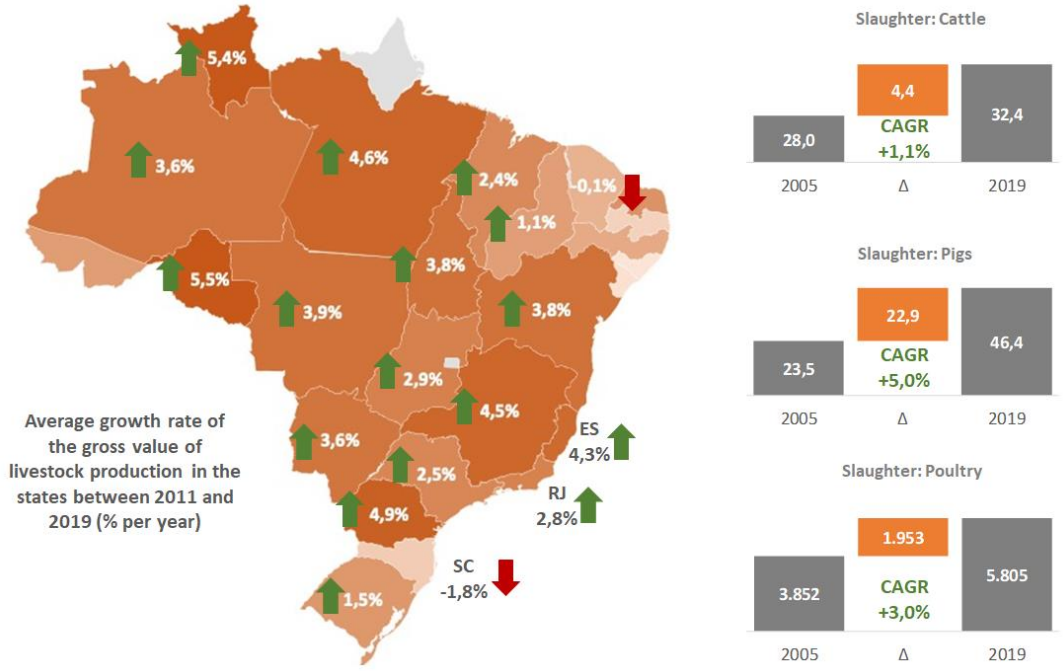
FIGURE 10. MEAT PRODUCTION IN TOTAL WEIGHT OF CARCASSES: CATTLE, PIGS AND CHICKENS (MILLIONS OF TONS)



Source: IBGE

The increased slaughter numbers are reflected in the increase of the gross value of livestock production. The main production states of Mato Grosso, Minas Gerais, São Paulo and Paraná have seen significant increases in the average production value generated of 3.9%, 4.5%, 2.5% and 4.9% per year, respectively. The highest growth rates, however, were observed in the states of Rondônia and Roraima, with an average growth of 5.5% and 5.4% per year in the period between 2011 and 2019. These are not significant states for livestock industry, representing together just 4% of the total value produced for livestock in Brazil (see Figure 11 and Table 2).

FIGURE 11. GROWTH OF THE GROSS VALUE OF LIVESTOCK PRODUCTION IN BRAZIL BY STATE (%) AND GROWTH IN THE NUMBER OF ANIMALS SLAUGHTERED (MILLION HEADS)



Source: MAPA, IBGE.

TABLE 2. GROSS VALUE OF LIVESTOCK PRODUCTION IN BRAZIL BY STATE[5] (R$ BILLION)

State	Abb.	2011	2015	2016	2017	2018	2019	State Share (%) - 2019
Paraná	PR	25,8	34,3	35,5	34,7	34,8	39,6	16%
São Paulo	SP	25,3	29,3	28,6	27,5	26,5	28,5	11%
Minas Gerais	MG	21,2	28,4	26,5	27,1	26,7	26,5	11%
Rio Grande do Sul	RS	21,3	25,5	24,1	23,5	24,4	24,0	10%
Mato Grosso	MT	18,1	21,2	20,3	19,6	20,2	23,1	9%
Goiás	GO	16,8	23,0	20,7	20,0	19,1	20,4	8%
Santa Catarina	SC	20,1	23,2	22,5	20,9	15,3	17,2	7%
Mato Grosso do Sul	MS	11,8	15,2	13,9	13,4	12,8	14,5	6%
Pará	PA	6,6	9,2	9,3	8,6	8,8	8,8	3%
Bahia	BA	5,1	6,2	5,9	5,8	6,0	6,5	3%
Tocantins	TO	2,9	3,7	3,2	2,8	3,0	3,5	1%
Espírito Santo	ES	2,4	3,6	3,7	3,2	3,2	3,2	1%
Maranhão	MA	2,0	2,9	2,5	2,2	2,1	2,2	1%
Ceará	CE	2,0	2,5	2,5	1,9	1,9	2,0	1%
Rio de Janeiro	RJ	1,4	2,0	1,7	1,9	1,7	1,8	1%
Acre	AC	1,2	1,3	1,4	1,2	1,2	1,1	0,4%
Amazonas	AM	0,7	0,9	0,9	0,9	0,9	0,9	0,4%
Piauí	PI	0,4	0,5	0,5	0,5	0,5	0,5	0,2%
Roraima	RR	0,2	0,1	0,2	0,2	0,2	0,3	0,1%
Outros	-	15,1	17,7	18,7	21,2	22,1	26,8	11%
Brazil Total	-	**200,3**	**250,8**	**242,5**	**237,3**	**231,6**	**251,3**	**100%**

Source: MAPA.

[5] Data begins in 2011.

4. Regional characteristics influencing Brazilian agriculture

Brazilian agriculture covers a very large area, meaning that agriculture has some distinctive regional differences. The Midwest is the area of greatest importance, since it represents R$ 270 billion of gross value of production, or 33% of total gross value of Brazilian agriculture. It includes the states of Mato Grosso, Mato Grosso do Sul and Goiás, which are characterized by high-adoption rates of operational technology including fertility analysis, varietal seed options and machinery. These three states are major grain producers, and 67% of the combined area planted is to soybean, corn and cotton.

Beef cattle is also a significant activity in the Midwest, ranking as the second highest contributing sector after grains, by gross value generated. Another key agricultural region with similar characteristics to the Midwest is the MATOPIBA[6] agricultural frontier, formed by the states of Maranhão, Tocantins, Piauí and Bahia. The region has significant growth potential, and the four states currently represent 9% of the total value produced by agriculture in Brazil, adding up to R$ 71 billion.

The South and Southeast regions of Brazil have similar technology adoption characteristics and each region represents 25% of the total gross value of the country's agricultural production. The Southeast region is more connected to production that requires processing, such as sugarcane and orange production, given that orange extraction plants, and sugar and ethanol plants are concentrated in this region. Sugar cane represents 20% of the total production value in the Southeast region and is the highest-ranking sector. Coffee production also stands out in the Southeast region, representing 15% of the total gross value produced by the region.

The Southern region of Brazil primarily produces soybean, chicken, corn and milk, together representing 69% of the total gross value produced by agribusiness in the region. Another key feature of the Southern region is the strong presence of small producers, mostly organized in cooperatives.

The North and Northeast are the least relevant agricultural regions, contributing 5% and 3% respectively to the gross value of Brazilian agricultural production. In the Northern region, cattle, soybean, cassava and corn production stand out, as well as extractive industries, such as the Brazil nut and Açaí markets. The Northeast region stands out in horticulture and fruit production, including melon, watermelon, grape, pineapple and other fruits. It is characterized as the most diverse region, with significant presence of family farming businesses in the semi-arid areas and monoculture production for export in Zona da Mata.

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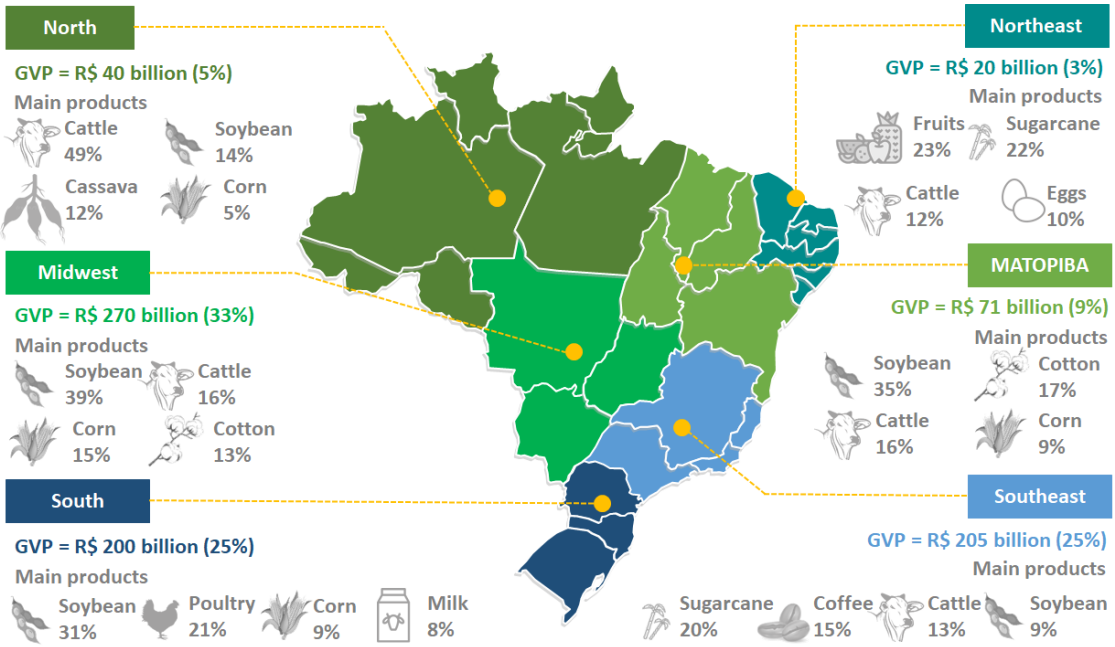
[6] MATOPIBA is not recognized as one of the five Brazilian regions (North, Northeast, Midwest, Southeast and South), but the states of Maranhão, Tocantins, Piauí and Bahia are grouped as they present similar characteristics with regard to Brazilian agribusiness, presenting themselves as a relevant stand-alone region.

FIGURE 12. GROSS VALUE OF PRODUCTION AND THE MAIN PRODUCTS PRODUCED BY REGION

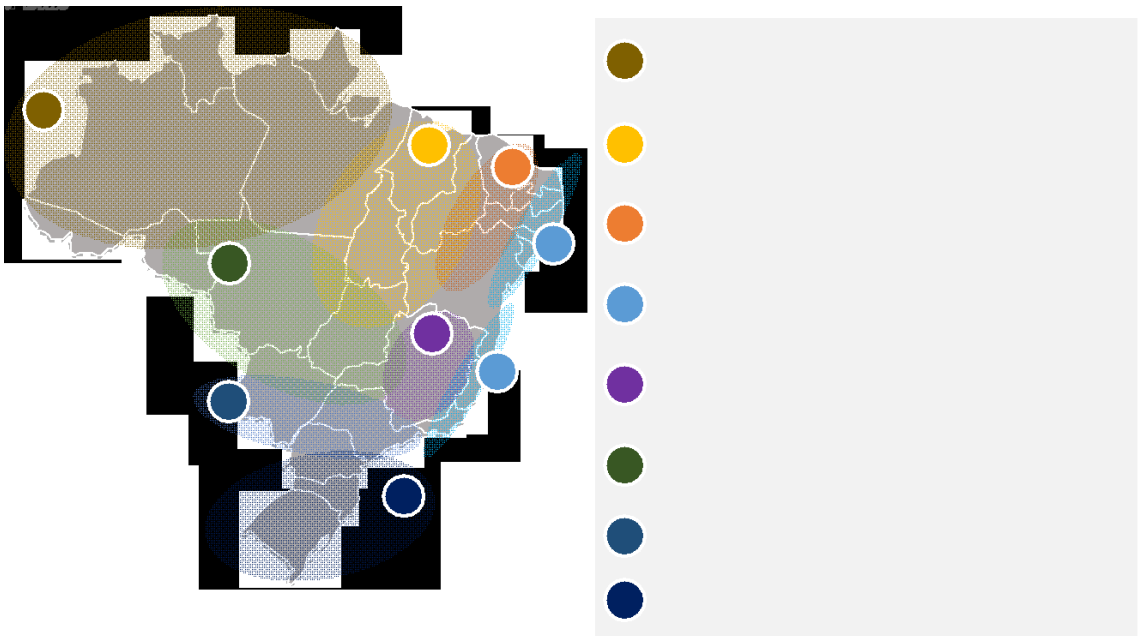


Source: Developed by the authors based on information from MAPA.

5. Brazilian agribusiness success factors

The success of Brazil's agricultural activity can be explained by a combination of related factors, with emphasis in the environmental conditions and availability of natural resources, but also improvements in the production and management models on farms, and investment in new technology.

FIGURE 13. CLIMATE CHARACTERISTICS IN BRAZIL



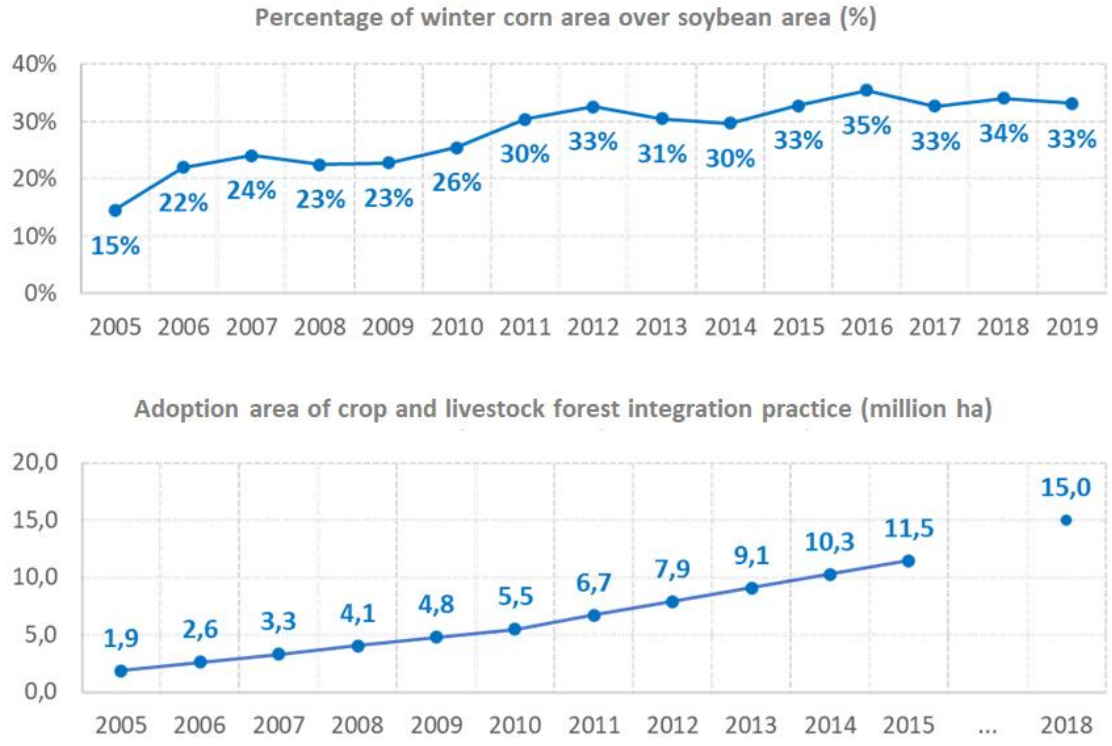
Source: Developed by the authors based on IBGE statistics.

The country's climatic characteristics, such as temperature, luminosity and availability of water resources, among other factors, have guaranteed some advantages for Brazil over its competitors. The tropical climate allows a significant land area of Brazil to be cultivated throughout the entire year, different to predominantly temperate climates such as northern hemisphere countries, where agricultural production becomes unfeasible in the winter period.

The opportunity to produce more than one crop on the same area in one year - made possible by the climate characteristics of the region - and the adoption of new farming practices enabled the country to obtain important gains in productivity, especially in relation to increasing grain production. Production from autumn-winter crops compared to summer crops has grown strongly over the years. Between 2005 and 2019, the area of second annual crop planted to corn grew from 3.3 million ha to 12.3 million ha. That means an increase of 15% to 33% in the percentage of winter corn planted over the total area planted to soybean (the main summer crop). This allows Brazil to produce higher volumes without increasing the total area used for cropping activity.

Furthermore, the adoption of the "integration-crop-livestock-forest system" (ICLF) went from 1.9 million hectares in 2005 to 15.0 million hectares in 2018[7], growing at an average rate of 16.0% per year on average. This production strategy optimizes land use by increasing yields while diversifying production on the same area of land, reducing the need to opening new areas in order to increase cattle production.

FIGURE 14. SECOND-CROP CORN AREA PLANTED ON PRIMARY-CROP SOYBEAN AREA (%) AND AREA UNDER THE INTEGRATION CROP-LIVESTOCK-FOREST PRODUCTION SYSTEM (MILLION HECTARES)



Source: Developed by the authors based on statistics from Conab, Rede ILPF.

[7] Last data provided by Rede ILPF (Integration crop-livestock-forest system network).

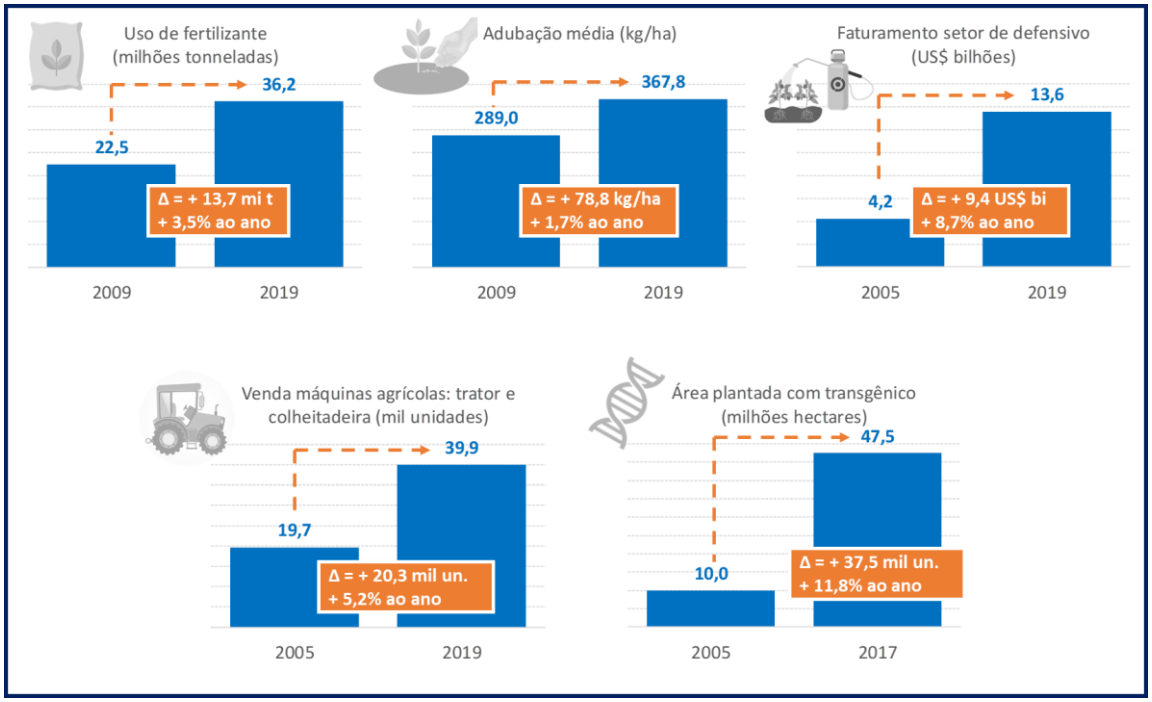
Productivity gains were also obtained from increased use of inputs and access to more efficient products and services. Between 2009 and 2019, fertilizer consumption grew on average 3.5% per year, using a total of 36.2 million tons in 2019. Along with the increase in planted area, the increased fertilizer use is also a result of increased input use, with an average of 289kg/ha of fertilizer being applied in 2009 to 368kg/ha in 2019, with direct impact on crop yields.

In the case of pesticides, the use of more efficient products with greater technology is also fundamental to the increased performance of Brazilian cropping. Pesticide market sales in Brazil grew 8.7 % per year on average, and from US$ 4.2 billion to $ 13.6 billion between 2005 and 2019.

Plant breeding through natural selection and use of biotechnology also stands out among the elements that explain the greater efficiency of Brazilian cropping production. Between 2005 and 2019, the area planted with genetically modified soybean, corn and cotton - went from a total of 10 million hectares to 47 million hectares, representing an average annual growth of 12% in the period.

Farm machinery development, including access to more powerful machinery also contributed for the development of agriculture in Brazil, allowing larger areas to be covered in less time. In the past 15 years, annual tractors and harvesters sales went from almost 20,000 units to 40,000 units, representing an average growth of 5.2% per year over this period.

FIGURE 15. ADOPTION RATES OF KEY TECHNOLOGIES IN BRAZILIAN CROPPING



Source: Anda, Sindiveg, Anfavea, ISAAA.

CHAPTER 2:

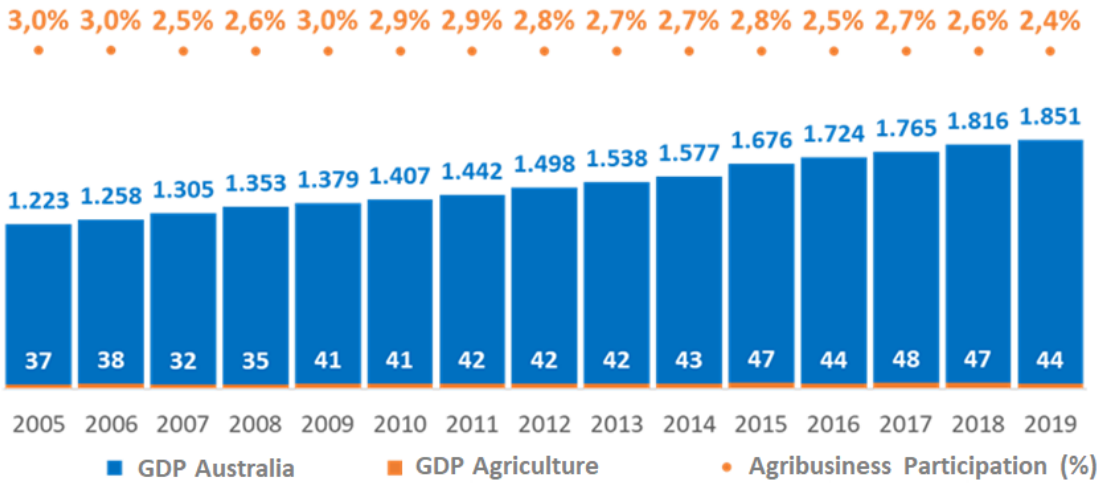
AN OVERVIEW OF AUSTRALIA'S AGRICULTURAL SECTOR

Amanda Andriotta

1. Evolution and relevance of the agricultural sector for Australia

In 2019, Australia's primary agricultural production represented around 2.4% of the country's Gross Domestic Product (GDP), valued at AU$44 billion[8]. Relative to total economic activity, the agribusiness sector has slightly reduced – contributing 3.0% in 2005 compared to 2.4% in 2019. The Gross Value of Production (GVP) from the agriculture sector – including both plant and animal primary production – in Australia reached over AU$62 billion in 2019, with roughly half from cropping and half from the livestock sectors.

FIGURE 1. AUSTRALIA'S GDP OVER TIME: TOTAL AND AGRICULTURAL SECTOR (AU$ BILLION AT CURRENT PRICE)

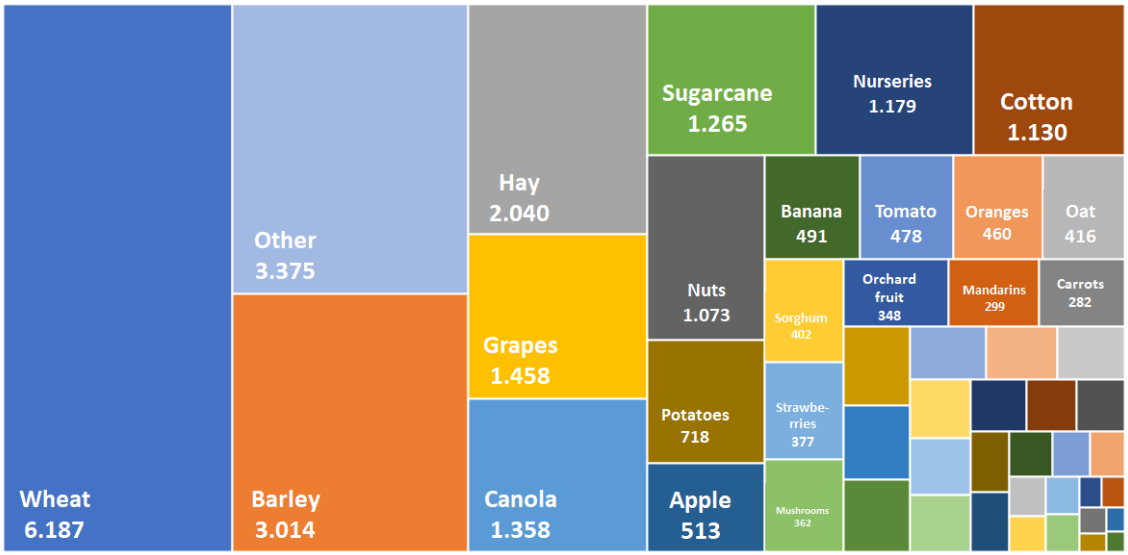


Source: ABARES.

The agriculture sector in Australia is quite diverse. Key crops produced in the country are wheat and barley, representing 20% and 10% respectively of agribusiness GVP, generating annual profits around AU$6 billion and AU$3 billion respectively (Figure 2).

[8] 1 AU$ = 0,70 US$ = 2,76 R$ (annual rate of 2019).

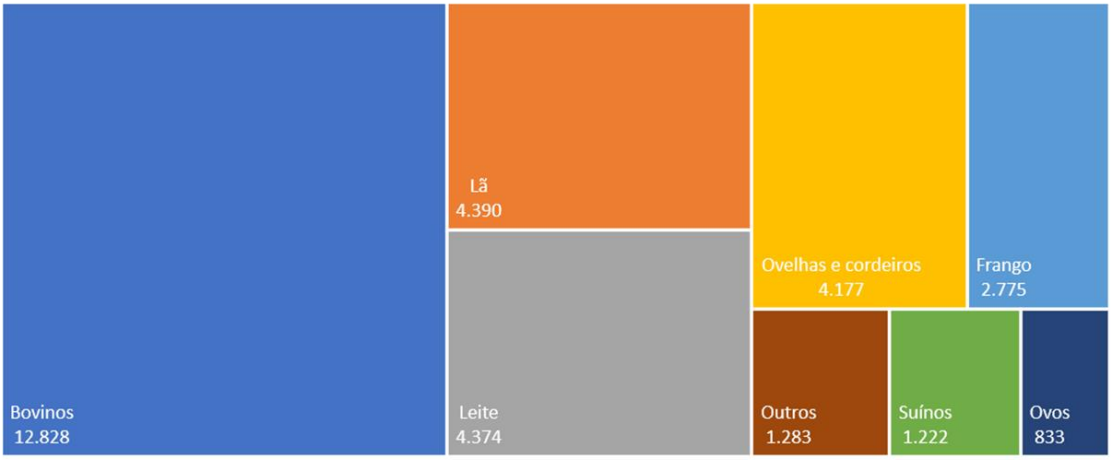
FIGURE 1. GROSS VALUE OF AGRICULTURE PRODUCTION (AU$ BILLION) - 2019



Source: ABARES.

The livestock sector contributed AU$32 billion of profits to the Australian economy in 2019, accounting for 51% of the total profit from Australia's primary production. Of this, beef cattle represents around 40% the livestock GVP, followed by wool and milk products, with a share of 14% each.

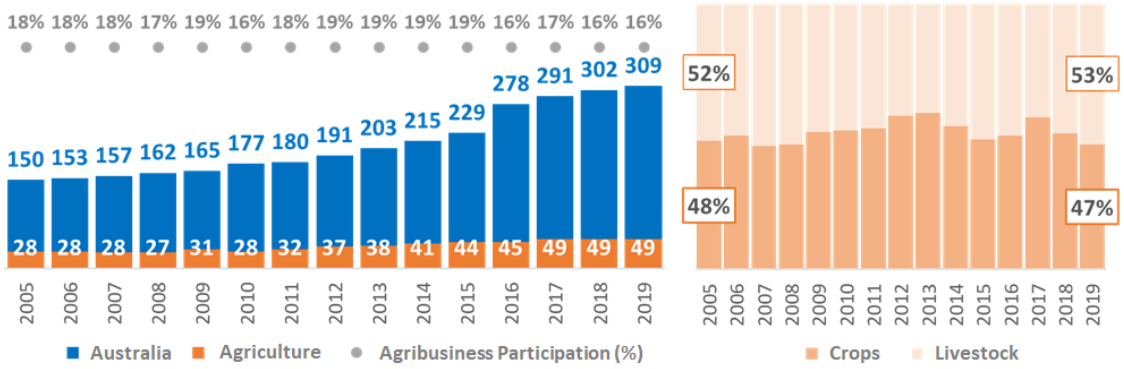
FIGURE 3. GROSS VALUE OF LIVESTOCK PRODUCTION (AU$ BILLION) – 2019



Source: ABARES.

According to the Department of Agriculture of Australia (ABARES), the country exports about 70% of the total value of agricultural production, indicating that the sector is directed to the foreign market. Between 2005 and 2019, the value of the sector's exports grew at an average annual rate of 4.1%, going from a total of A$ 28 billion to A$ 49 billion. Of this, arable (crop) exports grew 4% per year and livestock 4.3% per year, on average. Agribusiness activity represents 16% of the total products exported by the country, with roughly equal participation by the livestock and cropping sectors.

FIGURE 4. AUSTRALIAN EXPORTS: TOTAL AND AGRIBUSINESS (AU$ BILLION) AND CROPPING VS LIVESTOCK CONTRIBUTION



Source: ABARES.

Australian agribusiness is an export market, with about 98% of all wool and cotton, 71% of wheat, 76% of beef, 41% of dairy products and 18% of horticultural products all being exported (ABARES, 2020). These volumes, however, are not large enough to influence the international prices of these commodities. It is worth noting that Australian production is globally recognized for the quality of its products, sustainability in production processes and compliance with contracts.

On an international level, Australia stands out as the second largest exporter of oats, beef and almonds accounting respectively for 10%, 15% and 9% of the world trade. The country is also the third largest exporter of barley (10%) and cotton (9%).

