BEEF REPORT 2023

Brazilian Beef Profile

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Brazilian Beef Exporters Association

CHAPTERS

PRESIDENT'S MESSAGE

Antonio Jorge Camardelli
President of the Association of
Brazilian Beef Exporters (ABIEC)

The Association of Brazilian Beef Exporters (ABIEC) presents the new edition of **BEEF REPORT 2023**.

Our work builds on a sound foundation of market intelligence information and analysis of the entire production chain, which has been enhanced over recent years.

In the present edition, we have amended our way of disseminating the material. There are 8 chapters published throughout the first half of 2023, at the end of which a single document will be produced.

The Covid-19 pandemic has receded, leaving behind it such sequelae as high inflation and disruptions in the activities of such countries as China. Additionally, the Ukraine war is stretching on, and all this led to lower projected world growth for 2022.

Despite uncertainties and turbulence, the international beef market was very positive throughout 2022.

Many challenges have been overcome, and Brazil continues to meet its commitment to supply safe, quality food so as to serve Brazilian consumers and those of hundreds of other countries.

Brazil is the world's largest meat supplier, and has played a major role in food security by ensuring quality beef, raised under the strictest sanitary standards, to the entire world. This is the result of the exercise of continued improvement that involves thousands of professionals working in all links of the industry chain.

Having set the stage, we present Chapter 1 of **BEEF REPORT 2023**.

BEEF EXPORTS

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Brazil set a new record in the volume of beef exported in 2022, attaining **over 2.26 million tonnes of beef sold to more than 145 countries**. We exported 417,000 tons more than in 2021, **growing by 22.6%**. The data have been gathered by the Secretariat for Foreign Trade (Secex) and compiled by the Association of Brazilian Beef Exporters (ABIEC).

A historic result for the year was also obtained in terms of **revenue with exports** of the order of 12.97 billion USD. **Up by 40.8%** over the previous year. In other words, the industry added more than USD 3.7 billion to Brazil's trade balance in the course of 2022 as compared to 2021.

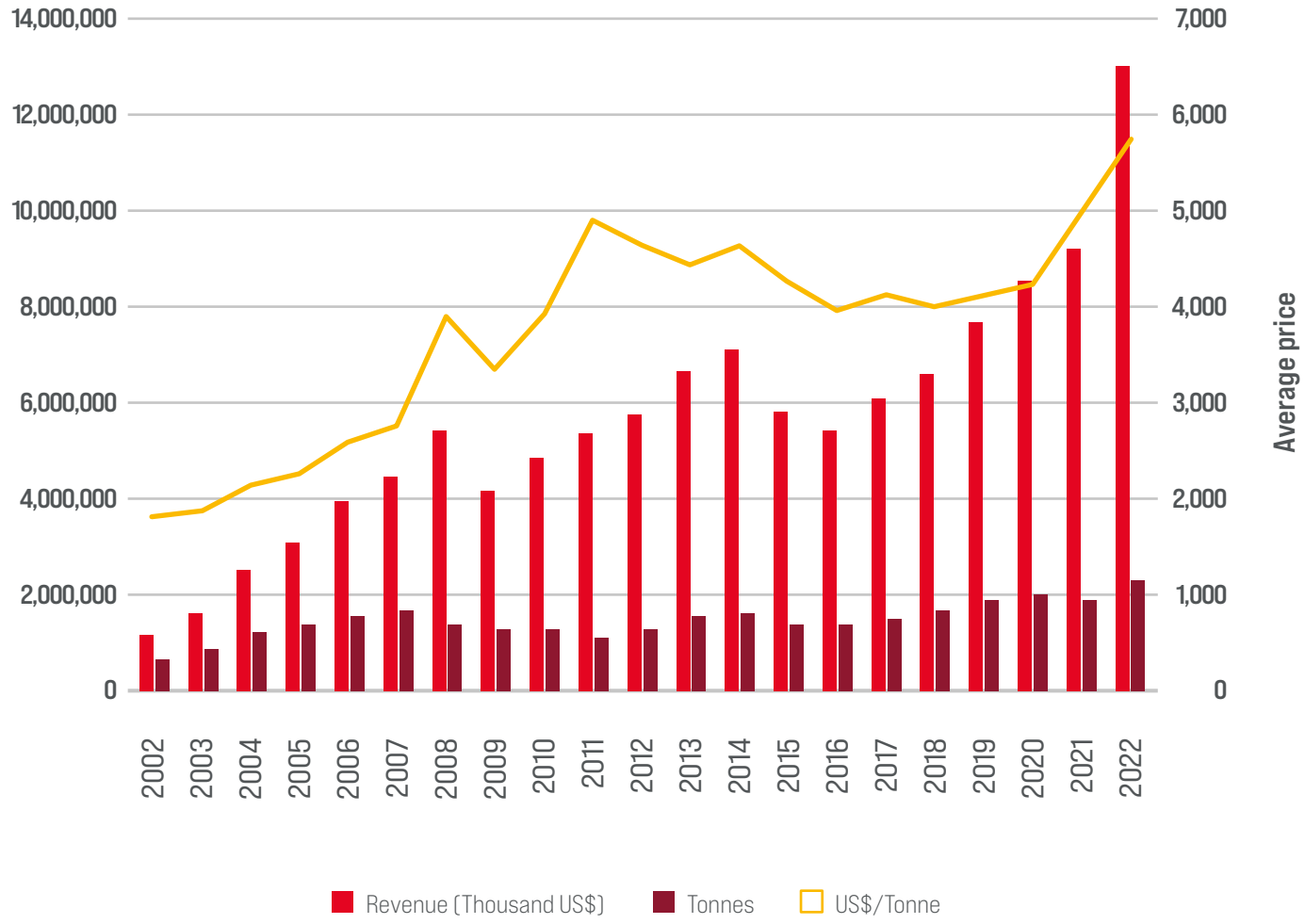
These results were only possible thanks to **an increase in the average price of Brazilian beef** of

approximately 14.8%. Growth was stronger in the first half, while in the second half, prices settled as the world "reorganized" in the context of the post-pandemic normal.

Brazil's beef production and **supply of animals in good condition** – the figures and analyses will be broken down in the following chapters – **alongside animal health and climate-based challenges in some of the world's main producing regions** such as the United States, Europe, and certain Asian countries, made Brazilian beef more attractive on the international markets.

For 2023, we perceive a trend towards good results for Brazil. China and other Asian markets show a demand for volume and for new partners, which may privilege Brazil. The United States will likely enhance the complementary nature of Brazilian beef in order to guarantee continued production of its processed meats. Additionally, in the face of continual capacity gains made possible by the supply of animals, and with a trend towards reduced average prices, Brazil will likely **continue to lead as a supplier of beef to the world**, at prices that are appealing to the importing markets.

EVOLUTION OF BRAZIL'S BEEF EXPORTS

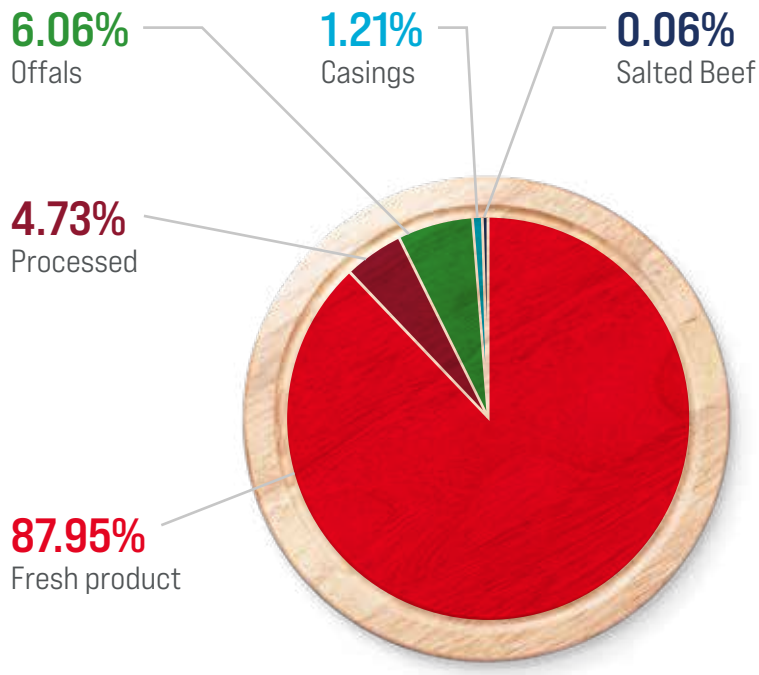


Source: SECEX/Ministry of the Economy/ABIEC

BEEF EXPORTS IN 2022 - PER CATEGORY

Category	Thousand US$	Tonnes
Fresh product	11,806,310	1,991,327
Processed	775,242	107,102
Offals	286,998	137,119
Casings	96,046	27,376
Salted Beef	7,163	1,256
TOTAL	**12,971,759**	**2,264,218**

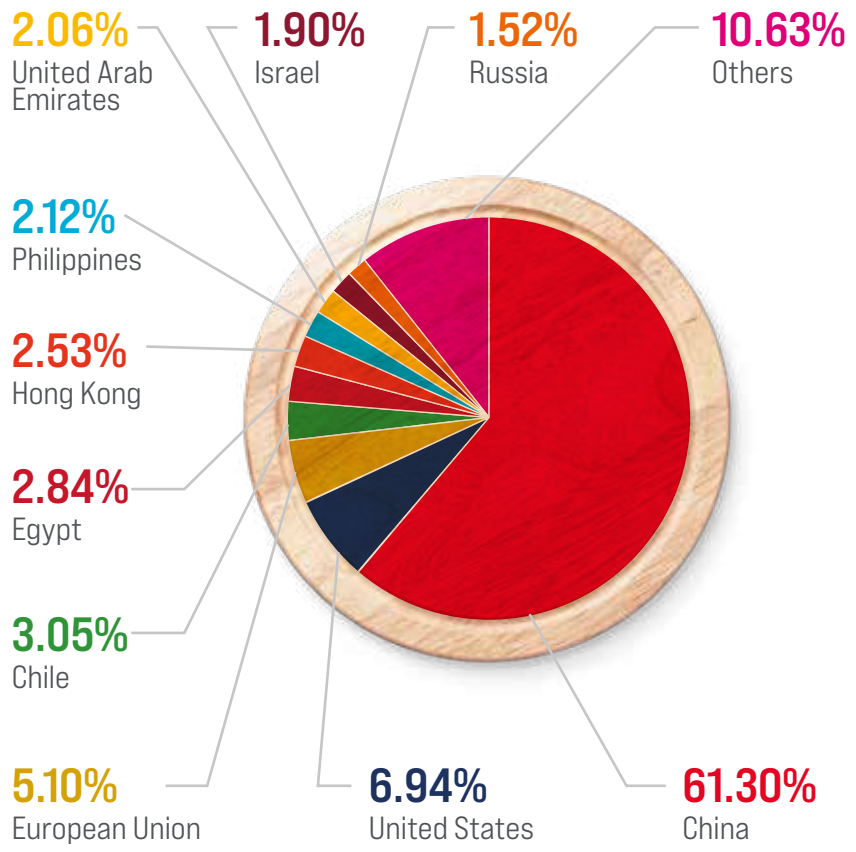
Source: SECEX/Ministry of the Economy/ABIEC



MAIN DESTINATIONS FOR BRAZILIAN BEEF EXPORTED IN 2022 - IN REVENUE (,000 US$)

Country	Billing (Thousand US$)	Billing (%)
China	7,951,970.48	61.30%
United States	899,943.92	6.94%
European Union	661,331.31	5.10%
Chile	396,121.98	3.05%
Egypt	368,914.49	2.84%
Hong Kong	328,734.91	2.53%
Philippines	274,727.94	2.12%
United Arab Emirates	267,340,61	2.06%
Israel	246,805.03	1.90%
Russia	197,582.96	1.52%
Others	1,378,285.53	10.63%
Total	**12,971,759.16**	**100.00%**

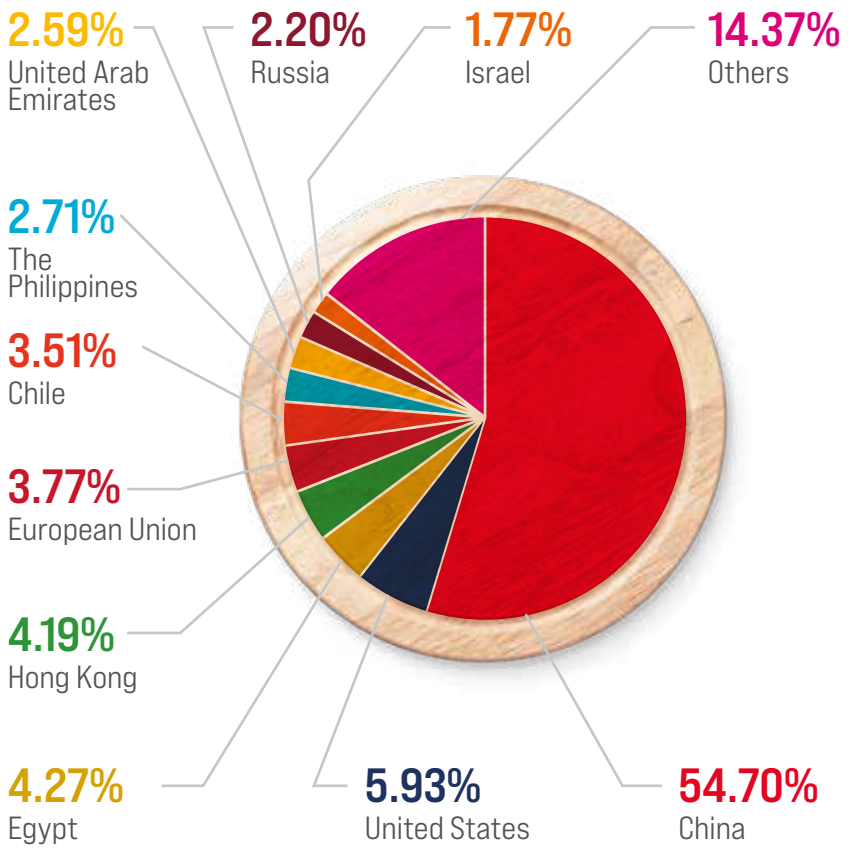
Source: SECEX/Ministry of the Economy/ABIEC



MAIN DESTINATIONS FOR BRAZILIAN BEEF EXPORTED IN 2022 - IN VOLUME (TONNES)

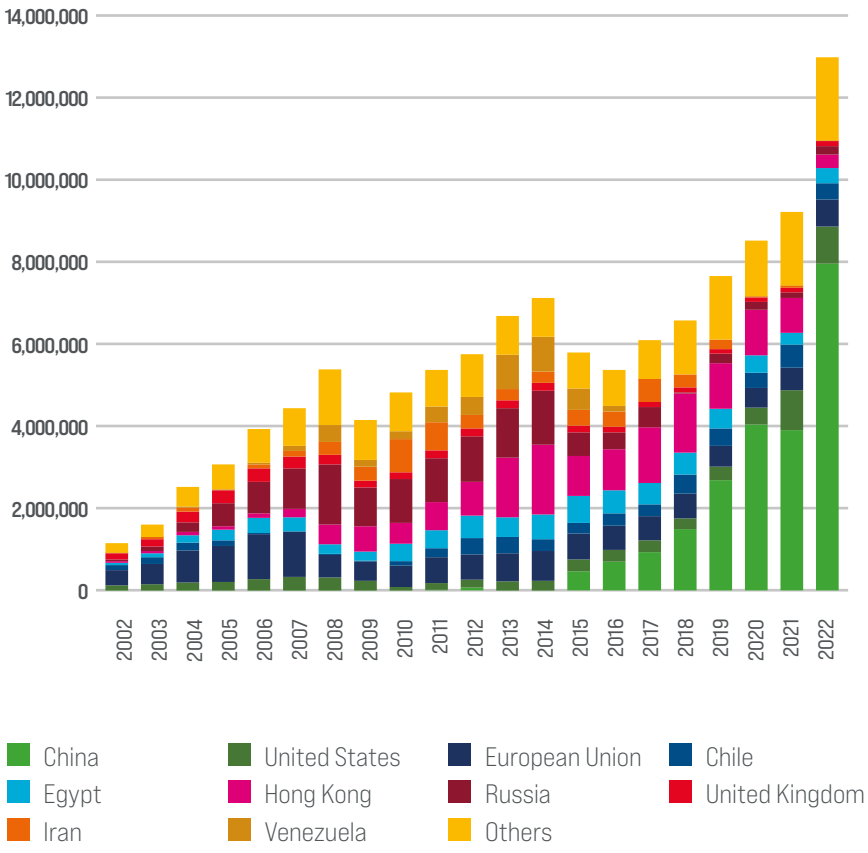
Country	Tonnes	Tonnes (%)
China	1,238,483	54.70%
United States	134,250	5.93%
Egypt	96,585	4.27%
Hong Kong	94,961	4.19%
European Union	85,366	3.77%
Chile	79,446	3.51%
The Philippines	61,401	2.71%
United Arab Emirates	58,558	2.59%
Russia	49,852	2.20%
Israel	40,022	1.77%
Others	325,256	14.37%
World	**2,264,180**	**100.00%**

Source: SECEX/Ministry of the Economy/ABIEC



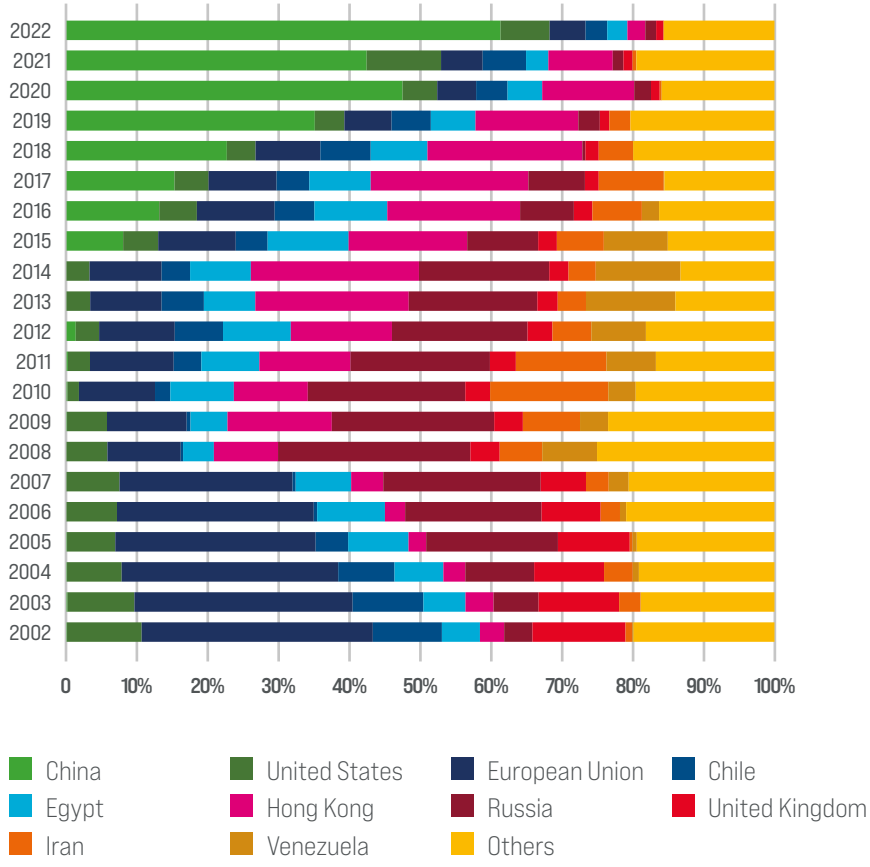
EVOLUTION OF THE RANKING OF THE LARGEST IMPORTERS OF BRAZILIAN BEEF - IN BILLINGS

Largest importers of Brazilian beef - in revenue



Source: SECEX/Ministry of the Economy/ABIEC

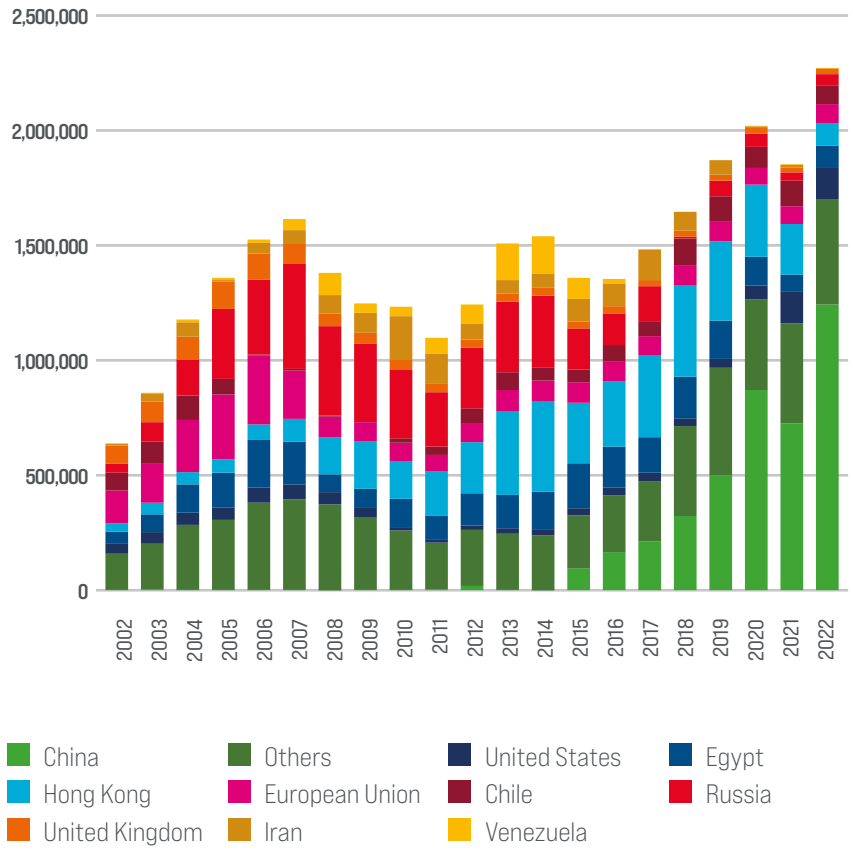
Largest importers of Brazilian beef - in revenue



Source: SECEX/Ministry of the Economy/ABIEC

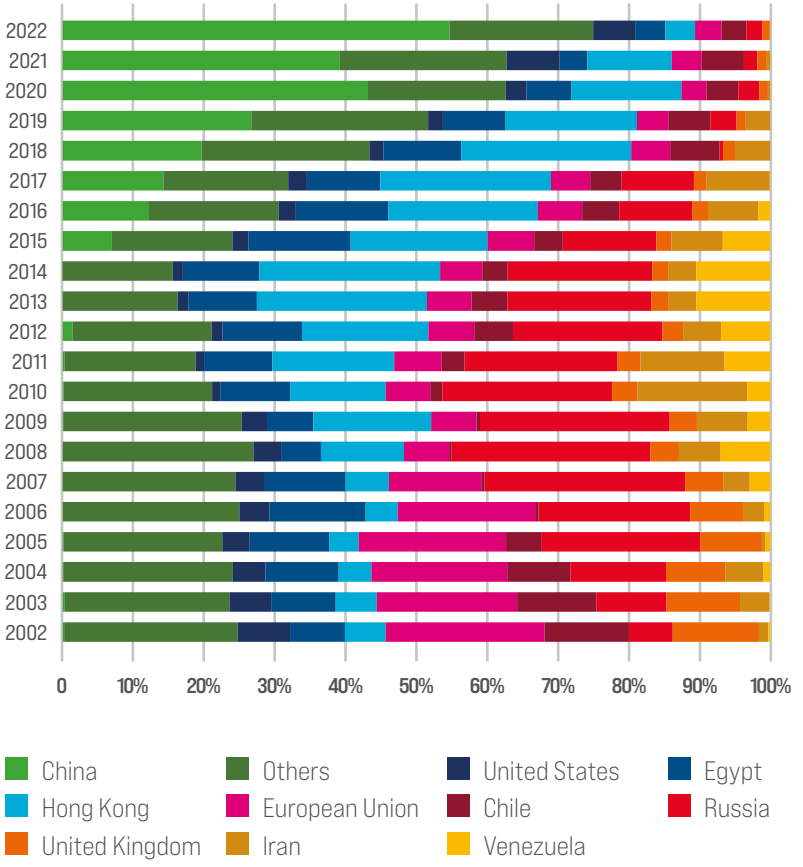
EVOLUTION OF THE RANKING OF THE LARGEST IMPORTERS OF BRAZILIAN BEEF - IN METRIC TONNES

Largest importers of Brazilian beef - tonnes



Source: SECEX/Ministry of the Economy/ABIEC

Largest importers of Brazilian beef - tonnes



Source: SECEX/Ministry of the Economy/ABIEC

BEEF EXPORT FROM BRAZIL - CWE

Country	CWE
China	1,609,929
United States	226,250
Egypt	124,685
Hong Kong	106,672
Chile	104,225
The Philippines	80,900
United Arab Emirates	77,144
Russia	61.218
United Kingdom	54,766
Israel	51,698
Saudi Arabia	46,981
Italy	38,391
The Netherlands	32,763
Uruguay	32,109
Singapore	31,414
Indonesia	26,635
Malaysia	16,926
Jordan	15,889
Spain	15,395
Belgium	15,242
Ivory Coast (Côte d'Ivoire)	13,137
Libya	12,698
Canada	11,837
Ghana	11,041
Germany	10,668
Congo, Democratic Republic of	10,422
Angola	9,861
Albania	9,607
Palestine	9,572
Turkey	8,664
Peru	7,829
Qatar	7,816
Lebanon	7,333
Thailand	6,549
Porto Rico	5,716
Myanmar	5,523
Paraguay	5,119
Serbia	5,046

Country	CWE
Kuwait	4,950
Jamaica	4,459
Argentina	4,297
Georgia	4,237
Australia	3,965
Guinea	3,918
Gabon	3,602
Switzerland	3,433
Trinidad and Tobago	3,211
Republic of Congo	2,973
Bolivia	2,957
Portugal	2,860
Aruba	2,338
Liberia	2,224
Poland	2,114
Sweden	2,112
Mayotte	1,940
Curacao	1,854
Bahamas	1,801
Iran	1,760
Nigeria	1,612
Malta	1,392
Gambia	1,302
Oman	1,301
Bahrain	1,297
Sierra Leone	1,216
Iraq	1,209
Vietnam	1,208
Barbados	1,195
Venezuela	1,085
Tunisia	1,024
Japan	982
Ukraine	841
South Africa	825
Seychelles	811
Belize	783
France	773
South Korea	767

Country	CWE
Mauritius	738
Tanzania	707
Guiana	628
Denmark	609
Bhutan	597
Cape Verde	594
Romania	564
Maldives	562
New Zealand	542
Kenya	537
Granada	526
Senegal	509
Suriname	455
Laos	445
Greece	331
Cuba	326
Panama	289
Macedonia	269
Bermudas	255
Brunei	254
Saint Vincent and the Grenadines	236
Rwanda	230
Ireland	220
Uzbekistan	216
Antigua and Barbuda	209
Dominica	204
Cyprus	199
Marshall Islands	178
Macao	178
Slovakia	175
St. Lucia	166
Sint Maarten	164
Kiribati	133
Cambodia	129
Micronesia	115
Bangladesh	114
Cameroon	111
Norway	104

Country	CWE
Equatorial Guinea	101
Morocco	82
Finland	74
Taiwan (Formosa)	73
Slovenia	62
Pacific Islands (US)	60
Azerbaijan	54
Cayman Islands	50
Lithuania	47
Benin	46
French Guiana	45
Guam	44
Kazakhstan	42
Bulgaria	41
India	41
East Timor	36
Tadzhikstan	35
Austria	34
Mauritania	31
Djibouti	31
Moldavia	27
Estonia	20
Mexico	13
French Austral Lands	7
Brazil	6
Gibraltar	2
Croatia	2
Isle of Man	2
Luxembourg	1
Palau	1
Falkland Islands (Malvinas)	1

INDUSTRY

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The total slaughter of cattle in Brazil grew by 5.28% last year. The total in 2022 was **42.31 million head**.

In addition to increased slaughter, **a reduction in the slaughter age of the animals** was seen, and this was observed as a result of the reduced percentage of cattle finished at over 36 months in the total number of males. From 2021 to 2022, the percentage figure fell from 11.3% to 9.9%.

