

Brazilian Livestock (beef-cattle) sectoral profile

Orientation visit report – Brazil, March 26-29th, 2018

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1. Introduction

Brazil is a priority country for Wageningen International/Latin America and within the country, there is a focus on "Biobased economy", "Climate Change & Water/Drought Management" and 'Animal Husbandry (beef, dairy and pigs), not leaving unattended opportunities in the other domains of Wageningen UR.

Brazil is just a bit smaller than Europe in surface but South America's most influential country with one of the world's biggest democracies. Over the past two decades, Brazil had a rising and powerful economy with remarkable social progress. Nevertheless, since 2015 Brazil is threatened by a political crisis and a deep economic recession which is now slowly emerging. However, inequality remains high and fiscal accounts have deteriorated substantially.

Ex-president Ignacio Lula da Silva is currently under jail charges with corruption-related crimes but he is still the estimated frontrunner in the presidential elections scheduled for 7 October. Many politicians are accused and condemned for corruption, money laundering, influence peddling and obstruction of justice and the electorate has very little trust and much anger in politics. So it happened that the state of Rio de Janeiro was declared bankrupt (after hosting Olympics in 2016) and violence and crime dominate in the favelas. Brazil's military is put in charge of security in the favelas of Rio de Janeiro and got even stronger after the assassination of Murielle Franco, counsellor and rights activist who criticizes the military intervention in Rio: "The so-called sense of security is nothing more than a political and media narrative." A taxi driver even suggested that the elections in October will probably not even take place as politics in power now are looking for military interventions with social instability and unsafety as an excuse.

Despite the economic and political crisis, agriculture production remained strong. The negative political and economic developments in Brazil has dragged down agricultural commodity prices but production per hectare still increasing and is expected to continue in the upcoming year to compensate the lower prices.

With 200 mln inhabitants and 200 mln heads of cattle, Brazil is of major interest for WUR/WLR in South America and therefore the reason to team up between Raquel de Paiva S. Motta, Brazilian researcher working at Wageningen Livestock Research and Ria Hulsman, regional manager Latin America & the Caribbean at WUR. The objective: to do first analyses of livestock and beef production in Brazil and to *get a better insight into what areas WUR/WLR could add value to stakeholders in the livestock and beef production chain*. This report intends to give you an overview of the state of affairs of livestock and beef production and the challenges this sector faces in Brazil, with a slight focus on beef export to Europe. We have drawn it after a visit of one week to Brazil having had meetings with some key stakeholders in the livestock and beef production and export. Time was too short to do a more profound study of opportunities for WLR/WUR but some potential areas of collaboration have been identified and deserve further analyses together with local partners.

2. Brazilian Livestock Sector

The terminology “livestock” is commonly used in Brazil to translate beef cattle to English. Therefore, we appropriated the same use of the terminology throughout this report. According to a study of 2016, Brazil has the largest herd in the world (13,8% of the global total) containing 219 million heads of cattle grazing/occupying 164.70 million hectares of pasture¹. The central west part of Brazil (Mato Grosso, Rondonia and Pará) is the biggest beef producing region. Brazil imports only 3000 heads, mostly for breeding purposes, while exports 292.515 heads per year (see also figure 1).