FIGURE 5. AUSTRALIA'S RELEVANCE IN THE WORLD MARKET FOR SELECTED AGRICULTURAL PRODUCTS

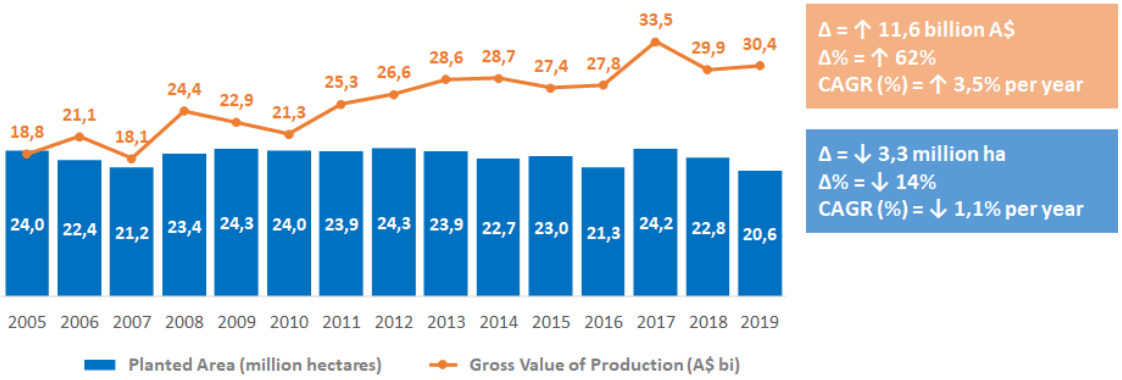
Product	Indicator	Production	Export	Product	Indicator	Production	Export
Barley (million ton)	World	139	25	Cotton (million bales 480 lb)	World	122	41
	Austrália	8,8	3,7		Austrália	2,2	3,6
	Ranking	3	3		Ranking	8	3
	Participation	6%	15%		Participation	2%	9%
Oat (million ton)	World	22,2	2,3	Meat, Beef and Veal (million ton)	World	61,6	10,9
	Austrália	1,1	0,2		Austrália	2,3	1,6
	Ranking	4	2		Ranking	7	2
	Participation	5%	10%		Participation	4%	15%
Wheat (million ton)	World	731	174	Almonds (thousand ton)	World	1.347	804
	Austrália	18	9		Austrália	104	71
	Ranking	11	7		Ranking	3	2
	Participation	2%	5%		Participation	8%	9%

Source: USDA.

2. Growth and development of Australian cropping sector 2005-2019

The Australian cropping sector has shown strong growth in recent years, with an increase in profits of from AU$19 billion in 2005 to over AU$30 billion in 2019. This 62% was achieved even with a reduction of 3.4 million hectares or 14% less area being planted, due to dry years. Under normal climate conditions, Australia crops about 24 million hectares per year.

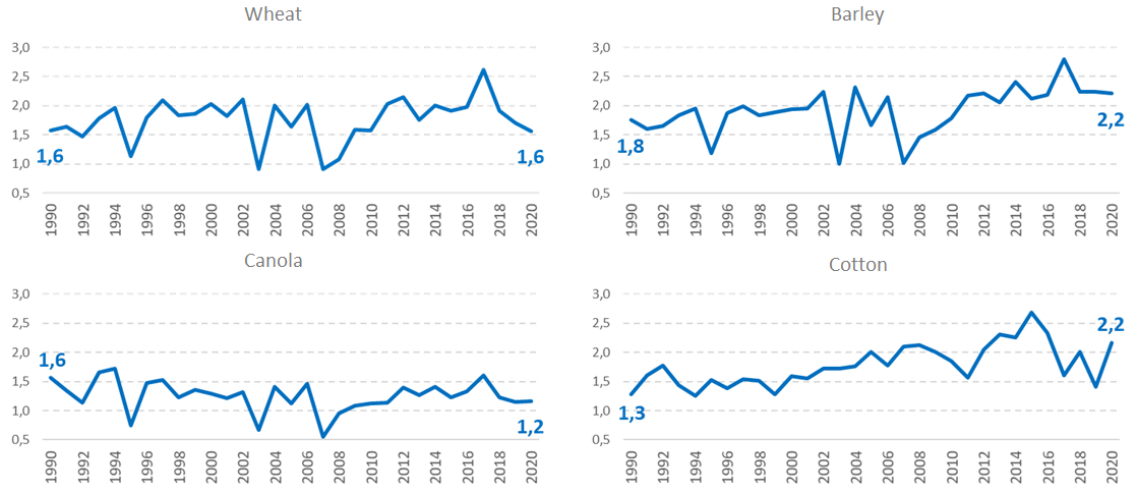
FIGURE 6. TOTAL PLANTED AREA (MILLION HECTARES) AND GROSS VALUE OF CROPPING PRODUCTION (AU$ BILLION) IN AUSTRALIA



Source: ABARES.

Interestingly, cropping sector profitability increases have been achieved, despite some crops having yield decreases. This is the case for canola, which went from an average productivity of 1.6 to 1.2 tons per hectare between 1990 and 2020. Among the main crops, barley achieved an 18% yield increase and cotton a 41% yield increase over this 20-year period. Wheat yields did not change. It is important to note that, given Australia's edaphoclimatic conditions, the average yield of the crops is highly volatile, visible on Figure 7.

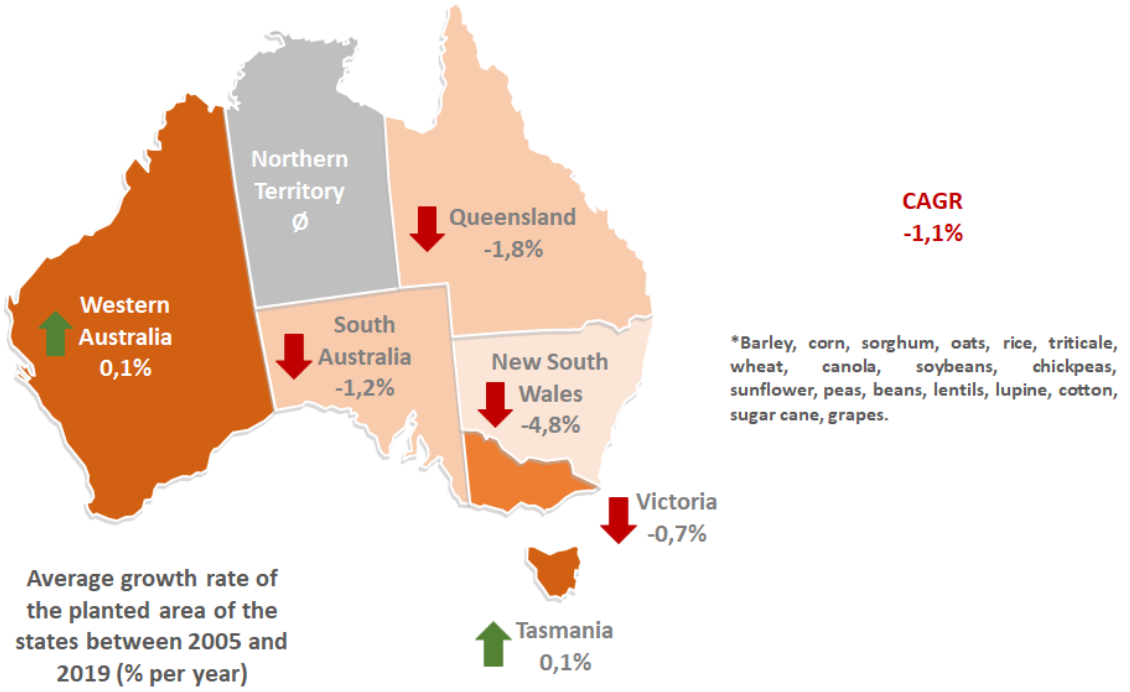
FIGURE 7. MAJOR CROP YIELDS IN AUSTRALIA OVER TIME (TONNES/HECTARE)



Source: ABARES.

The drought period in Australia had an impact on the whole country. Regionally, the decrease of area was observed in Queensland, South Australia, Victoria and New South Walles (where 20% of the total planted area in Australia is located). Meanwhile, planted area in Western Australia (responsible for 42% of the countries planted arable area) remained stable (see Figure 8 and Table 1).

FIGURE 8. EXPANSION OF PLANTED AREA IN AUSTRALIA BY STATE (%) AND EXPANSION OF PLANTED AREA IN THE WHOLE COUNTRY (MILLION HECTARES)



Source: ABARES.

TABLE 1. PLANTED AREA IN AUSTRALIA BY STATE (MILLION HECTARES)

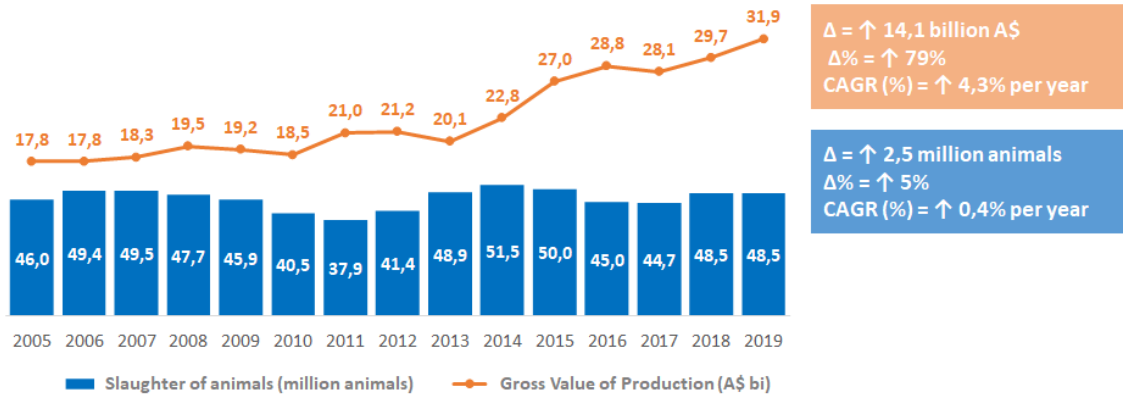
Region	2005	2010	2015	2016	2017	2018	2019	Share (%) - 2019
Western Australia	7,9	8,3	8,3	7,7	8,3	7,7	8,6	42%
South Wales	7,1	6,6	6,0	5,9	6,9	6,2	3,8	19%
South Australia	4,0	3,8	3,6	3,1	3,8	3,5	3,6	17%
Victoria	3,2	3,5	3,3	2,9	3,2	3,4	3,1	15%
Queensland	1,8	1,7	1,7	1,7	2,0	2,0	1,5	7%
Tasmania	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0%
Northern Territory	-	-	-	-	-	-	-	-
Total	**24,0**	**24,0**	**23,0**	**21,3**	**24,2**	**22,8**	**20,6**	**100%**

Source: ABARES.

3. Growth and development in Australia's livestock industry 2005-2019

From 2005 to 2019, Australia's livestock sector increased from AU$18 billion to AU$32 billion of revenue (measured as GVP). Over this period, the slaughter of cattle, lambs and sheep increased from a total of 46 million head processed per year in 2005 to 49 million head in 2019.

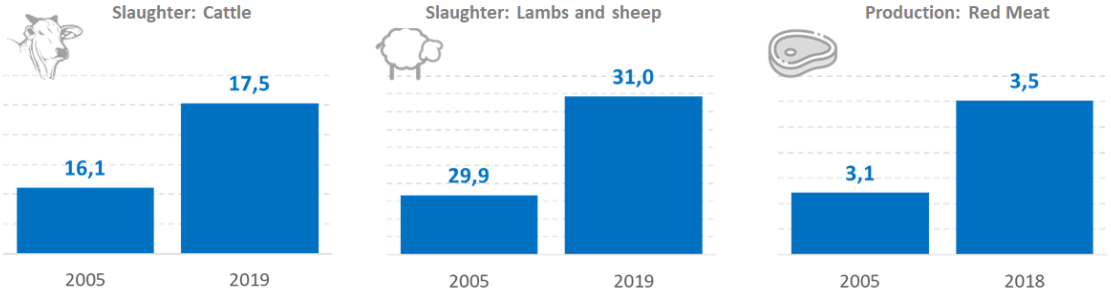
FIGURE 9. CATTLE, SHEEP AND LAMBS SLAUGHTERED IN AUSTRALIA OVER TIME (MILLION HEADS) AND GROSS VALUE OF LIVESTOCK PRODUCTION (AU$ BILLION



Source: ABARES.

From 2005 and 2018[9], red meat production in Australia (cattle, lambs and sheep) grew 11%, from a total of 3.1 million tons, in 2005, to 3.5 million tons in 2018. Meat production grew faster than the rates of animals slaughtered, indicating improvements in productivity. Slaughter cattle increased from 16.1 to 17.5 million heads over this 15-year period, growing 8% in total and sheep and lambs combined had a net increase of 3%, from 30 to 31 million head.

FIGURA 10. SLAUGHTER OF CATTLE, LAMBS AND SHEEP (MILLION HEADS) AND PRODUCTION OF RED MEAT (MILLION TONS / CARCASS WEIGHT)

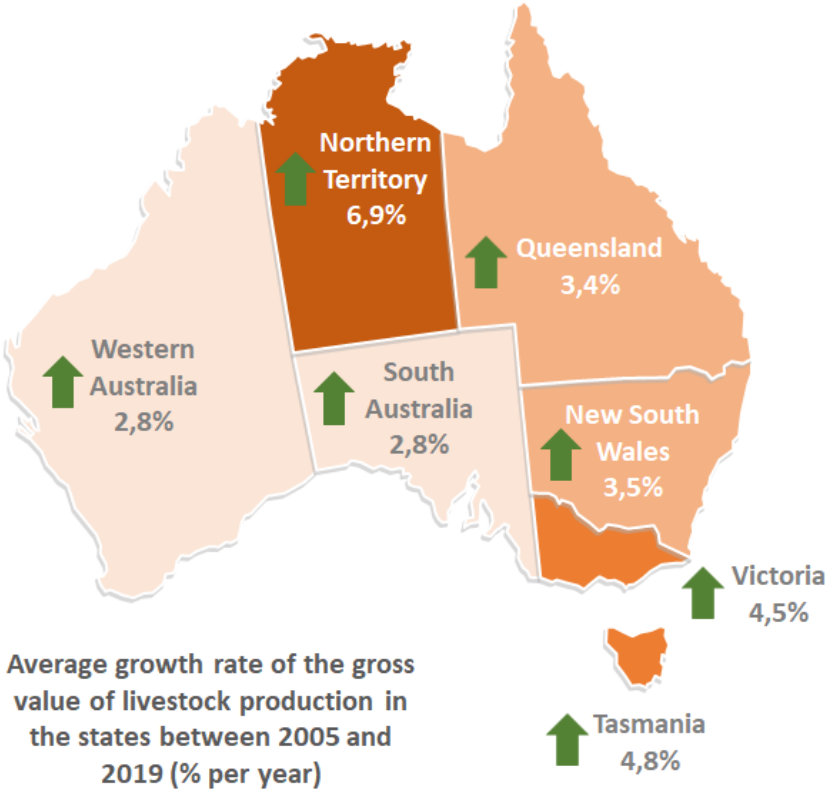


Source: ABARES.

The livestock industry has grown across the nation over the last 15 years, with the Northern Territory doubling their livestock GDP contribution during this period, despite it only contributing 2% of total economic activity. The most significant livestock production states in terms of GDP contribution are Victoria (32%), Queensland (25%) and New South Wales (22%), and they grew by 67%, 51% and 52% respectively between 2005 and 2019 (see Figure 11 and Table 2).

[9] Latest data provided by ABARES.

FIGURE 11. EXPANSION OF THE GROSS VALUE OF LIVESTOCK PRODUCTION IN AUSTRALIA BY STATE (%)



Source: ABARES.

TABLE 2. GROSS VALUE OF LIVESTOCK PRODUCTION IN AUSTRALIA BY STATE (AU$ BILLION)

Region	2005	2010	2015	2016	2017	2018	2019	Share (%) - 2019
Victoria	5,2	5,5	8,2	8,5	7,8	8,9	10,2	32%
Queensland	4,6	4,4	6,6	7,6	7,4	6,9	7,8	25%
South Wales	4,1	4,2	5,9	6,4	6,2	6,5	7,1	22%
Western Australia	1,8	1,8	2,3	2,7	2,9	3,0	2,8	9%
South Australia	1,3	1,7	2,4	2,7	2,8	2,7	2,1	7%
Tasmania	0,5	0,5	0,9	1,0	0,5	1,0	1,1	3%
Northern Territory	0,3	0,3	0,8	0,0	0,5	0,5	0,7	2%
Total	**17,8**	**18,5**	**27,0**	**28,8**	**28,1**	**29,7**	**31,9**	**100%**

Source: ABARES.

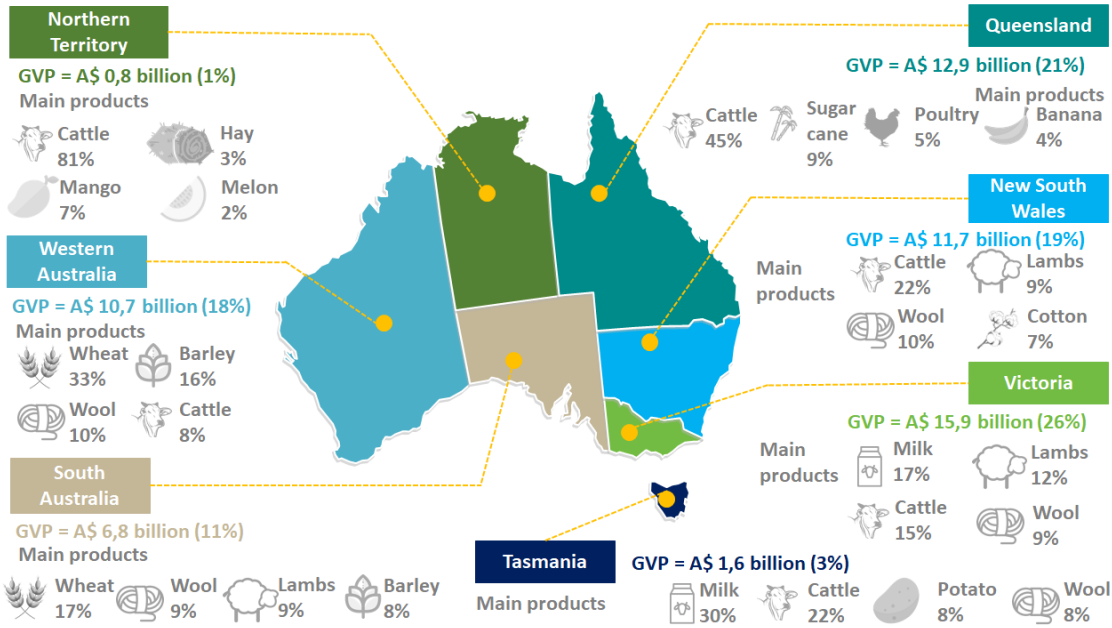
4. Regional characteristics influencing Australian agriculture

Agricultural production in Australia is strongly influenced by the climate of the different regions. Livestock activity generally occurs throughout the country, while cropping is concentrated in areas that are close to the coast, where the climate is more favourable.

The traditional farming system of large wheat and sheep farms are found in different regions within the states of New South Wales, Victoria, South Australia and Western Australia. The state of Western Australia is responsible for 55% of the GDP of wheat produced in the country, while Victoria represents 46% of the GDP of sheep farming. Concomitantly, Victoria is

responsible for 33% of the total wool production income in the country. In the case of cattle, Queensland, New South Wales and Victoria produce most of Australia's beef, being responsible for 45%, 20% and 18% of the segment's total profit.

FIGURE 12. GROSS VALUE OF PRODUCTION BY STATE AND MAIN PRODUCTS PRODUCED



Source: Developed by the authors based on data provided by ABARES.

Barley, the second most important agricultural product after wheat in terms of gross value of production is mainly produced in Western Australia, representing 55% of total profits of the chain. Over 94% of the GVP of Australia's sugarcane production comes from the tropical region in the state of Queensland, while cotton is produced both in New South Wales (75% of GVP) and Queensland (25% of GVP).

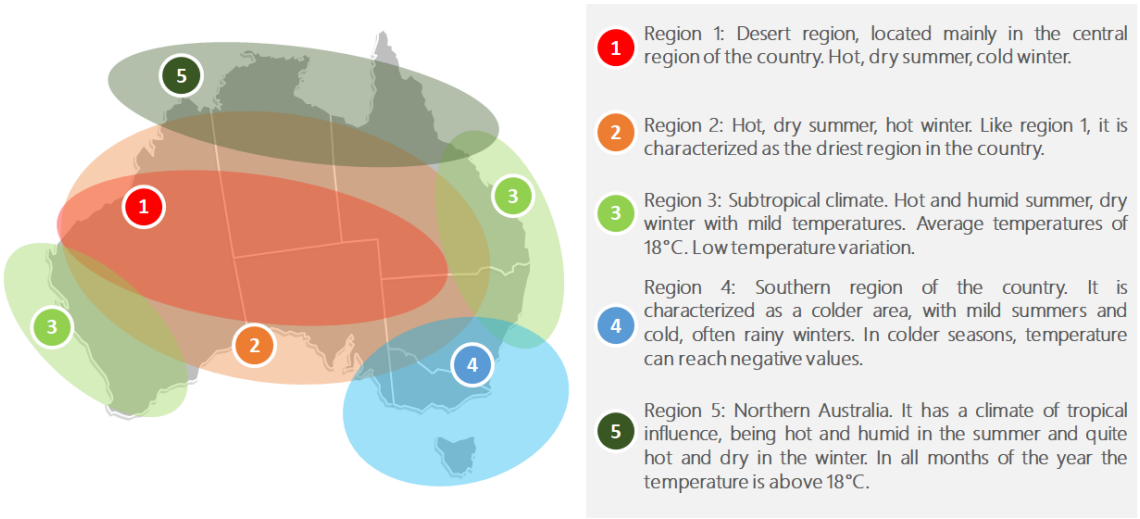
Tropical fruits, especially mango and banana production, are grown in the most northern regions of the country, given the region's tropical characteristics. Queensland accounts for 95% of total banana crop income and 53% of mango cultivation, while Northern Territory accounts for 42% of total mango production income.

5. Australian agribusiness success factors

Australia is one of the driest countries in the world, with a large part of its territory covered by desert regions, and significant climatic variability is a regular part of life. Despite this, Australia has made good progress in the agricultural sector over the years. The variability in climatic conditions require producers and the Australian government to develop and adopt new technologies to help to manage production and international commodity price risk.

Coordinated research and development (R&D) is a key strategy to improving the agribusiness sectors, and Australia is considered a pioneer in developing efficient production techniques, especially to manage climate variability. The country has become a reference in providing solutions for agricultural and livestock production in drought regions in other countries.

FIGURE 13. AUSTRALIA'S CLIMATE CHARACTERIZATION



Source: Developed by the authors based on data from the Bureau of Meteorology.

A feature of the efficient production techniques relates to conscious and calculated use of inputs, such as fertilizers and agrochemicals, to maximize productivity in line with the way the season develops, rather than having a fixed cost, higher input production system. For example, between 2005 and 2018, the use of nutrient fertilizers increased 13% (0.9% per year) shifting from 2.2 to 2.5 million tonnes (IFA, 2020). This reality has meant that Australian producers have become a world reference when considering productivity per millimeter of water resource or per unit of fertilizer, and their products are therefore quite competitive in global markets (Australian Farm Institute, 2014[10]).

The lack of direct market interference, such as subsidization, is another reason that Australian agriculture is so successful. This lack of financial subsidies can be seen as negative in moments of difficulty for Australian farmers compared to many of their competitors, but this environment also helps in the development of a highly efficient and innovative sector.

In general, both institutional factors and climate and resource availability factors have forced Australian producers to continuously develop efficient production techniques to be able to compete in international markets. Innovations that reduce production costs, logistics and infrastructure costs have been invested in as a priority by both groups of farmers and through the development of focused research and innovation institutions.

CHAPTER 3:

[10] Australian Farm Institute. https://www.farminstitute.org.au/optimising-australian-agricultures-comparative-advantages/

BRAZILIAN AGRIBUSINESS IS STRONGER THAN EVER. WHAT DOES THAT MEAN FOR AUSTRALIA?[11]

Greg Wallis [12]

The agribusiness sector provides almost half of all Brazilian exports and is responsible for almost a quarter of Brazilian GDP. To put that into context, in Australia – another agricultural power – agriculture is just 2.7% of our GDP.

Despite the enormous challenges presented in 2020, the Brazilian agribusiness sector has been extraordinarily resilient. Agricultural production has reached record levels, and the sector grew compared to the same period in 2019. According to the Brazilian National Agriculture and Livestock Confederation (CNA), the gross value of national agricultural production for 2020 is forecast to be BRL806.6 billion (USD155.4 billion), 11.5% more than last year. Besides, there is a continuing and significant increase in international demand for Brazilian agricultural products. In 2020, Brazil has exported record volumes of agricultural commodities to China, fueled by greater demand for soy and animal protein and a weakening Brazilian real.

It is likely that in the global post-coronavirus economy, trade in essential food and agricultural products will be more resilient than trade in consumer goods, or other commodities such as steel, copper and iron ore.

What does this mean for Australia? Three things.

First, Brazil is a growing competitor for Australia in agricultural exports to Asia, especially for beef. Even though each country's target clients are often different, and Australian beef commands higher prices, Brazilian beef is poised to gain more recognition amongst consumers in Asia. Brazil is already the biggest supplier of meat to China, followed by Australia. According to Secex data, in 2020 (jan-nov), Brazilian beef exports to China more than double passing from 410 thousand tons to 780 thousand tons. Meanwhile poultry shipments grew 20%, to 615 thousand tons and pork shipments increased 150% to 469 thousand tons.

Brazil has expanded its international marketing efforts in recent years, and these have gained traction because of the drop in trade barriers by countries worried about possible food shortages during the coronavirus pandemic. Recently, JBS, Marfrig Global Foods, Minerva Foods and two other Brazilian slaughterhouses received approval to export beef to Thailand. Brazil has secured access for 48 agricultural products in 21 countries since 2019, including beef to the USA, fruits, seafood and dairy to China, seafood to Korea, chicken to India, live cattle to Malaysia and various products to Indonesia, Japan and Singapore.

Second, the size and diversity of the Brazilian agricultural sector presents ongoing opportunities for Australian exporters; in fertilizers and chemicals, animal genetics, agricultural machinery and robotics, and agtech. Brazil has a sophisticated and comprehensive domestic agtech industry, with more than 1,100 local companies and three major hubs, and the sector welcomes foreign technology, especially that directed towards the production profile of Brazil (beef, pork, chicken, sugar, cotton, soy, corn, oranges, coffee). Partnering with one of the hubs in the states of São Paulo, Paraná or Mato Grosso is a great way to get exposure to the big producers

[11] Published on July 4th, 2020. https://www.linkedin.com/pulse/brazilian-agribusiness-stronger-than-ever-what-does-mean-greg-wallis/

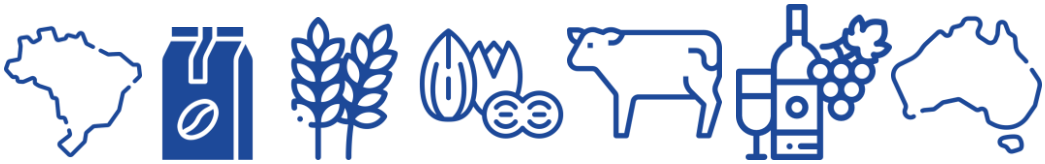
[12] Consul-General and Senior Trade & Investment Commissioner at Austrade. With thanks to input from Fabio Nave, Investment Director, Austrade São Paulo.

and the challenges and needs of agricultural technology in Brazil, and Austrade can make those introductions for you.

Third, major Brazilian crop and protein producers and supply chain companies have expanded their operations internationally in recent years. The profitability of their current businesses, and the risk that a politically and economically volatile single market entails, is driving this expansion. Brazil's extensive experience in developing frontier agricultural regions, especially in tropical areas, is a good match for the conditions in northern Australia. For this reason there is strong interest in developing the north from Brazilian (and Argentine, who have already made three northern Australian investments) groups. These groups see the rising demand for premium produce from Asian consumers and want to develop pastoral leases for agricultural production. Their interest in developing agriculture in northern Australia is potentially an important contributor towards the realization of the vision of the development of the north that Australians have long embraced.

Brazil may be down and suffering the consequences from the global COVID-19 pandemic, but agriculturally speaking it is definitely not out. For Australian agricultural businesses and exporters there are both lessons and opportunities in that strength.

PART 2: TRADE OPPORTUNITIES IN AGRICULTURAL PRODUCTS



CAPÍTULO 4:

COMMERCIAL AGRIBUSINESS RELATIONS BETWEEN BRAZIL AND AUSTRALIA: AN OVERVIEW

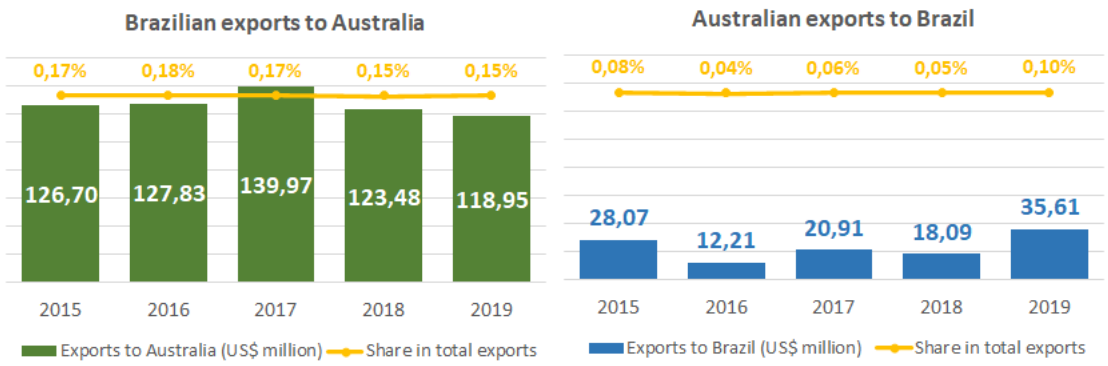
Débora Simões

According to World Trade Organization (WTO) data, world trade in agricultural products moved US$ 1.78 trillion in 2019, an increase of 14% when compared to the US$ 1.56 trillion registered in 2015. Brazil and Australia are key exporters of agricultural products, both in absolute values and in net value (already discounting import value).

Brazil is currently the third largest exporter of food in the world, accounting for 5.0% of world sales, only behind of the European Union (35.9%) and the USA (9.2%). Considering net exports, Brazil takes the lead with a surplus of US$ 77.3 billion. Australia is ranked 11th among the world's largest exporters and 8th in terms of net exports, with a surplus of US $ 17.9 billion. Australia's ranking varies slightly depending on climatic condition, such as falling due to the drought cycle that started in 2017 (WTO, 2020).

From a bilateral point of view, Brazil and Australia are not considered major trading partners. The ITC[13] trade data for agricultural shows that Australia represents only 0.15 % of Brazilian agribusiness exports, a value that has remained stable between 2015 and 2019. Likewise, exports to Brazil are equivalent to about 0.1% of Australian sales in the international market. In total, transactions between the two countries are US$ 154.5 million (Figure 1).

FIGURE 1. COMMERCIAL AGRIBUSINESS TRANSACTIONS BETWEEN BRAZIL AND AUSTRALIA OVER TIME (US$ MILLION)



Source: ITC[14]

In addition to the geographical distance and even a certain "unfamiliarity" between the countries, Australia and Brazil have their own priority partners who receive significant volumes of their products. These other countries end up being the focus of their export promotion policies and business activity.

However, this does not mean that there are no commercial opportunities for trade of agricultural products between Brazil and Australia, especially when seeking a strategy of diversifying suppliers and buyers for determined products. Analyzing data from Brazil's and Australia´s trade,

[13] For this study, agricultural products were defined considering the HS code from 1 to 24 and including groups 51 and 52. These values may differ from those used as a basis for WTO data.
[14] Considers the product groups listed above.

the profile of agricultural production, as well as the perceptions about the other country, four groups of products were identified as having the potential to strengthen trade relations between Brazil and Australia: nuts, coffee (focus on special and high-quality), barley, malt and wheat. These four products do not represent a complete list of potential products but provide offer some concrete examples to illustrate opportunities for potential partnerships that may help to promote trade by those seeking to diversify their markets. Products were specifically selected that favor agricultural production (primary products), and additional studies can be done to assess the potential of other food products such as drinks, cookies, snacks and other processed foods.

The following sections explore the details for each of the four groups of selected products. The content explains the recent trade history between Brazil and Australia in each sector, identifies main competitors in the current supply of these products, evaluates issues of competitiveness and market access and, finally, suggests some opportunities and challenges for increased trade between the two countries to become a reality.