TOTAL CATTLE SLAUGHTER

42.31 MILLION heads

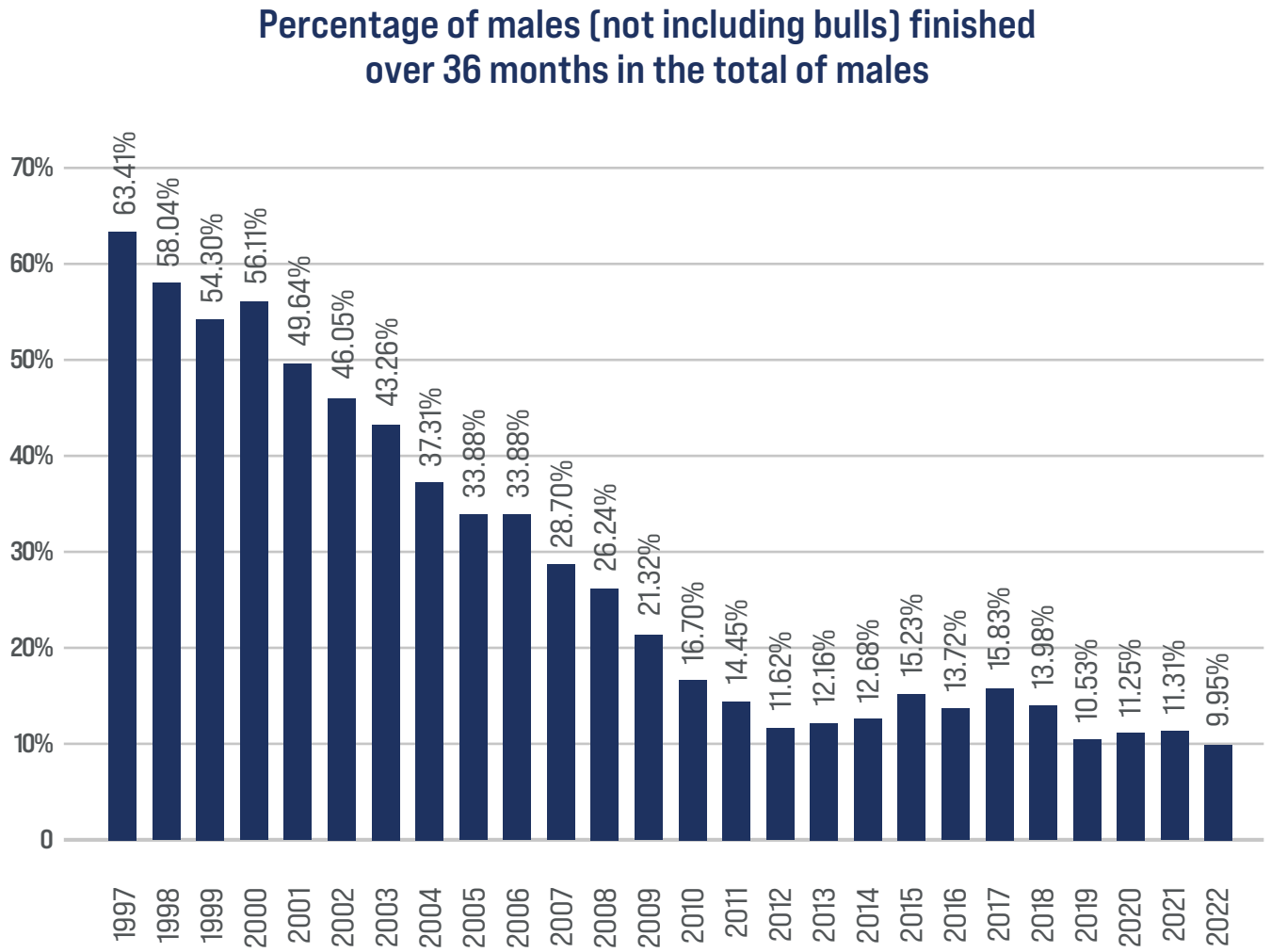
The number of feedlot-raised cattle also grew in 2022. It rose from 7.2 million head in 2021 to 7.62 million head, whereby animals finished in feedlots accounted for 18% of the total number of slaughtered animals.

Increased exports of beef also helped keep **Brazil's trade balance positive**. In 2022 total Brazilian exports were US$ 334.14 billion, while imports came to US$ 272.61 billion, maintaining a positive trade balance at US$ 61.53 billion. Of the exported amount, approximately 47.55% (US$ 158.87 billion) came from agribusiness, with US$ 12.96 billion from beef alone; in other words **8.16% of total agribusiness exports in 2022**.

Among Brazilian livestock exports in 2022, beef remained relevant, accounting for 44.2% of the total. At the same time, cattle raising for slaughter (beef, hides, fat, etc.) accounted for 9% of total agribusiness exports.

The figures underscore **the importance of beef exports to Brazil's economy**. Of total revenues from Brazilian exports in 2022, 3.9% came directly from overseas sales of beef.

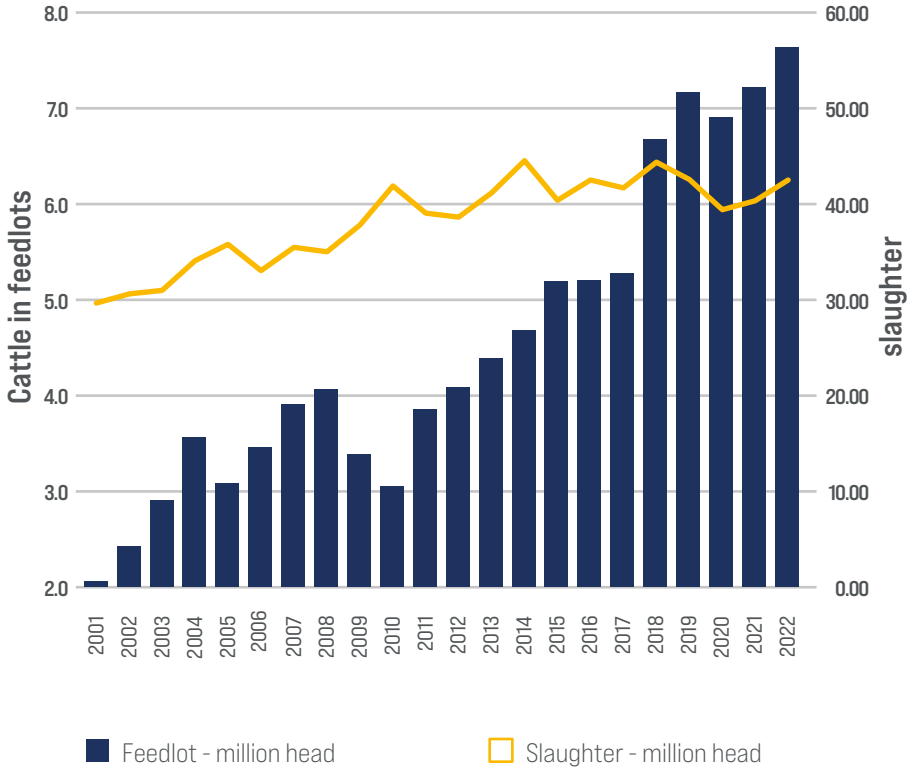
EVOLUTION OF SLAUGHTER OF MALES OVER 36 MONTHS

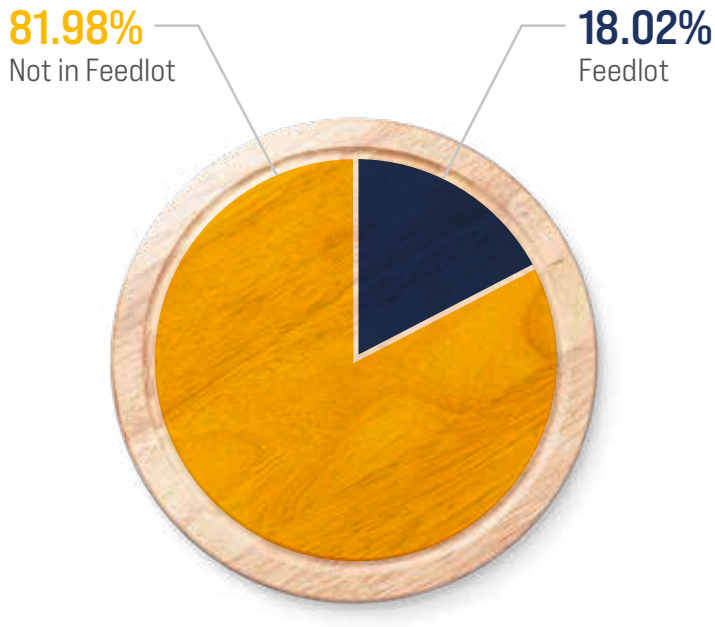


Source: Athenagro

HISTORY OF BOVINE CATTLE IN FEEDLOTS AND TOTAL SLAUGHTER IN BRAZIL

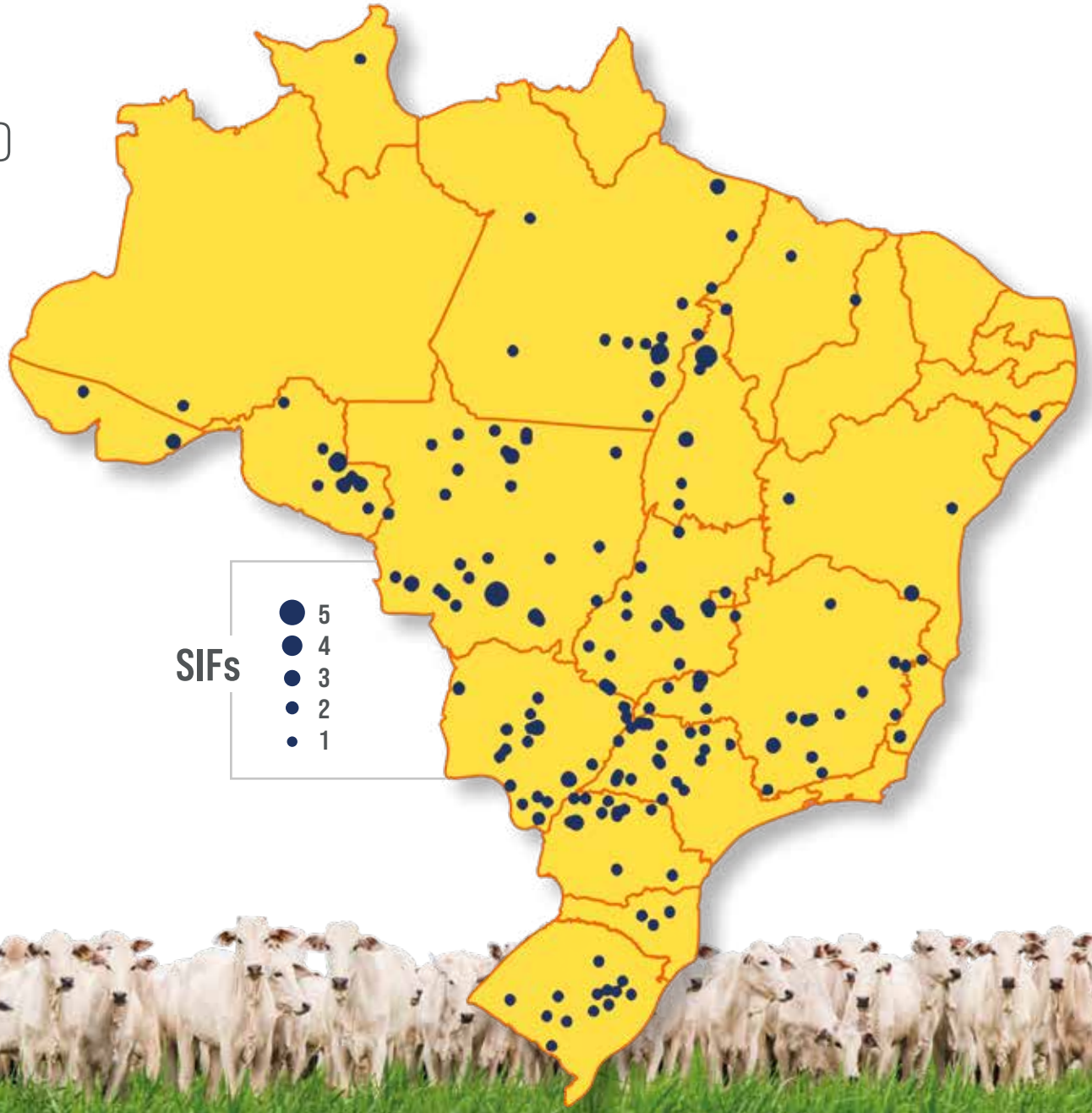
Cattle in feedlots x slaughter





Source: Athenagro, IBGE data

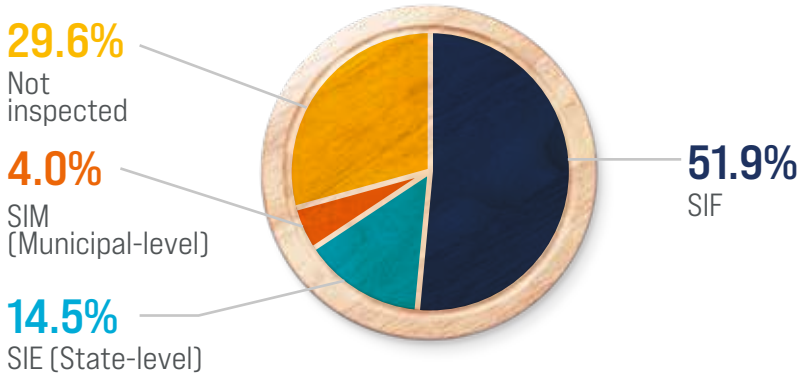
MAP WITH THE LOCATION OF FEDERALLY-INSPECTED SLAUGHTERHOUSES (SIF) IN BRAZIL



Source: ABIEC, dados MAPA

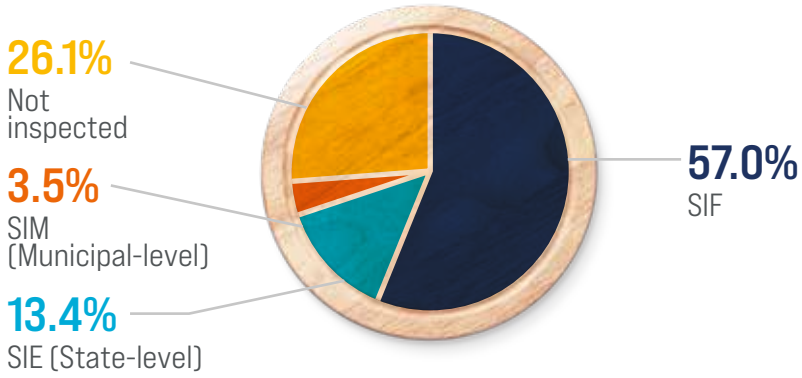
SLAUGHTER PER TYPE OF INSPECTION - 2022

Slaughter per type of inspection in % of million head - 2022



Source: Athenagro, IBGE data

Production per type of inspection in % of million head - 2022



Source: Athenagro, IBGE data

2022	Slaughter %	Beef %	Million head	Million tonnes
SIF	51.9%	57.0%	21.95	6.16
SIE (State-level)	14.5%	13.4%	6.14	1.44
SIM (Municipal-level)	4.0%	3.5%	1.71	0.38
Not inspected	29.6%	26.1%	12.51	2.82
Total	**100%**	**100%**	**42.31**	**10.79**

Source: Athenagro, IBGE data

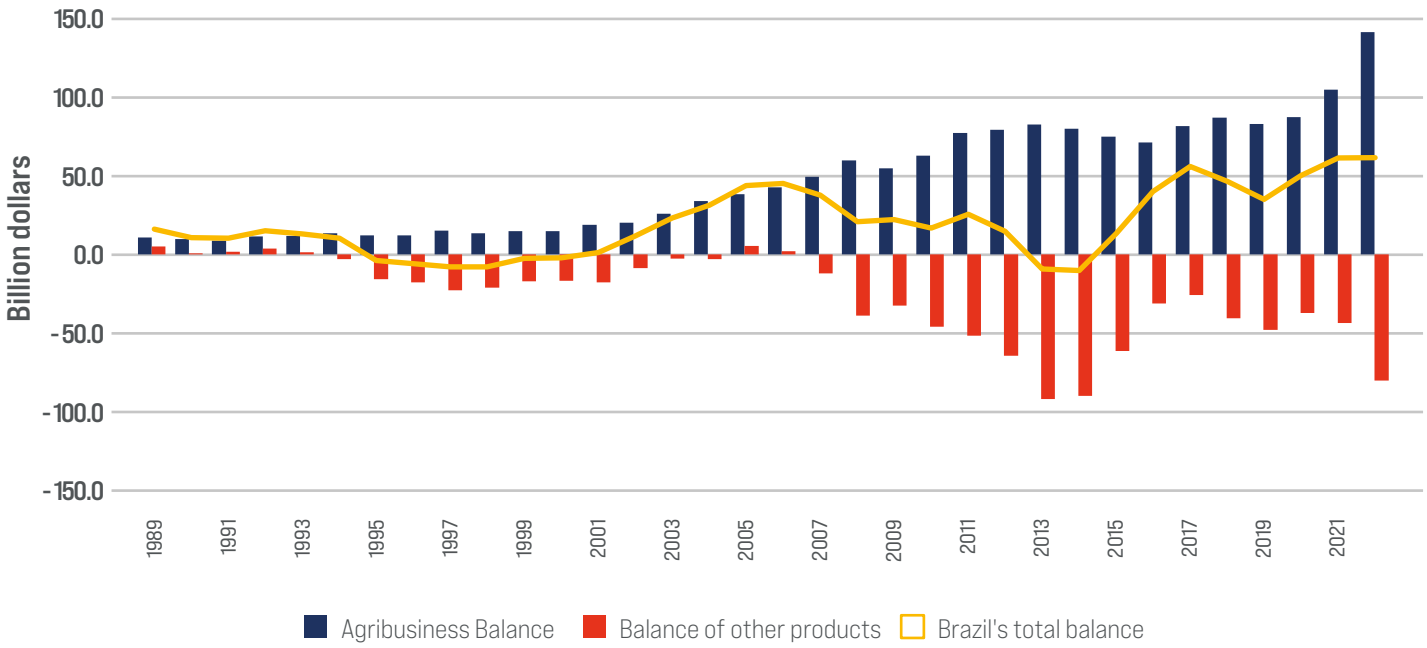
TRADE BALANCE - BILLION US$

Year	Shipping Total	Imp. Total	Brazil's total balance	Shipping Agribusiness	Imp. Agribusiness	Agribusiness Balance	Balance of other products	Beef exports	% beef in total exported by agribusiness
1989	34.38	18.26	16.12	13.92	3.08	10.84	5.28		
1990	31.41	20.66	10.75	12.99	3.18	9.81	0.95		
1991	31.62	21.04	10.58	12.40	3.64	8.76	1.82		
1992	35.79	20.55	15.24	14.45	2.96	11.49	3.75		
1993	38.55	25.26	13.30	15.94	4.16	11.78	1.52		
1994	43.55	33.08	10.47	19.10	5.68	13.43	-2.96		
1995	46.51	49.97	-3.47	20.87	8.61	12.26	-15.72		
1996	47.75	53.35	-5.60	21.14	8.94	12.21	-17.80	0.47	2.24%
1997	52.95	60.54	-7.59	23.34	8.11	15.24	-22.83	0.46	1.98%
1998	51.08	58.67	-7.60	21.52	7.99	13.54	-21.13	0.62	2.86%
1999	47.95	50.26	-2.31	20.47	5.65	14.82	-17.13	0.81	3.98%
2000	54.99	56.98	-1.98	20.58	5.74	14.84	-16.82	0.81	3.95%
2001	58.03	56.57	1.46	23.83	4.77	19.05	-17.59	1.05	4.39%
2002	60.15	48.27	11.87	24.81	4.42	20.39	-8.51	1.14	4.60%
2003	72.78	49.31	23.47	30.61	4.72	25.88	-2.41	1.59	5.19%
2004	95.12	63.81	31.31	38.92	4.80	34.12	-2.81	2.51	6.44%
2005	118.60	74.69	43.91	43.59	5.07	38.52	5.39	3.05	7.00%
2006	137.58	92.53	45.05	49.42	6.65	42.77	2.28	3.91	7.91%
2007	159.82	122.04	37.77	58.36	8.69	49.67	-11.90	4.40	7.55%
2008	195.76	174.71	21.06	71.75	11.88	59.87	-38.81	5.29	7.37%
2009	151.79	129.40	22.39	64.74	9.90	54.84	-32.45	4.11	6.35%
2010	200.43	183.34	17.10	76.40	13.40	63.00	-45.90	4.78	6.26%
2011	253.67	227.97	25.70	94.92	17.51	77.41	-51.71	5.34	5.63%
2012	239.95	225.17	14.79	95.75	16.41	79.34	-64.55	5.73	5.98%
2013	232.54	241.50	-8.96	99.93	17.06	82.87	-91.83	6.65	6.65%

2014	220.92	230.82	-9.90	96.66	16.61	80.04	-89.94	7.09	7.33%
2015	186.78	173.10	13.68	88.17	13.07	75.10	-61.42	5.76	6.53%
2016	179.53	139.32	40.20	84.94	13.63	71.31	-31.10	5.34	6.29%
2017	214.99	158.95	56.04	96.01	14.15	81.86	-25.82	6.07	6.32%
2018	231.89	185.32	46.57	101.17	14.04	87.13	-40.56	6.54	6.47%
2019	221.13	185.93	35.20	96.85	13.78	83.07	-47.87	7.63	7.88%
2020	209.18	158.79	50.39	100.70	13.05	87.65	-37.25	8.48	8.42%
2021	280.81	219.41	61.41	120.52	15.53	104.99	-43.59	9.20	7.63%
2022	334.14	272.61	61.53	158.87	17.24	141.63	-80.10	12.96	8.16%

Source: Athenagro, Agrostat, SECEX/Ministry of the Economy, Conab

Trade balance
(Billion US$)



TOTAL AGRIBUSINESS EXPORTS, HIGHLIGHTING THE SHARE REPRESENTED BY EXPORTS OF BEEF AND OTHER BEEF PRODUCTS IN THIS TOTAL IN 2022

Agribusiness exports 2022			
	Million US$	,000 tonnes	% US$
LIVESTOCK EXPORTS	29,295.48	9,231.59	100.00%
Chicken meat	9,517.9	4,652.8	32.49%
fresh	9,145.4	4,537.9	31.22%
processed	372.5	114.9	1.27%
Beef	12,960.4	2,263.3	44.24%
fresh	11,805.0	1,991.2	40.30%
processed	765.1	106.3	2.61%
Beef offals	390.2	165.8	1.33%
Pork	2,541.6	1,099.2	8.68%
fresh	2,406.9	1,013.7	8.22%
Turkey Meat	189.1	59.2	0.65%
fresh	183.5	56.9	0.63%
processed	5.6	2.3	0.02%
Hides and hide products	1,697.9	370.4	5.80%
Other livestock products	1,606.7	610.4	5.48%
Live animals	304.4	78.2	1.04%
Live Cattle	192.3	76.6	0.66%
Fish	375.0	62.0	1.28%
Dairy products	102.3	36.2	0.35%

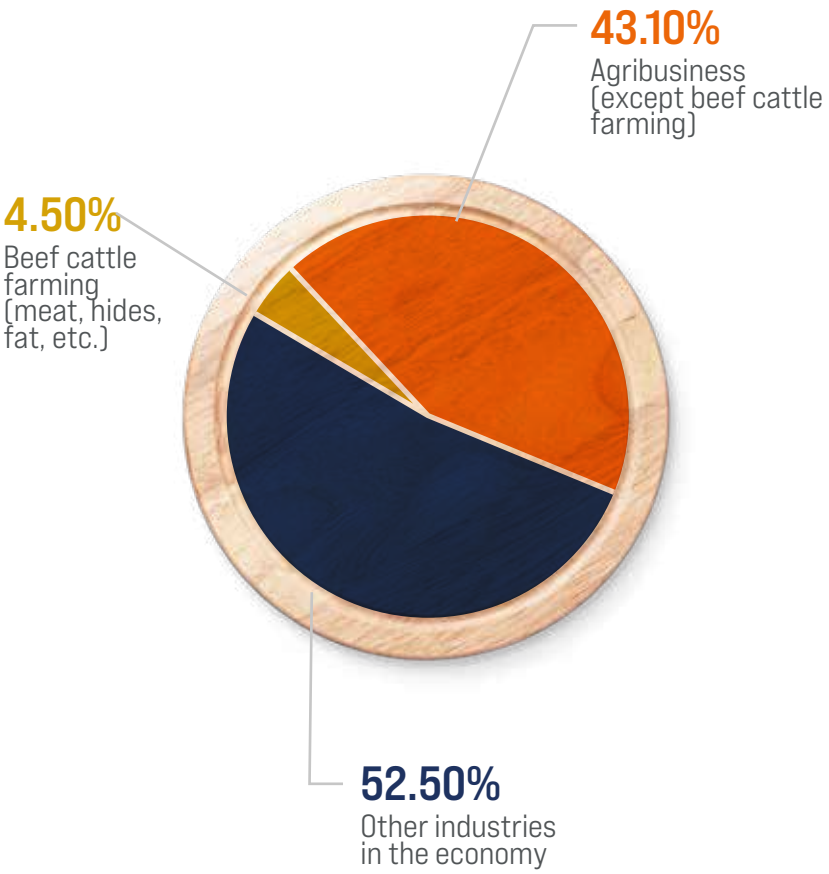
Exports Group - AGRIBUSINESS	US$ Million	Share
Beef cattle farming (meat, hides, fat, etc.)	14,962.73	9.4%
Other animal protein	14,332.75	9.0%
Other agribusiness industries	129,572.52	81.6%
Total exports from Agribusiness	**158,868.00**	**48%**

Source: Athenagro, MAPA, Secex/Ministry of the Economy, AgroStat

Exports Group - BRAZIL	US$ Million	Share
Beef cattle farming (meat, hides, fat, etc.)	14,962.73	4.48%
Agribusiness (except beef cattle farming)	143,905.27	43.07%
Other industries in the economy	175,268.04	52.45%
Total Brazil exports	**334,136.04**	**100%**

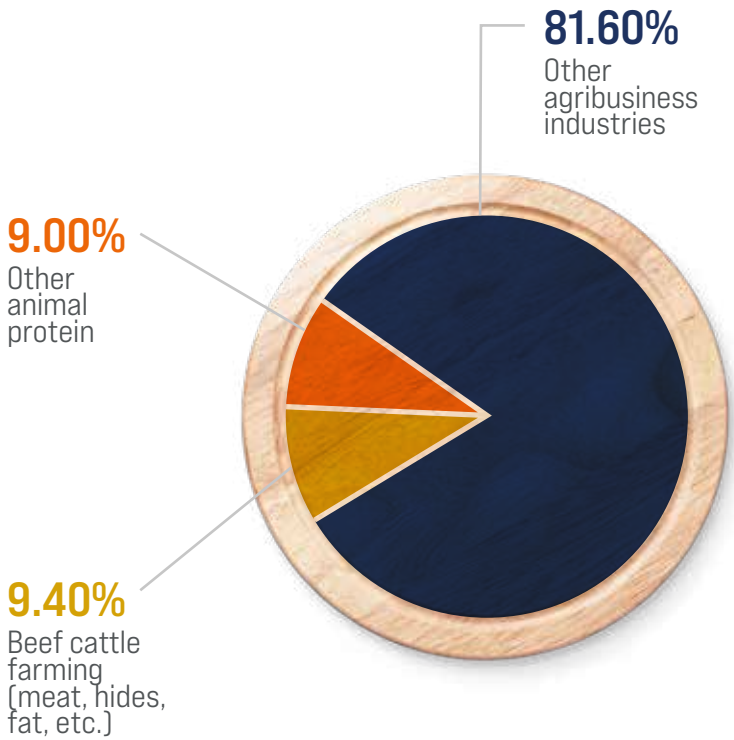
Source: Athenagro, MAPA, Secex/Ministry of the Economy, AgroStat

Share of Brazilian exports per industry



Source: Athenagro, data from Secex/Ministry of the Economy, Agrostat, MAPA

Share of agribusiness exports



Source: Athenagro, data from Secex/Ministry of the Economy, Agrostat, MAPA

THE WORLD LIVESTOCK

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With approximately 202 million head, accounting for 12.18% of the world's herd, Brazil has **the world's second-largest bovine herd**, behind India (where the herd includes bovines and buffaloes).

Brazil's beef production, also ranking second worldwide, is only exceeded by US production, which attained 12.8 million tonnes carcass weight equivalent (CWE) in 2022. In the same period Brazil produced **10.79 million tonnes CWE**.

Indeed, in the last 10 years, taking into account the world's major beef producers, it was precisely in Brazil where production grew the most – **up 1.7 million tonnes for the period**.

The United States was second, increasing its beef production by 1.05 million tonnes CWE over the same period.