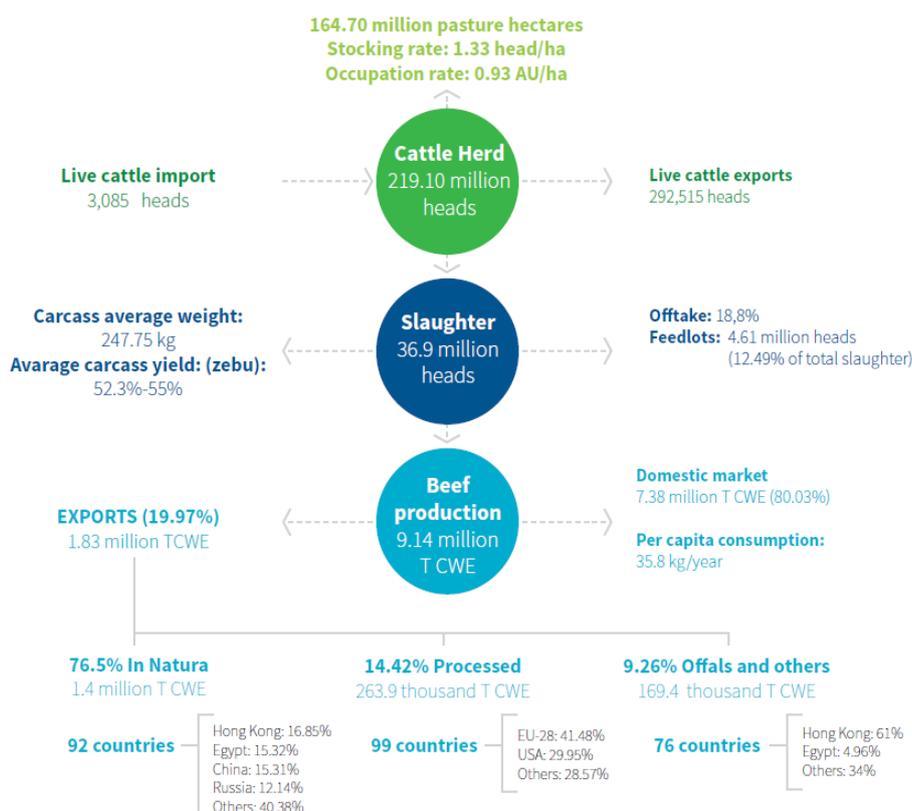


Figure 1. Brazilian beef sector's profile. Source: Agroconsult/Secex/MDIC/ABIEC

“The beef cattle agribusiness had € 119 billion in transactions in 2016. Over nearly one decade the amount generated by the beef cattle farming production chain has risen by 80% including everything from inputs used in cattle production, to sales revenue from cattle and up to the total sold by industries and retailers” (2017, Brazilian Livestock sector's Profile, ABIEC).

Only 20% of the beef production in Brazil is for export, remaining 80% of the beef production for Brazil's internal market. The sustained economic growth over the past two decades, which moved a poor segment of Brazilian population to the middle class, has increased meat consumption and pulled the internal market for beef. Brazil exports beef to approx. 99 countries. In volume, Hong Kong and China have the biggest share (figure 2). Europe is the third most important market in revenue (figure 3). Within Europe, the UK, Italy and the Netherlands are the most important markets (in revenue and in volume).

¹ Agroconsult/Secex/MDIC/ABIEC, 2016

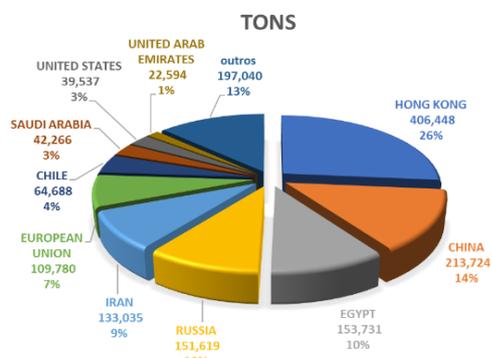


Figure 3. Brazilian beef exports: Market share in tons. Source: MDIC/SECEX/ABIEC

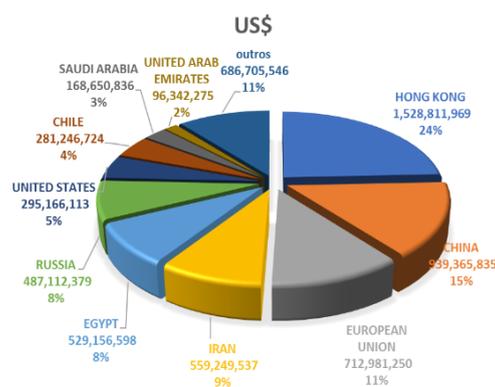


Figure 2. Brazilian beef exports: Market share in US\$. Source: MDIC/SECEX/ABIEC

Regarding the export of Brazilian beef to Europe, ABIEC informed that Europe is a highly demanding market regarding **food safety** and traceability. High standards of food sanitation and also some specific requirements on animal welfare are demanded. For more livestock farming history and forecasts data see table 1.