BRAZILIAN EXPORT OPPORTUNITIES
CHAPTER 5:

COFFEE: STRENGTHENING THE PRESENCE IN SPECIALTY AND ORGANIC MARKETS

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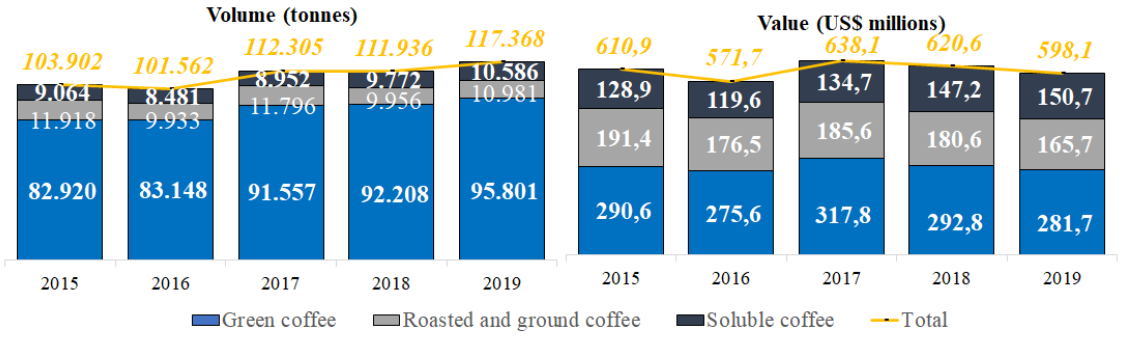
1. Introduction: A Snapshot of the Coffee Market

In general terms, coffee is one of Australia's main imports, representing 24% of the total value of imports in its category of vegetable products, not including products from the food industries. The Australian coffee market, which includes green, roasted and ground coffee (R&G), and soluble (decaffeinated or not) is basically all imported product[15] – with a value of US$ 598 million (117,400 tonnes) in 2019. This makes Australia the 15th largest consumer market in the world (nation-level), but with a share of only 1.2% (FAS / USDA, 2020).

82% of all coffee imported to Australia in 2019 was green beans, followed by R&G and soluble coffees each making up 9% of coffee imports[16]. In monetary terms however, green beans made up 47% of the value of imports, while R&G coffee made up 28%, and soluble coffee 25%. The greater percentage value of R&G and soluble coffee is due to it having gone through one or more transformation steps (Figure 1).

FIGURE 1. AUSTRALIAN COFFEE IMPORTS



Source: ITC.

Between 2015 and 2019, the Australian coffee market by volume grew 13%, which corresponds to an average growth rate of 3% per year. During this period, imports of soluble coffee increased by 17% (4.0% per year), followed by green coffee with an increase of 16% (3.7% per year). In monetary terms however, coffee imports overall decreased by 2% from 2015 to 2019

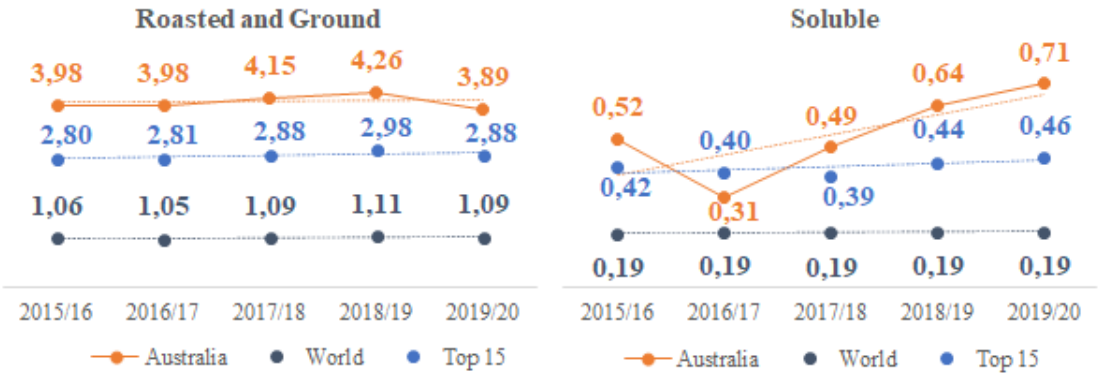
[15] According to Agrifutures (2020), there are about 350 hectares of coffee production in Australia. This amount is not even counted by international organizations. See article: https://www.agrifutures.com.au/farm-diversity/coffee/#:~:text=Coffee%20production%20in%20Australia%20is,total%20of%20300%E2%80%93350%20hectares.

[16] The largest share of green coffee bean imports is a pattern repeated by other traditional countries in the consumption of coffee, such as countries in North America and Europe, where the roasting and grinding process is carried out by local processors. Coffee is often re-exported after this process to the country where it will be consumed. Germany is a prime example, as they are the second largest exporter of coffee in the world, after Brazil, yet don't grow any coffee.

(-0.5% per year). This drop was due to two factors: reduction in imported volumes in 2016 and 2018; and due to the fall in prices on the international market, forcing down the FOB export price.

Per capita consumption of coffee in Australia is one of the highest in the world, both for roasted and ground products and for soluble products (used not only for domestic consumption, but also in the preparation of caffeine-based drinks). Consumption is set to increase again, given the 2019/20 decrease was due to the impacts of the Covid-19 pandemic, and was observed in other consumer countries.

FIGURE 2. PER CAPITA COFFEE CONSUMPTION IN AUSTRALIA (KG).



Source: FAS/USDA and World Bank.

In addition to being a mature market (with high per-capita consumption), Australia is one of the largest buyers of special coffees and organic coffee in the world. Australian consumers are looking for more transparency in the history and origin of their coffee, as well as higher quality in the production and roasting of beans. To illustrate this characteristic, Lavazza recently chose Australia to launch its new Terra bio-organic coffee bean (Euromonitor, 2019)[17].

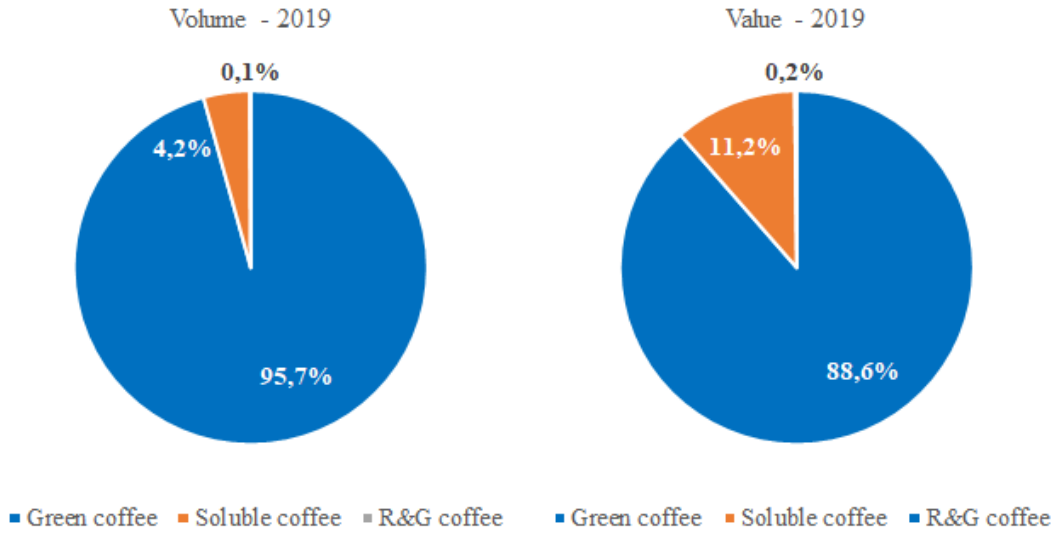
The specialty coffee market is growing in Brazil, with several initiatives such as the Geographical Indication (GI) certifications and establishment of coffee origin regions such as the Cerrado of Minas Gerais, Alta Mogiana São Paulo and Norte Pioneiro do Paraná. The "Cafés do Brasil" or "Brazilian Coffee" program ensures that each 60 kg bag exported is correctly labeled with regional origin. Origin identification in the producing regions has brought results for many coffee growers, especially in facilitating the opportunities for them to negotiate directly with roasters and coffee shops internationally.

Brazil is the main supplier of coffee to the Australian market, at around 22,000 tonnes in 2019. This has been growing at an average of 10% per year between 2015 and 2019. Green beans make up almost 96% of the Brazilian export volume and 89% of financial value. Brazil exports only 4% of the soluble coffee to Australia, equating to 11% in value, and basically no roasted coffee is exported (see Figure 3). It is worth noting that Brazil's devalued currency exchange rate in recent years has provided a competitive advantage compared to other green coffee exporters. This resulted in record exports from Brazil in 2019, also noted in the increased volumes shipped to Australia.

[17] https://www.euromonitor.com/coffee-in-australia/report

Brazil's focus on green bean exports is due to both political and economic factors. Until the beginning of the 20th century, coffee was the main source of wealth in the country and significantly influenced the Brazilian trade balance. While Brazil exported green beans, large international markets established themselves in the processing segment of the supply chain. Now with trade relationships established, some policies disincentive Brazil to get more involved in the processing. One example in the soluble coffee market is not being able to access the drawback mechanism, which would offer a discount or absence of taxes and fees on primary materials such as green beans to produce goods such as soluble coffee that are subsequently exported.

FIGURE 3. BRAZILIAN COFFEE EXPORTS BY PRODUCT SEGMENTS



Source: ITC

Considering the particularities of the Australian market and the characteristics of the Brazilian coffee supply, opportunity exists to further develop the green bean trade, as well as growing in the specialty coffee niche[18].

2. Green Coffee Beans: Market Features and Trends

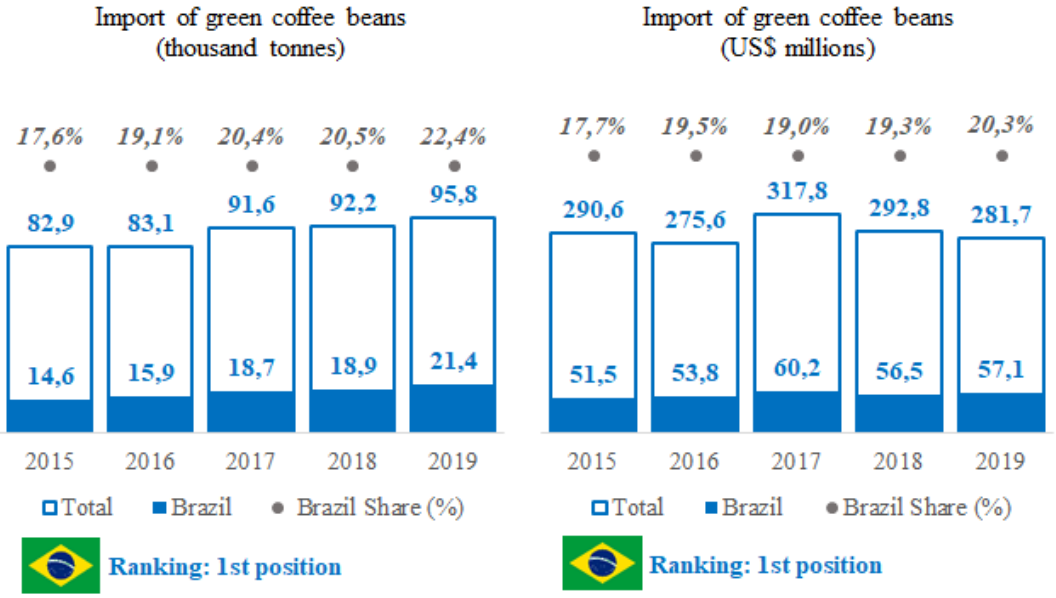
2.1 Overview of green coffee trade between Australia and Brazil

In 2019, Australia imported a total of 96,000 tonnes of green coffee, representing a value of US$ 281.7 million. This has increased 12,900 tonnes since 2015, or 15.6% (Figure 4). However, in monetary terms, the imported value decreased from US$ 290.6 million in 2015 to US$ 281.7 million in 2019, reflecting the lower prices in the international market.

Between 2015 and 2019, Brazil was the largest supplier of coffee beans to Australia and its market share increased from 18% (14,600 tonnes) to over 22% 21,400 tonnes) over that period.

[18] Although Australia imports roasted and ground coffee, this market is not growing. In addition, this product is not a strong market for Brazilian exports. As the drawback mechanism can not be applied to soluble coffee, there is little opportunity to grow this market for export. Conillon coffee is more commonly used than Arabica coffee for soluble products, due to its cheaper pricing and its higher concentration of physical-chemical components.

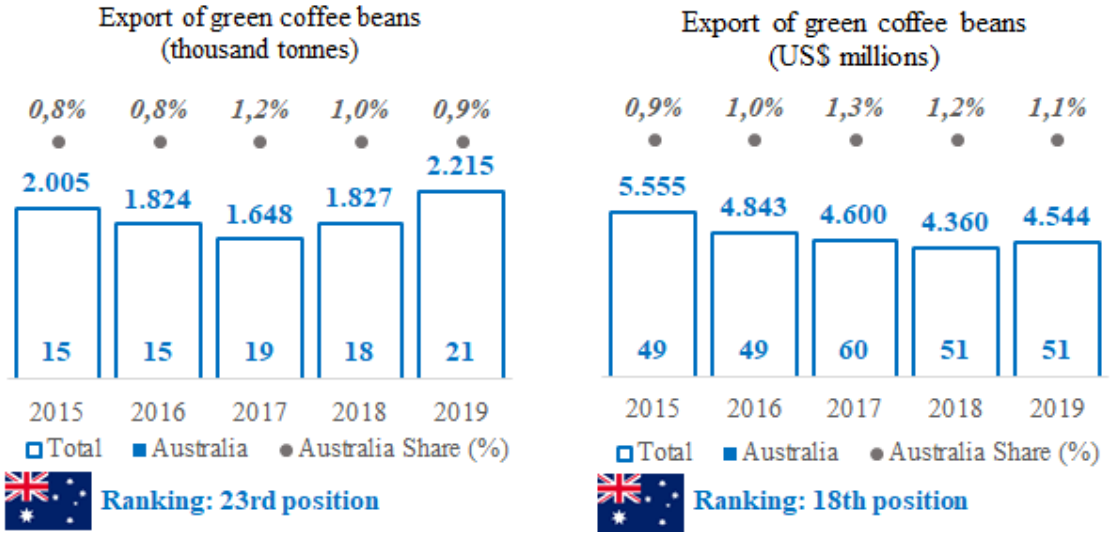
FIGURE 4. AUSTRALIAN IMPORTS OF GREEN COFFEE BEANS OVER TIME: VOLUME (THOUSAND TONNES) AND VALUE (US$ MILLION), AND BRAZILIAN PARTICIPATION IN THE AUSTRALIAN MARKET



Source: ITC

As Figure 5 illustrates, Australia ranks as the 23th largest importer of Brazilian coffee beans by volume and 18th largest by value. The difference between volume and value possibly reflects Australia's desire for higher quality and differentiated coffee in the Brazilian market. Although the amount of coffee beans traded between the two countries has increased over the past few years, the Australian share of total Brazilian coffee exported is still small, around 1%.

FIGURE 5. BRAZILIAN EXPORTS OF GREEN COFFEE BEANS OVER TIME: VOLUME (THOUSAND TONNES) AND VALUE (US$ MILLION) AND AUSTRALIA'S SHARE OF BRAZILIAN EXPORTS



Source: ITC

The excellent performance of Brazilian exports in recent years - to Australia and other countries - reflect the sector's efforts and investments in new plantations and upgrades of older coffee plantations. About 16% of the total planted area in Brazil is currently in composed by new

plantations stage, compared to the historical average 10% (Conab, 2020[19]). These investments have resulted in yield increases of about 7 bags/ha compared to the historical average. Another factor contributing directly to Brazil's strong export performance is the depreciated exchange rate (Brazilian Reais) compared to the exchange rates of other green bean producing countries. Higher domestic prices along with the currency devaluation stimulated the above mentioned investments and drove the export record figures.

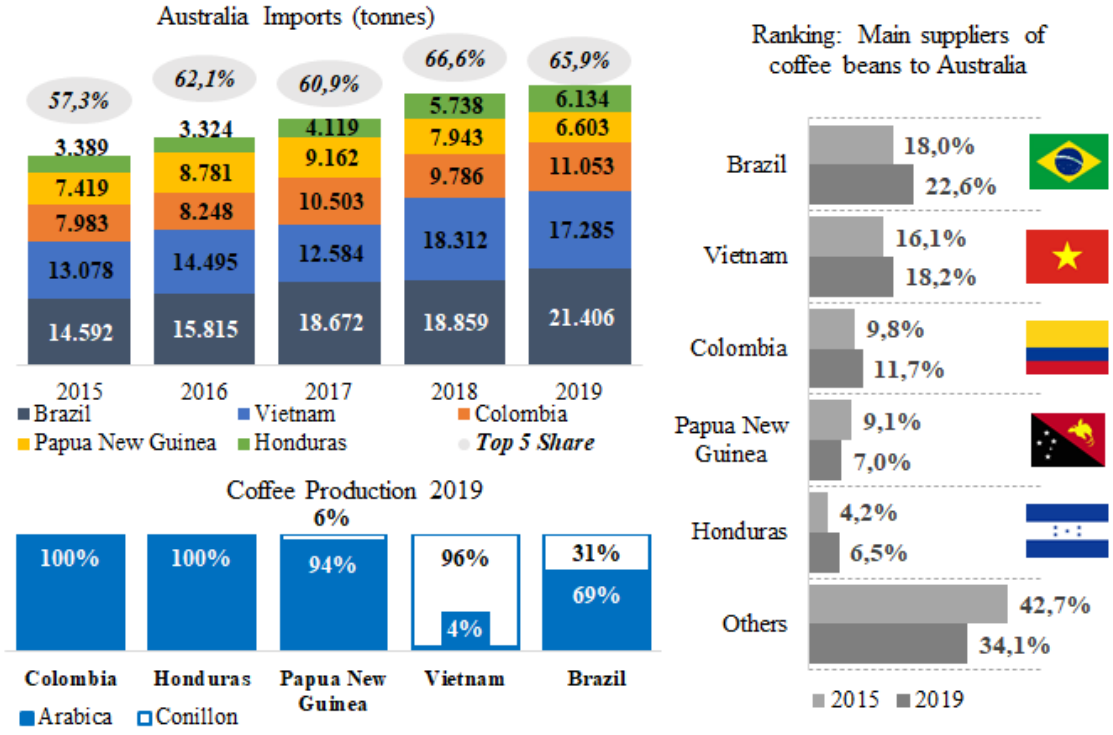
Green bean exports generally represent about 60% of Brazilian coffee production, however region-wide crop failure in the 2015/16 harvest pushed this out to 72% of the total production. The preference for the export market was caused by very high international prices, to the extent that there was a serious possibility of shortages in the domestic market.

Although Brazil is historically a major producer of Arabica coffee, Conillon coffee production is increasing, and in 2019 represented 31% of Brazil's total production. According to Cecafé[20], exports of Conillon represented 11% of the total shipped volumes of coffee beans in 2019.

2.2 Brazil's Main Competitors in Australian Green Coffee Bean Market

In recent years, Australian imports concentrated on five main suppliers: Brazil, Vietnam, Colombia, Honduras and Papua New Guinea. In 2015 these countries represented 57% of the total volume of coffee beans imported by Australia, rising to 66% in 2019.

FIGURE 6. AUSTRALIAN IMPORTS OF GREEN COFFEE BEANS BY COUNTRY (TONNES) OVER TIME AND VARIETIES PRODUCED BY THE FIVE LARGEST SUPPLIERS



[19] Conab. https://www.conab.gov.br/info-agro/safras/serie-historica-das-safras
[20] Cecafé. https://www.cecafe.com.br/dados-estatisticos/exportacoes-brasileiras/

Source: ITC and FAS/USDA

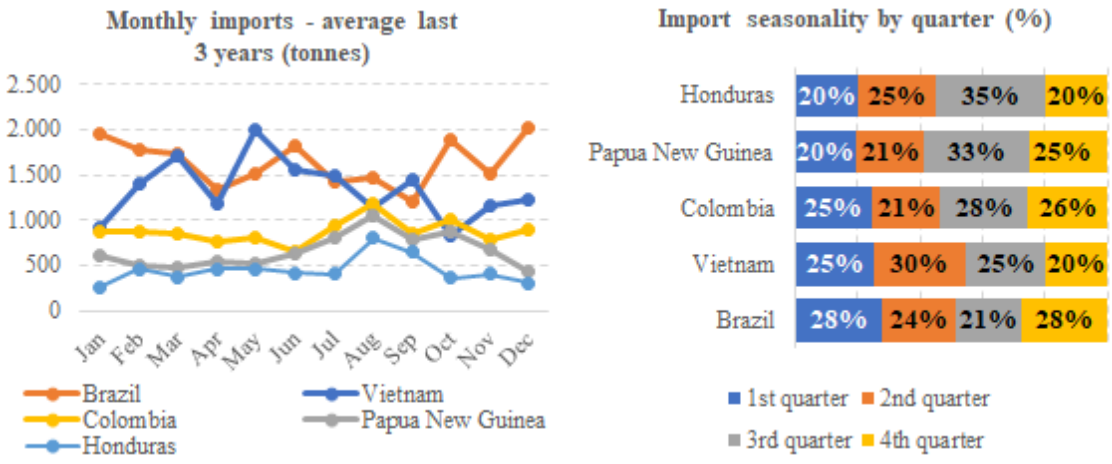
As seen in the previous section, Brazil is the largest supplier of coffee beans to Australia and increased their percentage participation by 47% by volume between 2015 and 2019. Arabica coffee represents almost 100% of shipped coffee beans, with less than 0.5% represented by Conillon.

Vietnam is the second largest exporter of coffee to Australia, supplying around 17,000 tonnes in 2019, and experiencing a 32% increase between 2015 and 2019. Vietnam however, does not compete for market share with Brazil, as it produces Conillon coffee. Colombia is Brazil's largest and main competitor, as it produces and exports Arabica coffee. Since 2015 it has consistently provided about half of the arabica coffee that Brazil does to Australia, so it is increasing its supply it is not taking market share from Brazil.

Australia buys coffee throughout the year, meaning that all suppliers compete with each other despite the seasonality of their production (Figure 7). Brazilian sales tend to increase in the first and fourth calendar quarters due to product availability post processing.

Brazil's harvest take s place in April and May. Post-harvest processing activities such as drying and sorting vary according to the capacity of the producer, processor and the type of processing. Coffee shipments start in the second half of the year and intensify at the end of the year. In contrast, harvest in Vietnam occurs between October and December, the highest volumes being shipped in April – June of the following year, after processing. Colombia does not have a defined coffee-producing season, and multiple blooms in the coffee plantations mean that harvest basically occurs throughout the year. There is a main harvest period from October to January and a secondary harvest period from April to July.

FIGURE 7. SEASONALITY OF IMPORTS OF GREEN COFFEE BEANS IN AUSTRALIA (AVERAGE 2017, 2018 AND 2019) - QUANTITY IMPORTED PER MONTH (TONNES) AND DISTRIBUTION PER QUARTER (%)



Source: ITC.

2.3 Competitiveness of the Brazilian product in the Australian market

International competition can be influenced by a number of factors, including tax barriers. However, the Australian MFN[21] tariff for coffee beans is zero and the country does not impose any other import barriers on coffee beans. Therefore, the competitiveness of supplier countries is mainly determined by production conditions, location and logistics and their associated costs. Product quality, labeling, packaging, technical characteristics and phytosanitary restrictions are other factors that affect the competitiveness of different supplying countries to different consumer markets.

Vietnam is the lowest-price exporter of green beans to Australia, however Conillon coffee has a lower market value than Arabica coffee. Colombia has the highest price of the Arabica coffee imported by Australia, and it maintains this by positioning itself in the special coffee market. Colombia is a successful case in having and promoting quality coffee, a result of selective harvesting and careful post-harvest processing. Furthermore, in 2002, the Juan Valdez brand was born, focused especially on the international marketing of Colombian coffees.

For many years, Brazil was known as a commodity coffee supplier in the international market, with no focus or recognition as a quality coffee supplier. This image is being redesigned through initiatives from the BSCA (Brazilian Specialty Coffee Association) and ApexBrasil. More certified and special coffees are being produced, showing that the supply chain, starting with producers is interested in meeting international demands. Brazilian researchers continue to develop new technologies for all stages of production and management (RITC, 2018)[22].

TABLE 1. AUSTRALIA IMPORT PRICES FOR GREEN COFFEE BEANS (US$/KG)

US$/kg	CIF Price					Δ = Competitor Price - Brazil Price (2019)
Year	2015	2016	2017	2018	2019	
Colombia	4,12	3,93	4,02	3,84	3,69	1,03
Honduras	3,40	3,27	3,30	3,01	2,88	0,22
Papua New Guinea	3,43	3,18	3,17	3,12	2,85	0,19
Vietnam	2,02	1,82	2,32	1,91	1,73	-0,93
Brazil	**3,52**	**3,38**	**3,22**	**2,99**	**2,66**	_

Source: ITC

3. Prospects for coffee trade between Brazil and Australia

The per capita consumption of coffee in Australia is already high and is growing in line with population increases. Currently, Australians consume is 2.3 million bags per year, and the expectation is that by 2025 consumption will reach 2.4 million bags. This growth is equivalent to 10,000 tonnes, although it is highly likely that a larger percentage of this will be specialty coffee.

[21] MFN (Most Favored Nation) tariffs are those that countries agree to impose on imports from other WTO members, unless the country is part of a preferential trade agreement (such as a free trade area or customs union). This means that, in practice, MFN rates are the highest (most restrictive) taxes that WTO members charge each other

[22] RITC. http://www.consorciopesquisacafe.com.br/arquivos/consorcio/publicacoes_tecnicas/Relatorio_v6_n_12.pdf

The volumes currently sold to Australia are not significant for Brazil. However, it is expected that Brazil will gain market share compared to other coffee exporters supplying Australia due to the following reasons:

- ✔ Market growth and marketing of Brazilian specialty coffees, being able to capture part of the Colombian market;
- ✔ Better competitiveness of Brazilian coffee in the global market due to the devalued exchange rate. The Brazilian government believes that the exchange rate will remain above 5 BRL/USD for the long term.
- ✔ Lower worldwide volumes are predicted for the 2021/22 crop. Large coffee suppliers to Australia, such as Brazil, Vietnam and Central America, had problems in the 2020/21 harvest due to lack of rain and high temperatures. In 2021, Brazil will harvest a smaller crop as part of the plants biannual cycling (coffee plants naturally produce a full crop one year and developing more vegetative branches the following year, reducing production).

Furthermore, Brazil can gain additional market share by promoting specialty coffee and product traceability in the Australian market, including highlighting positive social aspects such as labour conditions. This requires focused communication work by companies and associations to gain market confidence about the superior quality of our products and integrity of traceability.

FIGURE 8. OPPORTUNITIES AND CHALLENGES FOR BRAZILIAN COFFEE IN THE AUSTRALIAN MARKET

Dimension	Positive Aspects & Opportunities	Negative Aspects & Challenges
Product & Market	• The devaluation of Brazil's currency (BRL) makes Brazil the most competitive country compared to other countries exporting Arabian coffee.	• Australia is considered na establishedl coffee consumption market. Per capita consumption and import volumes on Asutralia are not expected to increase
	• New plantations and/or upgrading existing plantations have increased yields, quality, and provided better returns to producers.	Brazilian export volumes to Australia are still very small, and Australia is not considered a priority market by Brazil.
	• Australia is focused on high quality, specialty and organic coffee. Brazil's production in this segment has increased, with investment in certifications that provide greater transparency and guarantees along the supply chain.	The fastest-growing market in Australia is soluble, and other countries dominate this market. Brazilian soluble coffee industry is focused on suppling the domestic market. As the drawback mechanism is not applied to coffe in Brazil, the availability of Conillon in the market is not sufficient to expand soluble production to export.
Trade & Market Access	• There is no import tax for coffee in Australia.	Australia traditionally considers Brazil as a commodity green coffee bean supplier, rather than a quality or specialty coffee provider. Communications and participation in certification programs are required to redesign the Brazilian coffee image as a high grade product.
	• Brazil is a consolidated supplier in Australia	
	• There are no market access issues for the Brazilian product.	
Other factors	• Cecafé (Brazilian Council of Coffee Exporters) is adopting measures to better understand coffee consumption habits in Australia.	
	• Industry support and actions in place to promote Brazilian coffee in international markets eg. "Brazil. The Coffee Nation." developed by BSCA and Apex).	

Source: Elaborated by the authors.

BRAZILIAN EXPORT OPPORTUNITIES
CHAPTER 6:

NUTS: IMPROVING COMMUNICATION TO GAIN MARKET-SHARE IN PEANUT AND CASHEW NUT

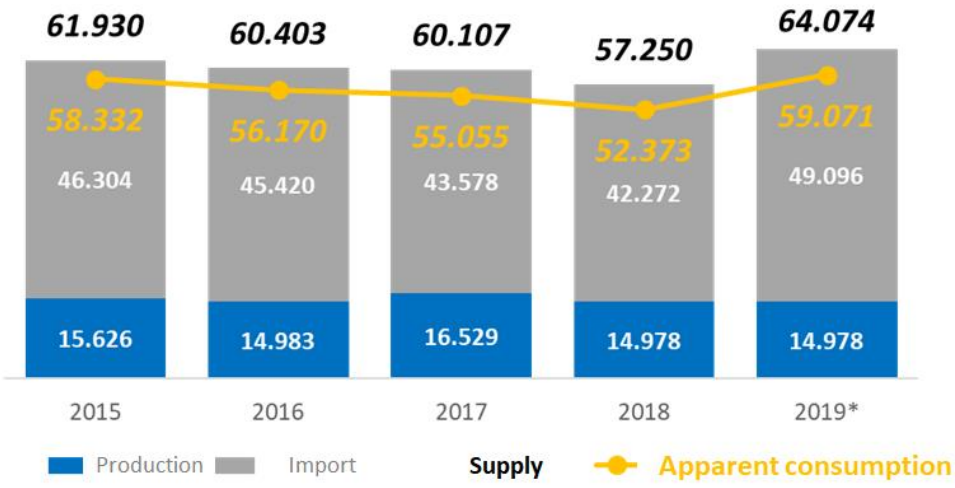
Amanda Andriotta, Débora Simões

1. Introduction: Overview of the Nut Market

Nuts are one of the main agricultural products imported by Australia, with a value of US$174 million in 2019. They are the third highest agricultural plant-based product imported to Australia with a share of 6.6 % of the total import value[23], after coffee and rice.

Within the nuts category, the Australian market requires more than 60,000 tonnes each year of peanuts, cashew nuts and Brazil nuts, and 75% of this is imported. Per capita consumption of these three nut types in Australia is about 2.2 kg/year compared to the worldwide per capita consumption of 5.6kg/year (reference International Council of Nuts and Dried Fruit), indicating a growth opportunity in the Australian market.

FIGURE 1. NUT MARKET IN AUSTRALIA: OFFER AND DEMAND[24] (TONNES)

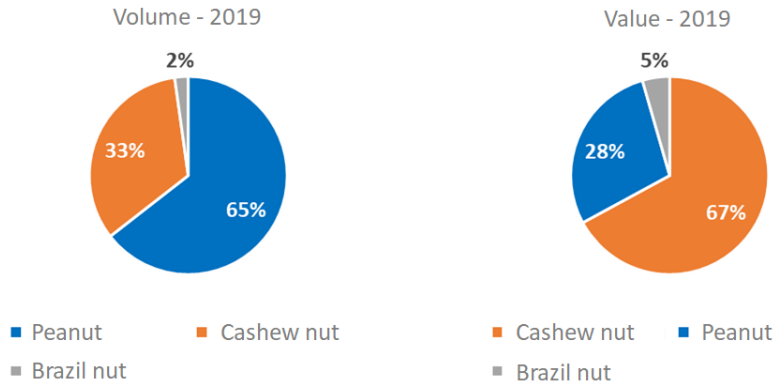


** Production data not available for 2019, so 2019 production was considered equal to 2018 for the calculation of supply and demand for nuts.*
Source: FAO, ITC

Of the three nut types, peanuts represent 65% of the import volume, followed by cashew nuts (33%) and Brazil nuts (2%). In economic terms, cashew nuts make up 67% of the financial value, followed by peanuts (28%) and Brazil nuts (5%).