However, it is in exports that Brazil stands out. Brazil is the world's largest beef exporter, with **27.7% of world exports** for 2022. This means that for every 5 kg of beef sold around the world, 1 kg originated in Brazil. Over the last 10 years, Brazilian exports grew by 1.3 million tonnes CWE to attain 3.02 million in 2022.

Brazil's figures are remarkable, and more detailed information is given in Chapter 3.

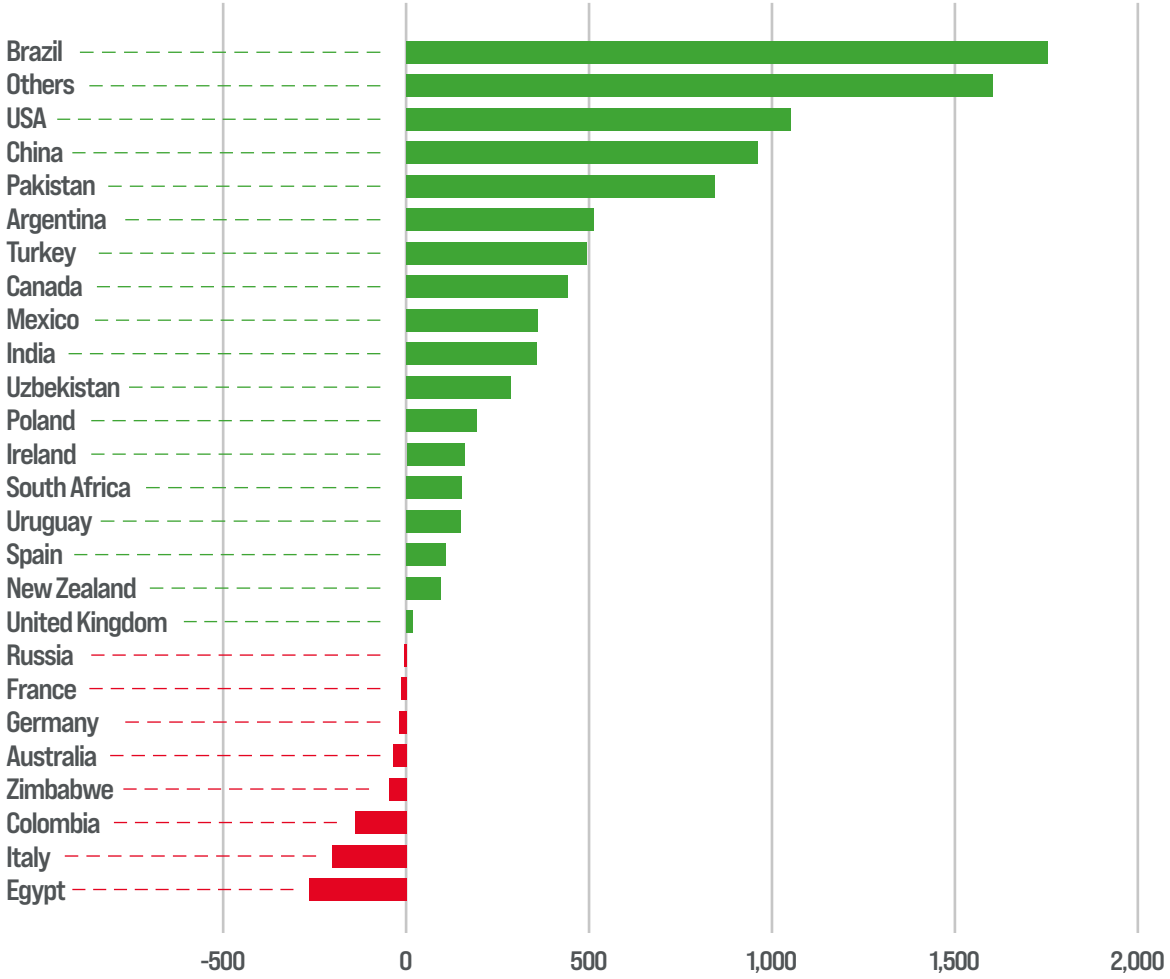
LARGEST HERDS AND BEEF PRODUCERS WORLDWIDE IN 2022

Country	Herd - taking into account bovine and buffalo herds in the most significant countries - in million head	% of world herd	Beef production, in thousand CWE	% of world production
USA	90.8	5.46%	12,862.7	17.09%
Brazil	202.8	12.18%	10,793.6	14.34%
China	90.3	5.43%	7,110.2	9.45%
Argentina	52.8	3.17%	3,108.0	4.13%
India	305.8	18.37%	2,910.8	3.87%
Pakistan	93.8	5.63%	2,430.5	3.23%
Mexico	37.1	2.23%	2,182.1	2.90%
Australia	26.2	1.58%	2,115.3	2.81%
Russia	17.7	1.06%	1,636.4	2.17%
France	17.5	1.05%	1,482.0	1.97%
Canada	10.8	0.65%	1,467.2	1.95%
Turkey	18.0	1.08%	1,295.5	1.72%
Colombia	29.7	1.79%	716.7	0.95%
New Zealand	10.1	0.61%	703.1	0.93%
Uruguay	11.6	0.70%	660.0	0.88%
Ireland	6.6	0.40%	653.7	0.87%
Ethiopia	65.6	3.94%	424.8	0.56%
Chad	33.2	2.00%	488.5	0.65%
Tanzania	30.7	1.84%	502.9	0.67%
Bangladesh	26.0	1.56%	206.5	0.27%
Kenya	22.8	1.37%	252.0	0.33%
Nigeria	21.1	1.27%	330.4	0.44%
Indonesia	19.2	1.15%	524.3	0.70%
Paraguay	14.0	0.84%	534.6	0.71%
Others	410.1	24.64%	19,861.1	26.39%
World	**1,665**	**100.00%**	**75,253**	**100.00%**

Source: Athenagro, with data from FAO, OECD, USDA (2022)

CWE - Carcass Weight Equivalent Tonnes

EVOLUTION OF PRODUCTION OF BEEF FROM 2012 TO 2022, IN THOUSAND CWE



Source: Athenagro, with data from FAO, USDA, IBGE

LARGEST BEEF EXPORTERS IN THE WORLD IN 2022

Ranking 2022	Exports	Production (1000 CWE)	Imports	Exports over Production + Imports
Brazil	3,018.0	10,793.6	80.6	**27.75%**
USA	1,730.6	12,862.7	1,527.1	**12.03%**
Australia	1,369.4	2,115.3	20.1	**64.13%**
India	1,222.7	2,910.8	0.0	**42.01%**
Argentina	916.2	3,108.0	7.3	**29.41%**
Netherlands	684.3	447.2	484.2	**73.47%**
Poland	671.9	577.3	46.1	**107.78%**
New Zealand	647.0	703.1	10.2	**90.71%**
Canada	611.1	1,467.2	224.0	**36.13%**
Ireland	600.6	653.7	43.1	**86.20%**
Uruguay	570.0	660.0	50.0	**80.28%**
Paraguay	452.6	534.6	2.9	**84.19%**
Germany	410.2	1,126.7	474.6	**25.62%**
Mexico	402.0	2,182.1	169.5	**17.10%**
France	317.5	1,482.0	353.8	**17.29%**
Spain	284.4	700.2	144.2	**33.68%**
Belgium	218.4	263.3	106.0	**59.14%**
Italy	204.8	777.6	399.6	**17.40%**
United Kingdom	196.6	903.7	395.9	**15.13%**
Belarus	179.6	343.4	9.3	**50.94%**
Austria	171.4	225.1	60.0	**60.13%**
Nicaragua	170.1	153.7	1.0	**109.96%**
Others	1,051.2	30,261.4	11,491.3	**2.52%**
World	**16,100.9**	**75,252.8**	**16,100.9**	**21.40%**

Source: Athenagro, data from FAO, USDA, OECD, Secex/Ministry of the Economy

Note: We attribute the diverging information to the countries whose exports exceed the sum of production and imports,

LARGEST WORLD IMPORTERS OF BEEF AND BUFFALO MEAT AND THE SHARE OF BRAZILIAN MEAT IN EACH MARKET IN 2022

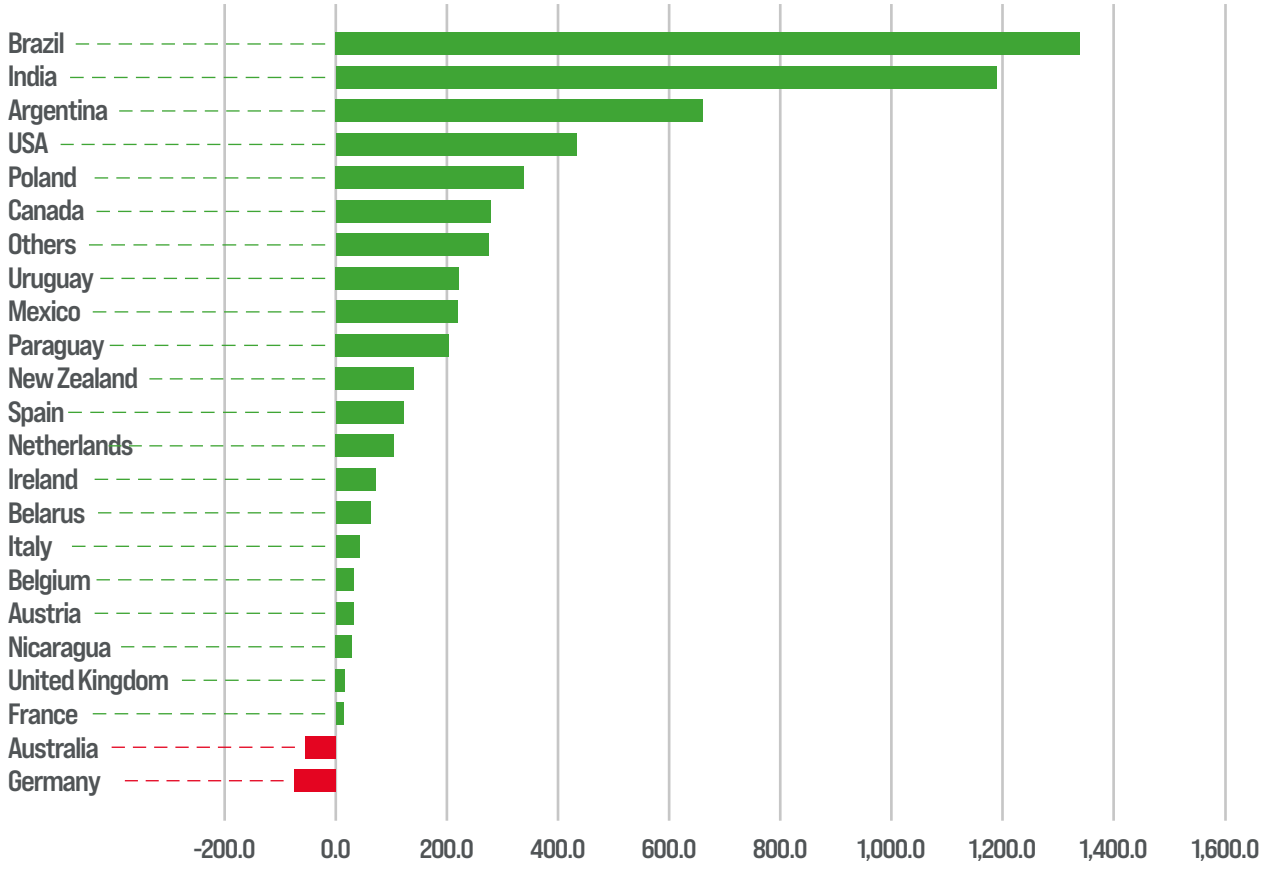
Ranking	Total beef imports in 2022	Beef imports from Brazil in 2022	Total Brazil %
China	3,353.4	1,609.9	48.01%
USA	1,527.1	226.3	14.82%
Japan	825.1	1.0	0.12%
Korea	613.7	0.8	0.13%
Netherlands	484.2	32.8	6.77%
Germany	474.6	10.7	2.25%
Italy	399.6	38.4	9.61%
United Kingdom	395.9	54.8	13.83%
Chile	378.7	104.2	27.52%
France	353.8	0.8	0.22%
Indonesia	353.1	26.6	7.54%
Vietnam	304.1	1.2	0.40%
Egypt	267.5	124.7	46.60%
Hong Kong	237.4	106.7	44.93%
Malaysia	235.8	16.9	7.18%
Russia	226.9	61.2	26.98%
Canada	224.0	11.8	5.28%
The Philippines	223.3	80.9	36.23%
Taiwan	210.2	0.1	0.03%
United Arab Emirates	209.6	77.1	36.80%
Saudi Arabia	190.9	47.0	24.61%
Mexico	169.5	0.0	0.01%
Israel	146.4	51.7	35.31%
Others	4,296.0	336.7	7.84%
World	**16,100.9**	**3,018.0**	**18.74%**

Source: Athenagro, data from FAO, USDA, OECD, Secex/Ministry of the Economy

EVOLUTION OF BEEF EXPORTS FROM 2012 TO 2022, IN THOUSAND CWE

Ranking	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Evolution from 2012 to 2022
Germany	484.3	456.9	483.2	459.7	448.1	435.7	419.6	415.0	362.0	384.5	410.2	-74.2
Australia	1,424.8	1,653.1	1,914.2	1,910.1	1,541.7	1,504.9	1,685.4	1.850.1	1,581.1	1,403.1	1,369.4	-55.4
France	303.4	277.6	277.8	282.4	282.4	284.1	292.4	276.9	269.7	297.6	317.5	14.1
United Kingdom	180.1	164.1	184.4	177.2	182.1	178.9	185.9	226.6	207.8	163.1	196.6	16.5
Nicaragua	140.8	120.0	130.1	125.3	126.1	149.5	151.8	158.9	165.4	181.4	170.1	29.3
Austria	139.7	148.5	172.7	173.8	164.8	153.5	156.8	170.5	158.4	160.7	171.4	31.7
Belgium	186.5	180.9	193.2	212.2	222.3	242.8	240.1	208.7	193.4	204.8	218.4	31.9
Italy	161.9	157.6	174.7	184.8	187.7	189.2	181.1	170.1	164.7	192.0	204.8	42.9
Belarus	116.8	165.2	145.0	160.5	222.7	167.7	178.0	169.2	182.6	196.6	179.6	62.8
Ireland	529.4	513.4	599.1	575.5	643.0	660.4	644.7	639.3	630.0	563.1	600.6	71.3
Netherlands	580.0	518.5	530.0	572.9	622.6	690.6	696.2	711.4	638.7	641.5	684.3	104.3
Spain	162.3	153.4	163.7	202.2	211.4	218.1	208.3	243.3	246.9	266.6	284.4	122.1
New Zealand	506.1	518.2	587.2	646.1	596.6	576.7	614.0	636.1	650.4	683.0	647.0	140.9
Paraguay	249.0	252.5	390.8	381.2	390.1	378.4	367.4	354.8	386.5	451.5	452.6	203.6
Mexico	183.1	147.3	171.5	202.3	230.3	250.2	278.3	315.6	338.6	364.8	402.0	218.9
Uruguay	348.9	331.8	357.7	369.9	428.5	454.8	436.0	436.0	411.0	557.0	570.0	221.1
Others	776.2	863.3	913.0	1,043.3	898.1	834.0	1,046.2	1,247.4	905.4	1,045.1	1,051.2	275.0
Canada	333.2	341.6	391.2	400.6	444.9	471.8	496.7	547.1	529.5	628.0	611.1	277.9
Poland	333.1	345.1	453.2	534.3	543.8	621.4	607.6	604.4	619.1	629.9	671.9	338.9
USA	1,297.8	1,342.8	1,363.6	1,209.1	1,349.6	1,452.4	1,566.8	1,523.0	1,461.1	1,681.1	1,730.6	432.8
Argentina	255.7	285.6	292.5	279.0	306.3	393.1	613.4	870.4	924.2	821.3	916.2	660.5
India	33.8	51.9	1,530.2	1,329.0	1,305.6	1,392.0	1,207.7	1,203.6	1,059.3	1,158.1	1,222.7	1,189.0
Brazil	1,678.7	2,003.0	2,041.5	1,828.5	1,825.4	1,967.6	2,194.5	2,483.0	2,690.9	2,478.2	3,018.0	1,339.4
World	**10,405.5**	**10,992.3**	**13,460.6**	**13,259.9**	**13,174.2**	**13,667.8**	**14,468.9**	**15,461.4**	**14,776.6**	**15,153.1**	**16,100.9**	**5,695.4**

Source: Athenagro, data from FAO, USDA, OECD, Secex/Ministry of the Economy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LARGEST BEEF CONSUMERS IN 2022

Ranking 2022	Total consumption (1,000 CWE)	Population million	Availability per capita kg/inhab/year	Availability per capita - comparison cf. average
USA	12,659.2	333.5	38.0	**391.49%**
China	10,448.9	1,412.5	7.4	**76.30%**
Brazil	7,856.2	213.9	36.7	**378.81%**
Pakistan	2,365.3	227.0	10.4	**107.46%**
Argentina	2,199.1	46.3	47.5	**489.90%**
Mexico	1,949.6	130.1	15.0	**154.54%**
Russia	1,822.8	143.4	12.7	**131.07%**
India	1,688.1	1,423.3	1.2	**12.23%**
France	1,525.6	65.6	23.2	**239.71%**
Japan	1,310.4	125.2	10.5	**107.98%**
Turkey	1,285.4	85.3	15.1	**155.47%**
Germany	1,201.9	83.8	14.3	**147.94%**
United Kingdom	1,103.0	67.8	16.3	**167.83%**
Canada	1,080.1	38.8	27.8	**286.80%**
Uzbekistan	1,027.3	35.3	29.1	**300.41%**
South Africa	981.7	60.6	16.2	**167.07%**
Italy	977.4	59.0	16.6	**170.94%**
Korea	935.0	51.6	18.1	**186.77%**
Indonesia	877.3	274.9	3.2	**32.92%**
Egypt	849.2	104.1	8.2	**84.11%**
Vietnam	795.9	99.5	8.0	**82.54%**
Australia	766.0	26.0	29.5	**304.18%**
Colombia	681.3	51.6	13.2	**136.16%**
Zimbabwe	649.3	15.8	41.1	**423.44%**
Others	18,217.1	2,586.9	7.0	**72.64%**
World	**75,252.8**	**7,762.0**	**9.7**	**100.00%**

Source: Athenagro, data from FAO, USDA, OECD, Secex/Ministry of the Economy

BRAZILIAN LIVESTOCK

abiec

Brazil increased its stocking rate in 2022. Its herd grew by approximately 3.3%; it was estimated at 202 million head, while pasture lands retracted by 5.7% to approximately 154 million hectares in area, **boosting Brazil's stocking rate to 1.32 head per hectare**. This meant more animals in a smaller area, boosting productivity.

Throughout Chapter 4, changes in Brazil's cattle herd by state and region can be observed, as well as those municipalities having the largest herds, and the numbers and sizes of farms holding bovines.

The total slaughter figure for cattle in 2022 was 42.31 million head, giving a beef production of 10.79 million tonnes carcass weight equivalent (CWE). The average carcass weight for slaughtered animals over the course of the year was 255.13 kg.

Of the total number of animals slaughtered, 18.2% were finished in feedlots. **Most of Brazil's cattle are grass-fed on pasture**.

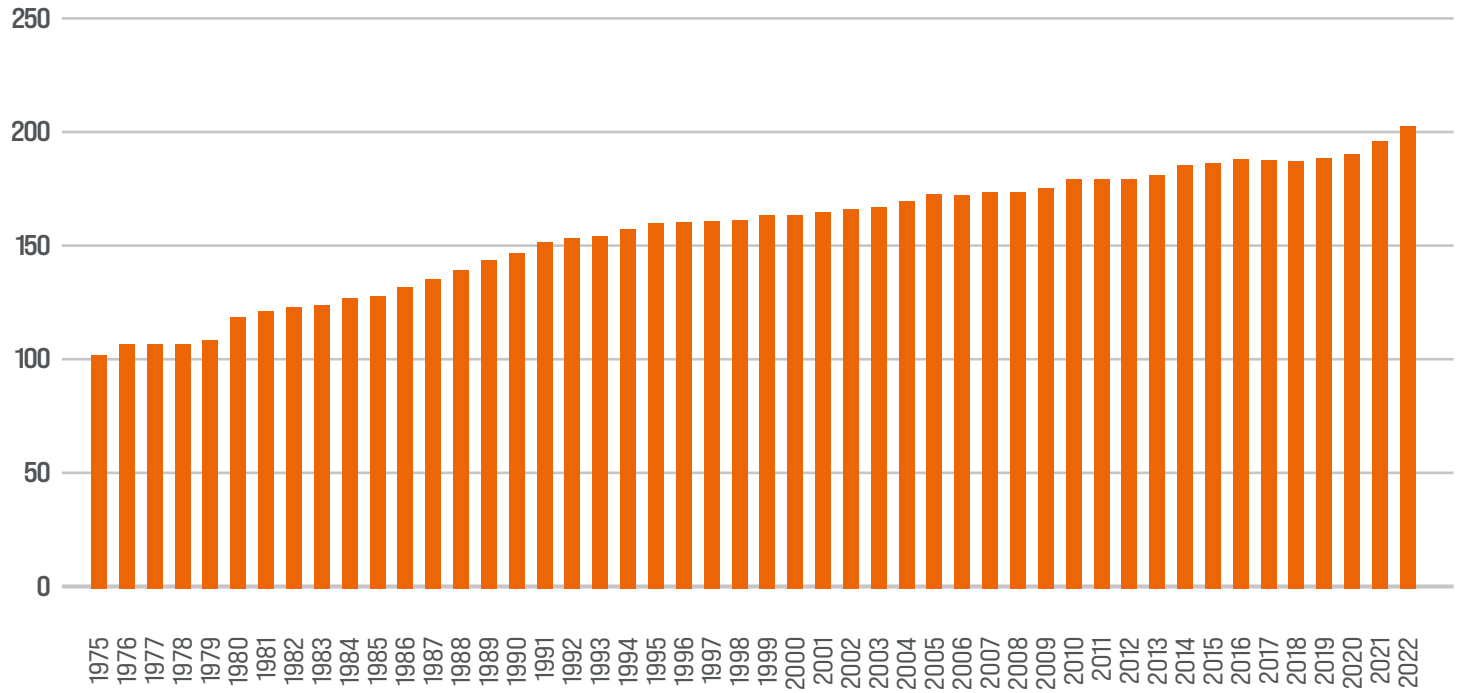
The domestic market remains the major consumer of beef produced in Brazil. Approximately **71.48% of all the meat was consumed by Brazilians**, making up a **per capita consumption of 36.73 kg** per inhabitant in 2022. To obtain these amounts, we take into consideration all cattle slaughter and beef production at all levels of inspection, including informal slaughter.

Exports of 3.02 million tonnes of carcass weight equivalent (CWE) in 2022 account for 27.96% of all the beef produced in Brazil.

More information and details on the herd and other results for Brazil's cattle production can be found in Chapter 4.

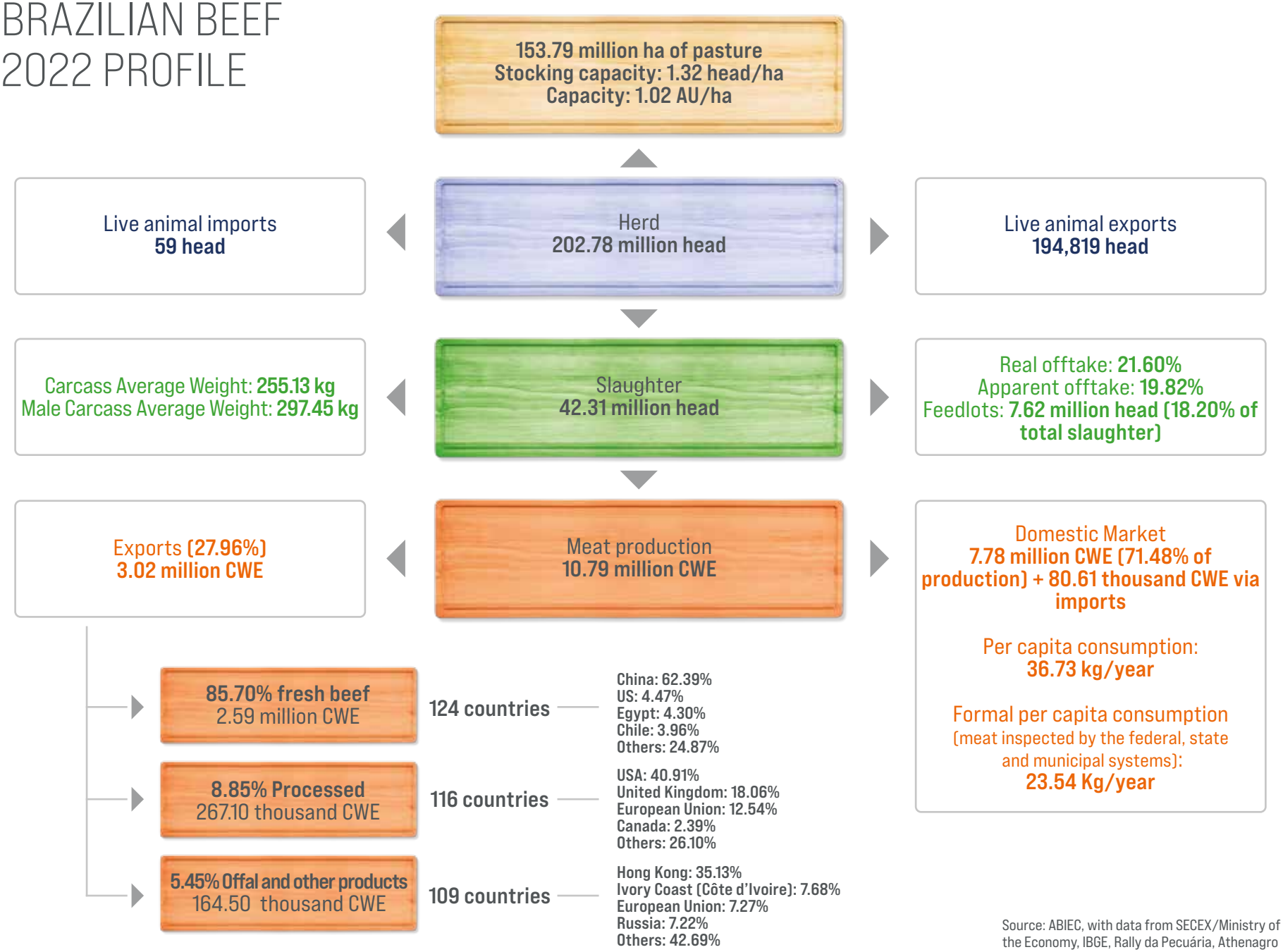
Enjoy your reading!