Table 1. Brazilian Livestock forecasts. Source: Agroconsult/MDIC/SECEX/IBGE

LIVESTOCK FARMING HISTORY DATA AND FORECASTS BY 2026								
Variable	Unit	1996	2001	2006	2011	2016	2021	2026
Total Herd	1000 heads	158,289	176,389	205,886	212,815	219,081	217,488	222,011
Production	1000 ton CWE	5,977	6,983	10,750	9,102	9,142	12,314	13,121
Export	1000 ton CWE	299	844	2,205	1,501	1,832	2,775	3,301
Import	1000 ton CWE	-	44	29	47	65	65	62
Domestic consumption	1000 ton CWE	5,678	6,184	8,574	7,648	7,375	9,603	9,882
Per capita availability	carcass kg /person/year	35	35	46	39	36	45	45
Beef consumption	beef kg /person/year	28	28	37	31	29	36	36
Slaughter	1000 heads	27,903	29,730	47,412	38,677	36,900	47,416	48,997
Pasture area	1000 ha	184,524	177,024	175,537	171,446	167,309	162,005	158,594
Stocking rate	heads/ha	0.86	1.00	1.17	1.24	1.31	1.34	1.40
Occupation rate	animal unit/ha	0.60	0.70	0.82	0.87	0.92	0.94	0.98
Carcass average weight	kg/head slaughtered	214.22	234.88	226.73	235.34	247.75	259.69	267.79
Offtake	Percentage	18%	17%	23%	18%	17%	22%	22%

3. Sustainability & livestock in Brazil

Almost 20% of land in Brazil is covered with pastures of which 0,72% (6,1 mln hectares) is at an advanced stage of degradation (source: Agroconsult/IBGE/INPE/Mapa). Nevertheless, total pasture area in Brazil is decreasing while cattle productivity is increasing. According to ABIEC and Agroicone, in 2005, 9,6 mln tonnes of beef were produced on 183 mln hectares; in 2015, 10 mln ton was produced on 179 mln hectares and it is expected that in 2030 13,7 mln tons of beef will be produced on 161 mln hectares. This doesn't happen by itself, Brazil has inserted several measures and regulations that should lead to fulfilling the National Determined Contributions to the Paris agreement. In the COP 21 Paris Agreement (2015) Brazil set absolute GHG reduction targets on 2005 values of 37% by 2025 and of 43% by 2030. The main Brazilian policy instruments on sustainability and reduction of GHG with impact on agriculture, forestry and livestock/husbandry are the following:

Brazil's new 'Forest Code' (Federal Law No. 12,651/2015) is a law on protection of native vegetation to promote restoration of natural vegetation, curb illegal deforestation and regulate the permitted conversion of legal deforestation. Key elements in its implementation include the establishment of the Rural Environmental Registry (Cadastro Ambiental Rural/CAR). This Rural Environmental Registry is a central tool for fighting the issues of illegality and disorderly occupation.

The 'Forest Code' law defines 6 Brazilian biomes with different % on rural private property that cannot be farmed and must be preserved for native vegetation (see figure 4). CAR gathers and registers all information. The law settles the obligations to keep and to restore Permanent Preservation Areas and Legal Reserves Areas. Legal reserves Areas are the percentage of area in rural private property that must be preserved for native vegetation – the mandatory set-aside of land that cannot be farmed goes from 20% in the South region, at Pampa Biome, to 80% in the Amazon Biome.

ABC plan (low carbon agriculture) created by the federal Brazilian government and managed by the Ministry of Agriculture, the ABC plan present the actions for mitigation and adaptation of climate change. The 6 most relevant actions are:

- Restoration of degraded pastures; 15 mln hectares
- Zero tillage; 8 mln hectares;
- Biological nitrogen fixation; 5,5 mln hectares;
- Integrated Crop-Livestock-Forestry (ILPF); 4 mln hectares (*example: the Gazarini Group on [YouTube](#) or read this [article](#) of Rabobank*);
- Planted Forests: 3 mln hectares;
- Treatment of animal waste; 4,4 mln m³;



Figure 4. Brazilian map and Biomes. Source: IBGE.

Carbon-neutral State of Mato Grosso do Sul is an ambitious initiative on decarbonisation led by the state of Mato Grosso do Sul (MS) since 2016. MS is one of Brazil's largest agricultural and livestock producers and, together with [World Resources Institute \(WRI\) Brazil](#) and [Embrapa Beef Cattle](#), the state have launched an overarching project to promote low-carbon development strategies. One of the main aims of the project is to reduce the methane emissions per unit of meat produced through a new brand-concept called "[Carbon Neutral Brazilian Beef \(CNBeef\)](#)." In addition, MS intends to deliver 15% of the country's overall goal to restore 15 million hectares of degraded pasture areas until 2020. In summary, the initiative not only helps MS shifting into a more sustainable pathway, but it also helps Brazil meeting its national and international climate goals to reduce its overall emissions (43% by 2030).