[23] Considers raw peanuts only. If you also consider the traded value of processed peanuts, this share rises to 8.3%, and nuts (in natura and processed) are now in second place in the ranking of the main plant-based products imported by Australia.
[24] Estimated demand based on apparent consumption, calculated by the authors from FAO and ITC data. Apparent consumption = production + import - export.

FIGURE 2. VOLUMES AND ECONOMIC VALUES OF SELECTED NUTS IMPORTED INTO AUSTRALIA IN 2019[25]



Source: ITC.

Brazil is the third largest supplier of imported nuts to Australia by volume at 7.3% or 3,600 tonnes, with Argentina being the top supplier (41%), followed by Vietnam (33%) Brazil's contribution to nut imports has increased from 3.9% in 2015. From the Brazilian export side, Australia is ranked 13th among the destinations of nuts exported by Brazil, and its share has remained stable in recent years, representing about 1.5% of total exports Brazilian product.

Although nuts are identified as a group, the specifics and dynamics of the market for each type are quite different and are explored separately below for peanut and cashew nut markets. In this report, Brazil nuts are not seen as an opportunity, since the volume imported by Australia is low (1,085 tons in 2019) and decreasing. In addition, between 2015 and 2019, total exports of Brazil nuts felt by 25% per year, following the same direction of production, which declined at an average annual rate of 5%[26].

2. Peanuts: Raw product vs. Processed product

The 2019[27] estimate of Australian total peanut consumption is about 42,000 tonnes, with 76% of the demand being imported product and the remainder produced nationally. At 15,000 tonnes annual production, Australia is not among the main world peanut producers.

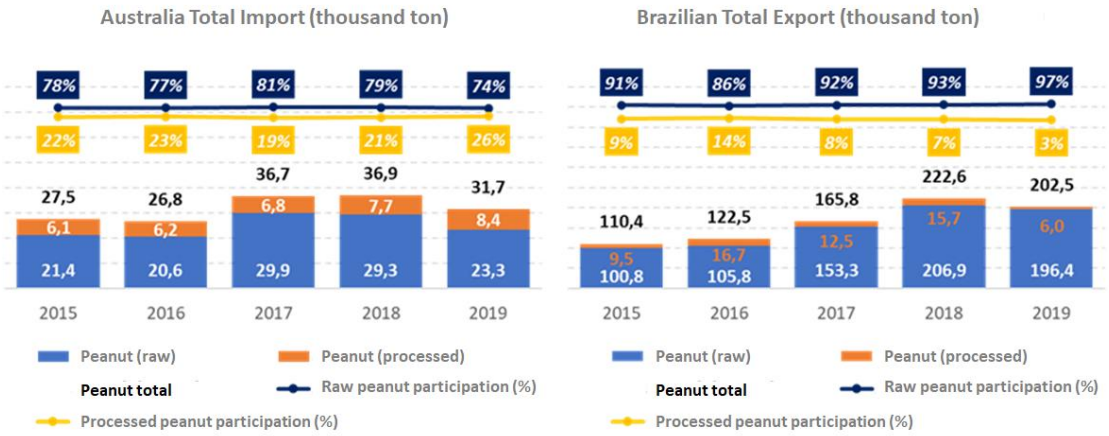
Of the 32,000 tonnes of imported peanuts in 2019, 74% was raw product and 26% already prepared and packaged. It can be inferred that most of the product consumed in Australia is prepared in the country. Meanwhile, Brazil exported over 202,000 tonnes of peanuts in 2019, of which 97% was raw product that is prepared and packaged for consumption by the destination countries.

[25] NCM considered: 120241 - Peanuts, in shell (excluding seeds for sowing, roasted or cooked); 120242 - Peanuts, shelled (excluding seeds for sowing, roasted or cooked); 200811 - Peanuts, prepared or canned (excluding canned with sugar); 080131 - Cashew nuts, with shell; 080132 - Cashew nuts, without shell; 080121 - Brazil nut, with shell; 080122 - Brazil nuts, without shell.

[26] It should be noted that Brazil has lost international market share to Bolivia. In recent years, Bolivia has adopted modern systems for processing and marketing Brazil nuts, allowing Bolivians to dominate the Brazil nuts market, often buying the Brazilian product in shell to resell to the international market after processing.

[27] Apparent consumption estimated based on data from FAO and ITC.

FIGURE 3. TOTAL AUSTRALIAN IMPORTS AND BRAZILIAN EXPORTS OF RAW AND PROCESSED PEANUTS (THOUSAND TONNES)



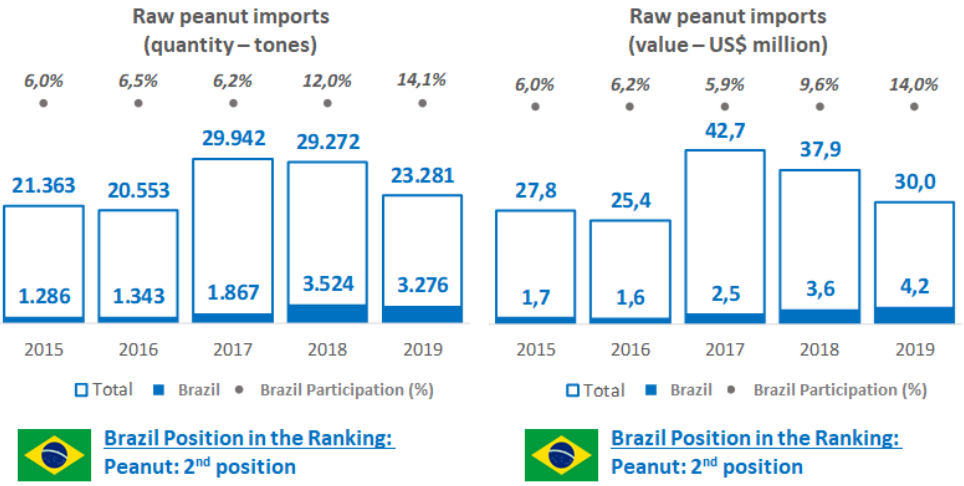
Source: ITC.

2.1 Raw Peanut Market [28]

2.1.1 Overview of the raw peanut trade between Brazil and Australia

In 2019, Australia imported 23,000 tonnes of raw peanuts, representing in value terms about US$30 million. Between 2015 and 2019, peanut imports increased by 2000 tonnes total, and with an average rate of 2.2% per year. However, growth was not linear with the record being achieved in 2017. During this period, Brazilian imports of raw peanuts to Australia has increased from 1,300 tonnes (6%) to 3,300 tonnes (14%) and the country ranks 2nd among the main suppliers to the Australian market).

FIGURE 4. EVOLUTION OF AUSTRALIAN IMPORTS OF RAW PEANUTS: VOLUME (TONNES) AND VALUE (US$ MILLION) AND BRAZILIAN PARTICIPATION IN THE AUSTRALIAN MARKET



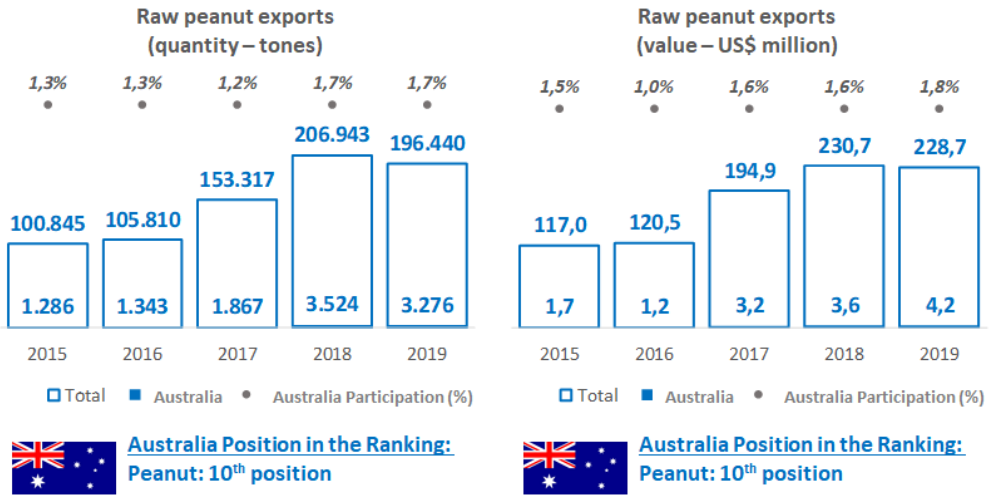
Source: ITC.

[28] NCM considered: 120241 - Peanuts, in shell (excluding seeds for sowing, roasted or cooked); 120242 - Peanuts, shelled (excluding seeds for sowing, roasted or cooked).

From 2015 to 2019, Brazilian peanut production increased over 25% to 434,600 tonnes[29]. The figure was expected to be higher if good climate conditions were observed, which not happened due to scarce and irregular rainfall. Over 40% of Brazilian peanuts production is exported. During this four-year period, exports of raw peanuts almost doubled, going from 100,800 tonnes to 196,400 tonnes (Figure 5).

Australia is a small player for Brazilian raw peanut exports but increased more than 2.5 times from 1,286 tonnes (1.3%) to 3,276 tonnes (1.7%) of total volume exported from 2015 to 2019. The main destinations for raw Brazilian peanut are Russia (43%), Algeria (12%) and the Netherlands (11%).

FIGURE 5. EVOLUTION OF BRAZILIAN EXPORTS OF RAW PEANUTS: VOLUME (TONNES) AND VALUE (US$ MILLION) AND AUSTRALIA'S SHARE OF BRAZILIAN EXPORTS



Source: ITC.

The significant increase in Brazilian exports in recent years reflects the sector's efforts to promote and spread the quality of Brazilian peanuts abroad. A key driver has been the The Brazil Foods and Snacks Project developed by ABICAB (Brazilian Association of Chocolate, Peanut and Candy Industry) in partnership with Apex-Brasil (Brazilian Trade and Investment Promotion Agency).

According to ABICAB President, Ubiracy Fonsêca, "The quality of Brazilian peanuts is high and the industry has invested in the best equipment and in obtaining certifications such as BRC and Sedex, required by the most rigorous international markets". The Brazilian market - together with the Argentine and the American - is recognized for its strict control and low levels of contamination by aflatoxin[30]. In addition, high-oleic peanuts, such as those exported by Brazilian companies, bring more health benefits, and have a longer shelf live.

[29] Conab (2020). According to IAE, production loss reached 12% in 2019.

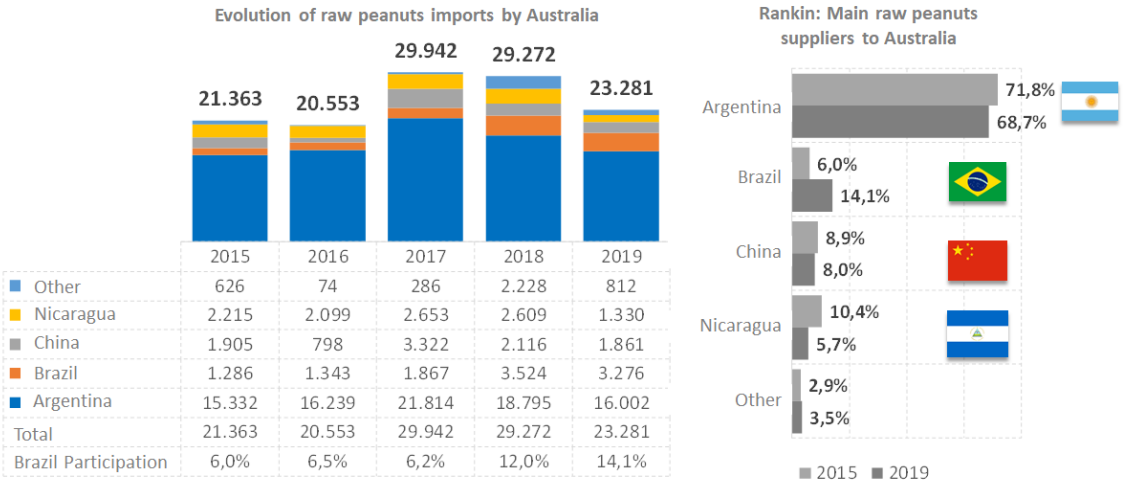
[30] Aflatoxin is a natural toxin produced mainly by the fungi *Aspergillus flavus* and *Aspergillus parasiticus*. It is toxic to humans and animals and may increase the risk of cancer when consumed in large quantities. The fungi that produce aflatoxin can be found in several cultures, but peanuts are the most affected by them, due to the harvesting and drying processes. Thus, aflatoxin levels are controlled in several markets.

2.1.2 Brazil's main competitors in the Australian market

Four countries, Argentina, Brazil, China and Nicaragua, supply over 96.5% of the total imported peanuts volume to Australia, with Argentina providing 67% of total imports by volume in 2019. Despite being the main source, in recent years the Argentine product has been losing share, as have China and Nicaragua.

While import demand for raw peanuts increased by over 10% from 2015 to 2019, Brazilian exports increased more than doubled by volume. Brazil achieved the highest gain in market share, shifting from fourth to second largest supplier over this four-year period.

FIGURE 6. MAIN EXPORTERS OF RAW PEANUTS TO AUSTRALIA (TONNES)

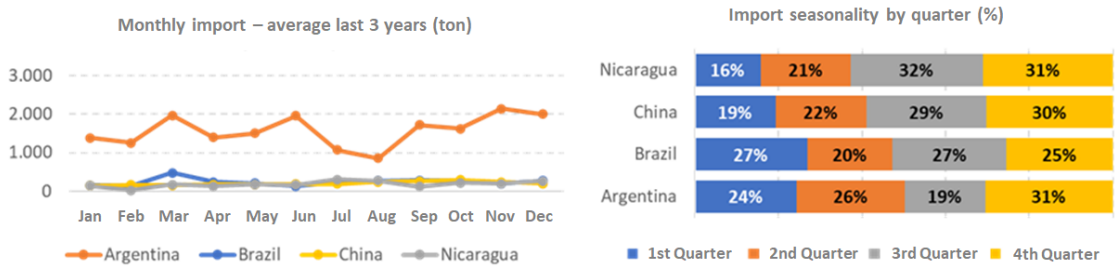


	2015	2016	2017	2018	2019
Other	626	74	286	2.228	812
Nicaragua	2.215	2.099	2.653	2.609	1.330
China	1.905	798	3.322	2.116	1.861
Brazil	1.286	1.343	1.867	3.524	3.276
Argentina	15.332	16.239	21.814	18.795	16.002
Total	21.363	20.553	29.942	29.272	23.281
Brazil Participation	6,0%	6,5%	6,2%	12,0%	14,1%

Source: ITC.

Peanut imports to Australia occur throughout the year rather than being concentrated during a particular period. Brazil, and its main supply competitors also compete and supply on a whole-of-year basis.

FIGURE 7. SEASONALITY OF RAW PEANUT IMPORTS TO AUSTRALIA (AVERAGE 2017, 2018 AND 2019) - QUANTITY IMPORTED PER MONTH (TONNES) AND PERCENTAGE OF DISTRIBUTION PER QUARTER (%)



Source: ITC.

2.1.3 Competitiveness of the Brazilian product in the Australian market

Key factors impacting on international competitiveness for export market share include production costs, internal infrastructure and logistics costs, fiscal policy in exporting countries,

distance from producers to consumer markets, sea freight costs, import taxes, quotas, and importing country requirements such as labeling, packaging, technical requirements and phytosanitary restrictions.

Overall, Brazil is a price-competitive supplier of raw peanuts, and in 2017 and 2018 was the most price competitive (see Table 1). Furthermore, the quality of the Brazilian product - defined by low presence of aflatoxin and the high oleic content - it is similar to that of the Argentine product and admittedly superior to other competitors in the Australian market. Regarding Cost, Insurance and Freight (CIF) values, the Chinese raw peanuts are the most expensive of the key importing countries to land product in Australia. However Chinese peanuts are the only exporting country exempt from the 4% import tax (see Table 2), meaning that it still stays somewhat competitive as a supplier.

TABLE 1. IMPORT PRICES FOR RAW PEANUTS FROM AUSTRALIA (US$/KG)

US$/kg	CIF Price					CIF Price + Import tax					Δ = Competitor price - Brazil price (2019)
Year	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	
Argentina	1,27	1,22	1,43	1,32	1,27	1,32	1,27	1,48	1,37	1,32	-0,01
Brazil	**1,30**	**1,18**	**1,36**	**1,03**	**1,29**	**1,35**	**1,23**	**1,41**	**1,07**	**1,34**	**0,00**
China	1,66	1,65	1,44	1,37	1,38	1,66	1,65	1,44	1,37	1,38	0,04
Nicaragua	1,21	1,12	1,39	1,35	1,27	1,26	1,17	1,45	1,41	1,32	-0,02

Source: ITC.

TABLE 1. IMPORT TAXES FOR RAW PEANUT [31]

Importing country	Exporting country	MFN Tariff	Effective tariff applied
Australia	Argentina	5%	4%
	Brazil	5%	4%
	China	5%	0%
	Nicaragua	5%	4%

Source: ITC.

2.2 Processed peanut market [32]

2.2.1 Overview of the processed peanut trade between Australia and Brazil

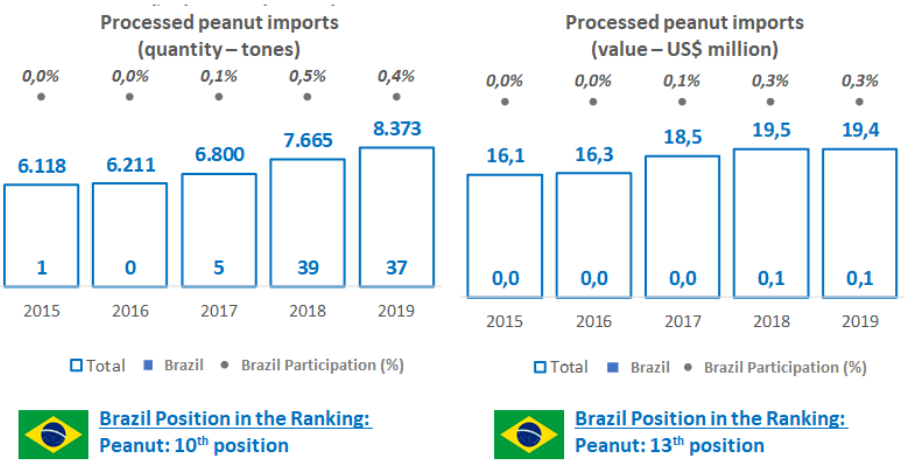
In 2019 Australia imported 8,400 tonnes of processed peanuts, valued at US$19.4 million. From 2015 to 2019, total processed peanuts imports to Australia increased by 36.8% in volume (8.2% CAGR) adding up 2,300 tonnes to the market. That means that the market for processed products is growing faster in Australia than the market for raw peanuts.

[31] In current use, MFN (Most Favored Nation) taxes are what countries promise to impose on imports from other WTO (World Trade Organization) members, unless the country is part of a preferential trade agreement (such as a free trade area or customs union). This means that, in practice, MFN rates are the highest (most restrictive) that WTO members charge each other.

[32] NCM considered: 200811 - Peanuts, prepared or canned (excluding canned with sugar).

In 2019, only 37 tonnes of processed peanuts were exported from Brazil to Australia (equivalent to one or two containers). With an overall market share of less than 1% by value, Brazil in ranked 10th of export suppliers to Australia, indicating a market demand opportunity to increase this segment of its peanut export portfolio.

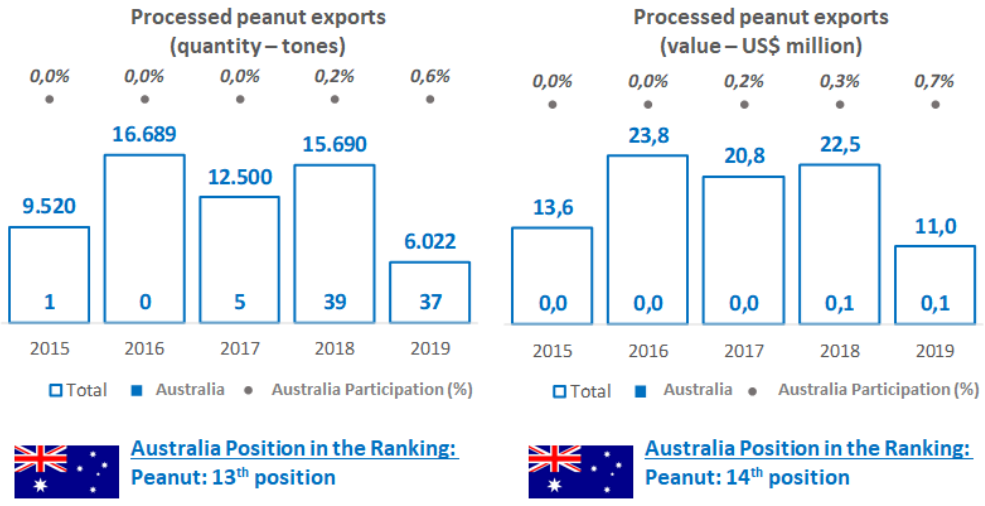
FIGURE 8. AUSTRALIAN PROCESSED PEANUT IMPORTS OVER TIME: VOLUME (TONNES) AND VALUE (US$ MILLION) AND BRAZIL'S PARTICIPATION IN THE AUSTRALIAN MARKET



Source: ITC.

On the export side, Brazil's export volumes and values have been quite varied over the last five years. The performance registered in 2019 was affected by production loss of about 12% due to bad climate conditions (Renata Sampaio, 2020)[33]. Australia's participation is consistently low – making up between zero and 0.6% of processed peanut exports. Of the 6,022 tonnes of processed peanuts exported in 2019, then main importers were Russia (28%), Chile (14%), United States (10%) and Uruguay (10%).

FIGURE 9. BRAZILIAN PROCESSED PEANUT EXPORTS OVER TIME: VOLUME (TONNES) AND VALUE (US$ MILLION) AND AUSTRALIA'S PARTICIPATION



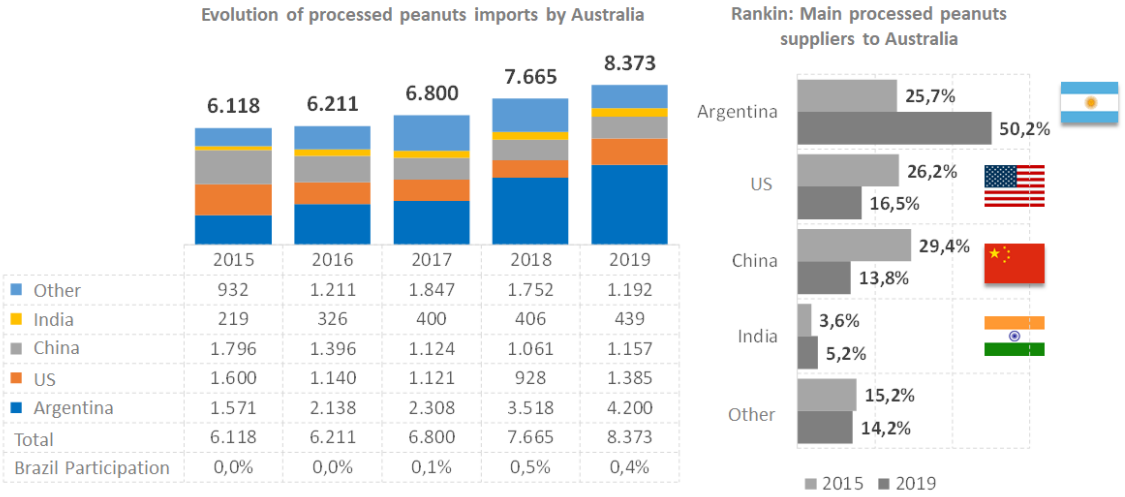
Source: ITC.

[33] SAMPAIO, R. M. Amendoim: safra difícil, mas exportações avançam e preparam terreno para 2019/2020. Revista Canavieiros, Sertãozinho, v. XIII, n. 159, p. 1-10, set. 2019. Disponível em: https://www.revistacanavieiros.com.br/uploads/pagina/tag/2019/11/e8IGHvhbxTeXEgc9/159-set-baixa.pdf.

2.2.2 Main processed peanut suppliers to the Australian market

Processed peanut supply is concentrated: 86% of Australia's processed peanut imports come from four main countries, Argentina (50%), United States (16%), China (14%) and India (5%). Argentina stands out having increased its participation 167% from 2015 to 2019, to export a total of 4,200 tonnes in 2019. Over the same period USA and Chinese import volumes decreased.

FIGURE 10. MAIN SUPPLIERS OF PROCESSED PEANUTS TO AUSTRALIA OVER TIME (TONNES)



	2015	2016	2017	2018	2019
Other	932	1.211	1.847	1.752	1.192
India	219	326	400	406	439
China	1.796	1.396	1.124	1.061	1.157
US	1.600	1.140	1.121	928	1.385
Argentina	1.571	2.138	2.308	3.518	4.200
Total	6.118	6.211	6.800	7.665	8.373
Brazil Participation	0,0%	0,0%	0,1%	0,5%	0,4%

Source: ITC.

2.2.3 Competitiveness of Brazilian Processed Peanuts in the Australian market

There is no tax barrier for Brazil, or any of the main supplying countries, to export processed peanuts to Australia.

TABLE 3. TAXES RATE FOR IMPORT OF PROCESSED PEANUT

Importing country	Exporting country	MFN Tariff	Effective tariff applied
Australia	Argentina	5%	0%
	US	5%	0%
	China	5%	0%
	India	5%	0%
	Brazil	5%	0%

Source: ITC.

Despite the low volume traded between the two countries, Brazil is a very competitive supplier to the Australian market. In 2018 and 2019, Brazilian processed peanuts had the lowest cost among the main competitors such as Argentina, the United States and China, indicating a competitive advantage the country can explore better.

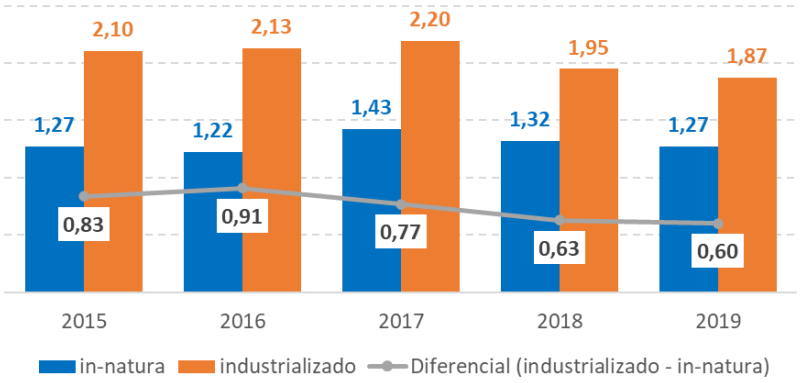
TABLE 4. IMPORT PRICES FOR PROCESSED PEANUTS FROM AUSTRALIA (US$/KG)

US$/kg	CIF Price					CIF Price + Import Tax					Δ = Competitor price - Brazil price (2019)
Year	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	
Argentina	2,10	2,13	2,20	1,95	1,87	2,10	2,13	2,20	1,95	1,87	0,25
USA	2,34	2,59	2,46	2,56	2,32	2,34	2,59	2,46	2,56	2,32	0,70
China	2,51	2,52	2,14	2,00	2,00	2,51	2,52	2,14	2,00	2,00	0,38
Brazil	**3,00**	**-**	**2,80**	**1,72**	**1,62**	**3,00**	**-**	**2,80**	**1,72**	**1,62**	**0,00**

Source: ITC

Developing trade of processed peanuts can benefit Brazilian peanut sector by adding value to the product. On average, the price of processed peanuts is 60% higher when compared to raw product, however this variation has somewhat reduced in recent years. The process in the graph below pertain to Argentina but reflects the global market prices.

FIGURE 11. PRICE COMPARISON BETWEEN RAW AND PROCESSED PEANUTS IMPORTED FROM ARGENTINA BY AUSTRALIA (US$/KG)



Source: ITC.

2.3 Prospects for peanut trade between Brazil and Australia

Brazil is a relatively new player in peanut export markets. The country has been increasingly gaining space due to the quality of its product (low aflatoxin contamination and high oleic content) and the export promotion work coordinated by ABICAP in partnership with APEX through the Brazil Sweet and Snacks Program. These factors are extremely relevant for the country to compete with Argentina, a consolidated player in the foreign market and which has been exporting for over 70 years.

While there are opportunities to increase Brazilian supply to the Australian peanut market, the country is not considered a priority or secondary market by the Brazil Sweets and Snacks Program. Despite this, Brazil has increased its market share of raw peanut supply to Australia by more than doubling exports from 2015 to 2019.

For the coming years, Brazil has a positive outlook to continue expanding its exports to the Australian market. Brazilian companies that already operate in Australia are renewing and expanding contracts as the quality of peanuts is being recognized. Moreover, Australian per capita consumption of nuts is only 30% of the international average. Furthermore, the industrialized

peanut market (sales of snacks) also represents an opportunity for Brazil to add value to its exports since the price variation reaches 60%.

Initiatives that promote Brazilian raw and processed peanuts in Australia can further accelerate commercial relationships, either through visits or bringing buyers to see Brazilian production.

FIGURE 12. OPPORTUNITIES AND CHALLENGES FOR BRAZILIAN PEANUTS IN THE AUSTRALIAN MARKET

Dimension	Positive Aspects & Opportunities	Negative Aspects & Challenges
Product & Market	• Brazilian product quality (high oleic content and strict control of aflatoxins)	
	• Increasing demand in Australia (both for fresh and prepared products)	• Australian market volume is relatively low
	• Increasing production and exports in Brazil	
	• Increasing trade between Australia and Brazil nuts markets	
	• Australia consumes a lot of nuts in general, but the peanut per capita consumption is below world average (potential to increase)	• Australia consumes a lot of nuts in general, but the peanut per capita consumption is below world average (possibly a consumption habit)
Trade & Market Access	• Brazilian product is competitive in the market and has been gaining market share	• Argentina has a strong and established peanut export relationship with Australia (more than 70 years in the market)
	• There are no barriers or market access issues to import Brazilian peanuts into Australia	
	• There is no tariff escalation, on the contrary. Industrialized peanuts do not pay import tax	• Brazil still exports little industrialized peanuts (snack)
	• Brazil and its main competitors pay the same ad-valorem tariff (4.0%)	
	• The Australian market peanut pays better than Russian (+10%) and African (+7%), where Brazil is a relevant supplier	• The European market pays 5.7% more for Brazilian peanuts than Australia, so is the focus for Brazil's exported peanuts
Other factors	• The peanut industry in Brazil has recently become more organized and professional	
	• Brazil now has an export-promotion program (Brazil Sweets and Snacks), supported by Apex-Brasil	• Australia is not considered a priority country for Brazil's export promotion initiatives

Source: Elaborated by the authors.