BRAZIL'S CATTLE HERD - IN MILLION HEAD



Source: Athenagro, data from the IBGE (Census, PPM, PPT), drafted by ABIEC

BRAZILIAN BEEF 2022 PROFILE



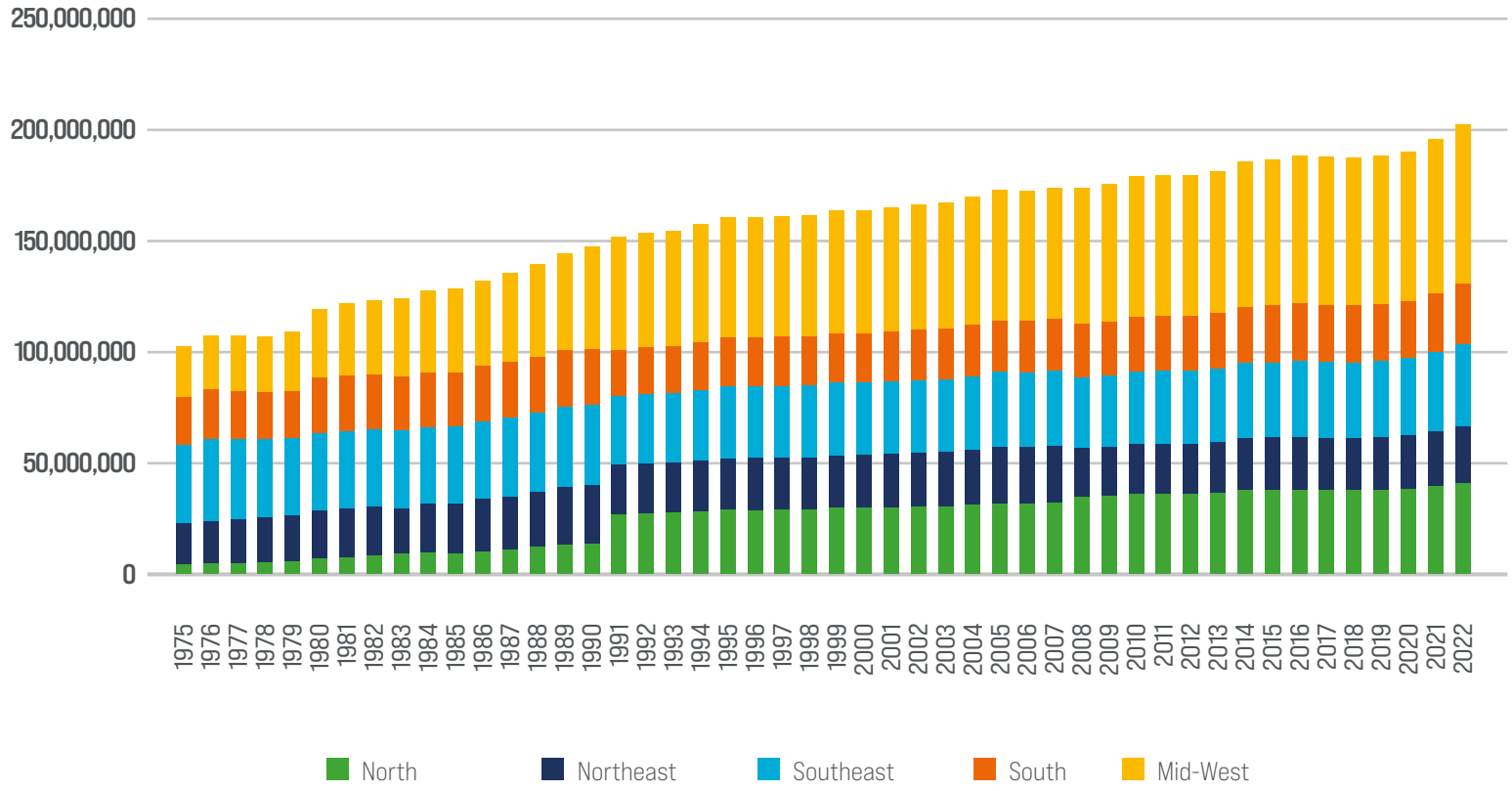
Source: ABIEC, with data from SECEX/Ministry of the Economy, IBGE, Rally da Pecuária, Athenagro

EVOLUTION OF BRAZIL'S CATTLE HERD PER REGION - IN HEAD

Year	Brazil	North	Northeast	Southeast	South	Mid-West
1975	102,531,758	4,293,544	18,296,797	35,586,295	21,668,817	22,686,305
1976	107,349,052	4,596,133	19,229,147	37,073,316	22,199,367	24,251,089
1977	107,296,556	4,863,788	19,574,816	36,308,815	21,981,760	24,567,377
1978	106,942,565	5,318,446	20,005,028	35,516,968	21,021,042	25,081,081
1979	109,177,486	5,768,087	20,512,853	35,115,460	21,159,519	26,621,567
1980	118,971,418	6,774,500	21,875,798	35,125,592	24,609,025	30,586,503
1981	121,785,084	7,346,000	22,136,018	35,044,971	24,838,306	32,419,789
1982	123,487,834	8,055,615	22,112,521	35,137,299	24,803,652	33,378,747
1983	124,185,999	8,927,135	20,605,323	35,084,928	24,430,982	35,137,631
1984	127,654,597	9,659,335	21,692,937	34,987,624	24,272,484	37,042,217
1985	128,422,666	8,910,492	23,014,947	34,620,663	24,387,197	37,489,367
1986	132,221,568	9,848,378	23,736,271	35,367,710	25,083,217	38,185,992
1987	135,726,280	10,856,266	24,008,252	35,657,970	25,198,501	40,005,291
1988	139,599,106	12,143,357	24,897,021	35,802,516	25,262,400	41,493,812
1989	144,154,103	13,148,461	25,955,266	36,235,614	25,405,888	43,408,874
1990	147,526,502	13,750,930	26,188,366	36,320,510	25,324,125	45,942,571
1991	151,896,386	26,980,918	22,284,348	30,768,850	21,082,904	50,779,365
1992	153,857,401	27,344,267	22,566,937	31,114,320	21,272,137	51,559,740
1993	154,718,793	27,549,517	22,679,585	31,237,667	21,332,725	51,919,298
1994	157,667,936	28,069,154	23,029,464	31,830,721	21,710,154	53,028,442
1995	160,501,405	28,625,490	23,430,890	32,316,253	22,078,839	54,049,932
1996	160,786,340	28,773,137	23,467,091	32,251,696	22,067,335	54,227,081
1997	161,071,276	28,846,466	23,534,872	32,275,230	22,118,470	54,296,237
1998	161,651,254	29,056,269	23,575,651	32,292,020	22,144,570	54,582,744

Source: IBGE, Athenagro

Year	Brazil	North	Northeast	Southeast	South	Mid-West
1999	163,977,692	29,597,099	23,821,882	32,703,406	22,416,525	55,438,780
2000	163,880,548	29,752,992	23,802,627	32,567,688	22,312,023	55,445,218
2001	165,125,778	30,085,536	24,039,285	32,695,686	22,427,524	55,877,747
2002	166,439,522	30,384,094	24,224,233	32,848,160	22,549,295	56,433,739
2003	167,299,700	30,622,200	24,304,698	32,919,015	22,617,907	56,835,881
2004	170,015,718	31,181,802	24,677,974	33,386,472	22,925,801	57,843,670
2005	173,092,896	31,869,185	25,172,308	33,937,451	23,278,603	58,835,349
2006	172,804,020	31,917,749	25,194,583	33,846,193	23,162,008	58,683,486
2007	173,916,958	32,152,025	25,506,065	34,116,521	23,280,113	58,862,234
2008	173,855,166	34,822,203	22,008,989	31,970,466	23,910,767	61,142,741
2009	175,424,065	35,065,878	22,216,801	32,199,389	24,200,333	61,741,664
2010	179,359,455	35,951,931	22,688,812	32,858,570	24,705,923	63,154,218
2011	179,580,174	36,068,072	22,682,499	32,841,442	24,673,088	63,315,072
2012	179,535,289	36,121,909	22,717,502	32,877,826	24,641,875	63,176,178
2013	181,558,530	36,604,166	22,936,220	33,224,132	24,872,321	63,921,690
2014	185,897,542	37,594,934	23,506,190	34,030,486	25,473,631	65,292,302
2015	186,540,327	37,834,266	23,585,310	34,053,673	25,525,840	65,541,238
2016	188,428,381	37,766,510	23,813,360	34,492,982	25,828,455	66,527,074
2017	188,152,496	37,716,036	23,635,605	34,421,858	25,708,932	66,670,064
2018	187,544,955	37,748,521	23,544,980	34,247,520	25,604,614	66,399,319
2019	188,628,495	38,034,556	23,736,131	34,437,966	25,649,503	66,770,339
2020	190,495,386	38,410,991	23,971,051	34,778,805	25,903,361	67,431,177
2021	196,170,125	39,570,910	24,782,451	35,833,394	26,540,121	69,443,247
2022	202,783,770	41,135,473	25,602,324	37,033,520	27,204,456	71,807,997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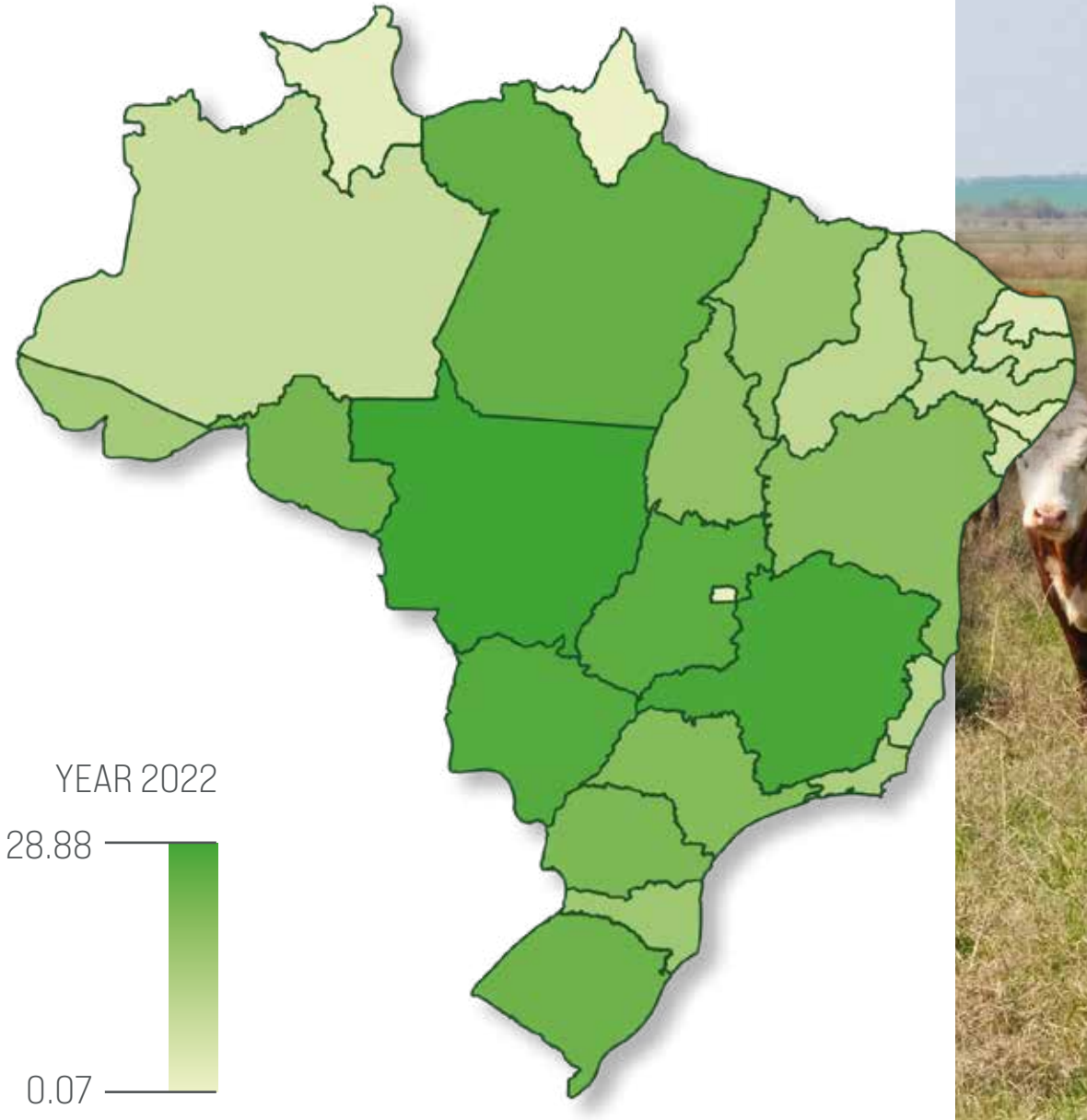
South
Mid-West

EVOLUTION OF BRAZIL'S CATTLE HERD PER STATE - IN MILLION HEAD

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Brasil	166.44	167.30	170.02	173.09	172.80	173.92	173.86	175.42	179.36	179.58	179.54	181.56	185.90	186.54	188.43	188.15	187.55	188.63	190.50	196.17	202.78
Rondônia	7.89	7.97	8.15	8.35	8.37	8.43	9.50	9.60	9.86	9.90	9.93	10.07	10.33	10.43	10.64	10.62	10.67	10.76	10.87	11.14	11.57
Acre	1.60	1.62	1.65	1.69	1.69	1.71	2.07	2.09	2.15	2.16	2.15	2.18	2.25	2.28	2.33	2.33	2.32	2.36	2.39	2.48	2.58
Amazonas	1.08	1.09	1.11	1.13	1.14	1.16	1.32	1.25	1.29	1.29	1.29	1.31	1.34	1.35	1.36	1.36	1.36	1.37	1.39	1.44	1.49
Roraima	0.50	0.50	0.51	0.52	0.52	0.53	0.67	0.67	0.69	0.69	0.70	0.71	0.73	0.73	0.74	0.74	0.74	0.75	0.75	0.78	0.81
Pará	13.00	13.08	13.35	13.65	13.66	13.76	14.78	14.91	15.28	15.31	15.35	15.55	15.98	16.07	15.60	15.58	15.58	15.70	15.85	16.34	16.80
Amapá	0.07	0.07	0.07	0.08	0.08	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Tocantins	6.25	6.29	6.35	6.46	6.45	6.48	6.45	6.50	6.65	6.68	6.66	6.75	6.92	6.94	7.06	7.05	7.03	7.05	7.12	7.35	7.60
Maranhão	5.37	5.41	5.51	5.64	5.67	5.74	5.37	5.43	5.55	5.56	5.57	5.64	5.79	5.84	5.91	5.88	5.88	5.95	6.01	6.23	6.45
Piauí	1.53	1.54	1.58	1.61	1.62	1.65	1.49	1.51	1.54	1.53	1.53	1.55	1.58	1.58	1.59	1.57	1.55	1.56	1.57	1.60	1.65
Ceará	2.03	2.04	2.07	2.11	2.11	2.14	1.92	1.95	2.00	2.00	2.02	2.04	2.08	2.08	2.09	2.07	2.06	2.08	2.10	2.18	2.25
Rio Grande do Norte	0.84	0.85	0.86	0.88	0.88	0.90	0.78	0.79	0.81	0.80	0.80	0.80	0.82	0.83	0.83	0.82	0.82	0.83	0.84	0.87	0.90
Paraíba	1.27	1.27	1.29	1.32	1.32	1.34	1.05	1.06	1.09	1.09	1.09	1.09	1.12	1.13	1.14	1.14	1.14	1.15	1.16	1.21	1.25
Pernambuco	1.77	1.78	1.80	1.83	1.83	1.86	1.31	1.32	1.35	1.35	1.36	1.36	1.39	1.40	1.41	1.40	1.40	1.41	1.42	1.47	1.52
Alagoas	0.88	0.87	0.88	0.90	0.90	0.91	0.78	0.79	0.81	0.82	0.82	0.83	0.85	0.85	0.86	0.85	0.85	0.86	0.87	0.90	0.93
Sergipe	0.85	0.85	0.86	0.87	0.87	0.89	0.90	0.91	0.94	0.93	0.94	0.94	0.97	0.97	0.98	0.97	0.96	0.97	0.98	1.01	1.04
Bahia	9.68	9.69	9.83	10.01	9.99	10.10	8.40	8.45	8.60	8.60	8.60	8.68	8.90	8.91	8.99	8.93	8.88	8.93	9.01	9.32	9.62
Minas Gerais	19.25	19.29	19.56	19.92	19.87	20.07	19.83	19.98	20.39	20.38	20.45	20.67	21.21	21.22	21.49	21.43	21.26	21.39	21.60	22.28	23.01
Espírito Santo	1.68	1.68	1.71	1.74	1.75	1.77	1.68	1.69	1.73	1.73	1.73	1.76	1.80	1.81	1.82	1.81	1.79	1.81	1.83	1.89	1.95
Rio de Janeiro	1.81	1.81	1.84	1.88	1.88	1.90	1.95	1.98	2.02	2.03	2.03	2.06	2.11	2.12	2.14	2.14	2.15	2.17	2.19	2.26	2.34
São Paulo	10.11	10.14	10.28	10.40	10.35	10.37	8.50	8.55	8.72	8.70	8.66	8.73	8.90	8.90	9.04	9.05	9.05	9.07	9.16	9.40	9.72
Paraná	8.76	8.79	8.91	9.04	8.99	9.00	8.54	8.62	8.79	8.77	8.76	8.85	9.06	9.05	9.16	9.14	9.12	9.15	9.24	9.47	9.79
Santa Catarina	2.94	2.95	2.99	3.05	3.05	3.09	3.68	3.73	3.80	3.80	3.80	3.85	3.95	3.99	4.05	4.06	4.05	4.09	4.13	4.26	4.42
Rio Grande do Sul	10.85	10.88	11.02	11.19	11.12	11.19	11.70	11.85	12.11	12.11	12.08	12.17	12.47	12.49	12.61	12.51	12.44	12.41	12.53	12.80	13.19
Mato Grosso do Sul	19.58	19.76	20.14	20.44	20.32	20.37	19.78	19.99	20.37	20.36	20.20	20.42	20.88	20.94	21.25	21.28	21.16	21.16	21.37	21.78	22.51
Mato Grosso	19.47	19.60	19.99	20.39	20.39	20.40	24.09	24.32	24.94	25.06	25.07	25.32	25.88	26.02	26.45	26.50	26.40	26.65	26.91	27.88	28.88
Goiás	17.30	17.39	17.63	17.93	17.90	18.00	17.20	17.37	17.78	17.83	17.84	18.11	18.46	18.51	18.76	18.81	18.78	18.90	19.09	19.71	20.40
Federal District	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07

Source: Athenagro, data from IBGE (Census, PPM, PPT)


YEAR 2022
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HERD PURPOSE AND NUMBER OF FARMS, PER STATE

States	Herd in 2012 (head)	Percentage of the herd per State in Brazil's total in 2012 (%)	Estimated herd in 2022 (head)	Share of the State's herd in Brazil's total (%)
Rondônia	9,930,580	5.53%	11,566,681	5.70%
Acre	2,152,659	1.20%	2,577,089	1.27%
Amazonas	1,292,593	0.72%	1,488,042	0.73%
Roraima	696,923	0.39%	813,190	0.40%
Pará	15,349,133	8.55%	16,802,951	8.29%
Amapá	37,541	0.02%	42,376	0.02%
Tocantins	6,662,481	3.71%	7,602,104	3.75%
Maranhão	5,565,570	3.10%	6,450,080	3.18%
Piauí	1,529,726	0.85%	1,649,793	0.81%
Ceará	2,016,852	1.12%	2,246,831	1.11%
Rio Grande do Norte	801,191	0.45%	898,344	0.44%
Paraíba	1,090,752	0.61%	1,248,443	0.62%
Pernambuco	1,360,298	0.76%	1,519,726	0.75%
Alagoas	819,171	0.46%	925,858	0.46%
Sergipe	935,239	0.52%	1,042,059	0.51%
Bahia	8,598,703	4.79%	9,617,386	4.74%
Minas Gerais	20,450,842	11.39%	23,008,625	11.35%
Espírito Santo	1,733,559	0.97%	1,953,436	0.96%
Rio de Janeiro	2,031,965	1.13%	2,344,017	1.16%
São Paulo	8,661,460	4.82%	9,723,956	4.80%
Paraná	8,756,706	4.88%	9,789,057	4.83%
Santa Catarina	3,800,297	2.12%	4,419,740	2.18%
Rio Grande do Sul	12,084,871	6.73%	13,193,394	6.51%
Mato Grosso do Sul	20,199,891	11.25%	22,508,633	11.10%
Mato Grosso	25,067,648	13.96%	28,879,629	14.24%
Goiás	17,841,699	9.94%	20,400,391	10.06%
Federal District	66,940	0.04%	71,940	0.04%
BRAZIL	179,535,289	100.00%	202,783,770	100.00%

Source: Athenagro, with data from IBGE

Growth of herd in the last 10 years (%)	Share of animals exclusively for slaughter per State in 2022 (%)	Herd genetically suitable for slaughter in 2022 (%)	Share of animals fit for slaughter in 2022 (%)	Number of farms with cattle (units)
16.48%	93.01%	11,284,923	97.56%	73,129
19.72%	96.18%	2,545,140	98.76%	22,649
15.12%	87.91%	1,428,960	96.03%	14,612
16.68%	95.68%	802,738	98.71%	6,903
9.47%	90.40%	16,418,171	97.71%	97,769
12.88%	76.08%	38,917	91.84%	684
14.10%	85.86%	7,265,917	95.58%	50,451
15.89%	82.42%	6,081,761	94.29%	91,296
7.85%	88.09%	1,570,350	95.18%	70,480
11.40%	44.79%	1,820,726	81.04%	114,714
12.13%	43.00%	722,231	80.40%	39,150
14.46%	55.08%	1,052,426	84.30%	82,761
11.72%	47.25%	1,138,452	74.91%	107,939
13.02%	42.59%	744,019	80.36%	42,300
11.42%	70.60%	931,300	89.37%	43,783
11.85%	81.59%	8,952,861	93.09%	297,894
12.51%	55.32%	17,608,369	76.53%	385,488
12.68%	75.02%	1,790,751	91.67%	33,128
15.36%	71.56%	2,108,177	89.94%	32,273
12.27%	75.33%	8,580,846	88.24%	107,255
11.79%	67.35%	7,447,237	76.08%	170,296
16.30%	37.06%	2,728,350	61.73%	132,522
9.17%	75.73%	11,403,993	86.44%	261,717
11.43%	98.64%	22,271,588	98.95%	54,931
15.21%	97.70%	28,661,316	99.24%	92,723
14.34%	74.64%	18,560,687	90.98%	126,100
7.47%	72.92%	19,482	27.08%	1,468
12.95%	80.25%	183,979,687	90.73%	2,554,415

HERD IN THE LARGEST LIVESTOCK MUNICIPALITIES IN BRAZIL AND GROWTH IN THE LAST 10 AND 20 YEARS

Municipality/State	Herd in 2002 (head)	Herd in 2012 (head)	Herd in 2022 (head)*	Growth of herd in 20 years (head)	Growth of herd in 10 years (head)	Growth of herd in 20 years (%)	Growth of herd in 10 years (%)
São Félix do Xingu (PA)	977,374	1,663,795	2,064,353	1,086,978	400,557	111.21%	24.07%
Corumbá (MS)	1,326,921	1,362,579	1,537,368	210,447	174,789	15.86%	12.83%
Marabá (PA)	265,933	512,233	1,236,263	970,330	724,030	364.88%	141.35%
Porto Velho (RO)	285,652	549,025	1,132,155	846,503	583,131	296.34%	106.21%
Cáceres (MT)	621,149	714,161	971,321	350,172	257,160	56.37%	36.01%
Novo Repartimento (PA)	125,781	614,521	966,307	840,526	351,787	668.24%	57.25%
Vila Bela da Santíssima Trindade (MT)	547,655	711,801	891,665	344,010	179,863	62.82%	25.27%
Ribas do Rio Pardo (MS)	1,033,615	856,908	830,366	-203,249	-26,541	-19.66%	-3.10%
Juara (MT)	666,353	748,336	798,180	131,827	49,844	19.78%	6.66%
Altamira (PA)	230,340	518,862	756,141	525,802	237,279	228.27%	45.73%
Juína (MT)	399,017	482,106	695,745	296,728	213,639	74.36%	44.31%
Nova Crixás (GO)	553,899	584,334	694,738	140,840	110,404	25.43%	18.89%
Alta Floresta (MT)	480,482	657,187	679,428	198,947	22,242	41.41%	3.38%
Nova Mamoré (RO)	112,189	358,232	675,490	563,301	317,258	502.10%	88.56%
Aquidauana (MS)	535,909	604,598	654,707	118,798	50,109	22.17%	8.29%
Cumaru do Norte (PA)	168,861	581,523	613,398	444,537	31,875	263.26%	5.48%
Colniza (MT)	39,690	315,111	613,375	573,685	298,264	1445.42%	94.65%
Pacajá (PA)	140,600	335,728	613,370	472,769	277,641	336.25%	82.70%
Itupiranga (PA)	108,062	234,385	588,582	480,521	354,197	444.67%	151.12%
Vila Rica (MT)	338,942	550,945	583,019	244,077	32,074	72.01%	5.82%
Água Azul do Norte (PA)	465,592	432,088	575,932	110,340	143,844	s/l	33.29%
Pontes e Lacerda (MT)	460,036	489,384	561,151	101,115	71,767	21.98%	14.66%
Porto Murtinho (MS)	522,163	562,502	555,748	33,585	-6,754	6.43%	-1.20%
São Miguel do Araguaia (GO)	395,101	457,253	553,121	158,020	95,868	39.99%	20.97%
Novo Progresso (PA)	154,974	533,298	537,044	382,070	3,746	246.54%	0.70%

Source: Athenagro, IBGE

*Preliminary data

Municipality/State	Herd in 2002 (head)	Herd in 2012 (head)	Herd in 2022 (head)*	Growth of herd in 20 years (head)	Growth of herd in 10 years (head)	Growth of herd in 20 years (%)	Growth of herd in 10 years (%)
Santa Maria das Barreiras (PA)	302,287	371,477	528,193	225,906	156,716	74.73%	42.19%
Santana do Araguaia (PA)	290,900	475,874	511,891	220,991	36,017	75.97%	7.57%
Nova Bandeirantes (MT)	125,917	363,221	485,592	359,675	122,372	285.64%	33.69%
Rio Verde de Mato Grosso (MS)	431,400	401,886	472,822	41,422	70,936	9.60%	17.65%
Porto Esperidião (MT)	346,666	386,381	470,281	123,615	83,900	35.66%	21.71%
Aripuanã (MT)	181,400	365,731	468,139	286,738	102,408	158.07%	28.00%
Xinguara (PA)	374,508	380,019	456,583	82,075	76,565	21.92%	20.15%
Buritis (RO)	115,915	342,753	451,044	335,129	108,291	289.12%	31.59%
Jaru (RO)	286,957	397,466	447,087	160,129	49,621	55.80%	12.48%
Rio Branco (AC)	300,494	378,380	445,449	144,955	67,068	48.24%	17.73%
Poconé (MT)	292,500	318,552	440,065	147,566	121,514	50.45%	38.15%
Cocalinho (MT)	249,038	320,234	438,987	189,950	118,753	76.27%	37.08%
Alegrete (RS)	455,670	488,406	438,167	-17,503	-50,239	-3.84%	-10.29%
Santo Antônio do Leverger (MT)	345,453	370,134	436,784	91,332	66,650	26.44%	18.01%
Porangatu (GO)	253,270	275,791	426,981	173,711	151,190	68.59%	54.82%
Ariquemes (RO)	323,624	343,701	425,796	102,172	82,094	31.57%	23.89%

NUMBER OF ESTABLISHMENTS AND HERD PER SIZE OF PRODUCER PER STATE - 2017 BASE-YEAR AND 2022 STATISTICS

	Area of pasture land (hectares) (2017 Census)	Area of pasture land (hectares) (2017 Census analyzed)	Area of pasture land (hectares) (Athenagro 2022)
Brazil	149,670,217	160,813,256	153,786,195
Rondônia	5,973,261	7,225,677	7,454,548
Acre	1,419,137	1,678,576	1,952,155
Amazonas	1,059,909	1,731,155	2,210,023
Roraima	991,282	624,398	709,319
Pará	13,628,084	16,618,317	17,645,985
Amapá	190,207	303,242	306,806
Tocantins	8,033,348	7,349,767	6,944,060
Maranhão	5,484,081	6,510,895	6,642,616
Piauí	1,580,587	2,008,860	1,530,738
Ceará	1,991,117	2,178,443	1,967,395
Rio Grande do Norte	848,502	960,264	766,608
Paraíba	915,019	1,729,436	1,671,525
Pernambuco	1,351,654	2,584,762	2,520,751
Alagoas	752,724	845,138	748,855
Sergipe	800,567	1,492,083	1,534,229
Bahia	10,399,072	15,864,154	15,723,101
Minas Gerais	18,403,448	19,151,267	18,994,097
Espírito Santo	1,341,817	1,828,910	1,794,371
Rio de Janeiro	1,504,777	1,710,145	1,715,068
São Paulo	4,617,616	4,837,758	4,413,908
Paraná	3,846,697	3,674,847	2,823,287
Santa Catarina	1,738,475	1,159,486	812,477
Rio Grande do Sul	8,868,630	7,501,635	6,152,814
Mato Grosso do Sul	17,190,625	16,510,872	14,591,664
Mato Grosso	21,938,169	20,548,746	19,396,896
Goiás + DF	14,801,410	14,184,422	12,762,898

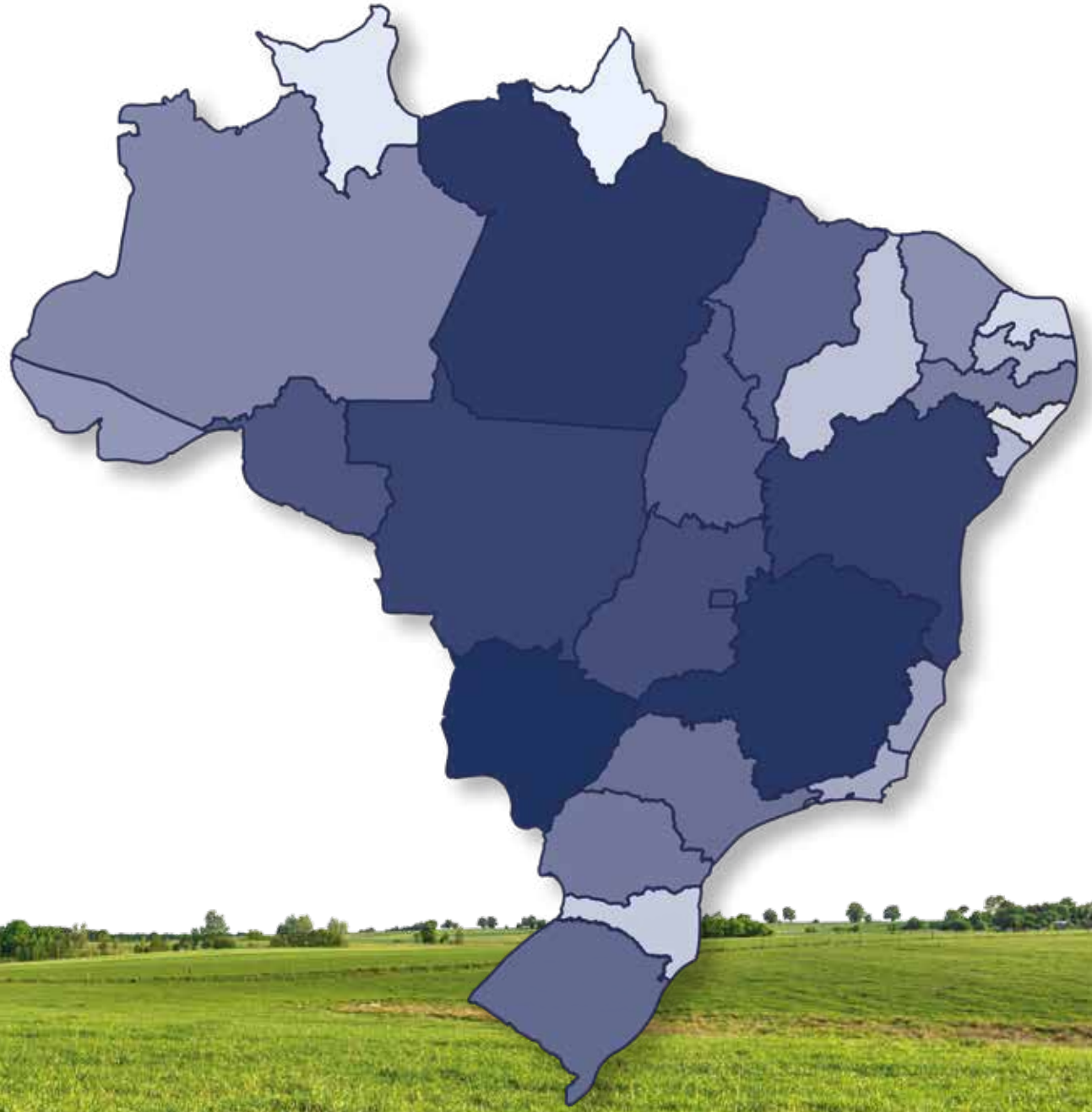
Source: Athenagro, IBGE (2006 Census, 2017 Census and PPM 2017)

Note: Census data are official and therefore the adjustment calculation was not used in the sum of States and in the sum of the area groups. Mismatches occur in the number of establishments and herd, where the sum of state data and of the area groups do not match the total amount made available by the IBGE.