Key stakeholders in de Brazilian livestock and beef production chain

[The Brazilian Roundtable on Sustainable Livestock \(GTPS\)](#)

The GTPS was founded over ten years ago with the mission to connect the different stakeholders of the beef production chain and engage sustainable livestock in Brazil. GTPS is now a multi-stakeholder initiative that convenes representatives from throughout the supply chain, Producers, Industries, Retail and Restaurants, Civil Society, Financial Institutions, Services, Governmental Organizational and Education and

Research Institutes. The GTPS' multi-stakeholder nature makes it a key-actor in increasing the sustainability of the cattle supply chain and in scaling existing sustainability schemes, such as the Sustainable Agriculture Network (SAN) cattle program, which has created a Standard for Sustainable Cattle Production Systems.

[The Brazilian Beef Exporters Association \(ABIEC\):](#)

ABIEC brings together 29 companies of the sector in Brazil, responsible for 92% of the meat traded for international markets. Its creation was a response to the need for a more active role in the beef export segment in Brazil, by defending the interests of the sector, increasing efforts to reduce trade barriers and promote Brazilian beef products in foreign markets. ABIEC has a team of 18 persons working in Sao Paulo office on information and business intelligence as a base for committed action to increase volume and promote Brazilian beef to the world (including new markets).

[The Brazilian Agricultural Research Corporation \(Embrapa\)](#)

Embrapa is a state-owned research corporation affiliated with the Brazilian Ministry of Agriculture focused on developing technologies, knowledge and technical-scientific information aimed at Brazilian agriculture, and livestock. Embrapa's organizational structure is composed of 46 centres and 17 Central Units. Internationally, Embrapa has bilateral and multilateral agreements for technical cooperation with several countries and institutions, including WUR. Two particular units from Embrapa are more relevant within the scope of this report: 1) [Embrapa Beef Cattle](#), focused on research and development for the beef cattle production chain (located at Campo Grande, MS); 2) [Embrapa Southeast Livestock](#), focused on beef and dairy cattle production chain and horse breeding in the Brazilian Southeast (located at São Carlos, SP).

[Solidaridad Network in Brazil](#)

Solidaridad is an international network organisation with nine regional expertise centres located in South and South-East Asia, [South America](#), Southern Africa, East and Central Africa, West Africa, China, Central America, North America, and Europe. Their work is focused on partnerships with large brands, local businesses, communities, civil society and government to create sustainable supply chains from the producers to the consumers. In Brazil, Solidaridad's has a team which works specifically with livestock and leather value chains. One of Solidaridad's initiatives is together with cocoa and livestock producers in the region of Pará, aiming 'Inclusive and Sustainable Territories in the Amazon' throughout the project [Carbon Balance in Family Agricultural Production in the Amazon: Scenarios and Opportunities](#).

4. Challenges and opportunities for Sustainable Livestock in Brazil

The major challenge for a more sustainable livestock production in Brazil according to GTPS is to **increase productivity and sustainability**. Today a small group of the larger producers with access to information, training and capital are able to implement techniques and technology for a sustainable livestock intensification. The majority of smaller producers is not able to change the way of producing. They have limited access to education, information and low liability to apply for rural credit. Therefore, they are not able to contract technical assistance or buy advanced technology. Information and support to this large group of smaller producers to comply with environmental protection laws is crucial to scaling up a more sustainable livestock production.

Governmental environmental policy in Brazil is one of the most progressive in Latin America. The **monitoring of land use and its effects on GHG emissions** is done through the Rural Environmental Registry (CAR). The CAR system delivers important and precise information on land use, which is a huge opportunity to monitor restoration of degraded land and control illegal deforestation. The challenge is how

to use this data for tailor-made advice on smart land use, intensification opportunities with the aim of lowering GHG emission in specific biomes/regions.

A major challenge for the beef sector in Brazil is the EU requirements on **traceability**, especially after the mayor meat scandals in 2017. Brazil has already developed an outstanding cattle identification system, called [SISBOV](#) which is a great opportunity to further develop a sophisticated traceability system.

5. Potential areas of collaboration for WUR in Brazilian livestock

Based on the first screening of challenges and opportunities in sustainable livestock in Brazil as mentioned above, the potential areas of collaboration for WUR in Brazilian livestock and which could be further explored are:

On farm-level

Supporting the further development of models to measure and balance nutrient and emissions at the farm of integrated crop- livestock-(agro)forestry system. Solidaridad is an example of how the development of studies focusing on combining small-scale producers of cacao, livestock/pasture and forest can support the understanding of risks and opportunities for family agriculture in the Amazon region and improve public and sectoral policies for low carbon agriculture. Finding and including other crops which capture carbon and are sustainable and economically viable for the farmers can be an outstanding opportunity for WUR/WLR.