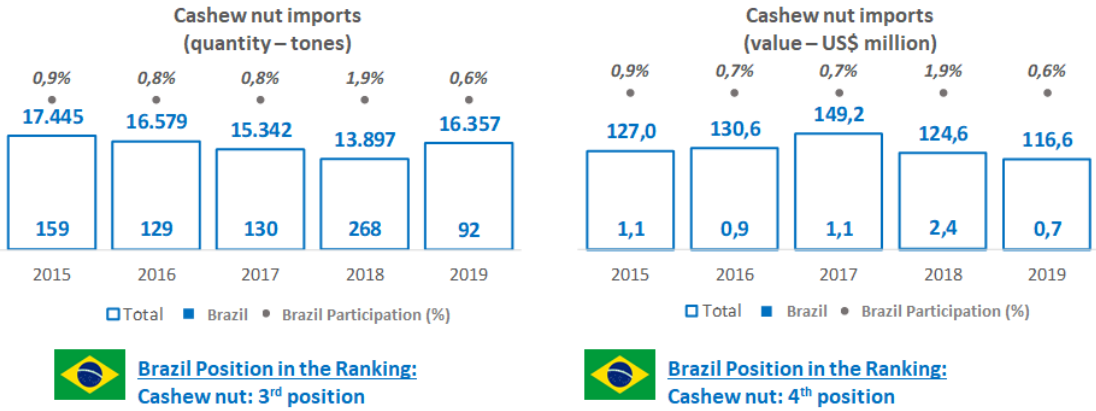
3. Cashew nuts: Market Features and Opportunities[34]

3.1 Overview of the cashew nuts trade between Australia and Brazil

Australians are eating around 16,400 tonnes or US$120 million of cashews per year, although this amount has a slight downward trend, with a per capita average going from 0,73kg per person per year in 2015 to 0,65kg per person in 2019. Australia does not produce cashews, so all product is imported. Brazil provides less than 1% of Australia's requirement.

[34] NCM considered: 080131 - Cashew nut, with shell; 080132 - Cashew nuts, without shell.

FIGURE 13. AUSTRALIAN CASHEW NUT IMPORTS AND BRAZILIAN MARKET SHARE: VOLUME (TONNES) AND VALUE (US$ MILLION)

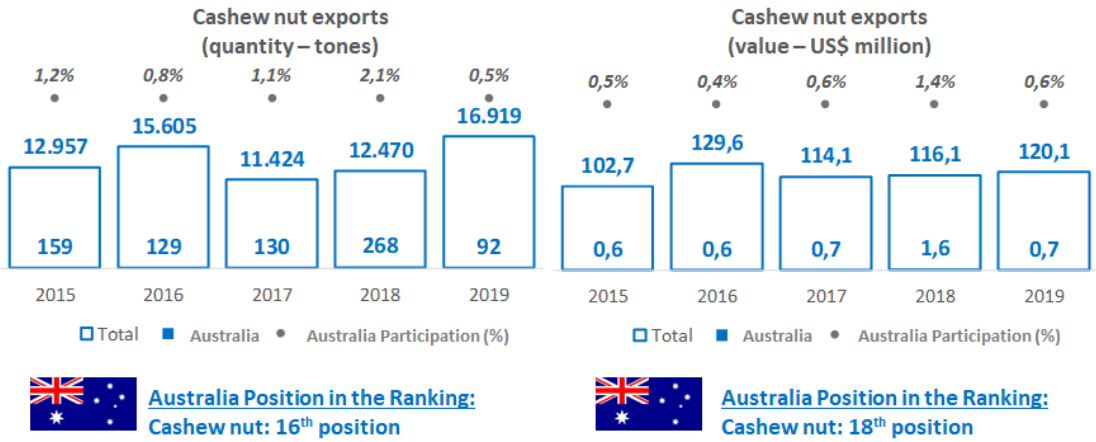


Source: ITC.

Brazilian cashew nut is recognized worldwide for its quality, classified mainly as large and medium (180 to 240 nuts per pound), of light color and good integrity. From 2015 to 2019, Brazil's export figures of cashew nuts grew 30.6% from 12,957 tonnes to 16,919 tonnes meanwhile production increased by 18.7%[35]. With a production of 122,700 tonnes[36] per year, exports account for less than 15% of market share in Brazil.

Australia has low relevance in exports from Brazil and ranks 16th in Brazil's cashew export destinations. Current key export markets for Brazilian cashew nuts are the United States (35.2%), Canada (12.8%) and the Netherlands (10,7%).

FIGURE 14. BRAZILIAN CASHEW NUT EXPORTS AND AUSTRALIAN IMPORTS OVER TIME: VOLUME (TONNES) AND VALUE (US$ MILLION)



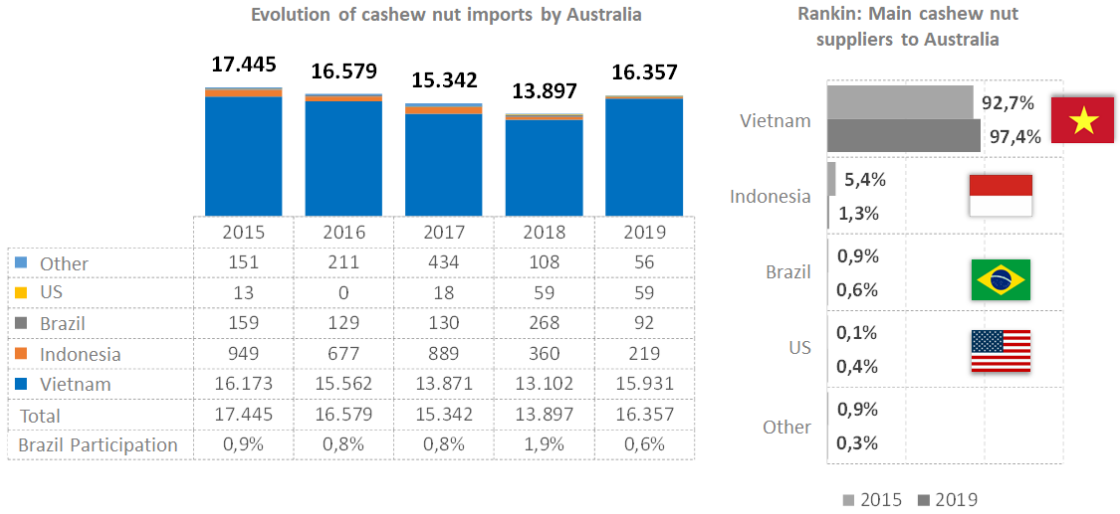
Source: ITC.

[35] It is worth mentioning that between 2012 and 2016 the Northeast region, which concentrates about 90% of the cashew nuts production in Brazil, went through a period of severe drought, damaging national production and exports. With the normalization of the rainfall regime in the region as of 2017, producers began to replant their orchards and the expectation is that national production will triple by 2025.
[36] Conab/IBGE (2020).

3.2 Brazil's main competitors in the Australian market

Vietnam currently dominates the Australian cashew nut market, consistently providing over 95% of product. Brazil is the third largest supplier by volume, after Indonesia, remembering that Brazil's volumes equates to less than 1% of Australia's total imports).

FIGURE 15. MAIN COMPETITORS IN AUSTRALIAN CASHEW NUT IMPORTS: EVOLUTION OF IMPORTS BY MAIN COUNTRIES (TONNES)

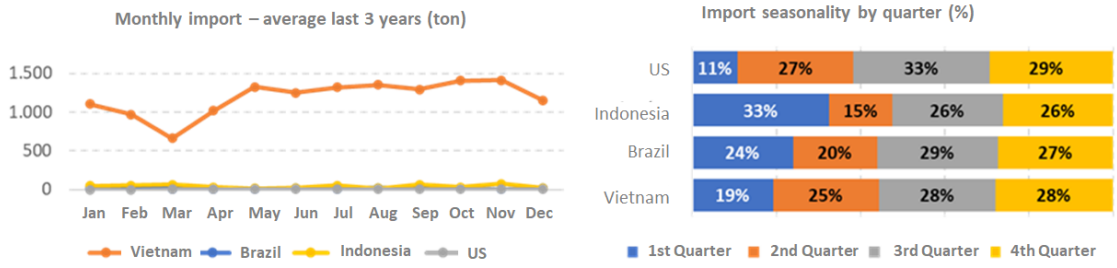


	2015	2016	2017	2018	2019
Other	151	211	434	108	56
US	13	0	18	59	59
Brazil	159	129	130	268	92
Indonesia	949	677	889	360	219
Vietnam	16.173	15.562	13.871	13.102	15.931
Total	17.445	16.579	15.342	13.897	16.357
Brazil Participation	0,9%	0,8%	0,8%	1,9%	0,6%

Source: ITC.

Australia imports cashews throughout the year, and Brazil, along with the other supplying countries have product available throughout the year, as seen in Figure 16.

FIGURE 16. SEASONAL IMPORTS OF CASHEW NUTS TO AUSTRALIA – TONNES PER MONTH AND PERCENTAGE DISTRIBUTION PER QUARTER (%)



Source: ITC.

3.3 Competitiveness of Brazilian Cashew nuts in the Australian market

There are no import taxes applied to the importation of cashew nuts to Australia. So, competitiveness relies mostly on cost of production, logistics and quality of the product being provided. Cashew nut quality is assessed based on three parameters: size, colour and integrity of the cashew nut. Brazil is well positioned with their high-quality production, compared to India and Vietnam, where nuts are medium to small and have darker color[37].

[37] Some African countries are relevant producers of cashew nuts, but as they do not have processing infrastructure, production is exported to mainly India and Vietnam for processing.

TABLE 5. IMPORT TAX FOR CASHEW NUTS

Importing country	Exporting country	MFN Tariff	Effective tariff applied
Australia	Vietnam	0%	0%
	Indonesia	0%	0%
	Brazil	0%	0%
	US	0%	0%

Source: ITC.

Regrading pricing, from the main exporting country, Vietnam, tends to have the highest sales price in the Australian cashew market. Brazil is consistently price competitive, although Indonesia has been the lowest cost product supplier.

TABLE 6. AUSTRALIAN IMPORTED CASHEW NUTS PRICES (US$/KG)

US$/kg	CIF Price					CIF Price + Import tax					Δ = Competitor price - Brazil price (2019)
Year	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	
Vietnam	7,35	7,93	9,79	9,00	7,11	7,35	7,93	9,79	9,00	7,11	-0,21
Indonesia	6,06	6,57	8,83	6,88	7,03	6,06	6,57	8,83	6,88	7,03	-0,29
Brazil	**6,94**	**7,27**	**8,40**	**8,93**	**7,32**	**6,94**	**7,27**	**8,40**	**8,93**	**7,32**	**0,00**
US	13,15	-	13,11	13,83	12,10	13,15	-	13,11	13,83	12,10	4,79

Source: ITC.

3.4 Prospects for cashew nut trade between Brazil and Australia

The international cashew nut market can be defined as a niche and value-added market. The volumes traded are not significant, but due to the higher price they command, it is a relevant market segment to explore.

Australia currently imports the same volume of cashew nuts as Brazil's total cashew nut export volumes. Although the demand per capita in Australia has recently been declining, this market may present opportunities for Brazil if stimulated:

1. Brazil can gain market share over Vietnam by actively promoting Brazilian product in Australia. This requires clear communications by companies and associations to educate Australia about the superior quality of Brazilian products, especially giving the competitive pricing of Brazilian product.
2. Build confidence about ensuring compliance with contracts
3. Support Australians to increase cashew nut consumption to replace other nuts, such as almonds. Investment in communication is important to emphasize the benefits of cashew nuts, both for direct consumption and for use in the food industry (ex: chocolates, vegan milks, etc.).

While Australia still pays 10% less for cashew nuts than the Netherlands, USA and Canada, this difference has decreased from paying 21% less in 2015, which may indicate that the country is searching for higher quality products, such as demanded by North America and the Netherlands. In 2019, Australia paid US$ 6.78 /kg of cashew nuts compared to the USA who pays the highest price of US$7.43/kg.

Furthermore, Brazilian production should triple by 2025, recovering from the drought that hit the Northeast between 2012 and 2016. This offers more security to fulfil export contracts and also encourages the search for other markets. To gain space in the snack market in developed countries, where consumers are concerned with health and environmental issues, Brazilian producers are also investing in organic and sustainable production. This appeal is certainly relevant to the Australian market.

FIGURE 17. OPPORTUNITIES AND CHALLENGES FOR THE BRAZILIAN CASHEW NUT IN THE AUSTRALIAN MARKET

Dimension	Positive Aspects & Opportunities	Negative Aspects & Challenges
Product & Market	• High Brazilian product quality (size, color and integrity)	• Per capita consumption in Australia has decreased in the last 5 years (but recovered in 2019 compared to 2018)
	• Brazilian production is recovering from the 2012-2016 drought that reduced production volumes	• Brazils **total** exports are still low and represent less than 15% of national production
	• By 2025 Brazilian production is expected to triple, increasing the availability of product for export	• Transactions between Brazil and Australia are still irrelevant. Brazil represents less than 1% of Australian **cashew** imports
	• Australia consumes a lot of nuts in general and the consumption of cashew nuts is well above the world average	
Trade & Market Access	• There are no import taxes for cashews in Australia	• Competition with Vietnam, one of the main exporters of cashew nuts
	• There are no barriers or market access issues for the Brazilian product	• Vietnam's proximity to Australia may offer the country a competitive advantage
	• Brazilian product is competitive in the market in relation to other competitors	• Netherlands, USA and Canada pay about 5.0% more for the Brazilian product and are the focus of exporters
	• Australian market pays better than German (+ 2%) and Italian (+ 3.5%)	
Other factors	• Cashew sector still lacks further structuring and credit policies	• Absence of Brazilian coordinated promotional campaigns to gain product visibility in export market (only individualized actions of the 3 large companies)
	• Promotion of organic and sustainable production to serve the most demanding markets and customers	
	• Brazil manages to take advantage of other uses of cashew (juice, fibers for vegetable meat, concentrate, etc.), which can provide other trade opportunities	

Source: Elaborated by the authors.

AUSTRALIAN EXPORT OPPORTUNITIES
CHAPTER 7:

BARLEY AND MALT: THE PERFECT MATCH BETWEEN AUSTRALIAN SUPPLY AND BRAZILIAN DEMAND

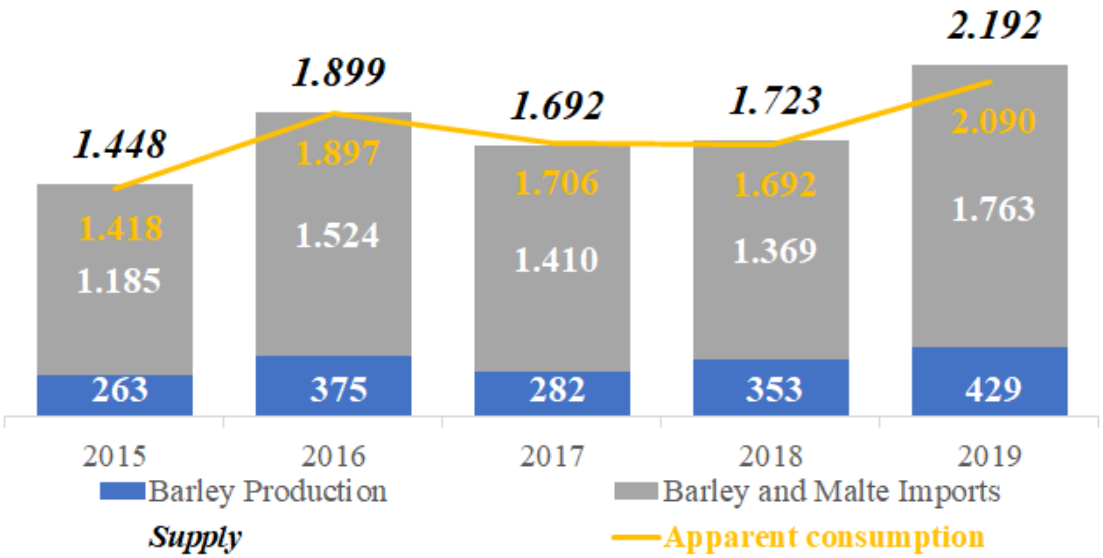
Débora Simões, Larissa Liane Heidorn

1. Introduction

Between 2015 and 2019, the Brazilian barley and malt market grew 51.3%, at an average annual rate (CAGR) of 11%, reaching over 2.0 million tonnes in 2019. This significant increase is mainly explained by the explosion in number of existing breweries in Brazil. According to the Beer Yearbook 2019, in 2015 there were 315 registered breweries in Brazil. By 2019, that number had almost quadrupled, reaching 1,209.

In order to supply the growing domestic consumption, imports of malt and barley increased approximately 50% over this period and supplied more than 80% of the Brazilian market. Barley production in Brazil also increased (63% in the period or 13% per year), but cereal production requires specific climatic and altitude conditions that are not easily found in the country. Moreover, Brazil has only a few malt houses. Thus, barley and malt imports should continue as a fundamental to sustain domestic demand.

FIGURE 1. BARLEY AND MALT[38] MARKET IN BRAZIL: SUPPLY AND DEMAND (TONNES)



Source: Conab, ITC

Currently, Brazil imports more malt than barley. In 2019, of the total volume imported from these products, malt accounted for 62% and barley, 38%. In monetary terms, malt represents 74% of the total imported value. All barley imports are malting barley, meaning barley suitable for processing into malt[39]. This is because the barley-malt industry in Brazil is fully focused on

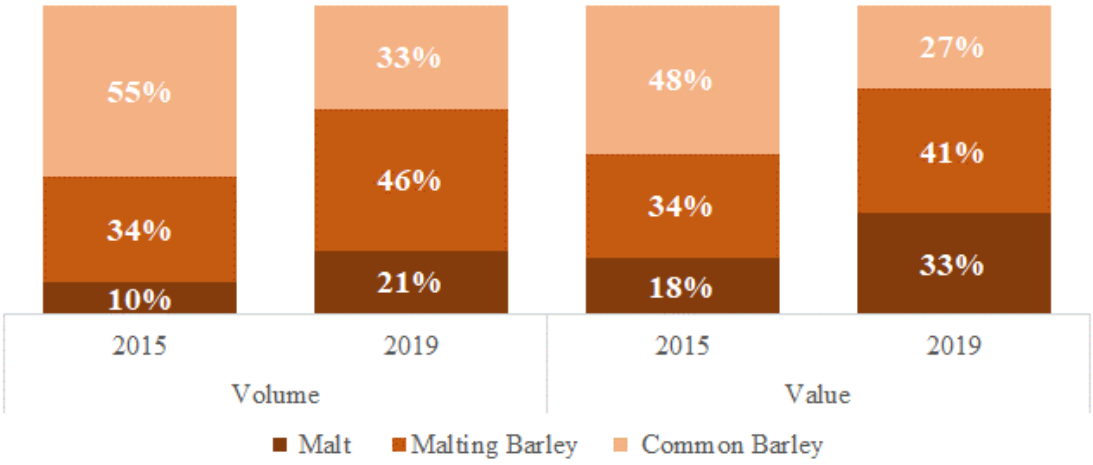
[38] Barley data correspond to NCM 1003.90 - barley (excluding seed) and malt data correspond to NCM 1107 - roasted or unroasted malt.
[39] Malting barley is governed by specific legislation and identified, among other items, by the choice of varieties and by the management practices adopted during production. To achieve the quality standard for the malting process,

meeting the demand and requirements of the brewing industry, with no alternative market for consuming large volumes of product outside the required standards (Embrapa, 2012[40]; Antoniazzi, 2020[41]). In other words, there is little demand for common barley.

Australia is one of the top five producers and exporters of barley in the world. Considering only malting barley, Australia is the world's largest supplier with a share of more than 40% in international trade, even with the recent drops in export volume due to the drought that hit the country. In 2019, barley exports generated US$726.6 million for Australia, representing 21% of the total value of Australian cereal exports. In 2019, malt accounted for half the exports from Australia's milling sector, with a value of US $ 355.1 million.

Analyzing the values and volumes of malt, malting barley and barley separately, barley is the more significant export product. However, malt exports have increased over the past few years and barley exports have decreased. As a product with higher added value, the share of malt has grown mainly in financial terms rather than volumes (see Figure 2).

FIGURE 2. EXPORT VOLUMES OF AUSTRALIAN BARLEY PRODUCTS - 2015 AND 2019



Source: ITC

Trade history between Brazil and Australia regarding barley and malt is negligible. Since 2015, 2019 was the only year where product was traded between the two countries – a mere 1% of Brazils imports and 1.3% of Australia's exports. Although the numbers are low, there is supply and demand potential to build on. Australia is currently implementing a customer diversification strategy to reduce dependence on China (AEGIC, 2020)[42]. Furthermore, China adopted anti-dumping measures against Australian barley, making new trade partners a high priority for Australian barley industry[43].

barley must have a minimum germination rate of 95% and meet other requirements regarding size, protein content and health.

[40] http://www.cnpt.embrapa.br/biblio/do/p_do139_5.htm

[41] https://engarrafadormoderno.com.br/ingredientes/cultivo-da-cevada-cervejeira-no-brasil-evolucao-e-tendencias

[42] https://www.aegic.org.au/wp-content/uploads/2020/09/AEGIC_Barley-2030_LR.pdf

[43] In May 2020, China imposed a dumping margin of up to 73.6% and a subsidy margin up to 6.9% on all barley imported from Australia.

The objective of this chapter is to assess the dynamics and characteristics of the malting barley and malt markets to identify existing opportunities. Despite common barley (non-malting) represents approximately one third of Australian exports, it will not be treated as an opportunity in this report, since this product not relevant in Brazilian imports.

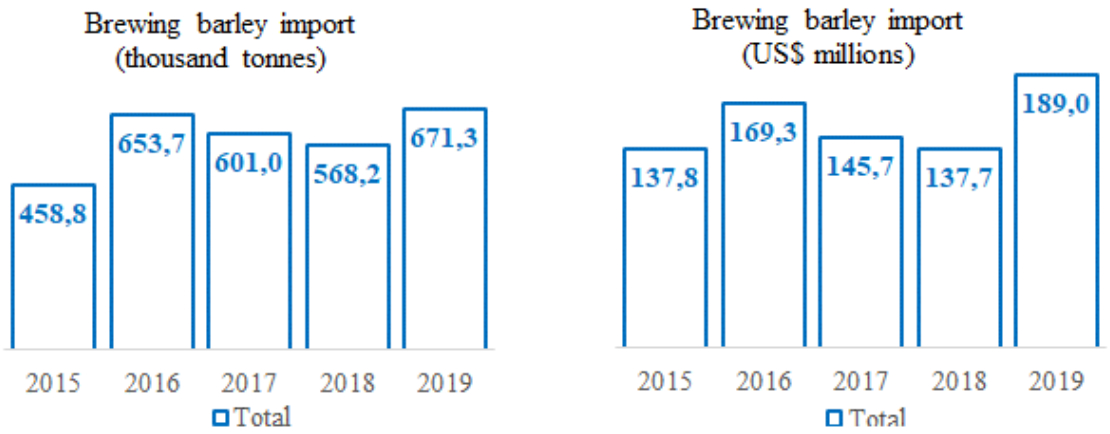
2. Characteristics and Opportunities in the malting barley market[44]

2.1 Overview between Australia and Brazil trade

According to data from Embrapa, the Brazilian barley-malt sector has three malt houses, with a current total malt production capacity estimated at 700,000 tonnes per year. Considering product supply security and apportioning some production for seed, around 940,000 tonnes of malting barley is required each year, and imports make up more than 60% of this amount.

Brazil is the second largest importer of malting barley in the world, with an 11% share, behind only of China, who imports 40% of the global offer. From 2015 to 2019, the volume imported by Brazil grew 46% (10% per year on average), totalling 671,300 tonnes or US$189 million in 2019. As previously mentioned, the number of registered breweries in Brazil also exploded during this period, supporting the expressive increase in demand.

FIGURE 3. BRAZILIAN IMPORTS OF MALTING BARLEY OVER TIME: VOLUME (THOUSAND TONNES) AND VALUE (US$ MILLION).



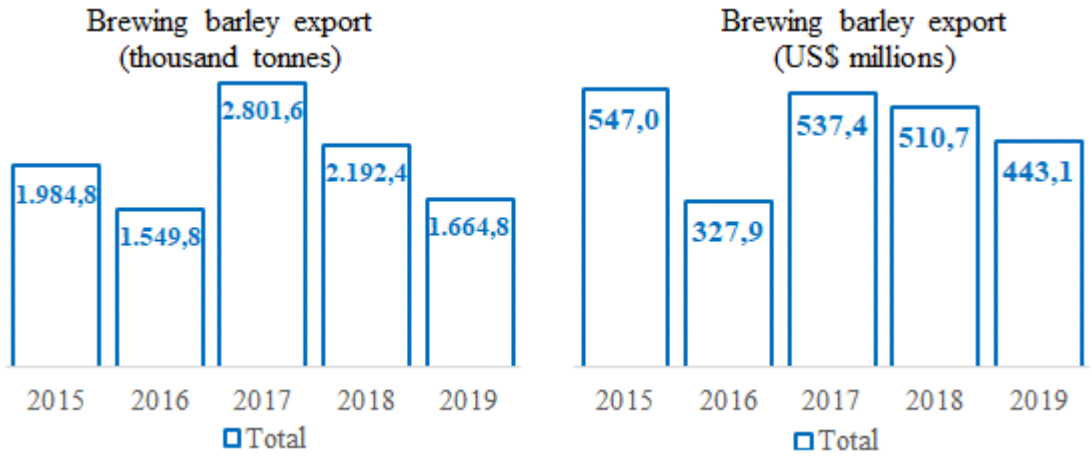
Source: ITC.

Despite Australia being the main global supplier of malting barley (accounting for roughly 40% of the world trade[45]), imports from Australia to Brazil were not registered from 2015 to 2019. The main destinations for Australian malting barley are China (87%), Japan (7%) and Vietnam (6%). Exports absorb 65% to 70% of all malting barley produced in Australia and are essential to sustain the market[46]. According to Barley Australia, an association of barley and malt companies, Australia has a great reputation in the international market for providing high quality

[44] Data: NCM 100391 and AHECC 10039010 - malt barley (excluding seed).
[45] https://www.graincentral.com/markets/export/australia-needs-to-diversify-barley-markets-aegic/
[46] https://www.barleyaustralia.com.au/industry/barley/

of barley in a favorable climate, guaranteeing a product with low humidity content and extremely low levels of contaminants[47].

FIGURE 4. AUSTRALIAN MALTING BARLEY EXPORTS OVER TIME: VOLUME (THOUSAND TONNES) AND VALUE (US$ MILLION)

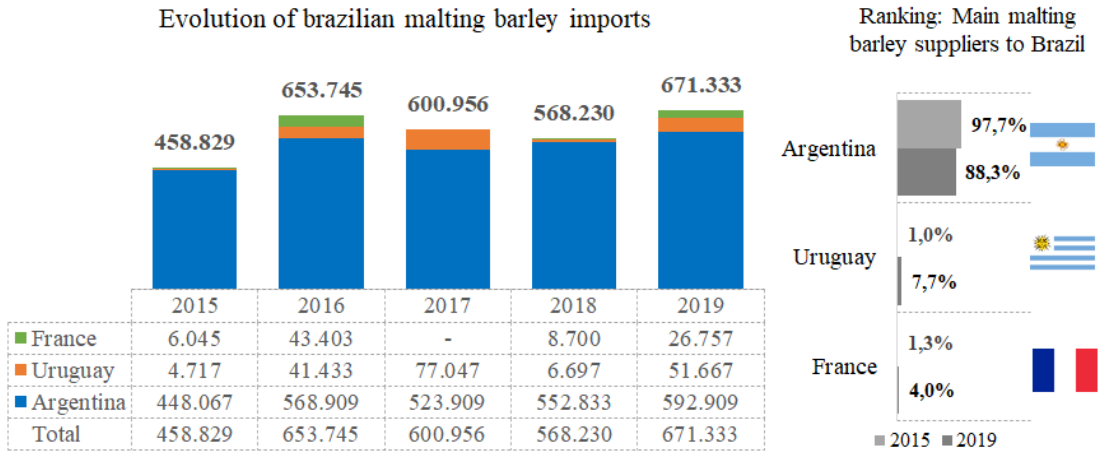


Source: ITC.

2.2 Main suppliers to the Brazilian malting barley market

In the last five years, Brazilian imports of malting barley have been supplied by three countries: Argentina (88.3%), Uruguay (7.7%) and France (4.0%). It is interesting to note that both Uruguay and France supplied only 1% each of Brazils requirement in 2015, the same amount that Australia provided in 2019.

FIGURE 5. MAIN SUPPLIERS OF MALTING BARLEY TO BRAZIL: IMPORT VOLUMES OVER TIME (TONNES)



	2015	2016	2017	2018	2019
France	6.045	43.403	-	8.700	26.757
Uruguay	4.717	41.433	77.047	6.697	51.667
Argentina	448.067	568.909	523.909	552.833	592.909
Total	458.829	653.745	600.956	568.230	671.333

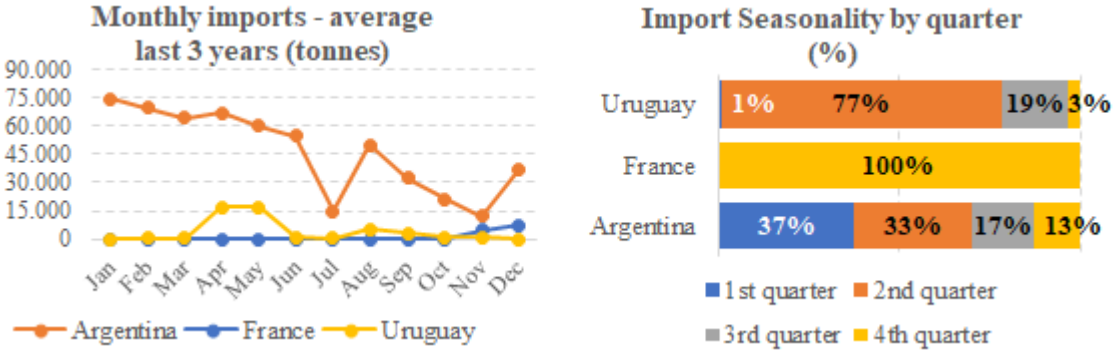
Source: ITC.

Some 70% of Brazil's barley imports are received between January and June. This is due to the barley harvest period in Argentina and Uruguay occurring in November, December and January. France's barley is usually delivered between October and December, due to the northern hemisphere production calendar. Australian barley is harvested between October and December,

[47] https://www.barleyaustralia.com.au/industry/barley/

providing an opportunity to potentially supply Brazil a month earlier than when Argentina and Uruguay come on-stream.

FIGURE 6. SEASONALITY OF MALTING BARLEY IMPORTS TO BRAZIL AND EXPORTS BY AUSTRALIA (AVERAGE 2017, 2018 AND 2019) - QUANTITY IMPORTED PER MONTH (TONNES) AND DISTRIBUTION PER QUARTER (%)



Source: ITC.

2.3 Price Competitiveness of Australian Malting barley in Brazil

Barley from Argentina and Uruguay has no import duties in Brazil due to the Mercosur agreements. By contrast, Australia would pay an ad valorem tariff of 10%, just as France does. This is the base rate that Brazil registered with the WTO (also known as the MFN tariff) and puts the Australian product at a disadvantage.

TABLE 1. IMPORT TAXES FOR MALTING BARLEY

Importing country	Exporting country	MFN Tariff	Effective tariff applied
Brazil	Argentina	10%	0%
	Uruguay	10%	0%
	France	10%	10%
	Australia	10%	10%

Source: ITC.

In 2019, the average price of imported malting barley from Argentina and France was quite similar, despite French barley paying the 10% import tax. Generally, Uruguayan barley attracts a price premium due to contract agreements and advantages in transportation cost since it can use railway to reach Brazilian malt houses.