Number of establishments per Area (hectares) - 2017 Census					
Less than 20	Between 20 and 200	Between 200 and 1000	Between 1000 and 2500	Greater than 2500	Total
1,236,314	1,110,242	168,770	27,801	12,204	2,555,333
16,456	49,576	6,034	810	296	73,172
3,848	15,344	2,973	309	166	22,640
3,540	8,882	1,875	235	122	14,654
855	4,453	1,160	302	131	6,901
11,119	70,210	12,851	2,366	1,280	97,826
83	412	146	23	21	685
5,094	34,218	8,454	1,860	782	50,409
34,138	48,482	7,423	918	391	91,352
31,910	33,819	4,096	463	220	70,508
71,796	38,002	4,545	341	72	114,756
22,830	13,992	2,066	241	44	39,173
60,213	19,962	2,442	173	25	82,815
81,665	24,274	1,978	122	31	108,070
34,432	7,033	813	72	16	42,366
32,486	10,370	929	43	8	43,836
164,189	118,603	13,083	1,753	645	298,273
170,376	185,559	26,488	2,545	599	385,568
15,421	15,971	1,620	135	22	33,169
17,104	13,047	1,948	140	32	32,271
55,693	43,832	7,018	667	146	107,356
104,654	57,523	7,358	728	111	170,374
81,132	48,649	2,505	258	46	132,590
148,107	98,862	12,021	2,330	575	261,895
21,166	18,034	9,215	3,750	2,166	54,331
14,369	58,821	12,478	3,890	3,218	92,776
33,638	72,312	17,251	3,327	1,039	127,567

Herd per farm size (hectares) - 2017 Census						
	Less than 20	Between 20 and 200	Between 200 and 1000	Between 1000 and 2500	Greater than 2500	Total
Brazil	14,591,533	53,692,142	46,204,474	24,439,667	32,927,852	171,858,168
Rondônia	420,749	4,608,652	2,679,524	1,083,202	1,034,904	9,827,031
Acre	46,280	826,846	548,786	254,973	455,864	2,133,001
Amazonas	63,712	436,554	352,030	149,386	211,550	1,253,852
Roraima	11,477	206,122	197,781	129,780	127,634	674,501
Pará	206,556	4,195,235	4,653,473	2,432,668	3,810,681	15,298,613
Amapá	1,614	13,031	13,742	4,237	3,120	36,481
Tocantins	98,733	1,556,513	1,829,102	1,272,519	1,580,812	6,340,469
Maranhão	374,589	2,018,399	1,556,745	652,671	809,615	5,412,019
Piauí	321,402	653,908	253,590	73,184	126,009	1,428,093
Ceará	619,358	840,549	319,667	76,344	39,135	1,895,053
Rio Grande do Norte	180,025	313,930	186,188	60,529	17,273	757,945
Paraíba	368,749	429,128	208,099	35,682	8,363	1,050,021
Pernambuco	508,839	529,138	197,536	38,122	0	1,283,872
Alagoas	237,643	274,834	191,086	61,907	0	785,836
Sergipe	271,693	350,744	207,621	38,757	17,644	886,459
Bahia	1,364,508	3,177,101	2,109,429	841,185	678,962	8,171,185
Minas Gerais	2,170,415	8,789,883	6,001,837	1,651,409	880,743	19,494,287
Espírito Santo	188,637	716,868	506,397	179,938	55,438	1,647,278
Rio de Janeiro	302,809	851,950	619,929	148,456	55,877	1,979,021
São Paulo	1,194,763	3,458,926	2,607,212	708,812	358,958	8,328,671
Paraná	1,596,047	3,185,950	2,603,293	752,347	0	8,395,422
Santa Catarina	1,130,974	1,950,794	477,288	116,935	0	3,725,827
Rio Grande do Sul	1,549,430	3,550,249	3,203,782	1,988,502	1,151,524	11,443,487
Mato Grosso do Sul	415,316	1,292,198	4,187,627	4,612,382	7,651,515	18,159,792
Mato Grosso	280,134	4,677,606	4,808,744	3,804,701	10,546,187	24,118,840
Goiás + DF	661,648	4,787,034	5,683,966	3,271,039	2,927,410	17,331,112

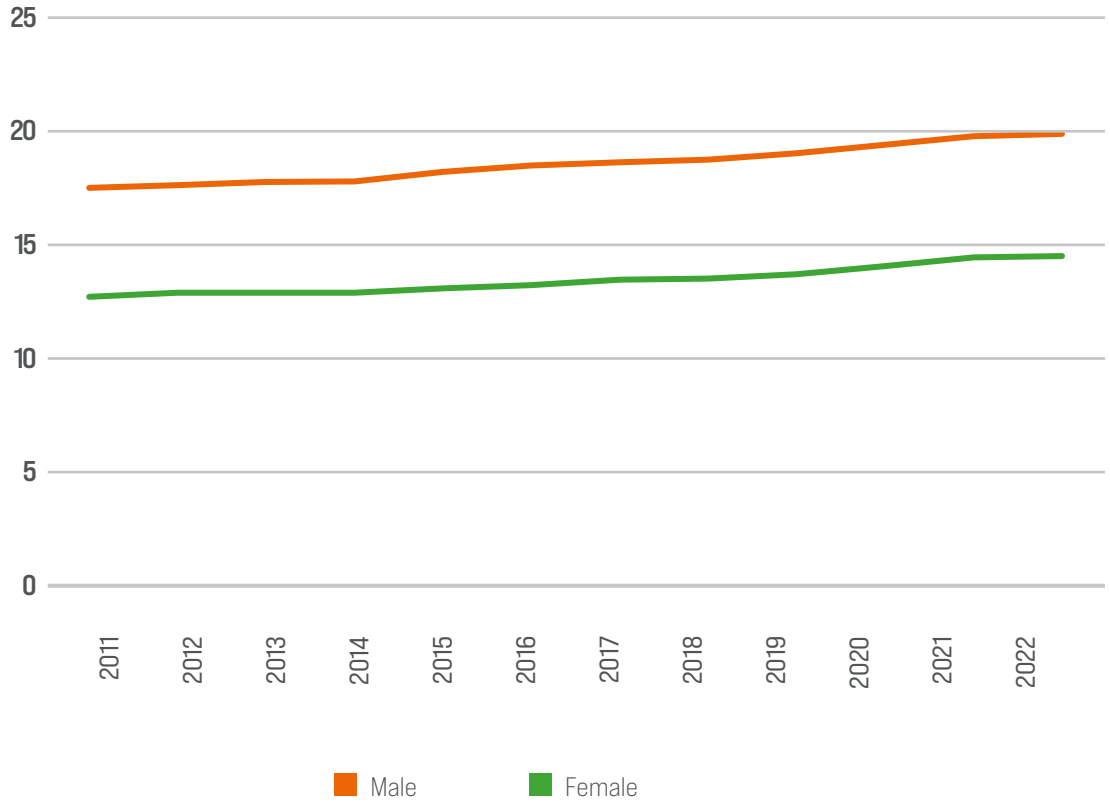
DISTRIBUTION OF PASTURE IN BRAZIL - MILLION HECTARES



Source: Athenagro, data from IBGE (PPM, PAM, Census), INPE (Terraclass, Prodes), Lapig, Rally da Pecuária

AVERAGE CARCASS WEIGHT IN BRAZIL - @

Year	Males	Females
2011	17.61	12.85
2012	17.72	13.02
2013	17.85	13.01
2014	17.88	13.01
2015	18.28	13.18
2016	18.52	13.32
2017	18.66	13.54
2018	18.77	13.58
2019	19.03	13.75
2020	19.38	14.08
2021	19.72	14.43
2022	19.83	14.48



Source: IBGE - Quarterly Survey on Animal Slaughter - Monthly Results

AVERAGE CARCASS WEIGHT OF MALE AND FEMALE PER STATE - @

State	2011		2012		2013		2014		2015	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Brazil	17.61	12.85	17.72	13.02	17.85	13.01	17.88	13.01	18.28	13.18
Rondônia	17.54	12.44	17.77	12.83	17.88	12.93	18.02	12.91	18.36	12.94
Acre	17.22	11.89	17.11	11.90	17.43	11.90	17.45	11.90	17.58	11.90
Amazonas	15.72	12.48	15.53	12.52	14.86	12.63	14.33	11.99	14.91	12.41
Roraima	16.09	10.02	16.63	10.26	16.32	12.01	16.62	12.13	16.83	11.91
Pará	18.37	12.96	18.57	12.96	18.47	13.29	18.13	12.97	18.56	12.95
Tocantins	18.10	12.01	18.19	12.19	18.27	12.28	18.29	12.50	18.76	12.82
Maranhão	17.23	11.98	17.38	11.64	17.18	11.66	17.32	12.13	17.88	12.19
Piauí	14.06	11.36	13.95	11.36	13.22	11.20	12.18	10.79	12.92	10.87
Ceará	14.90	11.34	15.22	11.51	14.64	10.55	14.69	10.71	14.17	10.27
Rio G. do Norte	15.64	11.31	12.79	9.52	15.29	11.42	15.71	11.98	15.85	11.95
Paraíba	15.92	9.74	15.90	10.57	15.74	10.85	15.59	10.51	17.03	10.78
Pernambuco	4.92	3.56	15.85	11.45	16.07	11.39	16.67	11.61	16.50	11.69
Alagoas	18.31	14.41	15.87	12.28	15.45	12.17	16.44	13.07	16.11	12.89
Sergipe	18.31	13.23	18.31	13.23	18.30	13.23	18.36	13.82	18.93	14.77
Bahia	16.89	13.38	16.78	13.15	16.73	12.92	17.13	12.84	17.93	13.12
Minas Gerais	17.11	12.97	17.25	12.89	17.22	12.93	17.24	12.79	17.56	13.02
Espírito Santo	16.74	12.63	17.30	13.17	17.12	13.53	16.89	13.27	17.26	13.20
R. de Janeiro	16.47	6.64	16.58	13.12	16.09	12.99	16.60	12.92	16.00	13.04
São Paulo	18.17	13.71	18.46	13.78	18.84	13.47	18.75	13.67	19.25	13.97
Paraná	17.46	13.52	17.36	13.52	17.52	13.43	17.60	13.27	18.03	13.65
Santa catarina	16.00	13.90	15.94	13.90	15.39	13.74	15.47	13.44	15.81	14.01
R. Grande do Sul	15.84	14.12	15.88	14.16	15.93	14.19	15.78	14.19	15.68	14.07
M. Grosso do Sul	18.19	12.93	18.49	13.27	18.65	13.43	18.75	13.63	19.10	13.69
Mato Grosso	18.59	13.10	18.80	13.50	19.03	13.62	19.15	13.51	19.68	13.80
Goiás	18.43	13.04	18.42	13.14	18.53	12.98	18.77	12.97	19.12	13.11

Source: IBGE - Quarterly Survey on Animal Slaughter - Monthly Results

2016		2017		2018		2019		2020		2021		2022	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
18.52	13.32	18.66	13.54	18.77	13.58	19.03	13.75	19.38	14.08	19.72	14.43	19.83	14.48
18.91	13.22	18.90	13.36	18.90	13.33	19.19	13.34	19.54	13.64	19.93	14.04	20.09	14.08
17.68	12.31	18.01	12.25	17.99	12.28	18.03	12.31	18.37	12.31	18.60	12.83	19.15	13.25
15.37		15.28	12.82	15.95	13.42	15.40	12.91	15.76	12.91	15.53	12.91	15.75	13.51
16.68	11.95	17.87	12.90	17.52	12.61	16.81	11.63	16.51	11.14	16.93	11.15	18.82	13.78
18.84	13.18	19.02	13.07	19.13	13.19	19.32	13.49	19.62	14.12	19.74	14.50	19.98	14.32
19.05	12.77	18.87	13.16	19.26	12.86	19.54	13.46	19.96	13.92	20.23	14.29	20.38	14.40
17.96	12.15	17.66	12.38	18.07	12.39	18.39	12.73	18.58	13.10	19.42	13.09	19.51	13.14
11.66	10.33	13.24	12.55	13.42	12.14	14.11	14.01	14.48	13.82	14.35	13.60	14.45	12.73
14.90	10.92	15.30	11.16	15.95	11.26	15.76	11.65	15.64	11.59	15.42	11.72	15.57	12.02
15.83	12.13	16.18	12.28	16.22	12.89	16.50	13.15	16.01	12.97	16.38	12.70	16.71	12.71
16.95	11.71	17.63	12.48	17.25	12.61	18.03	12.47	17.79	13.02	18.58	13.81	19.23	15.60
16.91	12.19	17.20	12.74	17.77	13.08	18.12	13.88	19.00	14.12	18.93	14.17	19.09	14.57
16.85	13.41	17.64	13.50	18.48	13.06	17.81	13.78	19.07	13.24	19.49	13.75	18.74	14.39
19.04	14.59	19.06	14.69	19.22	14.55	19.14	12.88	20.10	13.27	21.06	13.65	21.86	13.96
17.76	13.05	17.69	13.63	18.18	13.46	18.41	13.68	19.25	14.13	19.34	14.33	19.48	14.71
17.66	13.04	17.67	13.24	17.71	13.33	18.26	13.52	18.69	13.78	19.25	14.18	19.14	13.82
17.72	13.04	18.60	13.64	18.95	14.66	18.61	13.89	18.30	13.93	18.93	13.93	18.85	12.98
15.79	13.71	15.58	13.59	15.72	13.50	15.97	13.06	15.93	13.04	16.53	13.38	16.09	13.45
19.56	14.01	19.61	14.18	19.66	14.19	19.97	14.55	20.21	15.13	20.38	15.44	20.48	15.13
18.14	13.77	18.29	13.71	18.46	13.86	18.61	14.14	18.83	14.25	19.28	14.44	19.37	14.46
15.92	13.86	15.39	14.35	16.15	14.33	16.08	14.28	16.03	14.18	15.99	14.22	16.24	14.60
15.81	14.14	15.75	14.20	16.02	14.24	16.00	14.26	16.24	14.56	16.70	15.32	16.74	15.34
19.16	14.04	19.44	14.16	19.34	14.30	19.62	14.50	19.91	14.80	20.17	14.96	20.43	15.22
20.19	14.00	20.49	14.32	20.60	14.40	20.76	14.52	21.10	14.88	21.47	15.15	21.68	15.42
19.31	13.10	19.43	13.48	19.48	13.52	19.94	13.37	20.22	13.71	20.62	14.37	20.44	14.34

PRODUCTIVITY PER STATE - IN CARCASS KG PER HECTARE

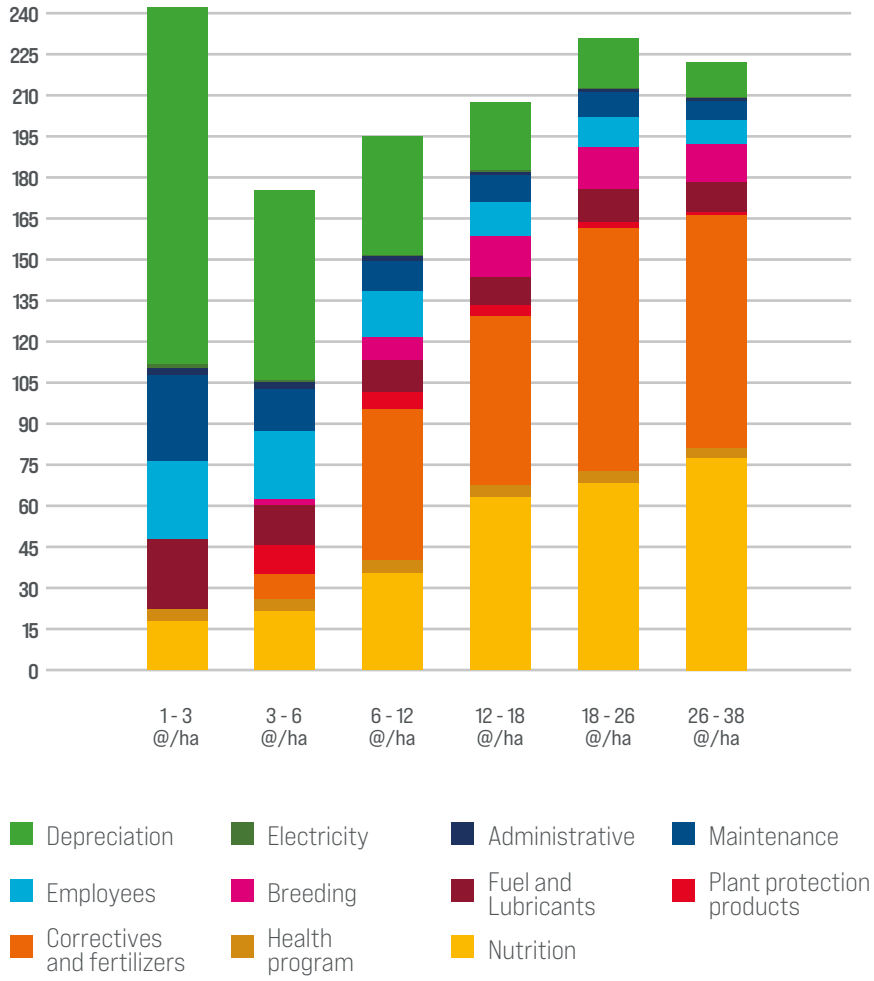
Carcass Kg per hectare	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Brazil	52.2	57.2	62.8	58.1	62.4	62.6	68.1	66.8	63.0	67.3	71.4
Rondônia	50.42	53.29	61.23	60.14	68.73	73.89	82.85	81.34	78.85	84.73	91.52
Acre	46.07	49.63	57.25	55.58	63.11	63.98	79.25	80.45	77.99	83.80	89.97
Amazonas	24.82	27.36	30.84	28.00	33.30	36.86	43.97	46.48	45.06	48.42	46.34
Roraima	38.90	43.51	47.85	46.82	52.62	57.16	65.00	64.51	62.54	67.20	71.46
Pará	34.84	37.53	43.45	41.35	46.63	49.05	54.02	53.00	51.38	55.21	59.00
Amapá	14.74	16.62	19.42	10.34	10.37	9.56	8.94	8.58	8.32	8.94	8.71
Tocantins	41.29	45.56	50.02	47.79	51.80	50.16	55.28	54.00	50.22	53.96	57.54
Maranhão	41.85	45.74	50.91	44.61	46.93	47.31	52.32	51.71	48.09	51.67	55.16
Piauí	36.22	40.30	46.15	43.37	49.10	50.63	54.20	55.04	51.19	55.00	56.88
Ceará	51.43	55.69	59.79	54.95	59.59	58.61	67.41	67.66	61.72	66.32	66.91
Rio Grande do Norte	42.80	50.07	55.05	49.53	51.10	55.55	60.17	62.48	56.98	61.23	60.69
Paraíba	36.60	41.99	46.11	44.24	47.58	48.25	52.31	50.49	46.05	49.49	52.00
Pernambuco	35.98	38.52	41.71	38.73	38.77	37.13	39.93	38.53	35.14	37.76	40.72
Alagoas	44.30	45.45	45.50	40.56	41.36	40.70	42.79	39.33	35.87	38.54	39.79
Sergipe	53.81	58.49	59.90	54.98	55.45	48.14	49.34	46.13	42.07	45.21	46.27
Bahia	29.13	33.38	36.24	32.52	32.41	30.32	34.37	33.85	31.48	33.83	36.03
Minas Gerais	56.10	59.89	63.67	58.88	60.61	56.14	60.14	59.68	56.26	60.45	63.31
Espírito Santo	50.45	55.46	61.20	56.28	54.70	52.49	58.53	58.07	54.75	58.83	61.49
Rio de Janeiro	55.57	61.05	66.19	58.97	61.77	63.84	69.68	67.79	63.90	68.67	73.51
São Paulo	75.94	83.39	87.07	84.18	94.34	96.72	102.84	101.90	96.06	103.23	109.90
Paraná	131.60	152.37	179.05	168.86	167.41	169.47	189.16	178.41	164.70	176.99	184.53
Santa Catarina	132.23	152.22	167.48	158.84	181.49	178.50	195.76	203.19	187.59	201.58	205.06
Rio Grande do Sul	108.42	117.99	125.90	107.62	110.94	109.53	105.55	94.44	87.19	93.69	96.03
Mato Grosso do Sul	50.40	56.27	63.81	61.00	67.37	70.39	77.72	74.10	71.00	76.30	80.76
Mato Grosso	48.20	54.62	60.39	56.08	61.03	61.56	69.40	73.05	70.00	75.22	82.33
Goiás	51.80	56.86	63.17	58.44	65.33	66.88	73.74	74.62	71.50	76.84	82.46
Federal District	51.80	56.86	63.17	58.44	65.33	66.88	73.74	74.62	71.50	76.84	82.46

Source: Athenagro, data from IBGE, INPE, LAPIG, CONAB, Rally da Pecuária

COMPLETE CYCLE CATTLE PRODUCTION RESULTS - 2022

Complete Cycle - R$/15 Kg Composition of Results	Extractivism 1-3 15-Kg/ha	Low Tech 3-6 15-Kg/ ha	Medium Tech 6-12 15-Kg/ ha	Appropriate 12-18 15-Kg/ ha	High Tech 18-26 15-Kg/ha	Intensive 26-38 15-Kg/ha
Nutrition	18.11	21.71	35.81	63.43	68.45	77.53
Health program	4.28	4.19	4.45	4.20	4.25	3.80
Correctives and fertilizers	0.00	9.41	55.17	61.72	88.77	84.87
Plant protection products	0.00	10.37	6.19	4.30	2.35	1.31
Fuel and Lubricants	25.47	14.70	11.84	9.93	11.92	10.89
Breeding	0.00	2.32	8.16	15.11	15.50	13.88
Employees	28.66	24.51	17.13	12.33	10.97	8.66
Maintenance	31.23	15.66	10.81	9.96	9.14	7.21
Administrative	2.87	2.45	1.71	1.23	1.10	0.87
Electricity	1.27	0.74	0.59	0.50	0.60	0.54
Depreciation	129.91	69.49	43.32	24.56	18.36	13.05
Total operating costs	241.80	175.54	195.18	207.27	231.39	222.60

Cost of production of beef cattle in six levels of technology - Complete Cycle -
Average BR 2022 R$/15 Kg

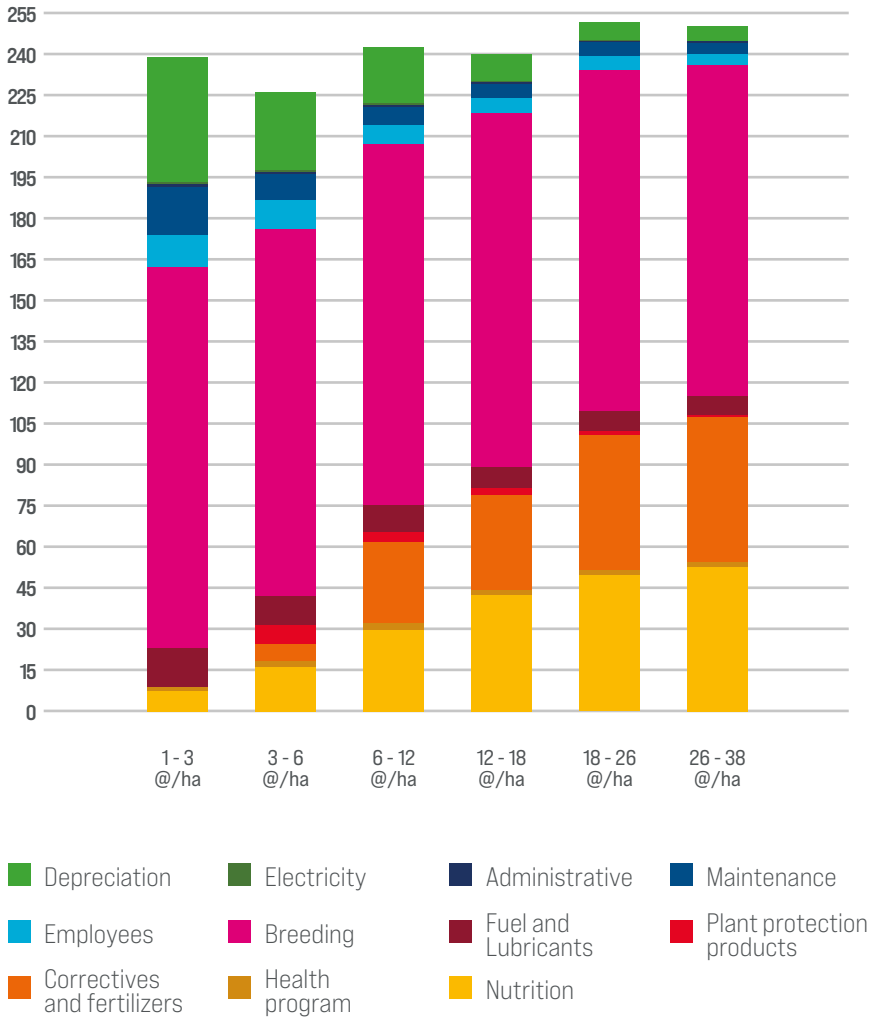


Source: Athenagro

RESULTS IN STOCKING AND FATTENING CATTLE-FARMING - 2022

Stocking And Fattening - R$/15 Kg Composition Of Results	Extractivism 1-3 15-Kg/ha	Low Tech 3-6 15-Kg/ha	Medium Tech 6-12 15-Kg/ha	Appropriate 12-18 15-Kg/ha	High Tech 18-26 15-Kg/ha	Intensive 26-38 15-Kg/ha
Nutrition	7.42	16.20	30.06	42.57	50.03	52.76
Health program	1.75	2.27	2.32	1.69	1.61	1.56
Correctives and fertilizers	0.00	6.37	29.35	34.75	49.49	53.34
Plant protection products	0.00	7.02	4.09	2.86	1.44	0.78
Fuel and Lubricants	14.00	10.19	9.80	7.48	7.11	6.92
Replacement	139.29	134.13	131.69	129.34	124.88	120.72
Employees	11.93	10.83	7.14	5.39	5.22	4.25
Maintenance	17.24	9.28	6.48	5.36	4.71	4.09
Administrative	1.19	1.08	0.71	0.54	0.52	0.42
Electricity	0.70	0.51	0.49	0.37	0.36	0.35
Depreciation	45.57	28.41	20.37	9.50	6.37	5.06
Total operating costs	239.08	226.29	242.50	239.84	251.72	250.25