At a national level

- On food safety and traceability of the beef/meat, there is an opportunity for Rikilt to do training and/or advising Brazilian labs and governmental institutions in the beef chain.
- Water footprint measuring and modelling of the beef chain. Potential interest of Embrapa Southeast Livestock (Dr Julio Pascale) to work with WLR on this topic. Project proposals could be submitted to in EU-FAPESP calls.
- Macro analysis and modelling of potential land use in the different Brazilian' biomes to reach Paris agreement - based on Rural Environmental Registry system. There is a national need to identify pastures which are not being used, explore carbon sequestering systems and to intensify livestock production. The ultimate goal is to avoid deforestation of new areas and this could be further developed by WLR and probably WEnR with partners such as Solidaridad, EMBRAPA, NGOs and the Brazilian government.

The Brazilian Roundtable on Sustainable Livestock (GTPS) is the key partner in operating in the Sustainable Livestock in Brazil. WUR/WLR is becoming a member of the GTPS in Brazil. Raquel Seroa da Motta is the contact WUR/WLR person from WUR to GTPS. Embrapa is also a strategic partner in agriculture and livestock research in Brazil. The organization and WUR had already signed a memorandum of understanding since 2000.

6. Take-home lessons

In conclusion, we've noticed that environmental requirements for beef producers in Brazil are established in federal government codes and implemented through several regulations as mentioned above. However, unless selling beef under specific certification (like the [Rainforest Alliance certification](#) and the [Carbon Neutral Brazilian Beef](#)), the different markets do not demand environmental requirements. Therefore, this is not an obstacle for Brazilian beef producers to export. In other words, at the moment there are only governmental regulations but no market incentives towards a more sustainable livestock production in Brazil.

In the [assessment of Brazil's 'Forest Code' 2012-2016](#), the Forest Code Observatory (OCF) concludes that *"Economic and market instruments are utterly needed ... especially.. in a historical context in which producers with environmental assets –that comply or exceed the legal dispositions' are usually punished in economic matters, while producers that disregard legal requirements are frequently praised with economic and legal rewards...."*.

For WUR's research institutes the opportunity on partnering with beef value-chain stakeholders to promote robust traceability and food security strategies are imminent. While for both, WUR and WLR, the opportunity to apply for joint calls within Dutch-Brazilian financing instruments and the private sector is the business model identified as being more suitable for stepping into Brazil's livestock scenario. The Dutch consulate team in Brazil, both the agriculture and innovation office, is developing an outstanding work on identified business opportunities in Brazil and is fundamental to continue sharing our wiliness to be more active in Brazil with them.

In a nutshell, the most realistic follow-ups from this exploratory trip are:

- 1) WUR/WLR's application to become a collaborative member of GTPS Brazil;
- 2) A draft joint project proposal with Julio Pascale (Embrapa Southeast Livestock) and possibly Zandbergen² farms in Brazil as a study case for water footprint studies of the livestock sector in Brazil;
- 3) Closer relations with Solidariedad Network team in the Netherlands and in Brazil to visioning together a joint project on smart land use planning, based on the CAR data, and integrative livestock-agriculture-forest systems.
- 4) A further mapping of companies which are investing or interested in the Brazilian livestock (and dairy) sector;

We are looking forward to further developing the possibilities presented here and working towards straightening WUR and WLR's contribution in Brazil. Any suggestion and questions related to this report please contact Ria Hulsman (ria.hulsman@wur.nl) for WUR or Raquel P.S. Motta (raquel.depaivaseroadamotta@wur.nl) for WLR.



Figure 5. Meeting at ABIEC headquarters in Sao Paulo. Ria Hulsman (left) and Raquel P.S. Motta (right).

² Zandbergen is a Dutch company which invest in agribusiness in Brazil. For further information, please visit: <http://www.zandbergen.com/en/environment-society/farms-in-brazil/farms-in-brazil.htm>

Appendix A: Notes of meetings with stakeholders in the livestock sector in Brazil, organised in chronological order.