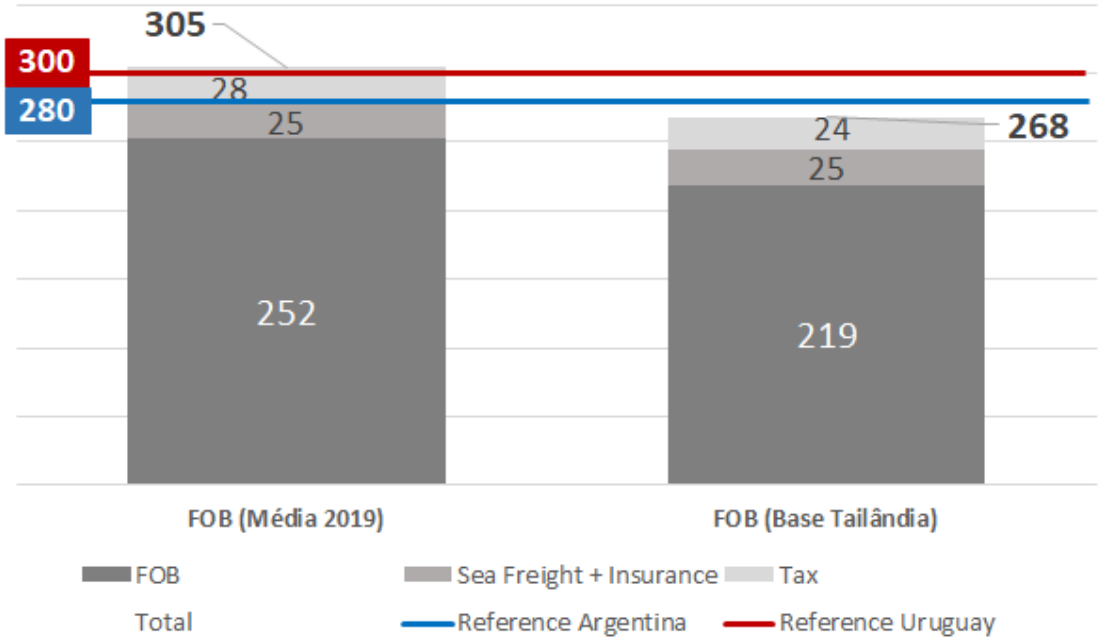
TABLE 2. BRAZILIAN BARLEY IMPORT PRICES BY KEY SUPPLIERS (US$/TONNE)

US$/t	CIF Price					CIF Price + Import tax				
Year	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Argentina	300,75	253,66	239,33	241,02	281,08	300,75	253,66	239,33	241,02	281,08
Uruguay	290,84	309,49	263,52	278,33	300,29	290,84	309,49	263,52	278,33	300,29
France	279,91	279,61	-	292,99	255,11	307,90	307,58	-	322,29	280,62

Source: ITC.

To be price competitive, Australian malting barley needs to cost US$ 280-300/tonne. Considering the average FOB price for Australian beer barley was US$252/tonne in 2019, and freight and insurance cost around US$25/tonne[48], along with the 10% import tax, the final landed price would be about US$304/tonne, only slightly more expensive than other suppliers. However, given that Australian barley to Thailand (its third largest market) is priced at a discount of (US$219/tonne), it is possible to conclude that there is room for price negotiation so that Australian barley can compete in Brazil.

FIGURE 7. AUSTRALIAN MALTING BARLEY PRICE COMPETITIVENESS COMPARED TO ARGENTINA AND URUGUAY (US$/TONNES)



Source: Calculated by the authors based on ITC and USDA data.

However, it is important to note that Australian barley is not included in the List of Authorized Import Vegetable Products (PVIA) by the Brazilian Ministry of Agriculture, Livestock and Supply (MAPA) and therefore is not authorized to enter the Brazilian market. A Pest Risk Analysis (ARP) is first needed to be carried out to confirm that the imported product meets phytosanitary requirements. In this case, the ARP request must be filed by Australia in order for Brazil to start the assessment process. In addition, there are 44 different measures relating to inspections, tests and quality that must be met fulfilled for the approved product to enter Brazil.

[48] Estimated cost based on soybean transportation costs between Brazil and China adjusted for the difference in distance.

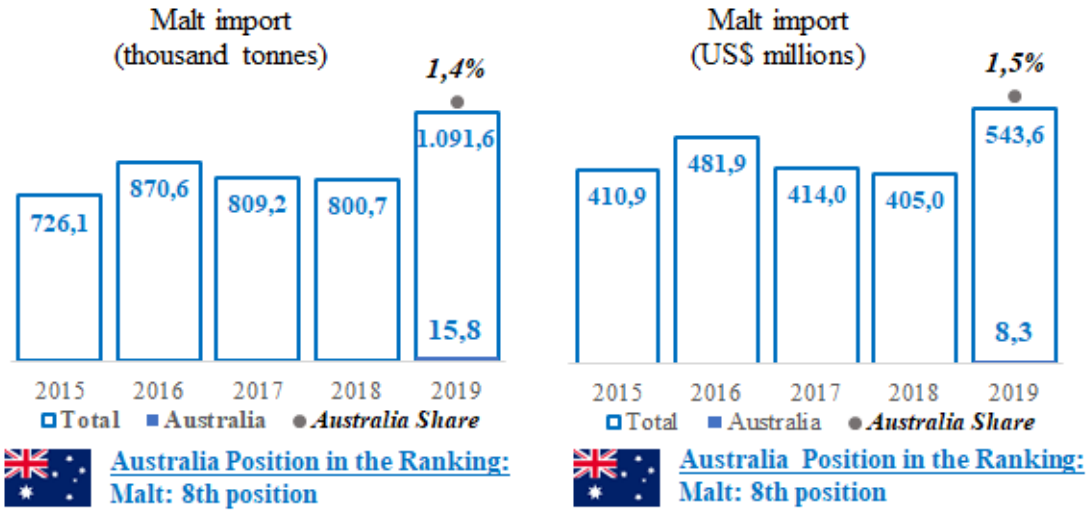
3. Malt: Market Features and Opportunities

3.1 Overview of the malt trade between Australia and Brazil

Brazil is the largest importer of malt in the world, and 70% of the malt it uses is imported. Given the limited size and capacities of Brazilian malting plants, this import requirement is expected to continue, and even increase in coming years. Between 2015 and 2019, the volume of imported malt in Brazil grew by more than 50% to meet demand from the growing number of breweries. A record quantity of 1 million tonnes of malt was in imported in 2019, valued at about US$ 543.6 million.

An important point for Brazil-Australia relations is that in 2019 a commercial flow of malt (15,800 tonnes valued at US$8.3 million) was traded between the two countries, representing 1.4% of the total volume imported by Brazil.

FIGURE 8. BRAZILIAN IMPORTS OF WHOLE UNROASTED MALT OVER TIME: VOLUME (THOUSAND TONNES) AND VALUE (US$ MILLION) AND AUSTRALIA'S PARTICIPATION IN THE BRAZILIAN MARKET.

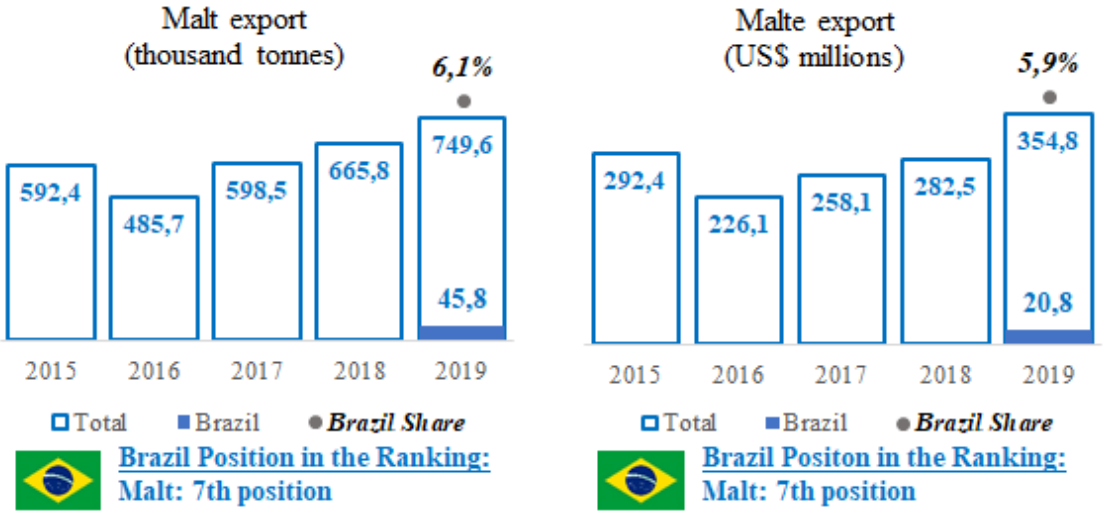


Source: ITC.

From 2015 to 2019, Australia recorded a 26% growth in malt exports, reaching a volume of 750,000 tonnes in 2019 and a value of US$ 354.8 million. Of this, 45,000 tonnes was supplied to Brazil, making Brazil the seventh largest malt import market for Australia, representing 6% in volume and in value of exports. Vietnam (31.6%), South Korea (13.7%) and Japan (11.7%) are the main destinations for Australian malt. Brazil is the main importer of Australian malt in the west[49].

[49] The value of 45,800 tonnes registered in Australian export base is different from the 15,800 tonnes registered in import base of Brazil, according to ITC data. These differences can be explained by the period of checkout of goods from Australia and the period of nationalization of the product in Brazil.

FIGURE 9. AUSTRALIAN MALT[50] EXPORTS OVER TIME: VOLUME (THOUSAND TONNES) AND VALUE (US$ MILLION) AND BRAZILIAN PARTICIPATION IN AUSTRALIAN EXPORTS

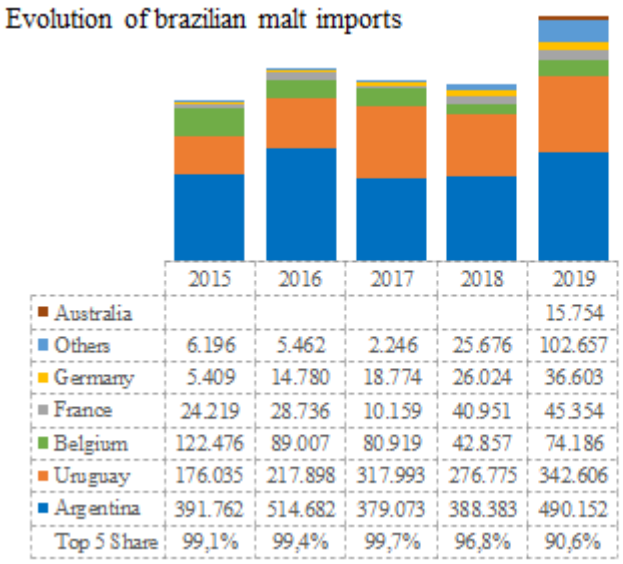


Source: ITC.

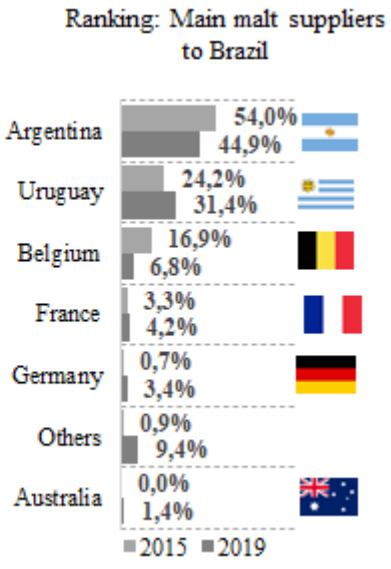
3.2 Australia's main competitors in the Brazilian malt market

Argentina and Uruguay are the main malt suppliers to Brazil, representing more than 75% of the market. European countries are also important partners to supply Brazilian demand in periods when production in the southern hemisphere decreases. In 2019, Australia emerges as a new source of Brazilian malt imports, contributing with 1.4% of the total volume, a relevant amount for a first-year negotiation between the two countries.

FIGURE 10. MAIN NATIONAL COMPETITORS FOR BRAZILIAN MALT IMPORTS OVER TIME: (TONNES)



	2015	2016	2017	2018	2019
Australia					15.754
Others	6.196	5.462	2.246	25.676	102.657
Germany	5.409	14.780	18.774	26.024	36.603
France	24.219	28.736	10.159	40.951	45.354
Belgium	122.476	89.007	80.919	42.857	74.186
Uruguay	176.035	217.898	317.993	276.775	342.606
Argentina	391.762	514.682	379.073	388.383	490.152
Top 5 Share	99,1%	99,4%	99,7%	96,8%	90,6%

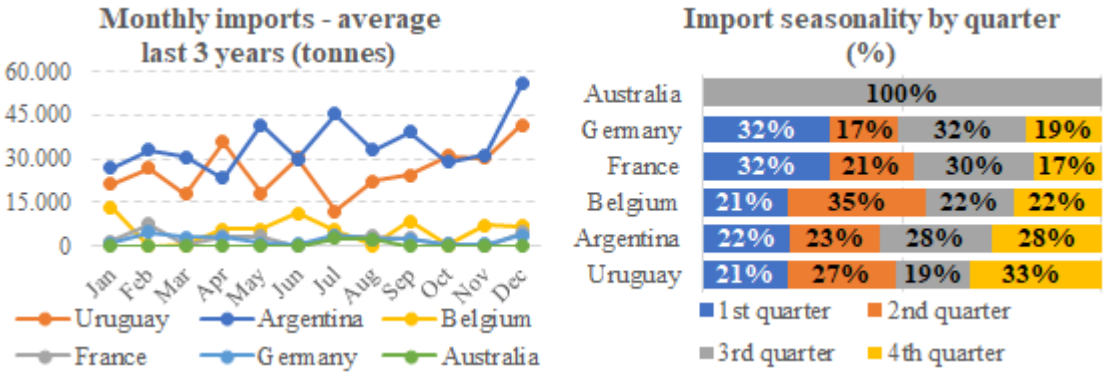


Source: ITC.

[50] NCM: 1107 - roasted or not roasted malt

Brazil buys malt throughout the year, with a slight reduction in months close to winter, when beer consumption falls in the country. There is a difference in the seasonality of purchases from the Mercosur countries and Europe due to the planting schedule for barley and consequent malt production in each region. the 2019 Australian malt was delivered in July and August, and although the small volume traded makes it hard to define the true seasonality of the Australian offer, it is expected to occur in the second half of the year, similar to other countries in the southern hemisphere.

FIGURE 11. SEASONALITY OF MALT IMPORTS IN BRAZIL (AVERAGE 2017, 2018 AND 2019) - QUANTITY IMPORTED PER MONTH (TONNES) AND DISTRIBUTION PER QUARTER (%)



Source: ITC.

3.3 Competitiveness of the Australian malting barley in the Brazilian market

Argentine and Uruguay malt are not subject to import tariffs, due to the Mercosur agreements. Belgium, France, Germany and Australia pay an ad-valorem tariff of 14% the the MFN tariff (most favoured nation). It is worth noting that Brazil charges a higher tariff for malt than for barley, which can be a mechanism to stimulate the national industry.

TABLE 3. IMPORT TAXES FOR WHOLE UNROASTED MALT.

Importing country	Exporting country	MFN Tariff	Effective tariff applied
Brazil	Argentina	14%	0%
	Uruguay	14%	0%
	Belgium	14%	14%
	France	14%	14%
	Germany	14%	14%
	Australia	14%	14%

Source: ITC.

The 2019 CIF (Cost, Insurance and Freight) price to deliver Australian malt to Brazil still made it a competitive product with Uruguayan malt, however the 14% additional MFN tariff renders it 8% more expensive than Germany, the second most expensive provider, and 20% more expensive than Argentina, the main supplier (see Table 4).

TABLE 4. IMPORT PRICES OF WHOLE UNROASTED[51] MALT IN BRAZIL (US$/KG)

US$/t	CIF Price					CIF Price + Import tax					Δ = Competitor Price - Brazil Price (2019)
Year	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	
Argentina	600,1	579,9	517,6	512,8	500,3	600,1	579,9	517,6	512,8	500,3	-98,0
Uruguay	613,8	577,1	539,8	527,1	526,7	613,8	577,1	539,8	527,1	526,7	-71,6
Belgium	410,3	399,7	384,4	392,7	426,1	467,7	455,7	438,2	447,6	485,7	-112,6
France	415,3	397,0	409,8	391,2	385,1	473,5	452,6	467,1	446,0	439,0	-159,2
Germany	568,6	472,0	464,5	482,7	484,3	648,2	538,1	529,5	550,3	552,1	-46,2
Australia	-	-	-	-	524,8	-	-	-	-	598,3	-

Source: ITC.

The small volume traded between Brazil and Australia may have affected the price of the product and sea freight. To compete with Argentina and Uruguay, Australian malt should reach Brazilian port ranging from 440 US$/t to 460 US$/t[52], which means a difference of US$ 84-64 per tonne regarding 2019's CIF price. To improve price competitiveness, a discount in the product or freight price could be negotiated. A price premium would only be accepted in Brazil if Australian malt quality is very specific and serves a niche market, or if Australia can supply Brazil in times of low supply from competitors.

4. Prospects for the barley and malt trade between Brazil and Australia

Australia is an important player in the production and export of malting barley and malt, even with the temporary decrease in production over the last few years. Australia is recognized for the high quality of its products, with low humidity and low levels of contamination. However, the sector is going through a turbulent time as China has adopted anti-dumping measures against Australian products. This is further aggravated by the trade agreement between China and the United States, favoring the American grain trade and further affecting the flow of other nation's barley to China.

Australia is designing a strategy to develop new barley and malt export markets and diversify its buyers to reduce the heavy dependence on the Chinese market. In the 2020 report published by the Australian Export Grains Innovation Center (AEGIC), the suggested actions focused on Asian countries, such as New Zealand, Japan, South Korea and Thailand. Brazil was not mentioned as an opportunity in the report, however, when analyzing the Brazilian market more closely, there is a potential that can be explored between the two countries.

Brazil is the second largest importer of malting barley and the largest buyer of malt in the international market and the market continues to grow at annual rates in the double digits. According to the Yearbook of Beer 2019, "the significant growth in the number of beer and brewery registrations in Brazil is sustainable and there is no perceived slowdown in this movement" (MAPA, 2020). If the pace of growth continues, MAPA's perspective is that the number of breweries should triple by 2025, surpassing the mark of 3,000 establishments.

The volume of barley imported by Brazil, along with the national production of around 400,000 tonnes/year, is already very close to what the malt processors are capable of processing. However, Ambev intends to build a new malt plant in the Southeast of Brazil, and the Frisia,

[51] NCM: 11071010 - whole or broken unroasted malt.
[52] Value estimated based on Argentina and Uruguay's CIF price and 14% discount due to import tax.

Capal, Agrária and Bom Jesus cooperatives announced a joint project in November 2020 to build a new malt plant in the Paraná state with a production capacity of 240,000 tonnes/year. Until any significant new facilities are completed, malt imports are essential to supply the demand of the new breweries.

The Brazilian market is highly dependent on Argentine production, which represents about 88% of imports of barley and 45% of malt. However, political instability and the economic situation in the neighboring country are risks that must be considered by Brazil, which must also be prepared to diversify its suppliers. Australia would be a perfect fit, but some basic steps still need to be taken, such as the process of authorizing Australian barley to enter the country. This process is time-consuming, but it should be on the agenda, as it can help to minimize risks that both countries face. The malt sales from Australia to Brazil in 2019 represent a good first step towards closer relations, but Australian malt need to be more price-competitive to establish a recurrent trade partnership. Hence, countries could initiate negotiations for trade agreements or price discounts that could reduce the tariff or landing prices on Australian malt products.

The current supply and demand scenario for Australian-Brazil barley and malt is very favorable to encourage more product flow, however, there are not yet any agreements in place for this trade to establish itself more significantly. The potential is in place, and it is now up to the governments of the two countries to establish a dialogue so that they can reach an agreement that benefits both Australia and Brazil.

FIGURE 12. OPPORTUNITIES AND CHALLENGES FOR AUSTRALIAN BARLEY AND MALT IN THE BRAZILIAN MARKET

Dimension	Positive Aspects & Opportunities	Negative Aspects & Challenges
Product & Market	• Australian product quality is recognized as one of the best in the world (low humidity and low contamination).	• Australian production declined in recent years due to drought and lack of water.
	• Australia is a major producer and supplier of barley and malt, while Brazil is one of the world's largest importers of these products.	• Brazil and Australia are not commercial partners in this market. Malt trade was registered in 2019 for the first time.
	• Brazilian imports of barley and malt have grown at annual rates of over 10% in recent years and this trend is expected to continue.	• Australia focuses on the Asian market (especially in China), while Brazil's supply mainly comes from Argentina, Uruguay and Europe.
	The number of breweries in Brazil is expected to triple by 2025, driven by artesanal breweries. This increases the demand for imported malt.	
	• 2 new malthouse pojects have been proposed in Brazil, increasing processing capacity, and favouring additional barley imports.	
Trade & Market Access	• With FOB prices similar to those paid by Thailand, but below Australia's average sales, the Australian product is price-competitive in the Brazilian market.	• Competition with Argentina and Uruguay, which benefit from the Mercosur agreement (no import taxes) and are long-time suppliers to Brazil.
	• The malt trade can develop faster than barley, and serve to strengthen relations for barley trade in the future.	• Australia is subject to an import tax of 10% for barley and 14% for malt, through the MFN tariff
		• Australian barley is not allowed to enter the Brazilian market until a Pest Risk Analysis is completed, which is quite a bureaucratic process
Other factors	• Measures adopted by China has casued Australia to diversify its buyer markets.	• There are no concrete actions to promote the commercial flow of barley and malt between the two countries, not even the request for Pest Risk Analysis
	• Political and economic uncertainties in Argentina presents a possible supply risk to Brazil for barley and malt imports.	

Source: Prepared by the authors.

AUSTRALIAN EXPORT OPPORTUNITIES
CHAPTER 8:

WHEAT: LACK OF COMPETITIVENESS AND BUREAUCRACY CREATE BARRIERS TO THE AUSTRALIAN PRODUCT

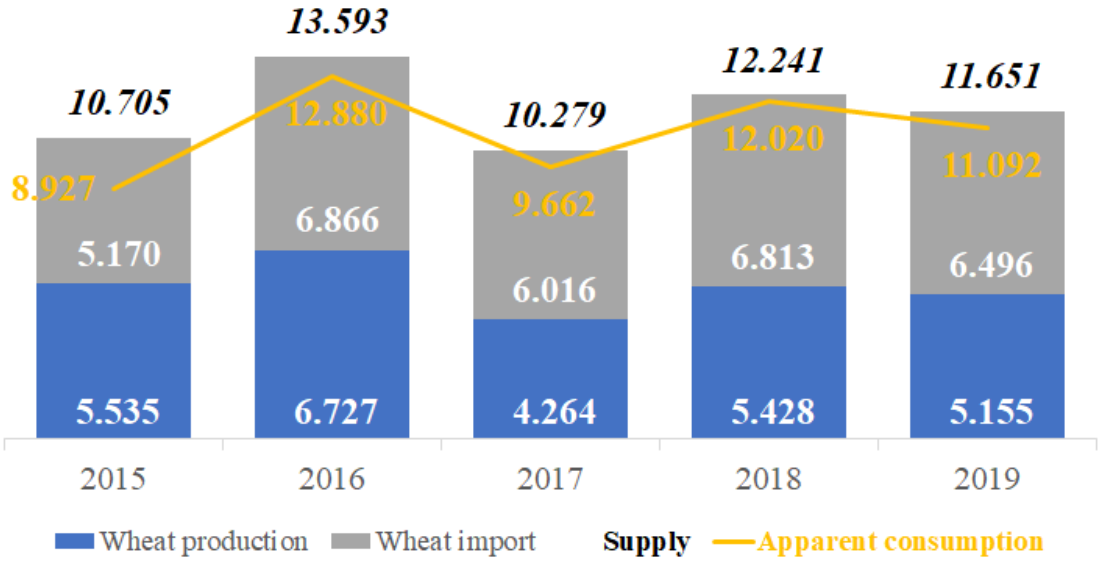
Débora Simões, Heloisa Melo e Larissa Liane Heidorn

1. Introduction: Wheat market in Brazil

The wheat market in Brazil – including wheat used in human food, industry and animal feed –uses around 12 million tonnes of product per year. This makes Brazil the 10th largest consumer market in the world with a participation of 1.6 % (FAS / USDA, 2020). Roughly 45% is produced domestically and 55% imported.

From 2015 to 2019, Brazilian consumption of wheat grew 24,3% (5.6% per year). In order to supply the growing consumption, wheat imports had an increase of the same proportion (25.6% or 5.9% per year) while the national production decreased by 6.9% during this period. Economic and agronomic factors limit the amount and quality of wheat grown in Brazil[53].

FIGURE 1. WHEAT[54] MARKET IN BRAZIL: SUPPLY AND DEMAND[55] (THOUSAND TONNES)



Source: Conab, ITC

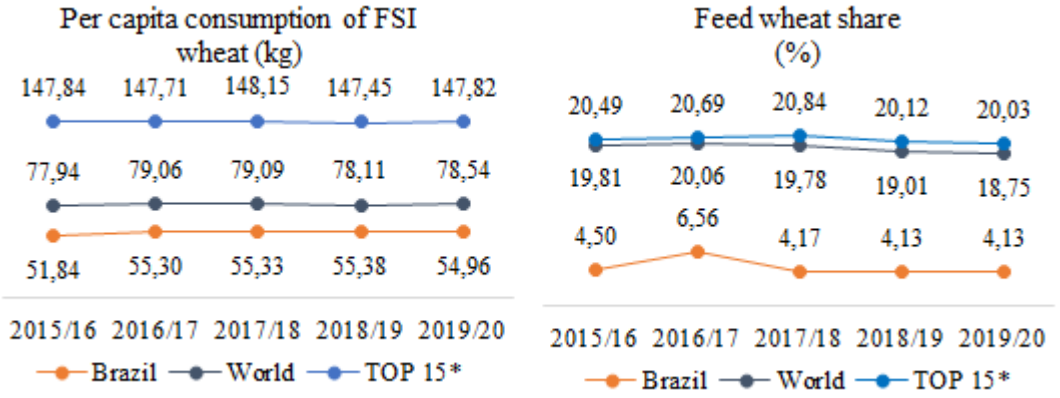
[53]In the south-eastern, central-western and northern regions of Paraná there is strong competition from "safrinha" corn, the second crop planted in a season that has been gaining space. In the southern half of Paraná, Santa Catarina and Rio Grande do Sul, in addition to economic factors, crop rotation is a determining factor, as producers avoid planting two grasses in the same area. Many producers who plant summer corn will not plant wheat as their second crop to avoid the spread of pests and diseases common to this same family of plants (Poaceae). However, depending on wheat and corn prices, some farmers wheat as an opportunity as occurred in 2016, increasing domestic production temporarily.

[54]Wheat data correspond to NCM 1001.

[55]Estimated demand based on apparent consumption, calculated by the authors from FAO and ITC data. Apparent consumption = production + imports – exports.

Per capita wheat consumption in Brazil is below the world average, with Brazilians consuming 55kg of wheat in 2019-2020 compared to the world average of 79kg per capita. The lower consumption of Brazilians is due to eating habits as Brazilians also use rice, corn and manioc/cassava as energetic sources. In addition, Brazilian diets are less focused on fast food, bread and pasta than developed countries. Another peculiarity of the Brazilian market is the low percentage of wheat used for animal feed when compared to other markets.

FIGURE 2. PER CAPITA CONSUMPTION OF FOOD, SEEDS AND INDUSTRIAL (FSI)[56] WHEAT AND ANIMAL FEED WHEAT IN BRAZIL, THE WORLD AND THE FIFTEEN LARGEST WHEAT CONSUMER MARKETS.

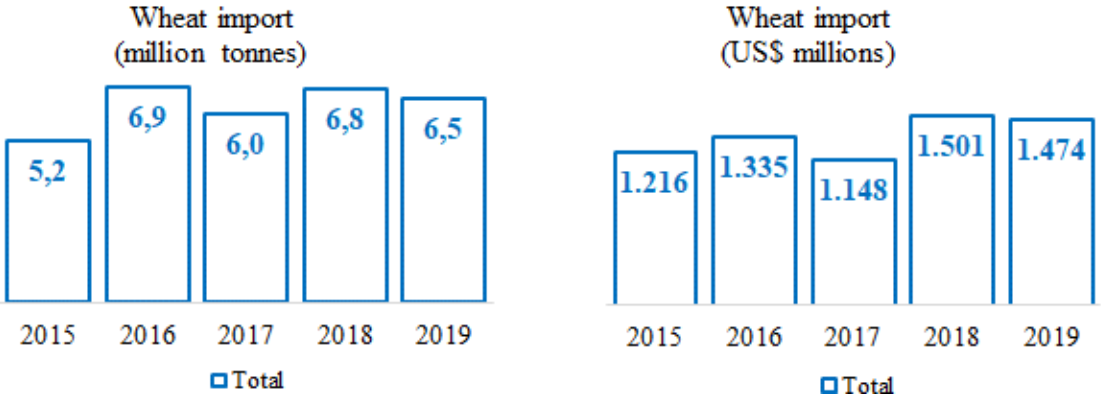


*Quinze maiores mercados consumidores
Source: FAS/USDA and World Bank

2. Overview of wheat trade between Brazil and Australia

Wheat is the main agricultural product imported by Brazil, and it currently ranks as the 7th largest wheat importer in the world. From 2015-2019, imports grew 25.6% (5.9% per year) registering 6.5 million tonnes or US$ 1.5 billion in 2019.

FIGURE 3. BRAZILIAN WHEAT IMPORTS OVER TIME: VOLUME (THOUSAND TONNES) AND VALUE (US$ MILLION).

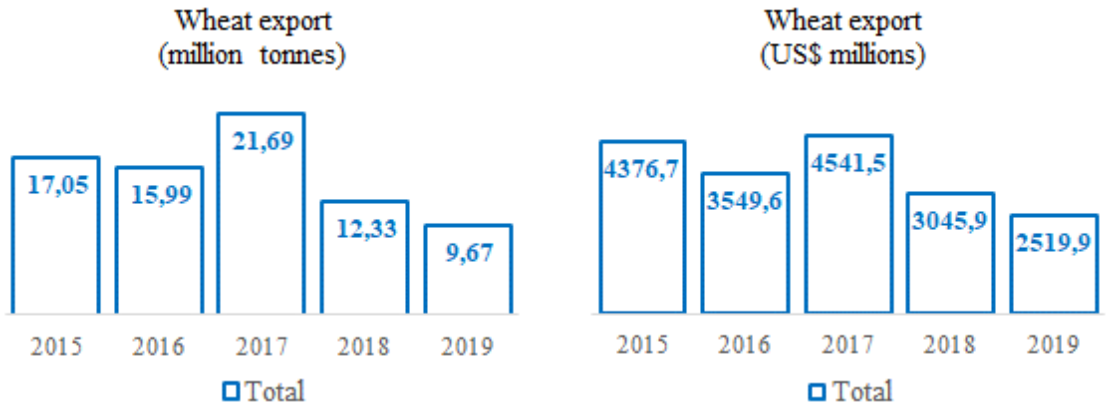


Source: ITC.

[56] FSI: Food, Seeds and industrial.

Australia, on the other hand, ranks as the 7th largest wheat export market currently accounting for around 5% of the world market (FAS/USDA, 2020). Normally, Australia exports around 18 million tonnes of wheat per year. However, drought conditions during 2017 – 2019 reduced production by about a third and exports to almost half of 2015 figures[57]. The difference between production and export figures was mainly due to weak growth of Australian pastures during this period resulted in a significant increase in domestic animal feed demand (ABARES,2020)[58]. As a result, less wheat was available for export markets.

FIGURE 4. AUSTRALIAN WHEAT EXPORTS OVER TIME: VOLUME (MILLION TONNES) AND VALUE (US$ MILLION)



Source: ITC.

There is no data available detailing wheat sales from Australia to Brazil from 2015-2019. Australia barely exports wheat to any western countries. Philippines (19%), South Korea (11%) and Japan (10%) are the main destinations for Australian wheat.