Cost of production of beef cattle production in six levels of technology - Stocking and Fattening - Average BR 2022 - R$/15 Kg



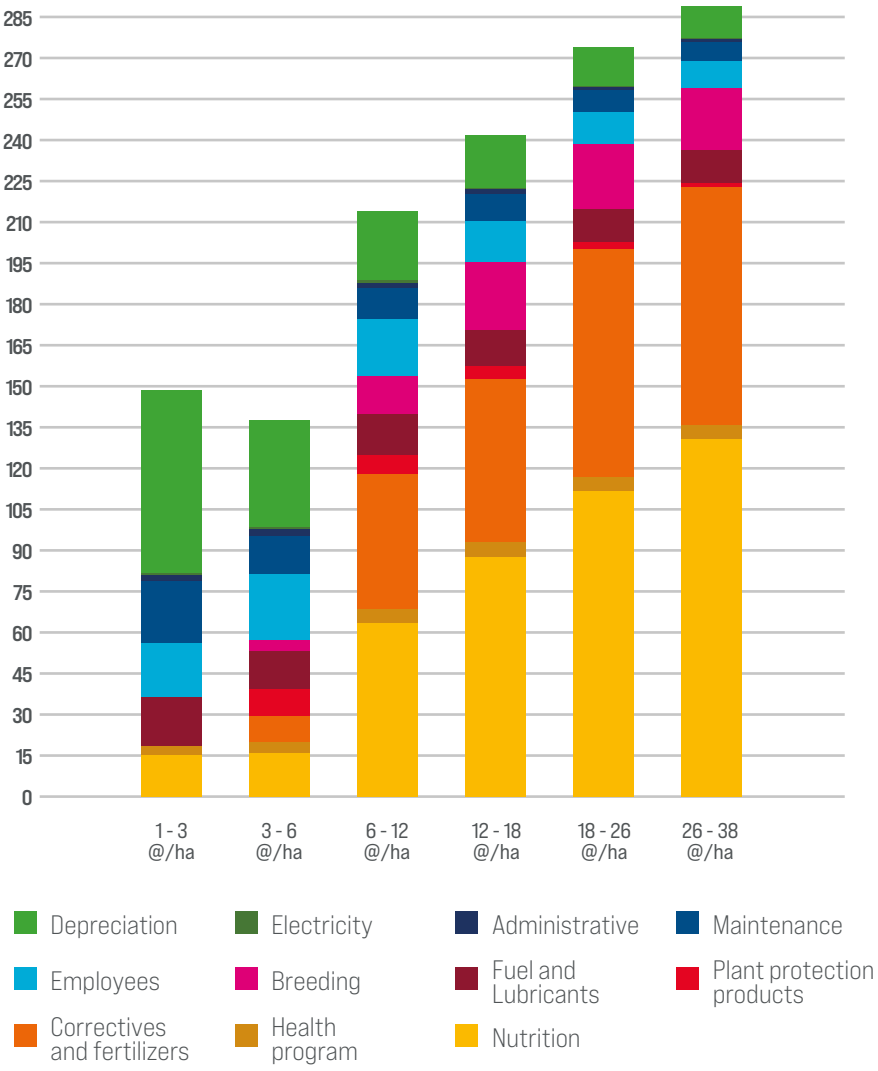
Source: Athenagro

CATTLE BREEDING RESULTS - 2022

Rearing - R$/15 Kg Composition of Results	Extractivism 1-3 15-Kg/ha	Low Tech 3-6 15-Kg/ha	Medium Tech 6-12 15-Kg/ha	Appropriate 12-18 15-Kg/ha	High Tech 18-26 15-Kg/ha	Intensive 26-38 15-Kg/ha
Nutrition	15.25	16.15	63.52	87.97	111.98	131.14
Health program	3.68	4.05	5.15	5.15	5.08	4.89
Correctives and fertilizers	0.00	9.26	49.65	59.53	83.57	86.97
Plant protection products	0.00	10.20	6.92	4.89	2.24	1.39
Fuel and Lubricants	17.96	13.64	14.81	12.99	12.10	12.05
Breeding	0.00	4.14	13.95	25.26	23.64	22.74
Employees	19.57	24.12	20.65	14.96	12.01	10.09
Maintenance	22.86	14.16	11.49	9.95	7.79	6.74
Administrative	1.96	2.41	2.06	1.50	1.20	1.01
Electricity	0.90	0.68	0.74	0.65	0.61	0.60
Depreciation	66.55	39.08	25.06	19.21	13.79	11.44
Total operating costs	148.72	137.88	214.00	242.06	274.02	289.04

Cost of production of beef cattle production in six levels of technology

Rearing - Average BR 2022 R$/15 Kg



Source: Athenagro

WEALTH GENERATION

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The agricultural and industrial beef production system accounted for R$1.02 trillion (in Brazilian Reals) in 2022. Breaking down the chain, **the retail link generated the greatest revenue**, R$304.33 billion, followed by the total revenue of meatpackers, R$250.56 billion and the total for livestock, revenue for which came to R$241.38 billion. In dollar terms, **the total Gross Domestic Product (GDP) for beef came to USD 198.12 billion**.

In recent years, total revenue has **grown constantly**, showing a significant increase of 187% over the last 10 years. In the last year alone, increased revenue for the industry came to 12%.

The GDP of the industrial beef production system addressed in this chapter accounted for **41.6% of the total GDP for agribusiness in 2022**, which was R$2.5 trillion. Taking into account all the wealth generated by Brazil, measured at R$9.9 trillion for that year, the livestock GDP attains a significant 10% share of the total, **the industry's largest ever share in the generation of Brazil's total wealth**.

AGRIBUSINESS TURNOVER FOR BEEF CATTLE IN 2022

Inputs and services for livestock production
R$ **159.31** billion

- Nutrition: R$ **23,887.5** million
- Maintenance, service, parts and expenses: R$ **16,817.4** million
- Protocols, materials and semen: R$ **1,835.3** million
- Employees, fees and self - employment income (pro labore): R$ **21,611.5** million
- Cattle health: R$ **4,492.2** million
- Bulls: R$ **4,381.2** million
- Fuel, lubricants and electricity: R$ **21,185.9** million
- Machinery, quipment and animals for work: R$ **5,910.5** million
- Fertilizer, plant protection products and seeds: R$ **29,973.9** million
- Improvements and construction materials: R$ **12,401.8** million

Total revenue for livestock
R$ **241.38** billion

- Slaughtered cattle: R$ **187,891.4** million
  - Males: R$ **117,888.4** million
  - Females: R$ **70,002.9** million
- Replacement cattle: R$ **47,513.9** million
  - Males: R$ **37,093.1** million
  - Females: R$ **10,420.7** million
- Exports of live cattle: R$ **995,6** million
- Genetically improved animals for breeding: R$ **4,754.9** million
- Semen exports: R$ **21.2** million
- Other income: R$ **207.2** million

Revenue of Slaughterhouses
R$ **250.56** billion

- Beef for the domestic market: R$ **158,738.4** million
- Beef exports: R$ **64,458.1** million
- Leather exports: R$ **6,213.9** million
- Leather for the domestic market: R$ **3,346.5** million
- Tallow for the domestic market: R$ **4,001.9** million
- Other by-products: R$ **13,800.1** million

Source: Athenagro | New methodology: Developed by Athenagro, based on the livestock and technical and market indicators. Data checking: carried out using information from Sindirações, Conab, CNA, Sindan, asbram, Asbia, BNDES, Balance of slaughterhouses, Firjan and Athenagro | Data check: realizadas com uso de informações do Sindirações, Conab, CNA, Sindan, Asbram, Asbia, BNDES, Balanço de Frigoríficos, Firjan e Athenagro | Other socio-economic impatcs related to the production chain* | Union taxes and contributions** | External salaries by the income effec*** | * item not added to the movement of the production chain | ** total is already included in prices and costs | *** estimated by income effect, the total will make up other production chains.

R$ 1,023.04 billion

Industry inputs and services	Retail inputs and services	Total retail revenue
R$ 49.23 billion	R$ 15.973 billion	R$ 304.33 billion

Packaging R$ 2,455.5 million	Live cattle freight R$ 3,408.8 million
Electricity R$ 2,432.1 million	Beef freight R$ 108.9 million
PPE R$ 108.9 million	Hired employees R$ 15,133.8 million
Inputs for the operation R$ 3,926.5 million	Administrative, associations and marketing R$ 2,503.5 million
Services provided R$ 1,133.3 million	Other overhead costs R$ 18,014.3 million

Beef retail R$ 279,992.1 million	
Sale of other products R$ 24,341.478 million	

Services. Inputs and farms	**R$ million**
Auctions and brokers	2,228.3
Freight of inputs	7,986.9
Technical services	550.6
Administrative and accounting services	104.2
Transportation of live animals between farms	1,013.9
Cattle to be slaughtered on the farm	4,925.8

Demands from the inputs industry	**R$ million**
Advertising, marketing and events	1,652.5
Private studies and surveys	82.6
Support services	520.5

Services and cost in retail	**R$ million**
Employees and services	14,044.8
Packaging and freight in retail	1,071.9
Services and inputs in butcheries	856.1

Estimate of the social impact of the production chain*	**R$ million**
Taxes and trade union fees**	159,293.3
External salaries created by income effect***	35,424.8

Valuation of stock cattle	**R$ million**
	-11,887.54

Calculated by average stock in arrobs by the price of each category

US$ AGRIBUSINESS TURNOVER FOR BEEF CATTLE IN 2022

Inputs and services for livestock production
US$ **30,85** billion

- Nutrition: US$ **4,625.9** million
- Maintenance, service, parts and expenses: US$ **3,256.8** million
- Protocols, materials and semen: US$ **355.4** million
- Employees, fees and self - employment income (pro labore): US$ **4,185.2** million
- Cattle health: US$ **869.9** million
- Bulls: US$ **848.4** million
- Fuel, lubricants and electricity: US$ **4,102.7** million
- Machinery, equipment and animals for work: US$ **1,144.6** million
- Fertilizer, plant protection products and seeds: US$ **5,804.6** million
- Improvements and construction materials: US$ **2,401.7** million

Total revenue for livestock
US$ **46.75** billion

- Slaughtered cattle: US$ **36,386.0** million
  - Male: US$ **22,829.6** million
  - Female: US$ **13,556.4** million
- Replacement cattle: US$ **9,201.3** million
  - Male: US$ **7,183.3** million
  - Female: US$ **2,018.0** million
- Live cattle exports: US$ **192.8** million
- Genetically improved animals for breeding: US$ **920.8** million
- Semen Exports: US$ **4.1** million
- Other income: US$ **40.1** million

Revenue of Slaughterhouses
US$ **48.52** billion

- Beef for the domestic market: US$ **30,740.4** million
- Beef exports: US$ **12,482.6** million
- Leather exports: US$ **1,203.3** million
- Leather for the domestic market: US$ **648.1** million
- Tallow for the domestic market: US$ **775.0** million
- Other by-products: US$ **2,672.5** million

Source: Athenagro | New methodology: Developed by Athenagro, based on the livestock and technical and market indicators. Data checking: carried out using information from Sindirações, Conab, CNA, Sindan, asbram, Asbia, BNDES, Balance of slaughterhouses, Firjan and Athenagro | Data check: realizadas com uso de informações do Sindirações, Conab, CNA, Sindan, Asbram, Asbia, BNDES, Balanço de Frigoríficos, Firjan e Athenagro | Other socio-economic impatcs related to the production chain* | Union taxes and contributions**| External salaries by the income effec*** | * item not added to the movement of the production chain | ** total is already included in prices and costs | *** estimated by income effect, the total will make up other production chains.

US$ 198.12 billion

Industry inputs and services	Retail inputs and services	Total retail revenue
US$ 9.53 billion	US$ 3.093 billion	US$ 58.94 billion

Packaging US$ 475.5 million	Live cattle freight US$ 660.1 million	Beef retail US$ 54,221.7 million
Electricity US$ 471.0 million	Beef freight US$ 21.1 million	Sale of other products US$ 4,713.837 million
PPE US$ 21.1 million	Hired employees US$ 2,930.7 million	
Inputs for the operation US$ 760.4 million	Administrative, associations and marketing US$ 484.4 million	
Services provided US$ 219.5 million	Other overhead costs US$ 3,488.6 million	

Services. Inputs and farms	**US$ million**
Auctions and brokers	431.5
Freight of inputs	1,546.7
Technical services	106.6
Administrative and accounting services	20.2
Transportation of live animals between farms	196.3
Cattle to be slaughtered on the farm	953.9

Demands from the inputs industry	**US$ million**
Advertising, marketing and events	320.0
Private studies and surveys	16.0
Support services	100.8

Services and cost in retail	**US$ million**
Employees and services	2,719.8
Packaging and freight in retail	207.6
Services and inputs in butcheries	165.8

Estimate of the social impact of the production chain*	**US$ million**
Taxes and trade union fees**	30,847.9
External salaries created by income effect***	6,860.2

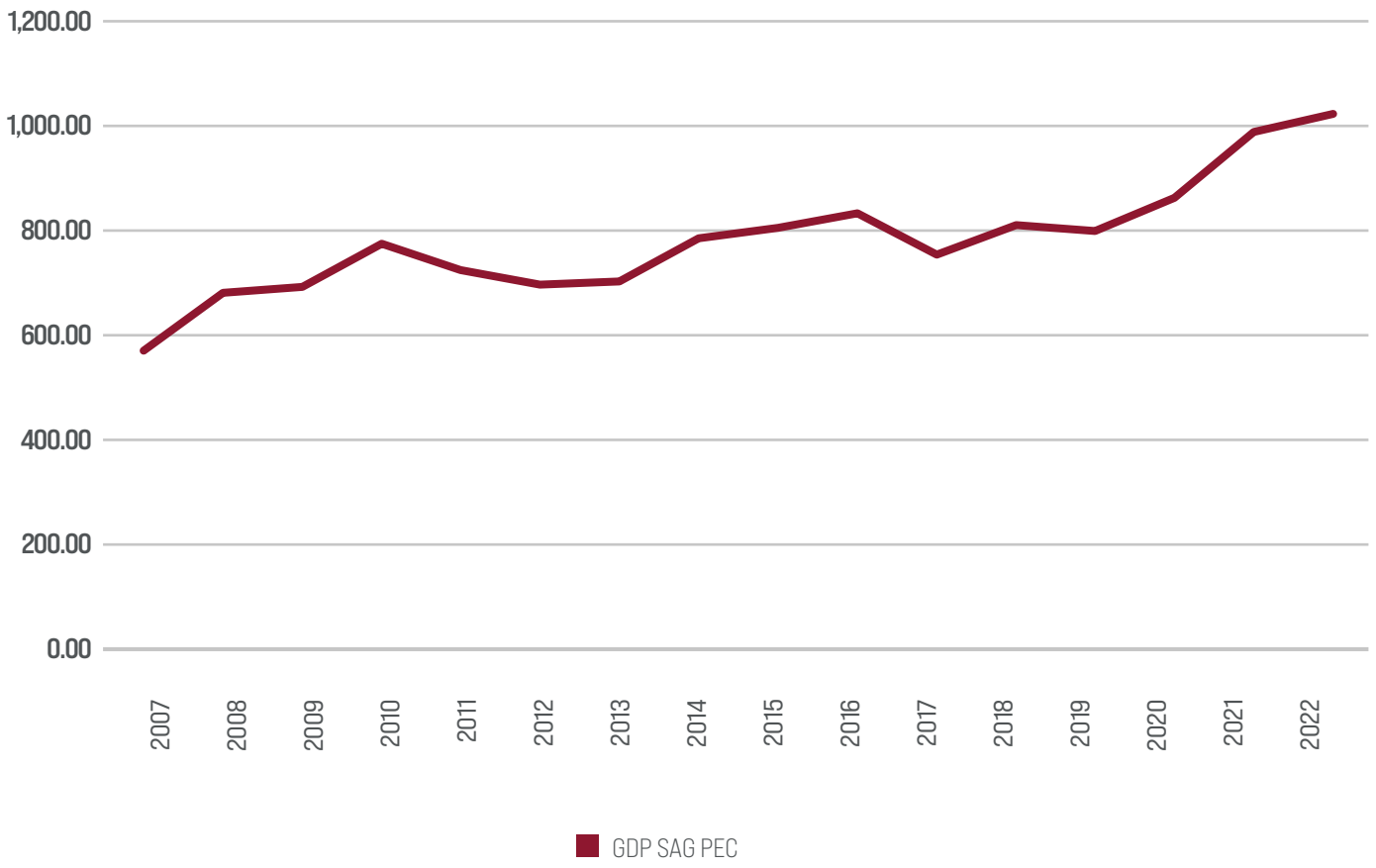
Valuation of stock cattle	**US$ million**
	-2,302.08

Calculated by average stock in arrobs by the price of each category

TOTAL GDP, AGRIBUSINESS GDP AND LIVESTOCK GDP (REAL VALUES BASED ON 1996 AND 2022) - R$ BILLION

	TOTAL GDP (Real)	TOTAL AGRIBUSINESS	GDP SAG PEC
2007	7.868.97	1.782.92	570.38
2008	8.269.83	1.866.51	680.68
2009	8.259.42	1.759.99	692.45
2010	8.881.21	1.905.08	774.43
2011	9.234.19	1.910.24	724.23
2012	9.411.59	1.794.80	696.58
2013	9.694.39	1.812.52	702.31
2014	9.743.25	1.813.08	785.10
2015	9.397.78	1.880.19	805.26
2016	9.089.91	2.008.30	832.94
2017	9.210.16	1.896.60	754.28
2018	9.374.44	1.878.05	810.68
2019	9.488.88	1.932.34	798.94
2020	9.177.95	2.362.89	862.84
2021	9.635.83	2.564.01	988.78
2022	9.915.32	2.457.69	1.023.04

Source: Athenagro, CEPEA data, IBGE


1,200.00
1,000.00
800.00
600.00
400.00
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0.00
2007
2008
2009
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2011
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2016
2017
2018
2019
2020
2021
2022
GDP SAG PEC

THE SUSTAINABILITY OF BRAZILIAN BEEF

abiec

INTRODUCTION AND POSITIONING

Research, technology and innovation are the factors that most contribute to enabling Brazilian livestock farming to continue increasing its efficiency to meet growing global demand, and to do so in a sustainable way, mitigating climate change and preserving biodiversity.

Brazil has become **the second largest producer and the world's largest beef exporter**. This position is the result of a number of conditions that were built over an extended period. Among these we highlight: the country's natural conditions in terms of availability of agricultural land, water and sunlight, the growth of the herd based on a zebu matrix adapted to Brazilian conditions and the use of tropical grasses as pasture, the evolution of technologies aimed at production in a tropical environment, entrepreneurial livestock farmers, the evolution of health controls in the country and a modern industrial hub prepared to

meet the demands of different markets.

According to the FAO (Food and Agriculture of the United Nations), **approximately 1.3 billion people's lives are supported by animal production**, and proteins comprise a fundamental part of healthy diets for people around the world. In 2022, the number of people facing hunger in the world was estimated to be between 691 and 783 million. Food insecurity currently affects 900 million people globally. By 2050, a result of the growth of the population, we will have 2 billion more inhabitants in the world, especially in developing countries. But considering the expansion of agricultural activities in natural ecosystems and their role in greenhouse gas emissions, **it is a global challenge to reconcile the food security agenda with climate change mitigation and biodiversity preservation**. With the growth in global demand for protein, society's concern regarding the environmental impacts that this increase in demand may represent is fair.

As the main entity representing the beef industry in Brazil, our position in relation to the sustainability of the meat agro-industrial system can be summarized in the following points:

1. Beef is **an essential nutritional source for healthy diets**. There is a growing demand for proteins driven by growth in population and income especially in emerging countries. Brazil can potentially meet the domestic and global demand for beef protein in a sustainable way, preserving biodiversity and contributing to climate change mitigation and global food security;

2. Brazilian livestock farming has increased its efficiency in recent decades by **enlarging meat production per animal and per area**. We are producing more using fewer natural resources and reducing emissions with each kilo of meat produced, thanks to the use of technology, good practices and low-carbon agricultural techniques such as pasture restoration and integrated crop-livestock-forest system (ICLFS);

3. We see the market as a great engine of efficiency in livestock production, and **our gains in productivity reflect the incentive promoted by the production in this market**. Restricting access to markets also represents a barrier to continuous improvement in the industry;

4. Despite all the developments in recent years, there is still a large productivity gap in livestock farming, which allows us to affirm that **we can further increase beef production without the need to expand the**

activity into new areas. Reducing this gap implies targeting investments and technical assistance at farmers, who are at the base of the pyramid;

5. Brazil has a robust public policy framework to achieve the objective of **sustainable production**. Among these policies we highlight the Plans for the Prevention and Control of Deforestation in the Amazon and Cerrado –PPCDAM and PPCerrado, the Brazilian Forestry Code and the Low Carbon Agriculture Plan – ABC+. ABIEC firmly supports the implementation of these policies, including the **objective of zero deforestation by 2030** set out in Brazilian commitments;

6. Creating **incentive mechanisms** to support good farming practices, the preservation of native vegetation and payment for environmental services should be the focus of international cooperation and public-private partnerships;

7. The advance of livestock farming on Brazilian territory is the result of a historical process of territorial occupation and expansion of borders planned and encouraged by successive governments since the 1970s based on large infrastructure and colonization projects, which led in the recent past to opening new areas for farm and livestock production in the country. However, today, the deforestation that occurs in Brazil is predominantly illegal. In 2022 in the Amazon, approximately 75% of such deforestation occurred in public areas, and only 25% in private areas. Since 2009, our companies in the Amazon have made public commitments and invested heavily in systems that

use geotechnology and artificial intelligence to monitor socio-environmental criteria in the origination of animals in the Amazon, including illegal deforestation, environmental regularization and respect for Indigenous territories. Currently, this control is conducted on direct suppliers of cattle to slaughterhouses, in partnerships with the third sector and the Federal Public Prosecutor's Office;

8. Monitoring the other links in the production chain is the major sectoral challenge, which has been tackled by the industry with investments in technology and engagement with farmers. Brazil has a **traceability system based on animal transit control built as part of an agriculture and livestock health system for health control purposes**. This system guarantees access of Brazilian meat to more than 150 markets globally. The use of the traceability system for socio-environmental control purposes across the chain, including indirect suppliers, implies improvements that are being built in a dialogue between the industry and the Brazilian government. Among these improvements is the integration of public databases for health control and animal transit and environmental information such as the Rural Environmental Registry (CAR);

9. As **an Association that currently represents 80% of slaughter and 98% of exports**, we are working to achieve a production chain free of illegalities, joining public and private efforts with this objective, in an inclusive and continuous manner.

Throughout this chapter, we will provide data and information that help support this position and understand the real Brazilian scenario in relation to the sustainability of Brazilian production.

HISTORICAL CONTEXT OF LIVESTOCK IN BRAZIL

Livestock farming in Brazil began in the 16th century. To avoid interference with sugar cane production in the northeast region of colonial Brazil, cattle ranchers decided to establish their activities in the interior of the territory, moving away from coastal areas. This strategy allowed cattle farming to expand across the interior of the country, following the course of the rivers.

From the 19th century onwards, the southern region of Brazil, with a temperate climate and natural fields, would become the major hub for livestock production. The dried meat plants were born there, centers for the production of jerked beef and leather that supplied the rest of the country.

It was at the beginning of the 20th century that zebu cattle were introduced in Brazil, brought from India by pioneers from the state of Minas Gerais. From this we have the expansion of the herd that accompanies a process of territorial occupation that is stimulated by the State and steps up from the 1960s onwards. Through infrastructure works and incentive programs for the occupation of the Midwest and North of the country, Brazilians were called upon to occupy and develop the region. This initiative played a fundamental role in strengthening livestock farming and promoting the growth of the activity in these regions. **ABIEC is aware of the historical and current importance of the livestock industry and is committed to supporting and promoting its continued sustainable development.**

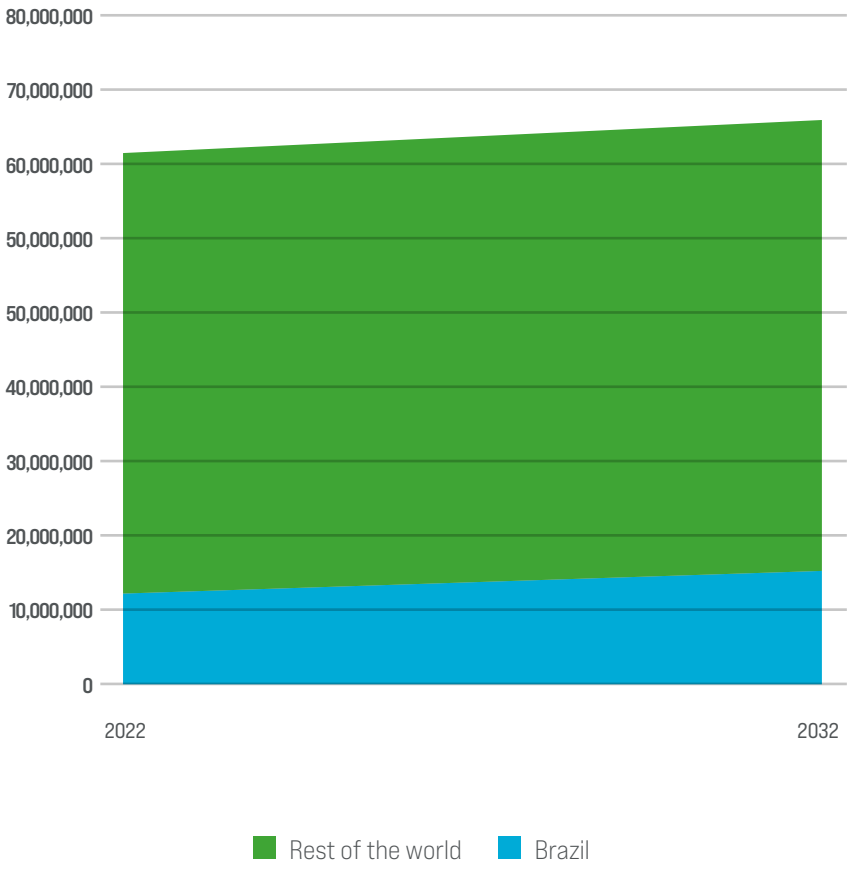
INCREASE IN GLOBAL DEMAND/THE ROLE OF PROTEINS

According to Agricultural Outlook produced by the FAO and the OECD, **the outlook of global beef consumption is expected to reach 51 million tons in the next decade**. The global per capita consumption has fluctuated around 6 kg for the past decade and tends to remain stable in the next decade. While in most regions it tends to reduce slightly, in the Asia-Pacific region it is expected to increase by 0.4 kg per capita per year over the next ten years. In China specifically, it should increase double that, that is, 0.8 kg per capita per year, which is mainly due to the increase in the Chinese middle class.

In response, **beef production is expected to increase by 9% and contribute with 16%** of the increase in global meat production by 2032. In general, the FAO predicts that this increase will mainly come from a better yield, that is, the production of more meat per animal due to the use of technology, better genetics and feed supplements.

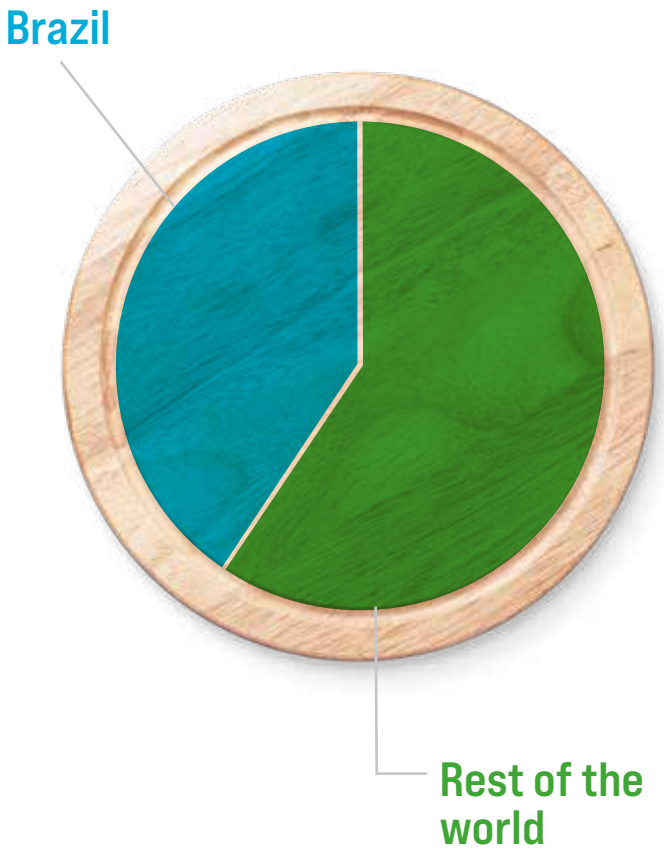
Latin America in general, and Brazil in particular, is the region with the greatest capacity to meet this growing demand.