1. Embrapa Southeast Livestock – Brasília, 20th March.

- Julio Cesar Pascale Palhares, Senior researcher in Environmental Impacts and Water Management in Livestock

Julio Palhares gave a presentation at the 8th World Water Forum (8th WWF) about the impact of livestock on water availability. In addition, he hosted a session during the forum with keynotes from GRI standards, Eau de Paris, EDF and IPEA focused on sustainability indicators for effective water management. Julio has been introduced to us by GTPS as a reference of researcher conducting projects with the private sector under the aim to obtain realistic figures of the water footprint of the Brazilian livestock sector. Julio had mentioned that the challenge in Brazil still at the begging of the process, due to the fact the large number of agriculture holders and farms not even have a hydrometer to measure its' water use. Julio is eager to find strategies to improve this scenario. Indeed, if you can't measure it, you can't manage it. An example of Julio's work is a joint project between Embrapa Southeast Livestock and Nestle to support dairy producers to measure its water consumption. Nestle supported the placement of hydrometers in a large number of dairy farms and if the producers provide to Embrapa consistent data regarding their water use, Nestle buys their milk for an extra value per litre to incentive the farmers to keep on monitoring and measuring their water use.

Since the 8thWWT, Julio and we have kept contact to persuade funding instruments where WLR, Embrapa and GTPS could jointly work in the field of water footprint. Raquel and Julio already had a couple of meetings and drafted a project proposal on "Water footprint as a sustainability indicator for water use in livestock systems – An integrative tool and approach for reducing the impact of the beef production chain".

2. Embassy of the Kingdom of the Netherlands, Brasilia - 22nd March

- Bert Rikken – Agriculture and Livestock Council of The Netherlands in Brazil
- Ramon Gerrits – Agriculture Officer

Bert and Ramon's main task is to facilitate the entrance of Dutch agribusiness entrepreneurs in Brazil. They have emphasised that understanding the Business model of Brazil is fundamental. Therefore, they suggested us to focus on a designing a viable set up to operate in the country. Partnering with the Private sector is indeed a good solution, and bilateral agreements between WUR/WLR and partners are the most suitable way of by-passing the Brazilian bureaucracy.

Bert and Ramon mentioned [Fundação ABC](#) located in Castrolanda, a Dutch colony in Brazil, as being a very strong key player in the dairy sector in Brazil. In fact, Bert was on his way to visit them on the following week. Fundação ABC is a private research institute which receives funding from the milk producers and dairy cooperative of Castrolanda. Fundação ABC visited Dairy Campus in 2016 (with Kees de Koning, Gert Duinkerken and Ria). Ria and the former agriculture counsellor (Patricia van Loon) did a counter visit to Castrolanda in that same year but funding was the limiting factor to concretize a more extensive visit of WLR experts to Castrolanda. Now according to Bert possibilities for collaboration would be possible on the following topics:

- Precision farming techniques for milk production
- Dairy cow's digestive study to increase milk quality
- Design of circular and more sustainable dairy systems

The Dutch embassy is willing to support workshops between Dutch and Brazilian enterprises, preferable to be held in October 2018 in Castrolanda. Bert and Ria are exchanging messages to coordinate the necessary actions to organise such meeting. Raquel and Gert van Duijnkerken will be the contact persons in WLR.

AgriBrasil was also briefly mentioned. The company is owned by an ambitious Dutch millionaire that intend to raise 1million heads of Dutch dairy cows in the state of Bahia in Brazil. Arjan Koomen (WEnR is coordinating WUR engagement with AgriBrasil and Bram Bos is involved from WLR side.

From a higher level perspective, he also mentioned other Dutch companies which are active in Brazil, such as De Heus (feed), Trouw (feed), Agrifirm (feed), For Farms (feed), Hendrix Genetics, CRV (breeding), Topigs (swine genetics), VanDrie (veal), Plukon (poultry) and Zandbergen (producer/beef export).

3. GTPS – Brazilian Roundtable on Sustainable Livestock - Sao Paulo, 26th March.

- [Beatriz Fonseca Domeniconi - Executive Coordinator](#)

Our talk with Beatriz was focused on identifying what the main challenges faced by GTPS's contributors when trying to plan and implement sustainable livestock practices are. Beatriz first emphasised that the scale of the livestock sector in Brazil was much bigger than most of the world, being behind only of US. Brazilian production still much focus on the internal supply of cattle beef. Thus, from the 1.7 million livestock holdings in the country, only 300.000 (18%) have access to financing/technology and are able to improve their production (Agroconsult/IBGE, 2016). While, the majority, 1.4million, are producers with low access to the implementation of technology. Hence, little access to financing and improvements opportunities.

In addition, she framed the role of the industry in compromising their purchases from sustainable, slavery-free and non-deforested sources of livestock production. However, implementing sustainability measures within smallholders is compromised by the economic constraints. Such holders are more focused on maintaining their production and survival, than sustainability.