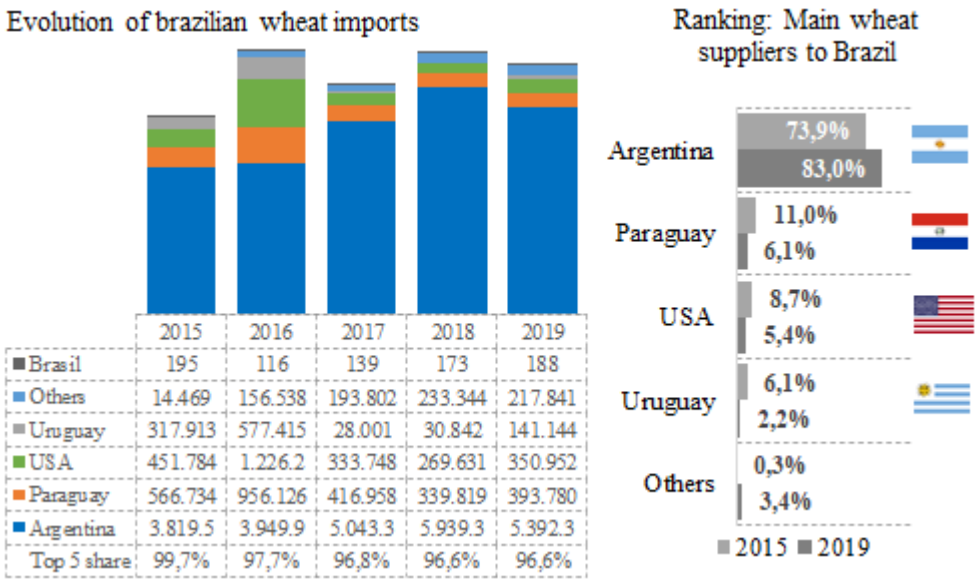
3. Main suppliers for the Brazilian Market

Brazilian wheat imports come mainly from four countries: Argentina (83%), Paraguay (6%), United States (5%) and Uruguay (2%). Since 2015, Argentina has increased its import wheat volumes to Brazil by over 40%. In the same period, imports from Paraguay, United States and Uruguay decreased. In recent years, others wheat exporting countries have also joined the Brazilian market, taking advantage of off-season opportunities in the southern hemisphere. Canada began exporting wheat to Brazil in 2016 and Russia in 2018.

[57] FAO data for 2018.

[58] ABARES. https://www.agriculture.gov.au/abares/research-topics/agricultural-outlook/wheat#:~:text=Australian%20wheat%20production%20is%20forecast,particularly%20in%20New%20South%20Wales.

FIGURE 5. MAIN WHEAT SUPPLIERS TO BRAZIL OVER TIME (TONNES)

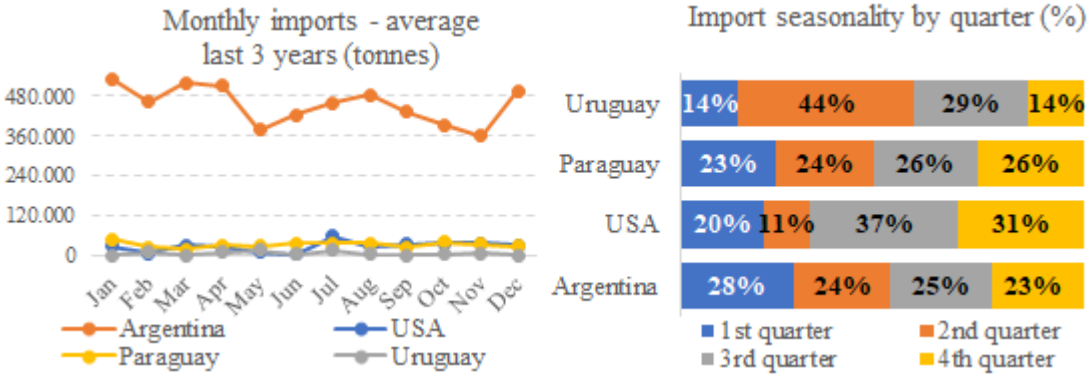


	2015	2016	2017	2018	2019
Brasil	195	116	139	173	188
Others	14.469	156.538	193.802	233.344	217.841
Uruguay	317.913	577.415	28.001	30.842	141.144
USA	451.784	1.226.2	333.748	269.631	350.952
Paraguay	566.734	956.126	416.958	339.819	393.780
Argentina	3.819.5	3.949.9	5.043.3	5.939.3	5.392.3
Top 5 share	99,7%	97,7%	96,8%	96,6%	96,6%

Source: ITC.

Brazil tends to buy wheat throughout the calendar year. Of the main suppliers, Argentina delivers slightly more in the January–March period which aligns with its main production season and the United States during the July-September period, which is the off-season in the Southern Hemisphere. Australian wheat exports calendar tends to follow a similar pattern to Argentina, which would make it difficult for Australia to break into the Brazil market from a seasonality point of view.

FIGURE 6. SEASONALITY OF BRAZILIAN WHEAT IMPORTS BY MONTH (THREE-YEAR AVERAGE) AND BY QUARTER



Source: ITC.

4. Competitiveness of Australian wheat in the Brazilian market

Wheat from Argentina, Paraguay and Uruguay is free from import taxes, due to the Mercosur agreements. Australian wheat exports to Brazil would pay an ad valorem tariff of 10%, as does the United States. This is the average rate that Brazil has registered with the WTO (also

known as the MFN[59] tariff). Any tax reduction depends on signing multilateral or bilateral trade agreements.

TABLE 1. IMPORT TAXES FOR WHEAT ARRIVING IN BRAZIL

Importing country	Exporting country	MFN Tariff	Effective tariff applied
Brazil	Argentina	10%	0%
	Paraguay	10%	0%
	USA	10%	10%
	Uruguay	10%	0%
	Australia	10%	10%

Source: ITC.

Analysing the CIF (Cost, Insurance and Freight) price from 2015 - 2019, wheat from Paraguay has the lowest price and Argentina, Uruguay and USA wheat are similarly more expensive. The 10% import tax that the USA is not exempt from means that, from 2015 – 2019, USA wheat was between up to 25% more expensive to import to Brazil than its closest Mercosur country competitor. However, due to different crop seasons, the USA does not compete directly with countries located in the Southern Hemisphere.

TABLE 2. PRICES OF WHEAT IMPORTS IN BRAZIL BY SUPPLIER (US$/KG)

US$/t	CIF Price					CIF Price + Import tax				
Year	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Argentina	244,46	195,55	189,80	219,51	229,65	244,46	195,55	189,80	219,51	229,65
Paraguay	182,41	185,11	169,94	226,07	211,01	182,41	185,11	169,94	226,07	211,01
USA	232,66	196,00	217,38	229,60	209,97	255,93	215,60	239,12	252,55	230,97
Uruguay	223,55	193,60	188,14	239,74	231,39	223,55	193,60	188,14	239,74	231,39

Source: ITC.

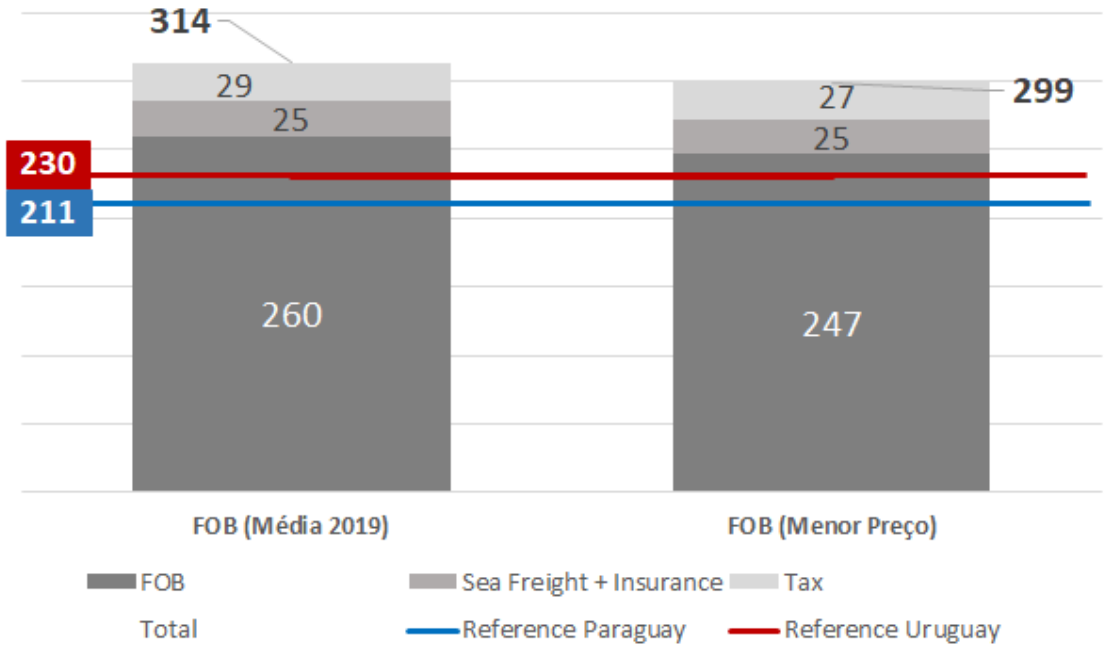
Given an average FOB price (Free on Board) of Australian wheat is US$260/tonne, once we include transport costs to Brazil and the 10% import tax, Australian wheat would cost around US$314/tonne. With a final cost of more than 30% than other countries, not even the appeal of the superior quality of Australian wheat would justify a significant volume of trade with Brazil. To illustrate the lack of price competitivity, even if Australia charged the lowest FOB price recorded in transactions with other countries in 2019, Australia would not compete in the Brazilian market (Figure 7).

Another disadvantage of Australian wheat is that, like barley, it is not included in the List of Authorized Import Vegetable Products - PVIA[60] of the Ministry of Agriculture, Livestock and Supply - MAPA. This means that Australia's wheat is not accepted into the Brazilian market without an approved Pest Risk Analysis (ARP) to establish the phytosanitary requirements that

[59]MFN (Most Favoured Nation) tariffs are those that countries agree to impose on imports from other WTO members, unless the country is part of a preferential trade agreement (such as a free trade area or customs union). In practice, this means that high MFN rates are the most restrictive tariffs that WTO members charge each other.
[60] http://mapas.agricultura.gov.br/ddiv/arp/oracle/pvti2.asp

must be followed by the exporting country. The ARP request must be filed by Australia for Brazil to start the process. In addition, there are a series of 49 measures – including inspections, tests and quality specifications that must be followed for the product to enter Brazil.

FIGURE 7. COMPARISON OF THE COMPETITIVENESS OF THE AUSTRALIAN PRODUCT WITH OTHER COMPETITORS (US$/T)



Source: Calculated by the authors based on ITC and USDA data.

5. Prospects for wheat trade between Brazil and Australia

With prospects for good climatic conditions, wheat production in Australia is expected to recover in 2021, reaching around 31 million tonnes (double the previous harvest). This will enable the country to recover its participation in international markets, concentrated in Asia.

Brazilian wheat consumption is expected to remain stable at around 12 million tonnes per year. The shortage of wheat in the international market in 2020, and the consequent increase in wheat prices has stimulated domestic production. Conab predicts 15% increase in planted area in Brazil in the 2020/21 year, as well as stability of imports and recovery of transit stocks, which practically reached zero in the 2019/20 season.

Predicted stability of imported wheat volumes with the already well-established South American trade partners, along with the small balance that is currently sourced from the USA, Canada, Russia in the off-season, will make it even more difficult for Australia to import wheat to Brazil.

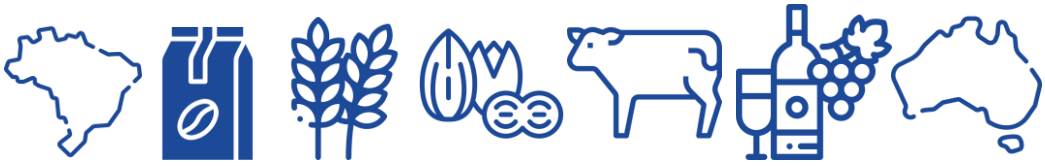
Despite Brazil having a large demand for wheat and Australia having high supply volumes, the high price of Australian wheat makes it largely uncompetitive, even if the 10% import tax was eliminated. This may justify Australia's lack of interest to even go through the registration process to have wheat approved on the list of products authorized to enter Brazil.

FIGURE 8. OPPORTUNITIES AND CHALLENGES FOR AUSTRALIAN WHEAT IN THE BRAZILIAN MARKET

Dimension	Positive Aspects & Opportunities	Negative Aspects & Challenges
Product & Market	Australian wheat is high quality, recognized as one of the best in the world, and superior to Argentine wheat.	Australian production declined in recent years due drought and lack of water, affecting export volumes.
	Australia is a major producer and exporter of wheat, while Brazil is one of the largest importers of the product.	Brazil and Australia are not current trading partners in this market.
	Australian production is expected to recover in 2021, increasing the availability of wheat on the international market.	
	The Brazilian requirement is expected to continue at around 12 million tonnes over the coming years.	
Trade & Market Access		Competition with Argentina, a traditional trading partner and supplier of wheat to Brazil. Argentina does not pay taxes and is a neighbor of Brazil.
		FOB prices charged by Australia are higher than wheat prices in the Brazilian market (CIF + Tax).
		A 10% import tax would be imposed, affecting even more the competitiveness of the Australian product.
		Australian wheat is not currently allowed to enter Brazil. A one-off Pest Risk Analysis is first required.
Other factors		There has not been a request registered in Brazil to start the Pest Risk Analysis.

Source: Elaborated by the authors

PART 3: OPPORTUNITIES RELATING TO INNOVATION, P&D AND DIRECT INVESTMENTS



CHAPTER 9:

PARTNERSHIPS PROMOTING INNOVATION AND DEVELOPMENT OF SOLUTIONS FOR AGRIBUSINESS

Débora Simões e Henrique Fernandes

1. Introduction

Brazil and Australia are two countries that stand out worldwide as key agribusiness players, due to their economies and role as major food exporters. Brazil is mostly recognized for its scale, diversity and volumes offered in the international market. Australia is a reference in product quality, efficient production techniques and value-adding.

With their climatic, social and environmental peculiarities, each country has sought to develop techniques and technologies to increase the agricultural productivity in different parts of its vast territories. The search for more efficient use of resources, more intensive use of technologies and the diffusion of data-science tools have favored an innovation environment and attracted different players to the innovation scene.

Technologies such as GPS, GIS, satellite imaging, sensors, drones, blockchain, artificial intelligence and internet of things are transforming agriculture as new applications are being incorporated in various segments of the supply chain: production, supply, logistics and final consumption. In addition to operational control and agronomic variables collected directly in the field, agribusiness has also become concerned with financial, management, environmental and the improvement of processes inside and outside the properties, opening the way for several AgTechs.

The digitalization process in agriculture represents great opportunities for partnerships between Brazil and Australia. According to a study by the McKinsey Global Institute (MGI) published by Harvard Business Review (2016)[61] about the maturity of the digitization process in different sectors of the economy, agriculture is the least digitized. This reveals that there is a significant opportunity to develop in agribusiness using methods and tools that have already been implemented by other sectors. This gap may be reduced more quickly with joint initiatives that identify synergies between the two countries.

In recent years, both Brazil and Australia have developed an enabling and favorable environment for innovation, with several companies developing solutions to common agricultural problems: credit analysis, monitoring of pests and diseases, climate control, marketing of inputs, etc. Already established educational institutions and research & development centers in both countries played essential roles building human resource capacity, developing more productive and suitable varieties, evolving best agricultural practices and techniques and improving input efficiency.

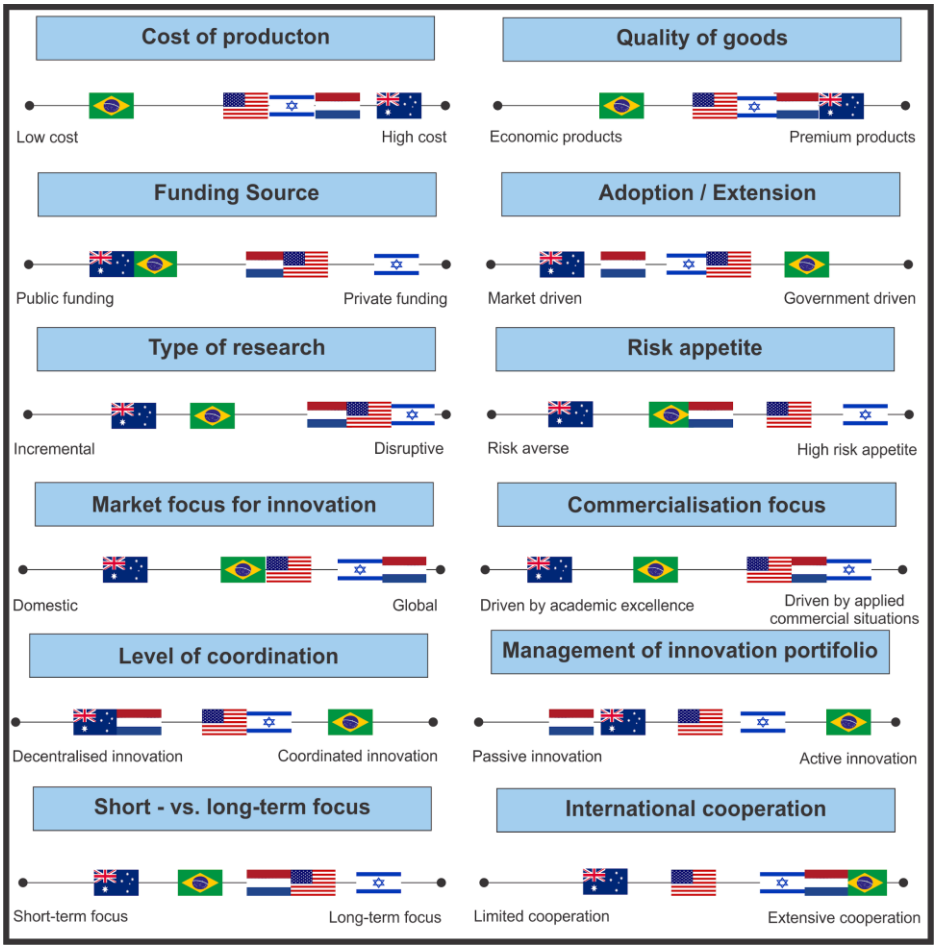
Agriculture and food sector are going through significant changes worldwide, caused by a series of factors including changes in eating habits, increased consumer demand for healthier and more sustainable products, increased international competition, technological disruption, structural changes in industry, climate challenges, lack of water and increased threats from pests and diseases. According

[61] Harvard Business Review. 2016. Which Industries Are the Most Digital (and Why)?. Disponível em: <https://hbr.org/2016/04/a-chart-that-shows-which-industries-are-the-most-digital-and-why>.

to the report by Ernest Young (2019) [62], these transformations are caused by a series of factors: changes in eating habits, increased consumer demand for healthier and more sustainable products, increased international competition, technological disruption, structural changes in industry, climate challenges, lack of water and increased threats from pests and diseases.

The innovation ecosystems built in Brazil and Australia have a lot to gain from a bilateral partnership. Internationalization and partnerships between companies and institutions facilitate the dissemination of knowledge and accelerate the adoption of new technologies and the process of innovation in the sector, essential points to face the challenges of the sector. Comparing 12 dimensions of the innovation system and the agricultural sector in different countries Brazil and Australia are complementary as they stand out in different aspects (Figure 1).

FIGURE 1. CHARACTERISTICS OF THE AGRICULTURAL INNOVATION SYSTEM IN DIFFERENT COUNTRIES



Source: Adapted from Ernest Young (2019)

The benefits of Brazil-Australia partnerships were highlighted by Sérgio Bath, Consul General of Brazil in Sydney, "Brazil, like Australia, has been committed for a long time with the use of the most advanced technologies in its agricultural sector. Together, the two countries could develop technologies

62 Agricultural Innovation — A National Approach to Grow Australia's Future. https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/agriculture-food/innovation/full-report-agricultural-innovation.PDF

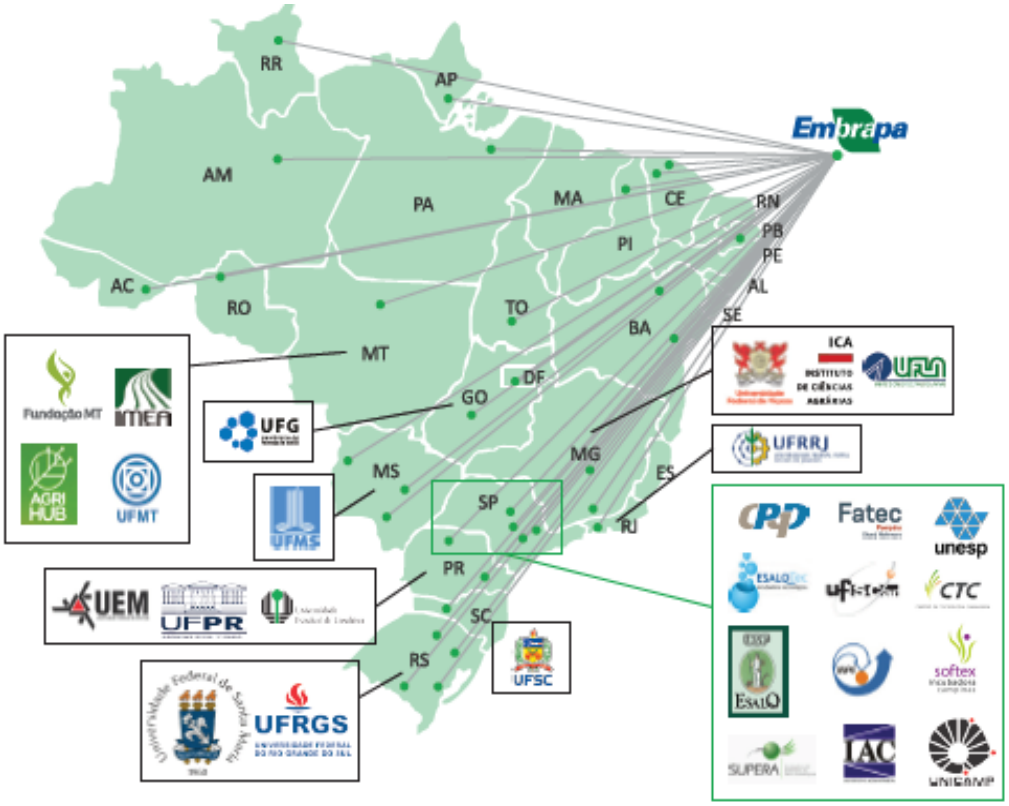
to help feed the world using renewable energy and sustainable processes" [63]. Initiatives could occur in several ways: joint research; dissemination and sharing of research results; exchange of students, professionals and researchers and internationalization of companies (including startups) through commercial partnerships[64].

2. The environment of innovation and R&D in Brazil

2.1 Brazilian educational and research institutions

The National Agricultural Research System (SNPA do Brasil) is a national organization with a wide focus and was established in 1992[65]. It is made up of the Brazilian Agricultural Research Corporation (Embrapa), State Agricultural Research Organizations (OEPAS), universities and public and private organizations directly or indirectly linked to agricultural research activity (such as companies, research and technology institutes and even rural producers).

FIGURE 2. EXAMPLES OF INSTITUTIONS INVOLVED IN THE NATIONAL AGRICULTURAL RESEARCH SYSTEM (SNPA) IN BRAZIL



Source: Radar AgTech Brasil (2019, p.4).

[63] https://portal.apexbrasil.com.br/noticia/brazil-agribusiness-innovation-forum-acontecera-em-sydney-australia/

[64] When companies become internationalized, it is important they offer flexible solutions to adjust the product, commercialization and delivery to the reality of agribusiness in different countries and regions. Companies must develop a local team and understand local regulations such as tax law and reporting requirements.

[65] Established by Ordinance nº 193 (7/8/1992) of Ministry of Agriculture as authorized by the Agricultural Law (Law nº 8.171, of 17/1/1991).

Among the ten objectives defined for the SNPA[66], the following stand out:

- ✔ establish a Brazilian agricultural information system, with the generation of a database for agricultural research and development, facilitating access for users and customers of agricultural research;
- ✔ promote the exchange of information and technical-scientific documentation, in areas of common interest;
- ✔ provide for the joint execution of research projects of common interest, promoting a partnership action between institutions, in the development of science and technology for agriculture;
- ✔ encourage the exchange of personnel, for training and interinstitutional advice.

The interaction between institutions that are part of the research system in Brazil, recently involving rural producers, aims to orient the research objectives towards practical questions and applied solutions, making the innovation process more efficient and dynamic. It should also be noted that the innovation process in Brazil is very open to international collaboration.

Embrapa already has a global footprint, with a presence on all continents, and a series of bilateral technical and scientific cooperation agreements with several countries. Brazilian universities also promote the exchange of students and professionals. Figure 3 provides an overview of important universities and agents that are part of the agricultural research and innovation system in Brazil.

FIGURE 3. UNIVERSITIES AND AGENTS CONTRIBUTING TO THE AGRICULTURAL RESEARCH AND INNOVATION SYSTEM IN BRAZIL

Source: institutions' website

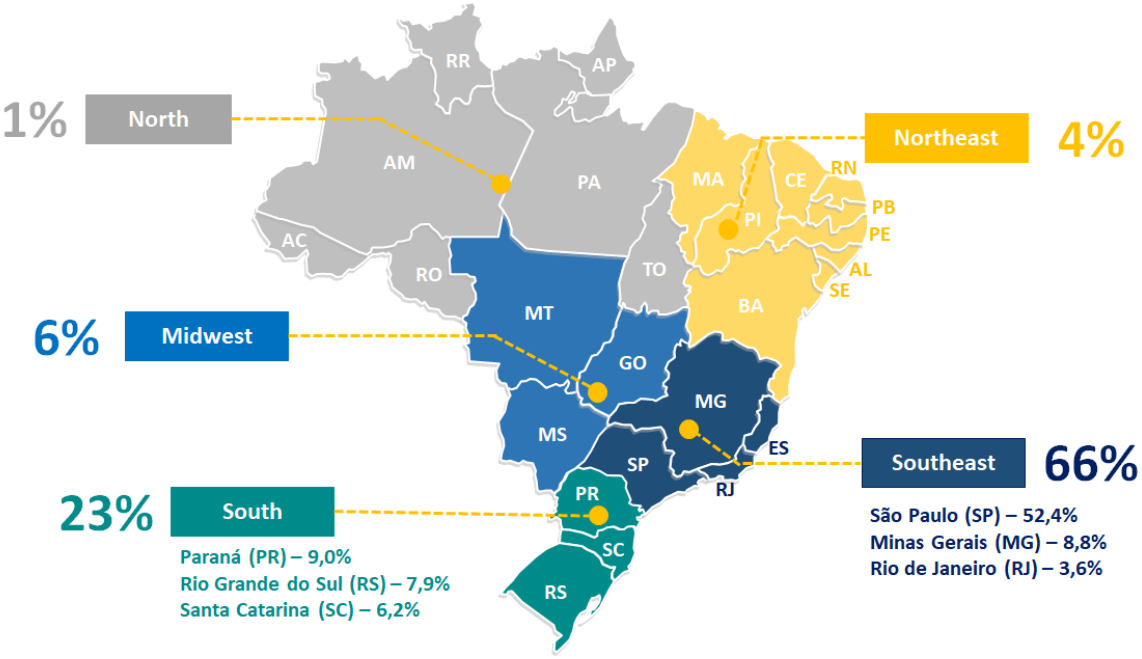
[66] For the complete list of objectives, visit the website: https://www.embrapa.br/snpa

2.2 Overview of AgTechs in Brazil

According to the Radar AgTech Brasil 2019 study, carried out by Embrapa, SP Ventures and Homo Ludens[67], Brazil has more than 1.200 agribusiness startups, making it the largest market in Latin America for AgTechs. About 90% of these companies are located in the South and Southeast regions of the country, mainly between the cities of São Paulo, Piracicaba and Campinas.

The high geographic concentration of startups highlights the importance of universities and research centers to encourage innovation, along with the impact of populous areas where investors and large companies are located. This concentration of AgTech also points to the potential for innovation centres in other parts of the country, which are currently not developing with the same momentum (Figure 4).

FIGURE 4. GEOGRAPHIC DISTRIBUTION OF AGTECHS BY REGION AND MAIN STATES IN BRAZIL

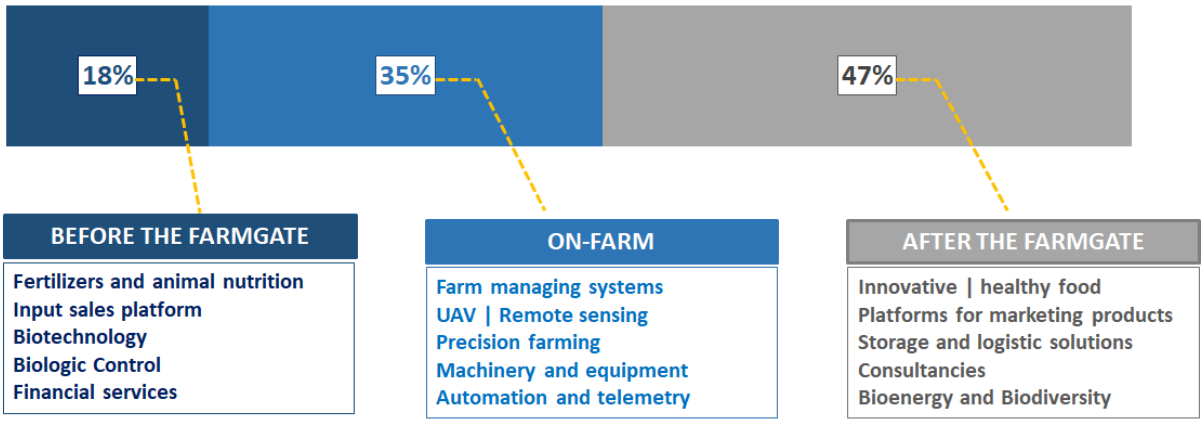


Source: Baseado nos resultados do Radar AgTech Brasil (2019)

Data from the Radar AgTech Brasil 2019 show that 47% of AgTechs focus on developing solutions and improving activity processes that occur after the farmgate. Key activities include producing innovative and healthy food, platforms for marketing products, storage solutions, logistics services, consultancies and the bioenergy and biodiversity sector. 35% of Agtechs focus on on-farm production, developing products and solutions for farm management systems, use of UAV and remote sensing, precision agriculture, and machine automation and telemetry. This segment gets the greatest national visibility when it comes to solving agricultural problems, as they are closer to the daily lives of rural producers. Finally, AgTechs with a focus on processes or sectors before the farmgate represent the smallest group, making up 18%. Their efforts are concentrated on the activities such as fertilizer development and nutrition practices for plants and animals, input sales platforms agriculture, biotechnology, biological control and financial services.

[67] Dias, C. N.; Jardim, F.; Sakuda, L. O. Radar AgTech Brasil 2019: Mapeamento das startups do Setor Agro Brasileiro. Embrapa, SP Ventures e Homo Ludens: Brasília e São Paulo, 2019. Disponível em: <radaragtech.com.br>.

FIGURE 5. DISTRIBUTION OF AGTECHS BY BUSINESS SEGMENT AND THE FIRST FIVE MAIN BUSINESS AREAS

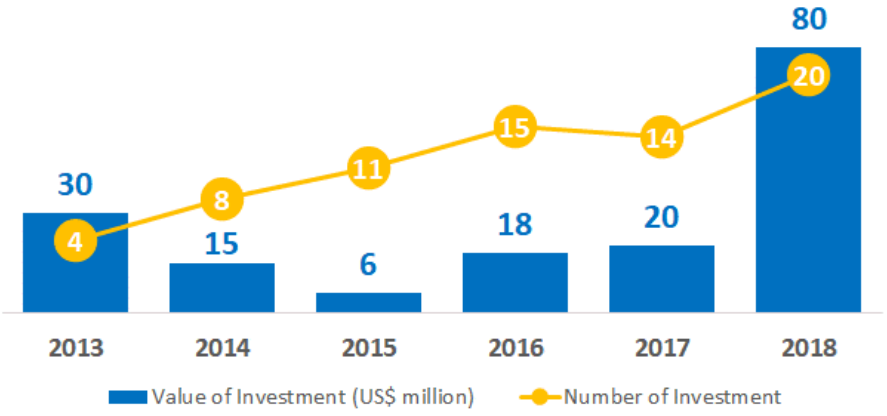


Source: Radar AgTech Brasil 2019.