World beef production in 2022 and estimate for 2032, in TEC



Source: OECD/Athenagro

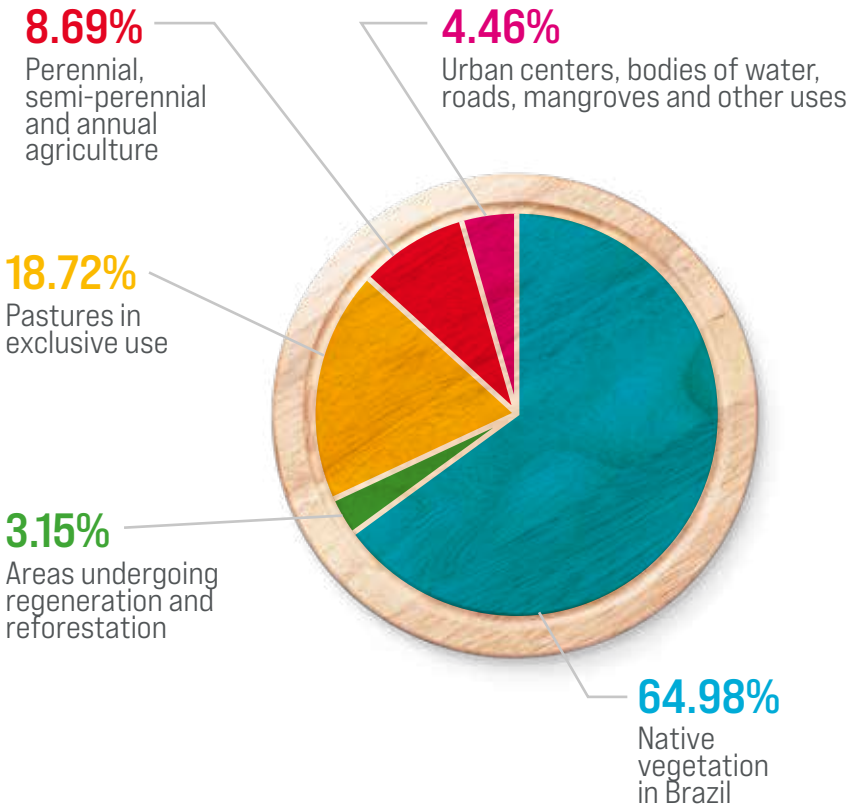
Where will the increase in beef production come from in the next 10 years?



Source: OECD/Athenagro

LAND USE IN BRAZIL

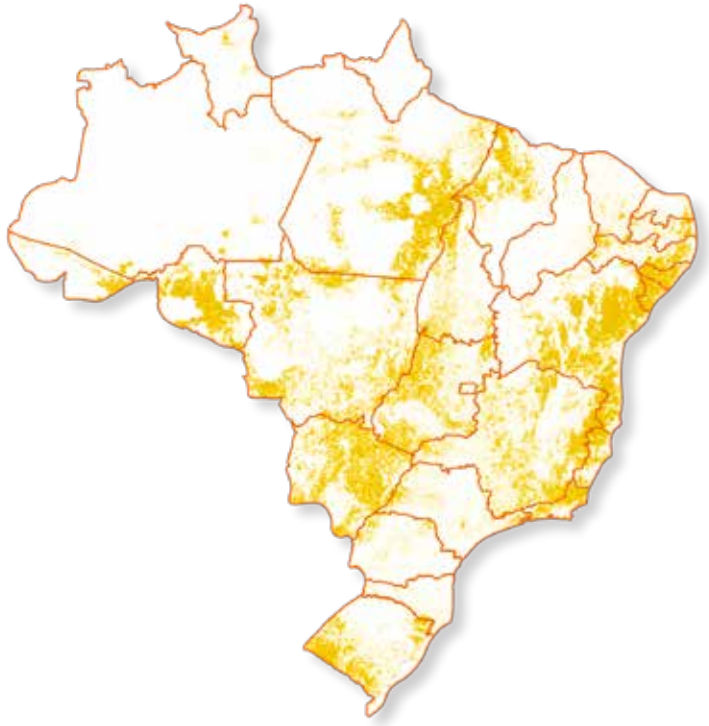
Organization of land use in Brazil, in 2022



Source: Athenagro, IBGE data (PPM, PAM, Census), INPE (Terraclass/Prodes), Lapig, Rally da Pecuária, Embrapa

Approximately **18.72%** is the country's pasture area, used for livestock production.

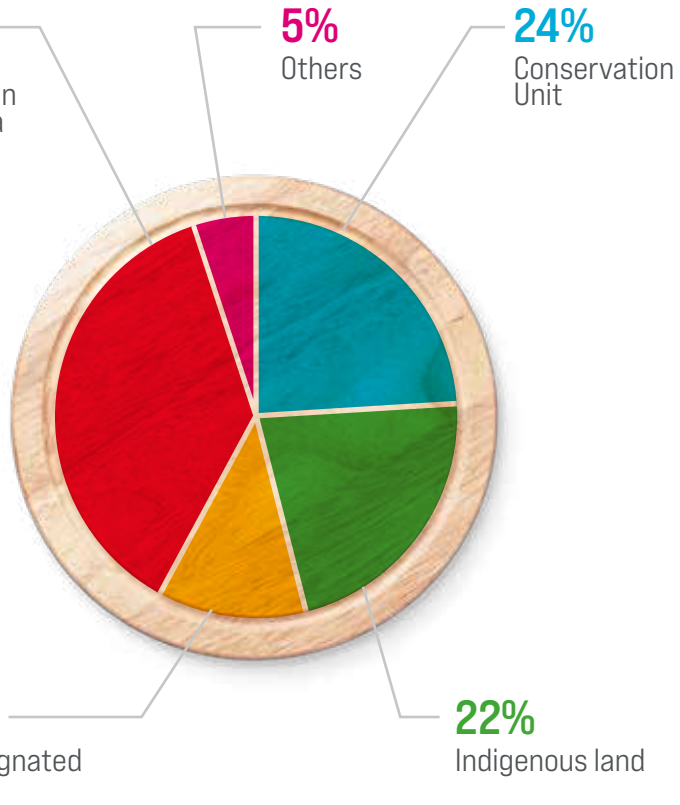
The following map shows the distribution of these pasture areas across the country:



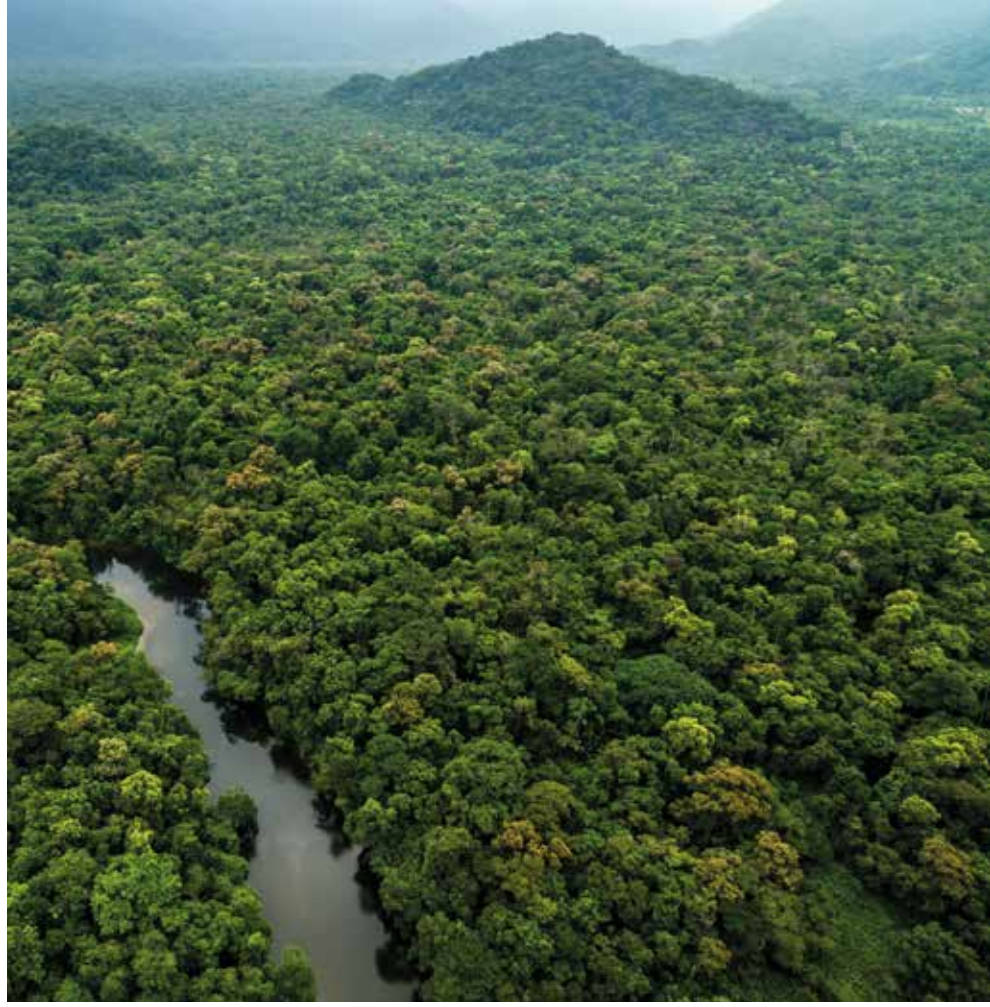
Source: LAPIG

Approximately 65% of the country is still covered with native vegetation. Another 3.15% are areas where there has been deforestation, but where the vegetation is regenerating or being reforested.

Location of native vegetation according to land categories in Brazil

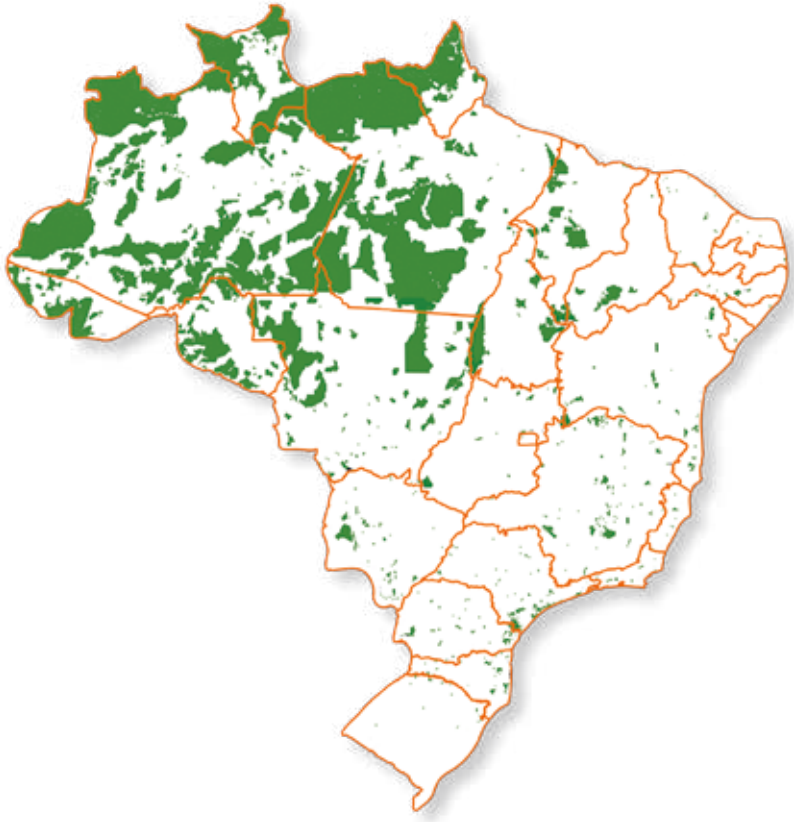


Source: CNI 2021



Part of this vegetation is in protected areas such as Conservation Units and Indigenous Territories. Part is in undesignated public lands. And 37% is on private land. In private areas, Brazilian legislation protecting native vegetation known as the Forestry Code requires landowners to allocate part of their properties for conservation.

Areas dedicated to the protection and preservation of Brazil's native vegetation



Protected areas
(public land)

Preserved areas
(private land)

Source: Embrapa Territorial, 2021

THE BRAZILIAN FORESTRY CODE AND CAR

Law 12,651 approved in 2012 and recognized as the Forestry Code sets forth that farms must preserve native vegetation through two mechanisms:

Legal Reserve Areas (LR) are a percentage of the property area to be maintained as native vegetation. This percentage varies from 80 to 50% in the Amazon (depending on the year of occupation), 35% in the Cerrado, including within the Legal Amazon, and 20% in the other biomes in the country.

Permanent Preservation Areas (Áreas de Preservação Permanente — APP) area areas to be preserved on properties aiming at protecting water resources. These are areas around river springs, watercourses (from 5 to 500 meters) and hillsides and hilltops that must be permanently covered by natural vegetation.

To comply with legislation, every rural property must register with the Rural Environmental Registration – CAR. The CAR contains the georeferenced perimeter of the property and the remaining native vegetation. After analysis, the responsible agency in each State validates this registration. Farmers who are passive in relation to what is required by legislation must then prepare an Environmental Recovery Program – PRA, providing for the restoration or compensation of vegetation areas necessary for their regularization.

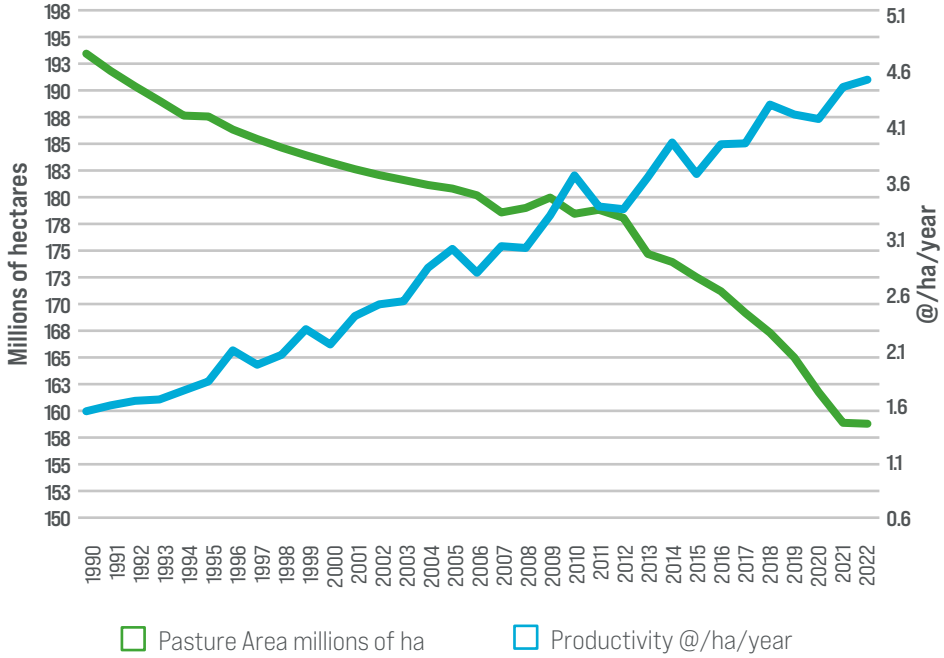
Further information:
www.car.gov.br

PRODUCTION EFFICIENCY

Over the last 30 years, there has been a significant increase in the efficiency of livestock activity, with a **183% increase in productivity**.

At the same time, **the area of pasture used decreased by 18%**, reaching about 160 million hectares in 2022.

Evolution of livestock pasture and productivity in Brazil



Source: Athenagro, IBGE data (PPM, PPT, PAM, Census), INPE (Terraclass/Prodes), Lapig, Rally da Pecuária, Embrapa

Former pasture areas end up being designated for other uses, mainly in agriculture, in crops such as grains, sugarcane and planted forests. In the last 30 years, around 25.1 million hectares of pastures were transformed into farming areas and other activities, according to consulting firm, Athenagro. At the same time, the quality of the meat produced in Brazil continues to increase.

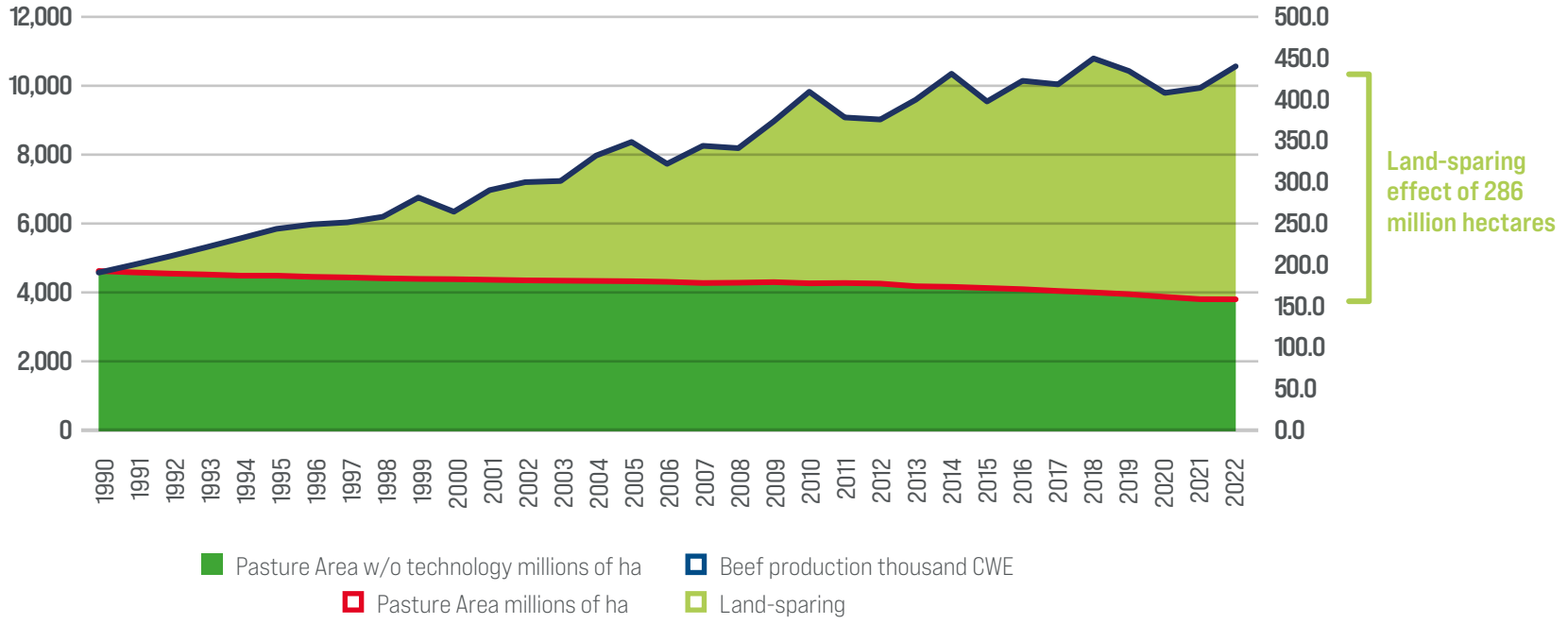
This is explained by **the increased use of technology in livestock farming**. Practices such as pasture management and recovery, integrated crop-livestock-forestry systems (ICLFS) allow more animals to be produced in the same area unit. Other technologies such as genetic improvement, nutritional supplements, welfare practices and animal health allow more meat to be produced per animal.

Land-sparing effect

It is called the land-saving effect, a concept created by Embrapa in Brazil, which is the effect generated by the application of technology in reducing demand for new areas for production.

If Brazil produced beef today with the same technology as 30 years ago, we would need to occupy an additional 286 million hectares of the country with livestock to have the current production of beef. The use of technology rendered this unnecessary.

Land-sparing effect - how much pasture area would we need to produce the same amount of beef considering technology dating back 30 years

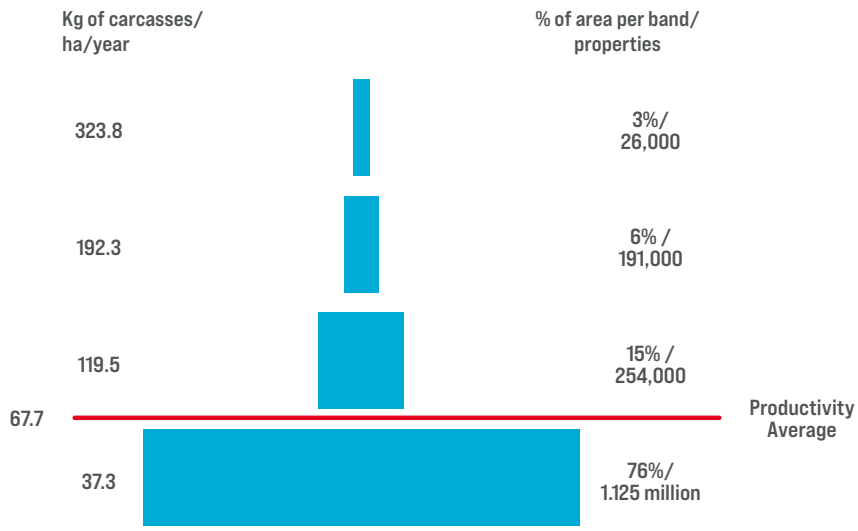


Source: Athenagro, IBGE data (PPM, PPT, PAM, Census), INPE (Terraclass/Prodes), Lapig, Rally da Pecuária, Embrapa

Still, there is enormous potential for Brazil to further increase its production, even without the need to increase the area.

Please see in the diagram below, the various levels of technology that we find today in Brazilian livestock farming:

Number of farms per level of productivity



Source: Athenagro, based on data from the IBGE and Livestock Rally

The average productivity of Brazilian livestock farming is 67.7 kg of carcasses per hectare/year. This is an important measure to assess the efficiency of the industry.

It is worth noting that production is lower than that average of 76% of the total area of pastures in Brazil today. If this entire area had the same level of technology as the top of the pyramid, Brazil alone could supply around 68.61% of the global demand for beef. In other words, **we can produce much more, without any need to expand the area used for livestock farming**.

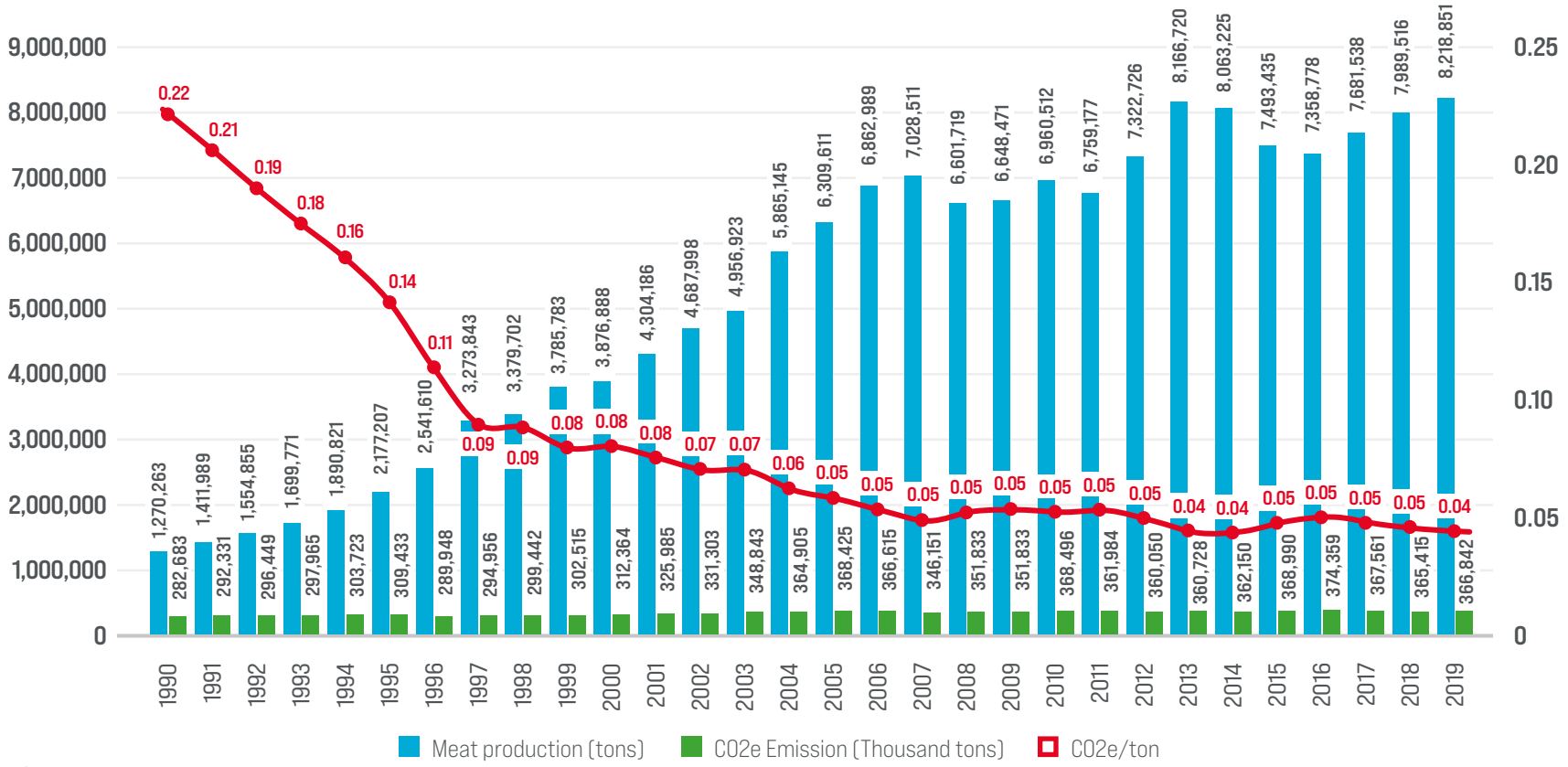
For this to happen, producers at the base of the pyramid need to have more access to investments and technical assistance to adopt recent technologies.

EMISSIONS

In the Brazilian emissions inventory, enteric fermentation in livestock accounts for 17% of total emissions.

However, the increased use of technologies has allowed **the life cycle of animals for slaughter to become shorter over the years**. The effect of this can be seen when we see the descending curve of livestock emissions per kg of meat produced:

Emissions per ton of beef produced



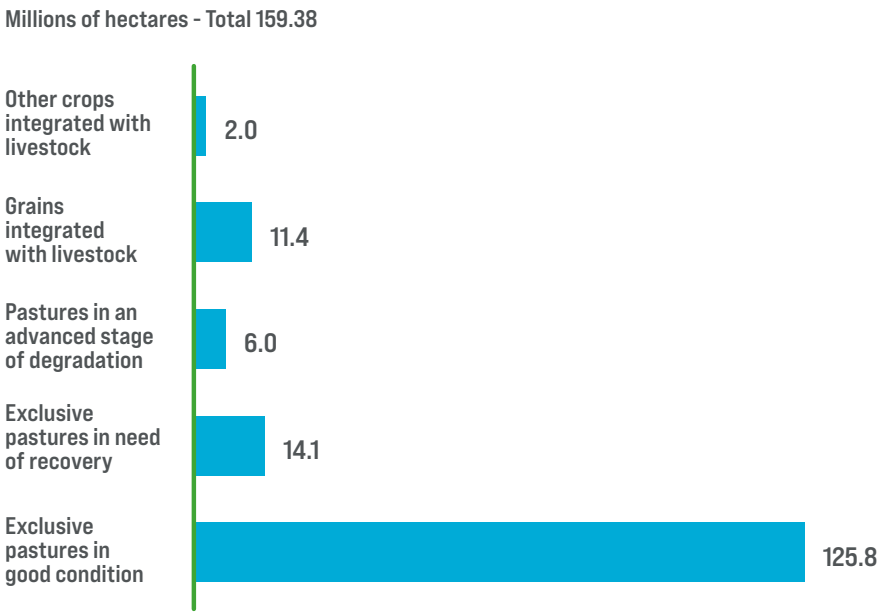
Source: SEEG

However, it is important to note that the basis of Brazilian livestock production is pasture. Well-managed pastures have the potential to sequester carbon in the soil. The work of Oliveira Silva, et al., 2016, demonstrates **that it is possible for Brazilian livestock farming to increase its production and at the same time reduce emissions**, as long as it is dissociated from deforestation.