GTPS recently launched a map and manual of good practices in sustainable livestock. As well as a guide of indicators and self-evaluation tool for sustainable livestock stakeholders, called [GIPS](#). For 2018, Beatriz mentioned that GTPS had recently settled some strategic priorities:

- 1- Mapping all the legally binding commitments from the livestock value-chain.
- 2- The utilisation of already opened areas (some not even used) via the intensification of livestock systems; Avoiding the need of deforestation for new pastures.
- 3- Analyse the bottlenecks if areas/pastures that are already consolidated and find strategies on how to technically and economically improve them.
- 4- Investigating economic instruments to ensure and reinforce the compliance of the Brazilian forest code. Which, depending on which biome the producer is located, up to 80% of forest, in the case of the Amazon Biome, must be maintained.

A list of follow-ups and opportunities were framed by the end of the meeting:

- a) Livestock intensification and GHG emissions reductions were mentioned as one of the points that the Brazilian sector could learn from the Dutch experience in intensification systems. As well with the investigation of the feed chain and pasture-forest-livestock systems. Also, WLR's studies on digestibility traits and reduction of methane's emissions from cattle could also benefit Brazil.
- b) Interesting data analysis and future climate change projects could be designed to investigate from a macro and micro-perspective the outcomes of the [Rural Environmental Registry \(CAR\)](#). Expected to be completed by May of this, the CAR legally binds all the rural landholders to the registry and declare its share of forest and land use per property.

- c) When it comes from imports and exports, Brazil had developed an outstanding cattle identification system, called [SISBOV](#). Nevertheless, traceability still needs further development and monitoring. As well as nutritional and health compliance which are still a priority for the processing sector. That could be an opportunity for the RIKILT institute. Strategies to better monitor cattle traceability and test meat quality could leverage the livestock sector in Brazil, which had suffered from different meat scandals such as the Carne Fraca, impacting exportations to high standards markets like the EU.

4. Consulate General of the Kingdom of the Netherlands - Sao Paulo, 27th March

- Ernst-Jan Bakker - Advisor for Innovation, Technology and Science
- Frederica Heering – Agriculture Officer
- Petra Smits - Executive Director of the Department of Innovation, Technology and Science

The meeting at the consulate was set with the aim to get a better understanding which topics of science, Technology and Innovation do Brazil and The Netherlands had been cooperating. As well identifying future trends of the sector in connection to the Livestock sector and funding instruments.

- Biobased technology has clearly been a priority area between the countries. A set up between Dutch Univ of Applied Research and Brazilian's universities created the [Living Lab Biobased Brazil](#) two years ago.
- Topics within circular economy also have been investigated;
- Livestock intensification, integrated silvopastoral system and climate change mitigation strategies are a considered research hot-topics – The Galanni' in the south of Brazil were mentioned as an interesting case;
- Paul Vrieskoop for CRV Lagoas was mentioned again as an interesting person to connect and dialogue for future outlooks of WUR and WLR in Brazil.
- Fundação ABC and Castrolanda were again mentioned as interesting players of the Brazilian Dairy sector and possible future business cases for WUR and WLR.
- Meat antimicrobial issues impacting its quality and the bi-pass of traceability strategies was discussed as a fundamental gap to be overcome by science, innovation and technology in Brazil. ABAG (Brazilian Agribusiness Association) and ABIEC (Brazilian Beef Exporters Association) were organisations mentioned as strong players for identifying stakeholders of the meat and agribusiness sector.

In terms of funding instruments, an interesting upcoming call between FAPESP (São Paulo Research Foundation) and NWO (Netherlands Organisation for Scientific Research) focused on integrative projects focused in Biodiversity was mentioned as a strong possibility for us. Ernst-Jan promised to keep us informed regarding the call. In previous calls around 70% of the approved projects were with WUR involved.