This breakdown of Agtech along the supply chain could provide insight into the market characteristics and perceived barriers to overcome. Products and services can play disruptive roles into current status-quo challenges such as entry barriers, difficulty in obtaining financial, technological and human resources, and making information available that then generates new insights, and eventually solutions.

Despite the key role of agribusiness in the Brazilian economy, Radar AgTech Brasil 2019 reports that until 2018 only 6% of the total investments made by startups nationwide related to agribusiness. However, the amount invested in the sector quadrupled between 2017 and 2018, representing one third of all funds invested in startups in the agricultural sector in Latin America (Figure 6).

FIGURE 6. NUMBER OF INVESTMENTS AND AMOUNT INVESTED IN AGTECHS IN BRAZIL



Source: Radar AgTech Brasil 2019

The increased availability of financial resources is an essential point to encourage and sustain the innovation system. According to the AgTechs Census conducted by AgTechGarage[68], the main difficulties faced by startups today are: (i) accessing enough capital to invest in the idea; (ii) winning the first customers and (iii) not dedicating professionals exclusively to the development of the business.

[68] Available at < https://www.agtechgarage.com/censo/>

Despite these challenges, the startup scene in Brazil is dynamic, competitive and has high potential for development and implementation of new technologies at national and international levels. About 14% of Brazilian startups have customers outside the country, a relatively low number. This percentage is expected to increase due to the interests of companies themselves, and as a result of initiatives supported by the Brazilian government and private initiatives such as StartOut Brasil[69].

StartOut Brasil has already worked with some 100 companies with the objectives of "providing entrepreneurs with relevant training and personalized mentoring; missions to prospect customers and investors and also post-mission support to confirm new international partnerships and/or softlanding strategies with target markets"[70].

2.2.1 Examples of Brazilian AgTechs

TABELA 1. EXAMPLES OF BRAZILIAN AGTECHS BY ACTIVITY

Company	Activity	Market reach	Comments
Strider	Property monitoring, machinery and pest control	Purchased by Syngenta, current expansion plan into more than 90 countries.	World reference in the use of on-farm technologies. Since 2013, more than $R30 million has been invested in the company. Currently part of the Syngenta group where, together with five others international AgTechs, it is part of the company's digital solutions platform in the world.
agrosmart cultivo inteligente	Digital agriculture, meteorology, property monitoring	Brazil and Latin America	Received R$22 million investment through Inovabra Fund, Bradesco and Positivo's corporate Venture Capital. Investments are mainly directed towards international expansion and the launch of new resources, such as insurance for farmers in the event of disease of plants.
Agronow	Precision agriculture, property monitoring, AgFinTech	Brazil, Angola, Argentina, Bolivia, Chile, China, Ecuador, India, Mexico, Peru, USA and Vietnam	Through the platform, the producer remotely monitors his harvest, receiving information about yields, crop quality etc. BTG Pactual bank invested R$4 million to expand the company's operations in Brazil and internationally
grãodireto	Marketplace, storage and logistics	Brazil and Latin America	Received funding from Monsanto (now Bayer) and was adopted by the accelerator Startup Farm, it is in an accelerated process of national expansion

[69] Partnership between the Brazilian Export and Investment Promotion Agency (Apex-Brasil), the Ministry of Foreign Affairs (MRE), the Ministry of Industry, Foreign Trade and Services (MDIC), Sebrae and the National Association of Institutions Promoting Innovative Enterprises (Anprotec).

[70] https://portal.apexbrasil.com.br/noticia/STARTUPS-BRASILEIRAS-TEM-PROGRAMA-DE-INTERNACIONALIZACAO/. Para mais informações sobre o programa, acesse https://www.startoutbrasil.com.br/

JETBOV®	Agricultural management system, beef cattle	Brazil, Bolivia, Paraguay, Portugal, Angola, Mozambique	Reference in the administration of the beef cattle data from breeding to finishing animals, as well as cost control analysis. Received R$1 million from the business accelerator ACE and in an additional R$2.75 million from SP Ventures in 2018. It is currently used on more than 2,000 farms, adding up to more than 1 million hectares.
bart digital	AgFinTech	Brazil and Latin America	Its technologies involve blockchain and digital certifications, facilitating communication between producers, investors and sellers. It received an investment of R$2.2 million by the SP Ventures consortium, along with national expansion planning
Aegro	Agricultural management	Brazil	Received a contribution of R$6.6 million by SP Ventures, and has more than 2 million hectares managed across 4700 farms, reaching more than 5,000 monthly users
Pink Farms	Vertical farming	Brazil, with plans to expand in all major Latin American cities by 2026	Received an investment of R$ 2 million for the expansion of its business
agrotools	Supply Chain, AgFinTech, agricultural inspection	Brazil, Argentina, Australia, USA, Paraguay, with plans to expand to Colombia, Africa and Eastern Europe.	Largest AgTech in Latin America. Agrotools offers digital solutions that enable fast decision making and offer more transparency for transactions between agribusiness companies and rural producers. It received a contribution from KPLT, which became a shareholder of the company.
safe TRACE	Blockchain, food security and traceability	Brazil	Enables transparency along the food supply chain, allowing the identification of food and the monitoring of each stage of food distribution.
SoluBio Tecnologias Agrícolas	Fertilizers, inoculants and nutrients	Brazil, USA, Australia and Latin America	It is a spin-off of Agroplan, a service company focused on consulting, advisory and precision agriculture. It was a finalist for Accelerate 2030, seeking to eliminate the use of chemicals in agriculture through technologies that allow farmers to produce their own biofungicide, biopesticide and other products needed in agriculture.
TERRAMAGNA	AgFinTech	Brazil	Monitors crops via satellite and facilitates the granting of rural credit, in addition to facilitating the monitoring of the area and decreasing defaults and payment fraud.

			Received an investment of R$2 million from The Yield Lab.
tbit®	Digital agriculture, precision agriculture, automation of agroindustrial processes	Brazil, USA, Chile, Argentina, Uruguay, Netherlands, France, Belgium, Hungary	Develops, produces and commercializes image recognition systems capable of analyzing data sets and classifications of agricultural inputs, ensuring the optimization, identification and selection of products for planting and commercialization.
Perfect Flight	Pesticide aerial application management	Brazil	2020 annual profit exceeded R$ 1 million, being one of the most promising AgTechs in the country, participating in several investment rounds. Currently seeks international expansion. Has already sought AUSTRADE to try to get into the Australian market.
AGRIBELA	Biological control, bio inputs and marketplace	Brazil	Participates in startup acceleration programs, is at a wide national growth and seeks more ecological and efficient agriculture throughout the country
@Tech Inovação Tecnológica para a Agropecuária	Precision farming, meat industry	Brazil and Argentina	Precision livestock software to value-add to the supply chain. Its main product is BeefTrader, a market intelligence platform that helps producers and slaughterhouses to identify the ideal moment of meat trading based on the individual profit curve for the animal, analyzing market information and monitoring individual sensors in real time

Source: Prepared by the authors based on the information available on the companies' websites and in the Radar AgTech Brasil 2019 report.

3. Innovation and R&D environment in Australia

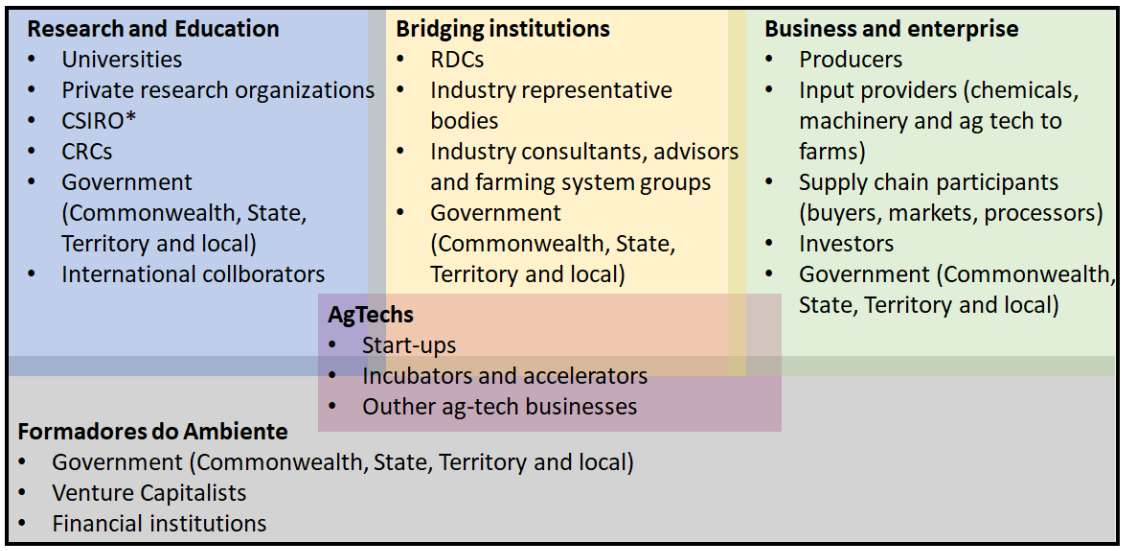
3.1 Australian educational and research institutions

The Australian agricultural innovation system involves several organizations, which have different roles and responsibilities. These organizations work independently with their own goals and strategies. This system is mainly composed of[71]:

- ✔ 15 Rural Research and Development Companies (RDCs) that aim to promote innovation in many sectors and are financed with public and private resources, even accessing Commomweatlth resources.
- ✔ 08 Cooperative Research Centers (CRCs) that receive government resources
- ✔ Universities and educational centers: Australia has five universities listed in the top 50 in the world in the field of agronomy and forest sciences
- ✔ Private sector initiatives such as the Australian Farm Institute (AFI) and the Australian Export Grains Innovation Center (AEGIC)

The Australian innovation landscape is transparent, participatory, is financially accountable to the public and has strong support from the private sector. In addition to the organizations mentioned above, Australia seeks to involve other stakeholders in the research process, such as the end-users of innovation (farmers or companies), investors and the financial sector (Figure 7).

FIGURE 7. PLAYERS THAT MAKE UP THE AUSTRALIAN INNOVATION AND R&D SYSTEM



*CSIRO - Commonwealth Scientific and Industrial Research Organisation

Source: Ernest Young – EY (2018, p.28)

The innovation process implemented by Australia was essential for agribusiness to become more productive, profitable and sustainable. Projects developed by Australian institutions have enabled the country to increase productivity in the field, development of techniques to minimize and manage the risks of drought and water shortages, promote supply chain coordination, integration, and consumer confidence, enabling higher prices for their commodities

[71] Based on Ernst Young report – EY (2018).

(EY, 2018; ACOALA, 2019). Universities were fundamental for agricultural research to advance and be disseminated among professionals in the sector. Universities also have international student exchange programs to promote knowledge transfer and building of relationships.

FIGURE 8 – THE MAIN AUSTRALIAN UNIVERSITIES AND RESEARCH CENTERS IN THE FIELD OF AGRONOMY

Source: KPMG (2016, p.18)

Australia is currently reviewing its innovation system strategy. Although the results obtained so far have been excellent, the independence of the different bodies does not generate the necessary cohesion for the country to continue innovating and deal with the current challenges of agribusiness (EY, 2018). Issues related to changes in consumer preferences (not only changes in consumption habits, but also in the demands for environmentally and socially sensitive products), new technologies and the digitization of agriculture (Agro 4.0 and Agro 5.0), the impacts of climate change and the need for more transparency in the supply chain require faster responses. It has been identified that a more coordinated system could optimize the efforts and resources invested in research and innovation in Australia, and enable AgTechs to contribute even more in the search for solutions.

3.2 Overview of AgTechs in Australia

According to the KPMG (2016) report, Australian agribusiness is expected to more than double by 2030, reaching a GDP of AU$100 billion, and becoming a growing source of income and investment. To make this happen, it is essential to adopt digital technologies together with actions that facilitate market access in Asian countries and attract investments and qualified labor to the agricultural sector. In 2030, all Australian rural producers are expected to be connected to the internet and be able to use IoT and other technologies on their properties (KPMG, 2018). Thus, the role of AgTechs will have a wider audience and a greater role.

One of the factors that promotes a competitive AgTech ecosystem in Australia is government support, together with the corporate sector, to create innovation centers and programs to connect and accelerate AgTech business development and activity. The Tracxn[72] survey

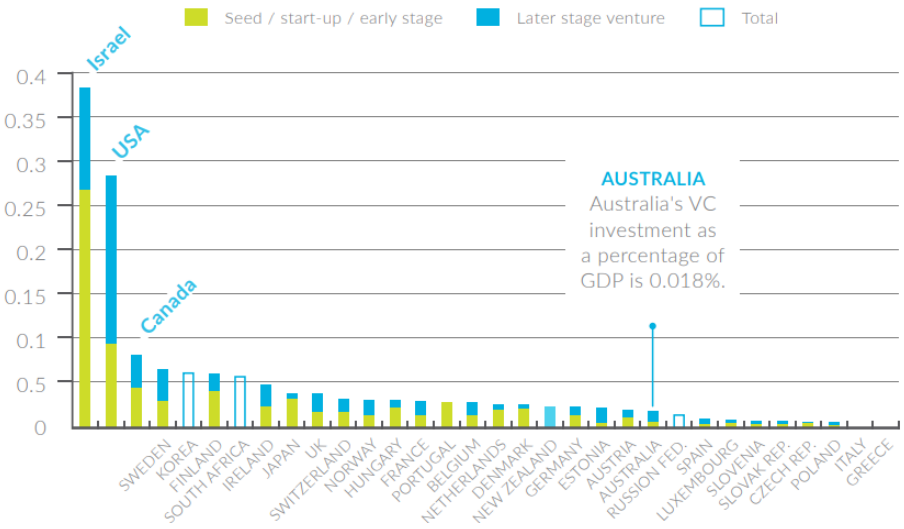
[72] https://tracxn.com/explore/AgriTech-Startups-in-Australia

identifies about 200 AgTechs in Australia, a low number compared to Brazil, but the Australian classification for an AgTech is more specific, including only solutions directly linked to the supply of inputs, farm operations or supply-chain integration. One of the main characteristics of AgTechs in Australia is the focus on developing solutions related to the use of blockchain, artificial intelligence, big data and internet of things (IoT).

The consultancy KPMG Australia, in the study "Powering Growth - releasing the potential of AgTechs for Australia" identified sustainable use of natural resources, new exports of production, increased productivity, attraction of new investments for AgTechs, increased revenue and job creation and generation as key opportunities to focus on.

Australia's AgTech sector has seen impressive growth in recent years, registering investments of AU$123.8 million in 2017 from angel investors and seed funding in addition to a ten-fold increase (since 2014) in investment in more mature businesses via venture capital[73]. Despite this growth, venture capital investments in Australian AgTechs represent less than 0.02% of the country's GDP, being much lower than other countries in the world, highlighting the need to expand private investments in the sector (KPMG, 2016; KPMG, 2018).

FIGURE 9. PERCENTAGE OF GDP INVESTED IN AGTECHS WORLDWIDE



Source: KPMG (2016)

3.2.1 Examples of Australian AgTechs

TABLE 2. EXAMPLES OF AUSTRALIAN AGTECHS BY ACTIVITY

Company	Activity	Market reach	Comments
ABUNDANT SEEDS	Horticulture seeds	Australia	Produces seedlings and seeds with high genetic quality, high production and less need for water and nutrients, being able to produce in large quantities even in difficult soils.

[73] https://www.informa.com.au/insight/the-future-of-australian-agtech/

eSHEPHERD AGERSENS	Livestock	Australia and New Zealand	Technology that allows automatic movement and control of cattle on farms by connecting animals to the internet, thereby increasing productivity, reducing costs, improving animal welfare, and preventing animal losses.
AGERRIS	Robotics, robotic agriculture, precision agriculture, automation	Australia and Oceania	Using robotics and artificial intelligence to assist on-farm activities such as weed identification, fruit counting and productivity measurement, improving control over production to increase productivity.
MEQ	Meat Industry	Australia, USA, Poland	Machine learning software and spectral color analysis to measure the quality of meat in the meat industry, to better classify meat characteristics in both purchase and sales, thus providing a more selected final product to the consumer.
THE YIELD	Precision Agriculture and Machine Learning	Australia, USA, Germany	Uses IoT with wireless sensors and geolocation to increase profitability and prevent agricultural losses. Features customised time prediction at a plot or greenhouse level, using sensors to detect the microclimates and to identify plant growth needs. Received input from Bosch and acceleration finance from the Government of Australia.
AgriDigital	Grain Supply Chain	Australia and USA	A cloud commodity management platform for agricultural supply chain (farmers, buyers, storage operators and consumers) to sell and buy goods. Producers can control from storage to sale, manage contracts, deliveries, invoices and agricultural financing. It currently seeks global expansion and has already expanded its services to the USA, with more than 15 million metric tonnes traded.
AgDNA	Precision agriculture	Has operations in more than 233 countries after being acquired by CNH (Case New Holland)	A precision scale agriculture platform, using Big Data, IoT, aerial images and geo-processed readings to increase farm productivity, reduce crop costs and maximize profitability.
AgriWebb	Management of cattle and sheep	Australia, Brazil, South Africa, United Kingdom	Currently managing about 10% of the cattle and sheep in Australia across about 35 million hectares. Being a management software, it provides information on the production cost per kilo of meat per hectare and per head, and maps stock and pasture quality to allow quantitative planning and management. Has received around AU$14 million of external investment.

FluroSat	Precision agriculture	Operates in more than 15 countries, including Australia, Brazil, Ukraine, USA	Monitors and analyses crop development, stress, nutrient recommendations for agronomists and farmers, ranging from paddock to entire regions of perennial crops and commodities.
CERES TAG	Livestock	Australia. Is interested in acting in Brazil.	An animal information platform and satellite information system that offers GPS location, health and animal welfare monitoring and theft detection through an earring installed on the animal, providing biosafety and convenience. No subscription, battery replacement or infrastructure installation is required
DECIPHER	Precision agriculture and management	Australia and Brazil	It is an agricultural management software, providing production and stock data over time, with production and cost projections. Helps to manage resources in a more sustainable and profitable way using historical data and cloud storage, uses big data to manage soils, research and agronomic knowledge and provides tools to increase investment security and reduce risks, in addition of monitoring inventory and storage.
ROTOGRO	Vertical farming	Australia and Canada	The company produces cylindrical and rotating vertical farming systems, with automated hydroponics, reducing operational and labour costs, maximizing the cultivated area up to twelve times more. Currently has a main focus on the cultivation of marijuana and vegetables.
ROOTS Sustainable Agricultural Technologies Ltd.	Irrigation	Australia, North America, China, Israel and Europe	Focused on greenhouse systems, it optimizes the soil temperature close to the root of the plants, with a modular system and reuse of greenhouse condensation water.
Wildlife Drones	Aviation, inspection and environmental management	Australia	Using drones to track wild animals by radio.

Sources: Elaborated by the authors based on the information available on the companies' websites and in the Ernest Young report (2018)

CHAPTER 10:

INVESTMENTS IN AGRICULTURAL LAND IN AUSTRALIA[74]

Greg Wallis[75]

Foreign investment in agriculture in Australia is essential for regional development, increased sector productivity and building agricultural export markets. It is one of the federal and state governments' five national investment priority sectors. Increasing demand for Australian produce from our Asian neighbours (especially China, Korea, Japan and Indonesia) that account for two-thirds of all Australian agricultural exports is fuelling investment in the sector.

To take advantage of this opportunity, Australia will need to increase productivity through innovation and the application of technology, to develop more land for agricultural purposes, especially in the north of the country, and to become more integrated in food supply chains and evolving consumption patterns, especially for these Asian markets.

Historically, investment in Australian agriculture has come from the USA and the UK. Now China is becoming a more important player. Although not to the same extent, another country that has invested in agribusiness in Australia is Brazil. In fact the link with Brazil goes back to the 1970's when Sebastião Maia, the "cattle baron", bought large holdings at Lawn Hill and Julia Creek in Queensland.

Australia justifiably prides itself for its agricultural quality and productivity. But the size of the Australian agricultural industry pales in comparison with Brazil, which is the world's largest producer and exporter of sugar, coffee and orange juice, as well as the largest exporter of beef, soybeans and poultry. One in four grains consumed in the world is produced in Brazil. More than 5 of every 10 glasses of orange juice drunk around the world come from Brazilian oranges. Brazil's beef cattle herd is 8 times the size of Australia's.

Brazil's rise to agricultural superpower status has been underpinned by rapidly increasing efficiency in the utilisation of production factors, particularly land and labour. The country has emerged as one of the top global performers in agricultural Total Factor Productivity (TFP) growth, in part because of research that has led to better crop and livestock technologies and made possible the development of the Brazilian Cerrado (savanna). This lessons of the transformation of this tropical region are particularly relevant for Australia as it contemplates the agricultural development of northern Australia. And new Brazilian technology in the sector is highly regarded. The country has more than 200 agricultural start-ups, two of which are ranked in Forbes 25 Most Innovative Global Agtech listing.

Brazil is an attractive agricultural investment destination because of this capability, and because it simply has a lot of arable land with reliable rainfall. At the 2017 Global AgInvesting Conference in New York, Brazil was named, along with Australia and North America (USA and Canada), as one of the most prospective agricultural investment destinations. But given its agricultural might, it is not surprising that Brazil is not only a destination for agricultural FDI, it is increasingly a source of it. The stock of Brazilian agribusiness FDI abroad has grown, from a modest base, by a factor of 17 in the past ten years. Brazilian companies usually go first to neighbouring countries including Argentina, Paraguay and Bolivia, then perhaps to Africa, the

[74] Originally published on November 22nd, 2017 as Brazilians: Coming to a Farm Near You? https://www.linkedin.com/pulse/brazilians-coming-farm-near-you-greg-wallis/

[75] Consul-General and Senior Trade & Investment Commissioner at Austrade

USA and maybe Europe. Until recently, with a few notable exceptions, that was usually as far as they have gotten. But Australia is also now in the sights of a number of companies, particularly those that want to participate in the Asian middle class consumer boom.

The notion that Australia could be a logical entry point to Asia would be seemingly tenuous for Brazil, a country that already exports almost half of its agricultural produce to the region. In fact, in 2016 Brazil overtook Australia in exports of beef to China. But its access to Asian markets is hampered by sanitary and regulatory constraints. Brazil is not a trade partner or has very recent agreements to sell beef to three of Australia's biggest markets in the region - Japan, Korea and Indonesia. And it gets only from 20% (in Thailand) to 80% (in China and the Philippines) of the price that Australia gets for a kilo of beef. So the entry point pitch resonates for Brazilian processors who want to sell a premium product to Asia. You can only get the benefits of Australian access and branding for premium products by producing them in Australia.

But selling beef to Asia is only part of the story. The opportunity exists across the protein and cropping production chains, not just for produce. Austrade in São Paulo has identified and is now working with 20 Brazilian companies that are in various stages of contemplating investment in the agribusiness sector in Australia. These are mostly mid-size companies that produce biopesticides, animal health and nutrition, fertilizers and crop protection products. What is common about them? They believe they have developed world leading agricultural technology and expertise that can contribute to increased farm productivity, and that Australia is the right place to expand their global presence. They are right on both counts. Three Brazilian companies participated in the Northern Australia Investment Forum (NAIF) held in Cairns earlier this week at the invitation of Austrade. There are more on the way.

CHAPTER 11:

AUSTRALIAN INVESTMENT IN BRAZIL: BIGGER THAN YOU THINK. WORTH ANOTHER LOOK?[76]

Greg Wallis[77]

In 2017 Austrade São Paulo completed a comprehensive stocktake of the Australian business presence and investment position in Brazil. According to ABS statistics, Australia has AUD4.42 billion of FDI stock in Brazil. This makes Brazil the 15th largest destination for Australian FDI stock abroad, and it will perhaps surprise many that this is more than Australia holds in India, Thailand, the Philippines, Korea, or Vietnam (noting that with the inclusion of portfolio investments, the total investments by Australia in those countries are in most cases significantly more than they are in Brazil.)

In spite of Australia's extensive mining interests in the region, Australia's FDI stock in Brazil is greater than that in the rest of Latin America combined. Why? Because, unlike much of the region, Australian investments in Brazil are highly diversified beyond those in the mining sector. In addition to iron ore production and petroleum exploration, Australia has made big investments in renewable energy, logistics, online services, manufacturing, agribusiness, financial services, insurance and fashion retail in Brazil. Macquarie, QBE, Goodman, BHP-Billiton, Brambles, Seek, carsales, CottonOn, NuFarm, Karoon, Ansell, Amcor and Pacific Hydro are some of these major investors.

Brazil was the sixth biggest recipient of FDI inflows globally in 2016 (Australia ranks 9th) with more than USD50 billion, even in the midst of the recession. No-one would suggest that it's an easy environment for investors; it has a heavy bureaucracy and a taxation regime that is mind-boggling in its complexity that drive its Ease of Doing Business position to a dismal 125th globally. Nevertheless, companies with global reach, usually dominant in their sector in Australia and that can allocate the time and resources to overcome the entry pains, can and do succeed in Brazil.

Major Australian corporations invest in Brazil because it is an agricultural, resources and manufacturing power, and because it is among the world's top 10 biggest economy with a consumer market of some 200 million. In spite of the deep and protracted recession that Brazil has endured since 2015 and from which it is has only recently emerged, the country has relatively high purchasing power levels which drive demand in the domestic services, retail and online sectors.

Brazil is not easy to sell to Australian corporates. Relatively few of our major companies that are established in the US, Europe and Asia have taken the plunge into Brazil. Australian companies understandably prioritise these markets because they are easier and closer. But if you accept that to be truly global means you also need to be in a market as big as Brazil, there is a lot of upside to this story from an Australian investment perspective. It will take a return to sustained growth and the accompanying optimism about the future of the country for this to happen, and that scenario appears to be unfolding. A long way from the heady days of 7.5% growth in 2010,

[76] Originally published on November 28th, 2020. https://www.linkedin.com/pulse/australian-investment-brazil-bigger-than-you-think-worth-greg-wallis/.
[77] Consul-General and Senior Trade & Investment Commissioner at Austrade

the perspectives are positive for the coming years. For Australian corporates Brazil may now be worth another look.

CONCLUSION

Débora Simões

Brazil and Australia are both agribusiness success cases. With investment in research and innovation, supply-chain organization and a favorable overall market conditions, each country has developed their agricultural sectors in line with the resource availability and other national strategic advantages.

Brazil is a world reference in tropical agriculture, developing many technologies and practices, such as the planting of two or three crops in the same area in one year, thus optimizing land and resource use. In the last twenty years, Brazil's primary production growth has occurred in the middle of the country, developing the Cerrado region, expanding production and exportable excesses, mainly of grains and oilseeds. The grains and oilseeds sectors are mostly recognized for its gains in scale, product diversity and volumes offered in international market. Brazil is an international leader in soy and coffee production and exports, and it is also ranked number 1 in production figures of corn, sugar, cotton, beef, chicken and pork. Brazilian production is crucial to sustain the growth of food in the world.

Australia was one of the first countries to develop and adopt of climate management techniques (drought and lack of water are critical issues in the country) to increase primary production. With resource limitation restricting production capability, the Australian export strategy focused on product quality and supply chain transparency. Thus, Australian agricultural products are recognized as premium, reliable, safe, sustainable and low in contamination. This makes Australia a reference in adding value to the agricultural industry.

Over time, Brazil and Australia followed parallel paths and potential trade relations and cooperation between the two countries has not been well explored. History, culture and geographical factors all play a role in this. This brief research concludes that there are plenty of opportunities to be explored by both countries to increase trade relations. Given the production and consumption volumes involved, opportunities identified provide new markets and a diversification strategy for suppliers or buyers of these products. This is not to say that Brazil or Australia will become key trading partners at the expense of their traditional markets of USA, Europe and China for Brazil and China and other Asian countries for Australia, but merely that opportunities exist.

Coffee and nuts have been identified as potential markets where Brazil could increase exports to Australia, with improved communication a key factor to expand the trade. Brazil is already the main coffee supplier to Australia, and the market is already mature and with a high consumption per capita. However, opportunities to capitalize on are branding and the special coffee market, adding more value to the product. Key organizations such as the Brazilian Specialty Coffee Association (BSCA) and the Brazilian Trade and Investment Promotion Agency (APEX) do not currently focus on Australian markets, but the Council of Coffee Exporters of Brazil (Cecafé) have started to take a closer interest and map the habits of Australians consumption to identify opportunities.

Peanut and cashew nut exports from Brazil to Australia have grown significantly in recent years and prospects remain positive. Although the Australian market is not a current priority for the Brazilian Foods and Snacks Project, the efforts from the Brazilian Association for Chocolate, Nuts and Confectionary (ABICAB) and APEX have generated some positive results regarding the image of Brazilian-origin nuts in Australia. From this we can conclude that specific initiatives by the private sector to enter in the Australian market can generate interesting results.

Potential malting barley, malt and wheat exports from Australia to Brazil would face some bureaucracy issues that can slow the flow of business. Currently, neither Australian-origin barley nor wheat are approved for Brazilian markets. To enable this, a pest risk analysis must be requested by the importing country for the Brazilian Ministry of Agriculture (MAPA) to complete. Approval is quite promising, especially for barley and malt, and some malt has already been traded in 2019. Wheat is more challenging as it is more expensive than current imported wheat, despite the fundamentals of supply and demand of wheat being positive.

It is worth mentioning that the Australian market is quite open, with easy access and no import taxes for most countries, including Brazil. Brazilian products compete well with other importing countries, such as Colombian coffee, Argentine peanuts and Vietnamese cashew nuts. Thereby, there are no major barriers to develop this trade flow. On the contrary, Australians products entering Brazil are subjected to a 10% to 14% import tax rate, affecting its competitiveness in relation to suppliers' members of Mercosur, particularly Argentina. Hence, in addition to taking care of the phytosanitary analysis and approval, Brazil and Australia could start the negotiation to remove barriers in these markets in order to benefit both countries.

Beyond trade opportunities, there is also significant potential for Brazil and Australia to harness synergies and join efforts to develop agribusiness solutions through educational partnerships, R&D for innovation and internationalization of startups. The history of the innovation system innovation in Brazil and Australia shows that the strengths and weaknesses points of each one are complementary, and the global agribusiness sector is undergoing significative transformations: changes in food habits, increase in the demand for more healthy and sustainable products by consumers, increase in international competition, breakthrough technology, structural changes in processing sector, climate challenges, drought and the shifts in pests and disease challenges. Technologies such as GPS, GIS, satellite images, sensors, drones, blockchain, artificial intelligence and the internet in general make it possible to develop solutions to these challenges along the supply chain: production, processing, logistics and final consumer.

Direct investment offers another possibility to strengthen Brazil-Australia relationships. Brazilians are able to buy land in Australia as a way to diversify risk and obtain easily access to the market of Asian countries (Japan, Thailand, Korea, Indonesia etc.). Furthermore, the Brazilian market has been flagged as an important up and coming agri-player and consumer market, and worth persisting with to explore business and trade opportunities.

This research shows some possibilities that should be more carefully evaluated by the public and private sectors in Brazil and Australia rather than proving a comprehensive and conclusive analysis. It can be seen as a seed planted to instigate mutual curiosity of Brazilians and Australians about existing synergies between two global agribusiness representatives. It is time to build bridges, expand the communication, set plans and make the only distance that exists between Brazil and Australia be the geographic one. Certainly, the world and the agribusiness industry will only have gains with this initiative.!

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