Low-carbon agricultural production techniques are part of the public policy known as **Plan ABC+**, which, like controlling deforestation, is at the center of Brazilian climate commitments.

Recovery of degraded pastures has been one of the policy focuses of the ABC Plan since its first edition. According to Athenagro figures, 14.1 million hectares of pasture need recovery and another 6 million hectares are already at advanced levels of degradation.

Detail of pasture areas in Brazil, in millions of hectares



Source: Athenagro, IBGE data (PPM, PAM, Census), INPE (Terraclass, Prodes), Lapig, Livestock Rally, Embrapa

THE ABC+ PLAN

The Sectoral Plan for Mitigation and Adaptation to Climate Change for a Low Carbon Emission Economy in Agriculture (ABC Plan) was presented at COP15 in 2009, which took place in Copenhagen and has goals set every 10 years to improve Brazilian agriculture as a whole. It is the only sectoral greenhouse gases mitigation plan on the planet.

Focusing more on the achievements of livestock farming with the ABC Plan, here are some figures:

- The Integration Crop-Livestock-Forest (ICLFS) had the objective, in its first 10 years (2010-2020), to drive the plan implementation in 4 million ha of ICLFS. A total of 5.83 million hectares (146% of the target) was achieved with a total proximate mitigation of 22.11 million Mg CO2eq.

  In the 2020-2030 decade, the objective is to implement 10 million hectares, achieving a reduction in emissions of up to 34.11 million tons of CO2eq.

- The recovery of degraded pastures had the goal of recovering 15 million hectares in 10 years. Between 2010 and 2020, 26.8 million hectares were recovered (178% of the goal).

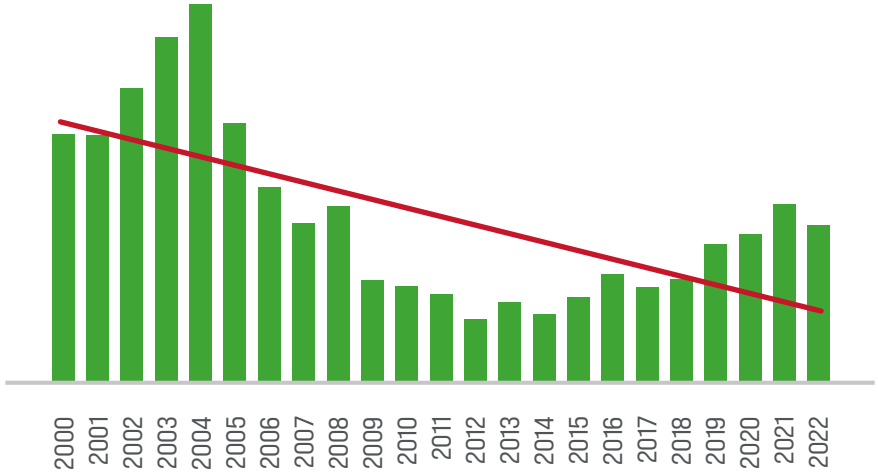
  In the ABC+ (2020-2030), the goal is to recover 30 million hectares of pastures by 2030, with a mitigation potential of 113.7 million of Mg CO2eq.

Further information:

www.gov.br/agricultura/pt-br/assuntos/sustentabilidade/agricultura-de-baixa-emissao-de-carbono

DEFORESTATION

Amazon deforestation (1,000 hectares per year)



Source: Athenagro, Prodes/Inpe

Prodes

The Prodes project monitors shallow cut deforestation by satellite in the Legal amazon and has produced, since 1988, the annual rates of deforestation in the region, which are used by the Brazilian government to establish public policies. The annual rates are estimated based on the deforestation increments identified in each satellite image that covers the Legal Amazon.

Further information:

www.obt.inpe.br/OBT/assuntos/programas/amazonia/prodes

terrabrasilis.dpi.inpe.br

Starting in 2004, a series of public and private actions contributed to the decline in deforestation in the Amazon. The main public policy that managed to leverage this result was the **Plan for the Prevention and Control of Deforestation in the Amazon – PPCDAM**.

Among private actions, the Soy Moratorium of 2006 and the agreements signed by the slaughterhouse industry with the Public Prosecutor's Office from 2009 onwards, the so-called Meat Agreements, stand out.

PPCDAM

Created in 2004, the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAM) was mainly responsible for the 83% drop in deforestation up to 2012, according to data from the National Institute for Space Research (Inpe). The plan's initiatives kept deforestation below 8,000 km^2 until 2018.

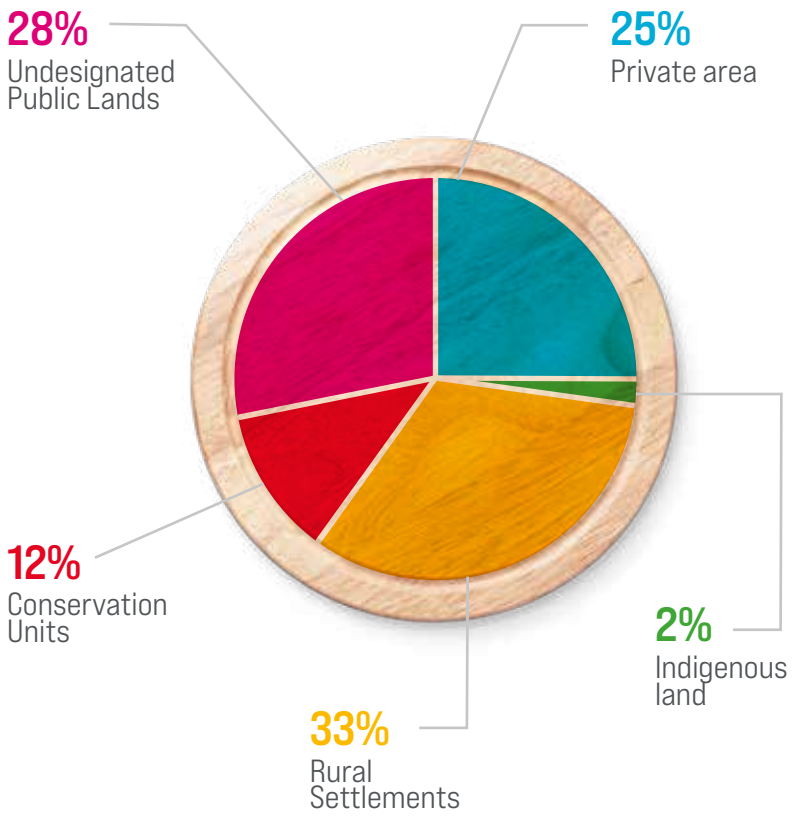
The 5th phase of the plan, relaunched in 2023, sets the goal of zero deforestation by 2030. It was structured into 4 thematic axes: sustainable production activities; environmental monitoring and control; land and territorial planning; and normative and economic instruments aimed at reducing deforestation and implementing actions covered by the other axes.

Further information:

www.gov.br/mma/pt-br/assuntos/prevencao-e-controle-do-desmatamento/amazonia-ppcdam-1

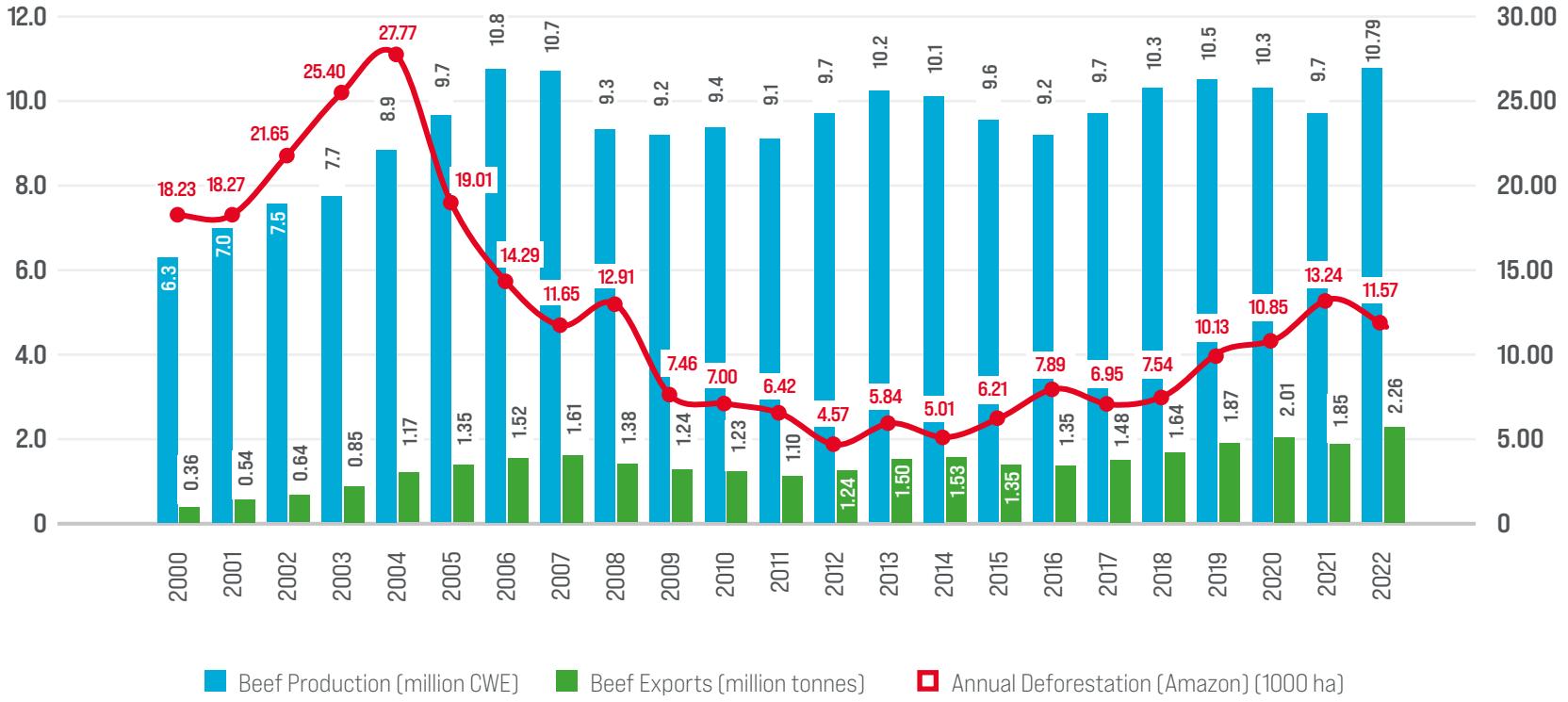
Unlike a historical process of territorial occupation, the deforestation that occurs in the Amazon region today is predominantly illegal. In 2022, approximately 75% of such deforestation occurred in public areas, and only 25% in private areas. The vast majority of **new deforestation converts forests into pastures, and livestock farming is used as a way to guarantee the occupation of these lands**, which creates a major challenge for a sustainable production chain.

Amazon deforestation per Category of Land Use



Source: PPDCAM 2023-2027

Deforestation x beef production and exports



Source: Athenagro, Agroconsult data, Agrosatélite, IBGE, Inpe/Terraclass, Lapig, Prodes, Rally da Pecuária, Map Biomas/Comexstat/ABIEC

The conclusion is that the correlation between these two processes is very low. **Brazil does not produce or export more beef because deforestation increases, nor less when deforestation decreases.**

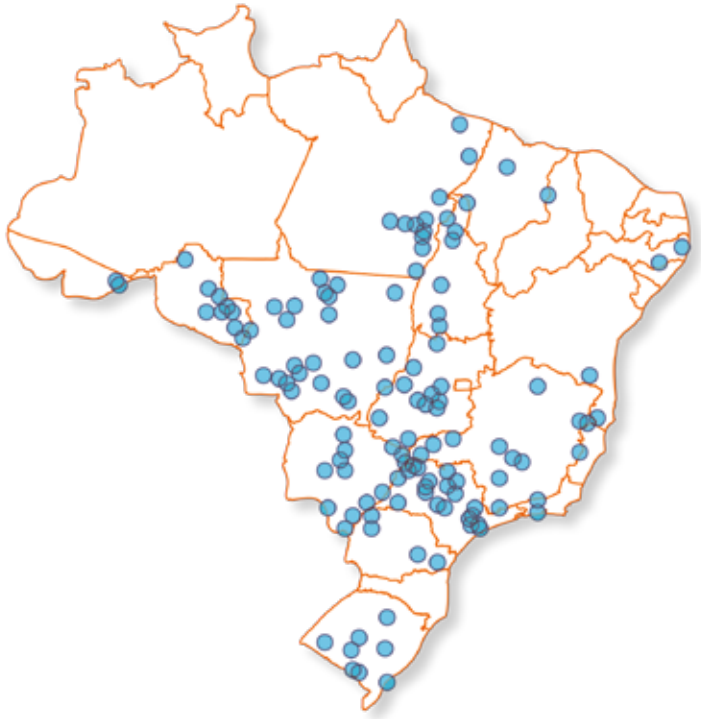
The fight against illegal deforestation depends on public and private actions that can inhibit the illegal occupation of land and avoid contamination of the chain with the raw material originating from the illegal occupation.

According to the study The rotten apples of Brazil's agribusiness, a small number of properties with irregularities have the potential to contaminate a significant part of the livestock chain. According to the study, 2% of properties are potentially responsible for 62% of deforestation in the Amazon and Cerrado. At the same time that it is necessary to eliminate illegality in the production chain, it is necessary to create paths for the regularization of a large number of producers with non-compliances, but who have the possibility of regularization through the repair of environmental damage. It is also the duty of the public sector to accelerate the regularization of these producers.

INDUSTRY ACTIONS

Since 2009, our associated industries in the Amazon have made public commitments to monitor socio-environmental criteria of their direct suppliers. These criteria were defined together with the Public Prosecutor's Office, and later unified in a protocol known as Beef on Track.

The map below shows the location of our industries on Brazilian territory.



SIFs of ABIEC members on Brazilian territory

SIFs of ABIEC members in the Amazon biome

Source: ABIEC

Currently, companies that are members of ABIEC account for:

84% **of SIF slaughtering in the Amazon**

94% **of total slaughter of members in the Amazon biome have a Cattle Purchase Policy**

87% **of the total slaughter of members in the Amazon biome apply all *Boi na Linha* criteria**

Through a cooperation agreement with Imaflora, the non-governmental organization responsible for the development of Beef on Track, ABIEC is implementing a sustainability development plan that is comprised of applying a basic criteria for all members. With this, we intend to have 100% of the slaughter activities monitored in the Amazon by the end of 2024.

Beef on Track

Created in 2019 as an initiative of Imaflora, in partnership with the Public Prosecutor's Office, Beef on Track recognizes the complexity of the industry and aims at expediting the implementation of the commitments made by the beef chain in the Amazon and encourage a chain free of socio-environmental irregularities.

The journey of cattle raised on millions of Brazilian farms to the beef arriving on the consumer's table involves an extensive production chain. On this journey, the commitments of the beef chain are central.

With its initiatives, Beef on Track aims at placing cattle ranchers, slaughterhouses, supermarkets, investors, public players and civil society organizations on the same page. The center's objective is to promote good practices through monitoring, auditing and reporting of processes and tools, increasing transparency, pursuing a cattle chain free from deforestation, slave labor or invasion of public lands.

The program also collaborates with the production and sharing of technical knowledge, with the aim of encouraging the creation of policies and procedures for responsible livestock farming.

Among the criteria established by the Beef on Track Protocol and monitored by slaughterhouses are:

- **Illegal deforestation**
- **Overlap with conservation units and Indigenous lands**
- **Environmental embargoes**
- **Rural Environmental Register**
- **Work similar to slavery**

Further information:
www.boinalinha.org

TRACEABILITY

Brazil has a **traceability system based on animal group movement control**. The traceability system is part of an agriculture and livestock health system for health control purposes. This system allows Brazil to have access to more than 150 markets around the world. The European Union market is one of the markets that Brazil has access to that requires individual traceability, but only 90 days before slaughter. The requirement was also motivated by greater health control.

The databases that contain animal movement information belong to the agricultural and livestock health agencies of each state of the Federation, but do not offer public access and **are not tools built for socio-environmental control purposes**.

Therefore, extending the socio-environmental control conducted by the industry to the entire production chain, depends on improving the already existing traceability systems. That implies in expanding data transparency, as well as movement data integration with environmental information, such as the Rural Environmental Registry.

ABIEC is in constant dialogue with the Brazilian Ministry of Agriculture, Livestock and Supply in Brazil to improve existing tools.

FORUMS

Several forums and multisectoral initiatives are committed to building proposals for the continuous improvement of livestock production and to overcome the challenges that Brazil faces in reducing deforestation and reconciling production, preservation and socio-productive inclusion.

ABIEC is now a protagonist in these initiatives and actively contributes to pursue solutions that can guarantee sustainable production.

Furthermore, we have established technical agreements with organizations such as IMAFLORA and CICB (Centre for the Brazilian Tanning Industry) to strengthen our initiatives and ensure the implementation of good practices in our production chain.

Among the main movements of which we are part are:

- Coalizão Clima, Florestas e Agricultura **coalizaobr.com.br**
- Mesa Brasileira da Pecuária Sustentável **pecuariasustentavel.org.br**
- Instituto Pacto Nacional pela Erradicação do Trabalho Escravo **inpacto.org.br**
- ABIEC is also a member of the Global Roundtable for Sustainable Beef **grsbeef.org**

PROJECTIONS

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Projections concerning Brazil's beef cattle activity indicate growth in the coming years. **Enhanced figures are expected for the herd, for slaughter, for beef production, export and domestic consumption**.

Brazil's beef cattle herd is expected to grow by approximately 1% over the next 10 years even with an estimated reduction in the pasture area of approximately 2%. With **greater efficiency and enhanced use of production technology**, slaughter figures are expected to grow (by approximately 6.9%) in beef production, which is expected to attain values approaching 12.9 million tonnes of carcass weight equivalent in 2032.

Exports are expected to follow the same growth pattern, attaining the level of 3.6 million tonnes carcass weight equivalent within 10 years, an increase of over 19%.

Domestic consumption, the major destination for beef produced in Brazil, is also expected to grow to attain a total of 9 million tonnes carcass weight equivalent in 10 years' time.

HISTORIC DATA AND PROJECTIONS FOR LIVESTOCK UNTIL 2032

Variable	Unit	2002	2007	2012	2017	2022	2027	2032
Total Herd	1,000 head	166,440	173,918	179,535	188,152	202,784	209,208	204,835
Production	1,000 CWE	7,221	8,277	9,039	10,062	10,794	11,800	12,984
Exports	1,000 CWE	984	2,302	1,679	1,968	3,018	3,259	3,601
Imports	1,000 CWE	74	32	60	57	81	78	75
Domestic Consumption	1,000 CWE	6,310	6,007	7,420	8,152	7,856	8,153	8,993
Availability per capita	Kg of carcass/ inhabitant/year	35	32	37	39	37	37	39
Estimated consumption of beef	Kg of beef/inhabitant/ year	28	26	30	32	30	30	32
Slaughter	1,000 head	30,616	35,375	38,512	41,492	42,307	44,989	45,222
Pasture Area	1,000 hectares	182,377	183,795	173,262	160,813	153,786	154,523	150,465
Stocking rate	head/ha	0,91	0,95	1,04	1,17	1,32	1,28	1,29
Density rate	animal units/ha	0,74	0,76	0,81	0,93	1,02	1,00	1,03
Carcass average weight	Kg/slaughtered head	235,85	233,97	234,70	242,51	255,13	251,94	276,82
Offtake (slaughter rate)	Percentage	18%	20%	21%	22%	21%	22%	22%

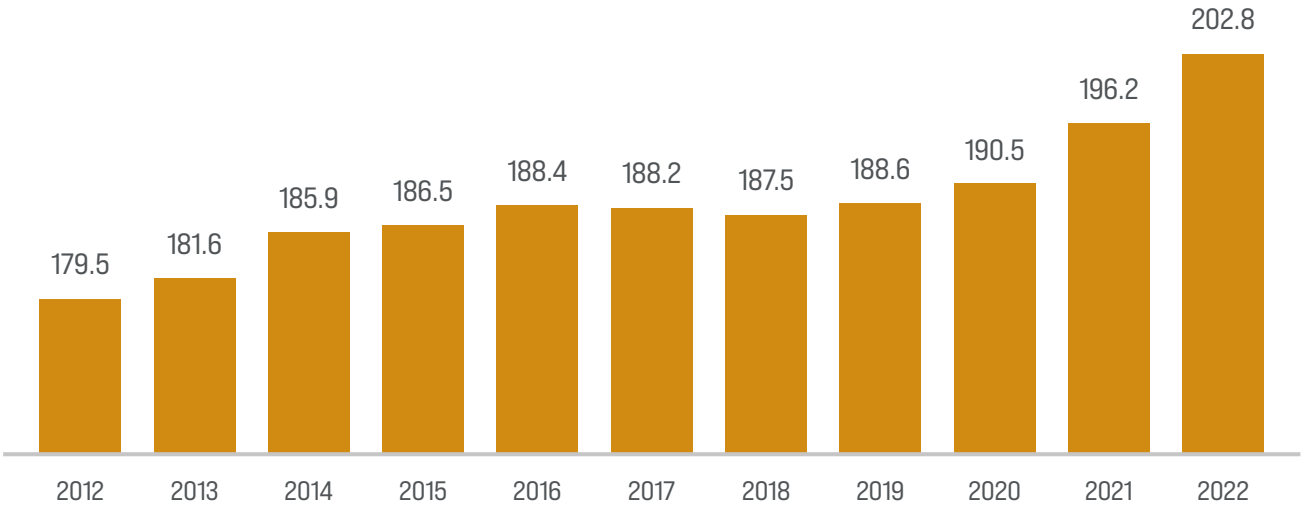
Source: Athenagro, IBGE, Secex

HISTORY OF THE BRAZILIAN HERD, BEEF PRODUCTION, EXPORTS, IMPORTS, CONSUMPTION, PER CAPITA CONSUMPTION OF BEEF OVER THE LAST TEN YEARS

	Unit	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Herd	Million head	179.5	181.6	185.9	186.5	188.4	188.2	187.5	188.6	190.5	196.2	202.8
Beef production	Thousand CWE	9,039	9,610	10,372	9,560	10,165	10,062	10,811	10,446	9,811	10,194	10,794
Export	Thousand CWE	1,679	2,003	2,042	1,828	1,825	1,968	2,194	2,483	2,691	2,478	3,018
Import	Thousand CWE	60	57	77	59	64	57	47	50	63	71	81
Consumption	Thousand CWE	7,420	7,664	8,407	7,790	8,403	8,152	8,664	8,012	7,183	7,786	7,856
Per capita consumption	Kg/head/year	37	38	42	38	41	39	42	38	34	37	37

Source: Athenagro, Secex, IBGE

EVOLUTION OF THE HERD
MILLION HEAD



Source: Athenagro, data from IBGE (Census, PPM, PPT)

ANIMAL HEALTH

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BOVINE SPONGIFORM ENCEPHALOPATHY

Brazil has never had a case of classic BSE. To date there have been 5 atypical cases occurring in the following states: Paraná (PR — 2010), Mato Grosso (MT — 2014, 2019 and 2021), Minas Gerais (MG — 2021) and Pará (PA — 2023).

By means of Normative Instruction no. 44, dated September 17, 2013, Brazil created the **National Program for the Prevention and Surveillance of Bovine Spongiform Encephalopathy (PNEEB)**, which is structured into subprograms for control, surveillance and assessment of possible outbreaks.

Brazil has been recognized by the World Organization for Animal Health (WOAH) since 2012 as being at **negligible risk for the disease**; this recognition is due to precautions taken by Brazil to ensure that the disease does not enter the country, as well as conditions which do not favor the spread of the disease because of the production systems used in the country, and owing to the country's climate.

OIE

Organisation Mondiale de la Santé Animale · World Organisation for Animal Health · Organización Mundial de Sanidad Animal

Certificate

Bovine spongiform encephalopathy status of Brazil

This is to certify that following a recommendation of the OIE Scientific Commission for Animal Diseases, the World Assembly of Delegates of the OIE approved on 22 May 2012 that Brazil be classified by the OIE as a country having a negligible risk for bovine spongiform encephalopathy (BSE) in accordance with the provisions of Article 11.5.3. of the OIE Terrestrial Animal Health Code.

This recognition is based on the documentation submitted to the OIE by the Official Veterinary Services of Brazil. The Delegate of Brazil to the OIE has the obligation to notify the OIE immediately if there is any change in the epidemiological situation relating to BSE in Brazil and to confirm annually that the epidemiological situation has remained unchanged, according to the requirements of the article mentioned above.

Paris, 24 May 2012

Carlos A. Correa Messuti
President

Bernard Vallat
Director General

FOOT AND MOUTH DISEASE

The most recent outbreaks of foot and mouth disease in Brazil occurred back in 2005. In 1992, MAPA implemented the Strategic Plan of **Brazil's National Program for Surveillance of Foot and Mouth Disease (PE-PNEFA)**, whose objective is "to create and maintain sustainable conditions for ensuring Brazil's status as a country free of foot and mouth disease, and to extend the zones that are free of foot and mouth disease where vaccination is not practiced, in order to protect Brazil's livestock wealth and generate the greatest possible benefit both for the actors involved, and for Brazilian society as a whole."

This plan was designed to be executed over a ten-year period from 2017 to 2026, using vaccines, serological assays, and the ante-mortem and post-mortem inspection of 100% of the slaughtered animals.

Brazil has advanced in its OIE (WOAH) status, and currently the entire territory of the country is deemed FMD-free; the following states: Rio Grande do Sul (RS), Santa Catarina (SC), Paraná (PR), Acre (AC), Rondônia (RO) and parts of Amazonas (AM) and Mato Grosso (MT) are FMD-free where vaccination is not practiced.

On May 24, 2018, Brazil was recognized by OIE as **an FMD-free country where vaccination is practiced**.

OIE ORGANIZACIÓN MUNDIAL DE SANIDAD ANIMAL

CERTIFICADO

Situación sanitaria de Brasil respecto a la fiebre aftosa

Por el presente documento se certifica que, tras una recomendación de la Comisión Científica de la OIE para las Enfermedades de los Animales, la Asamblea Mundial de los Delegados de la OIE aprobó el 22 de mayo de 2018 que una zona ampliada de Brasil compuesta por los estados de Amapá, Roraima, Amazonas, Pará, Rondônia, Acre, Espíritu Santo, Minas Gerais, Río de Janeiro, Sergipe, Distrito Federal, Goiás, Mato Grosso, Paraná, São Paulo, Bahia, Tocantins, Alagoas, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, Rio Grande do Norte, y partes de Mato Grosso do Sul como designada por el Delegado de Brasil sea reconocida como zona libre de fiebre aftosa con vacunación en conformidad con el *Código Sanitario para los Animales Terrestres* de la OIE (2017).

Este reconocimiento está basado en la documentación presentada a la OIE por el Delegado de Brasil. El Delegado de Brasil ante la OIE tiene la obligación de notificar inmediatamente a la OIE la existencia de cualquier situación epidemiológica relacionada con la fiebre aftosa en Brasil y confirmar anualmente que la situación epidemiológica de su país no ha cambiado, en conformidad con el *Código Sanitario para los Animales Terrestres* de la OIE.

el 24 de mayo de 2018

Presidente

Directora General

The Brazilian Trade and Investment Promotion Agency (ApexBrasil) works to promote Brazilian products and services abroad and attract foreign investments to strategic sectors of the Brazilian economy. In order to achieve its goals, ApexBrasil carries out several trade promotion initiatives aimed at promoting Brazilian products and services abroad, such as prospective and trade missions, business rounds, support to the participation of Brazilian companies in major international fairs, visits of foreign buyers and opinion makers to learn about the Brazilian productive structure, among other business platforms that also aim at strengthening the Brazil brand. The Agency also acts in a coordinated way with public and private players to attract foreign direct investment (FDI) to Brazil with a focus on strategic sectors for the development of the competitiveness of Brazilian companies and the country.

Brazilian Beef Project

The sectoral project 'Brazilian Beef' was begun in 2001 as a partnership between Apex-Brasil and ABIEC; its goal is to strengthen the image of beef produced in Brazil, by improving the perception of its quality among importing countries and thus extending Brazil's participation in the world market for beef and other meats. Nine projects have been signed over 18 years, with investments totaling upwards of R$60 million and with export volumes growing by more than 500%.

Organized by

Brazilian Beef

Promoted by

abiec

Brazilian Beef Exporters Association

apexBrasil

MINISTRY OF DEVELOPMENT, INDUSTRY, TRADE AND SERVICES

BRAZILIAN GOVERNMENT

BRASIL

UNITING AND REBUILDING

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