5. Brazilian Beef Exporters Association (ABIEC) - Sao Paulo, 28th March.

- Gabriela Tonini, Project manager at ABIEC

Europe is an important market for Brazilian beef producers and exporters as it pays the best price/value for the beef. According to Gabriela, the factors that limit Brazilian capacity to export to EU is mainly food safety (related to deficiencies detected in Brazilian official control system) and traceability. The high EC requirements on food safety and traceability are a huge challenge. Last year's mayor Brazilian beef scandals were responded immediately by operation 'weak flesh' but affected the beef export tremendously. Furthermore and in general Brazil faces problems in logistics due to transport cattle over long distances before getting to slaughterhouses and the port of embarkation. Additionally, innovation and technology in the sector are getting only to a very small group of top beef producers with sufficient capital to invest in new and better production technologies. The majority of beef producers are small and spreading the new technologies to this large majority of producers is difficult. Gabriela mentioned that Brazil's competitors in meat are Australia, the US and India. Brazil is seen as a beef volume producer, not a gourmet so Brazil is

working on improving beef quality by crossbreeding the Indo-Brazilian Nelore breed with the Aberdeen Angus. We agreed to send Gabriela a link to Rikilt and a contact person at Rikilt (Piet Stouten) in case of specific questions on Food safety (in beef/meat) and traceability. See also basic info of ABIEC under 'Key stakeholders'.

6. Solidaridad Network, Sao Paulo, 28th March and Utrecht, 13th April.

- Mariana Pereira, Programme Officer
- Gert van der Bijl, International Programme Manager Livestock & Leather

Our talk with Solidaridad started in Sao Paulo with Mariana Pereira and followed up in the Netherlands with Gert van der Bijl, both whose work is focused on sustainable livestock' value chains. In Sao Paulo, Mariana vividly explained to us the work Solidaridad is developing in Pará to promote inclusive low-carbon family farming. She started by framing how did Solidaridad identify the need to operate in Brazil with the small producers and small-scale agriculture units. They recognized that most efforts to quantify greenhouse gas emissions from Brazilian agriculture have been focused on large-scale production systems. However, small-scale agriculture has a major impact too. She told us that small-scale agricultural units represent 24% of rural land and include 75% of the rural population. Therefore, bringing value and productivity for those units and carbon balance strategies is one of Solidaridad priorities in Brazil.

As an example of how they operate, Mariana explained to us a study conducted in Tuerê, one of the largest rural settlement in Latin America, facing major challenges such as illegal deforestation and inefficiency in land regulation. Solidaridad proposed the combination of livestock-cocoa-forest farming systems to tackle those challenges starting from demonstration plots. They spent a few days in the settlement and collected qualitative and quantitative data of those plots. Those were related to the rate of deforestation, changes in land use, changes in livestock management, soil conditions and the characteristics of the cocoa systems. Mariana told us, that understanding each system alone was not enough. For instance, cocoa can work as an excellent alternative for carbon sink but, at the same, be coupled with a totally degrading cattle ranching. In the end, understanding the different aspects of each system (cocoa, livestock and forest) and fine-tuning the strategies to reach sustainability (also financial) was their main goal. Currently, they are preparing to start new demonstration plots in the second half of 2018. A video of their project can be found at this [link](#).

Mariana also gave us another example of organisations and projects which have similar approaches in Brazil. For instance, the [Novo Campo Program](#) developed in the north of Mato Grosso that gave rise to the creation of the company [Pecsa](#).

Back in the Netherlands, we've met Gert van der Bijl at Solidaridad' office in Utrecht. In fact, he was the one that connected us to their team in Brazil, so meeting him was key to understand how they operate internationally and in between Brazil and the Netherlands. Gert is responsible for Livestock and Leather new programmes, international strategies and linking those to companies. In a nutshell, he told us that Solidaridad' Livestock strategy consists of 3 aspects:

- 1) Working with producers on improvements such as providing training, creating local initiatives in the beef and dairy chain and operating with an integrative approach.
- 2) Connecting the outcomes of those improvements (e.g. a new and more sustainable product) to a market. That ensures that the producers will have a financial outcome in the end and that the improvements are fit into consumers/market's needs.
- 3) Focusing on smallholders and on farmers that believe in the livestock sector as a profession.

Gert gave us some examples of their work in worldwide such as China, Bangladesh, Ethiopia and Tanzania. And also forwarded to us some articles regarding the meat exports and imports between Brazil and the Netherlands. Such as [this one](#), stating that in 2015 the Netherlands was the largest importer of beef in Europe, with 43% coming from Brazil. In summary, We discussed how to improve the efficiency of the Brazilian livestock sector, while reducing GHG emissions and increasing economic results. He mentioned that the production intensification happens with small steps by identifying which improvements are doable by farmers and which are economically viable while reaching climate agendas. Grassland management, diversification of production outlets (e.g. cocoa, leather, etc), value chain improvements aiming GHG reductions and food security and meat traceability were mentioned as potential focuses for further work.

Our aim is to meet Gert in mid-June to follow up our discussion and design the strategy and funding instruments for possibly operating together in Brazil.