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The logo for the International Institute of Social Studies, featuring the word "Erasmus" in a stylized, cursive script.

**Towards a more sustainable soybeans chain: the effectiveness and
the receptiveness of regulation in the case of Mato Grosso, Brazil**

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This document represents part of the author's study programme while at the Institute of Social Science. The views stated therein are those of the author and not necessarily those of the Institute.

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List of Acronyms

ABCD	The major traders, Archer Daniels Midland (ADM), Bunge, Cargill and Louis Dreyfus, collectively known as the ABCD traders
APP	Área de Proteção Permanente (Permanent Protection Area). Included in the Brazilian Forest Code from 1965, it is an area of native vegetation that must be protected from deforestation according to the presence of springs and hills.
APROSOJA	Associação dos Produtores de Soja do Mato Grosso (Mato Grosso Soy Producers Association)
CAR	Cadastro Ambiental Rural (Rural Environmental Registration). Electronic database mandatory for all rural properties, maintained by the environmental agency.
FAO	Food and Agriculture Organization
FTA	Free Trade Agreement
EU	European Union
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuária
ISS	Institute of Social Studies
IBAMA	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Brazilian Institute for the Environment and Renewable Natural Resources)
IBGE	Instituto Brasileiro de Geografia Estatística (Brazilian Institute of Geography and Statistics)
MATOPIBA	A portion of the Cerrado biome in the states of Maranhão, Tocantins, Piauí and Bahia
MERCOSUR	Mercado Común del Sur (Common Market of the South)
MST	Movimento dos Trabalhadores sem Terra (Landless Workers Movement)
RTRS	Round-table for Responsible Soy
SDG	Sustainable Development Goals
SEMA-MT	Secretaria de Meio Ambiente do Estado de Mato Grosso (Mato Grosso State Secretary for the Environment)
SICAR	Sistema de Cadastro Ambiental Rural (Rural Environmental Registration System). Same as the CAR, but at a national level.
UN	United Nations

Abstract

This study focuses on the evaluation of different types of regulation that promote sustainability in the global value chain of soybeans in Brazil, with a focus on their impacts on the production side. Using the mid-north region of Mato Grosso state as the spatial context, this study presents a critical historical perspective from the Food Regimes to show how the state-led development model that promoted soybeans expansion to that region was also responsible for a massive degradation in one of the most biodiverse savannahs in the world, the Cerrado biome. Today, deforestation is the key measurement of sustainability initiatives in the soybeans production in that region, for both private-voluntary programs, such as the Amazon Soy Moratorium and the Roundtable for Responsible Soy (RTRS), and environmental legislation, regulated by the Forest Code. That raises questions of effectiveness, legitimacy and receptiveness from the producers, all questions that are addressed in this study through interviews and literature review from multi stakeholder and voluntary governance initiatives.

Relevance to Development Studies

This topic is relevant to Development Studies first by problematizing a "development at all costs" model, driven by forces of the global food market and promoted by national states that made Brazil the biggest producer of soy in the world, and Mato Grosso the domestic symbol of such achievement. It shows how, after the destruction of the Cerrado biome, the same forces, now influenced by the "green capitalism" are promoting sustainability initiatives in the soybeans chain, yet with some important limitations. It also brings light to global South and global North dynamics in the subject, since China and Europe are the biggest consumer markets of Brazilian soybeans. Finally, the study innovates by showing the view from the production side on what they take into consideration in order to join voluntary initiatives, comply with the law and adopt more sustainable practices in their routine.

Keywords

Sustainability; Global value chains; Soybeans production; Environmental governance; Corporate-Environmental Food Regime;

Acknowledgements

It might not be a child, but it certainly takes a village to write a RP.

The village is Ipiranga do Norte, the small city where I was raised and learned prosperity means hard work and development almost never happens without losses to the environment around us.

The village is the people that I talked to during this process and were so honest sharing their views with me, reminding me that Mato Grosso is a special place where the willingness to work for better things wakes up at six in the morning.

The village is also ISS, the diverse community that I am proud to be part of in which learning is an ever lasting process, from the classrooms to the hallways, to the Butterfly bar and to my supervisor's office, Oane Visser.

To my small village, Sara, Vera e Arli, for taking care of my cat Gigi and being my strength since the first ISS acceptance email.

Chapter 1.

Introduction

Regarding the title of this research paper, one might question whether sustainability of the soybeans chain, in the context of Brazil, is a reasonable topic for research. The two terms sound almost controversial when put side-by-side. The conversation around soy, when it happens, usually evolves from its emissions, the link to deforestation, dispossession of peasants, chemical dependency, to mention a few. As stated by Hetherington (2020), soy represents "a blanket monocrop crawling with giant machines and soaked in pesticides" (Hetherington, 2020, p.5). And yet, it is precisely this level of impact that makes sustainability initiatives in the soybeans chain so important and a recent focus of efforts coming from governments, private sector and organizations concerned about the environment.

This study aims to analyze different types of environmental governance that have some influence on the production of soybeans, merging the literature with the views and study cases from the field - the mid-north region of Mato Grosso, known as the "Brazilian bread basket". By adopting a historical perspective, it contributes to the understanding of what sustainable production means for the soybeans grown in that specific area, and how the main initiatives in place aim to tackle it. Moreover, these challenges and opportunities are imposed by the eminent environmental crisis, in which climate change has the potential "to swamp all" development projects (McMichael, 2012, pp. 253).

A significant part of the theorization of this research comes from the Food Regimes, as a comparative historical method which, according to McMichael (2009), is more than a way to structure the history of food production throughout capitalism, its different phases and transitions, or "food per se". It is also about capitalism itself, and the relations implied on food production, through which capitalism is produced and reproduced. The soybeans chain, highlighted in the Second Food Regime and central to the theorists of the Corporate-Environmental Food Regime, is the portrait of how capitalism, and later the neo-liberalization and privatization, restructured the rural world, creating a new source of income, changing social dynamics and appropriating natural resources - with corporations such as the ABCD group of traders, retailers and processors, in the position to set food prices and, to a certain extent, promote sustainability throughout the chain, evidenced by the rise of voluntary private environmental programs in the recent years.

Many of these aspects are true for other commodities that travel the world, but soybeans hold some particularities. First, most people do not notice when or where they are consuming soybeans. Regardless of being the most traded agricultural commodity in the world and the main source of protein in the global food supply, it is rarely what people have in their minds when they think about food. With the exception of those involved in research, growing, storing, classifying, shipping and benefiting, the yellow, round, small bean is almost never seen *in natura*. Yet, as a flex crop (Borras et al. 2014), it is embedded in several food products that are part of the daily diet for many cultures around the world, from eggs to chocolate, and hygiene products as soap and even candles. Most significantly, it is the basis of livestock feed for a global population that eats more meat every year, a symbol of status and wealth, but also a habit promoted by the development of international trade (Sans and Combris, 2015). According to the Food and Agriculture Organization of the United Nations (FAO), global meat consumption is expected to increase 14% by 2030, economic and population growth being the main stimulators (OECD-FAO, 2021)

Ironically, soybean is also very present in alternative diets, in substitution to meat and dairy, promoted by activists as a more conscious food choice for environmental reasons, although data shows it is a small share of the market that goes straight to human consumption, around 6% (Roser and Ritchie, 2021). In another contradiction, the rising demand for renewable energy sources and biofuels is putting pressure on the soybeans chain, reinforcing its potential as

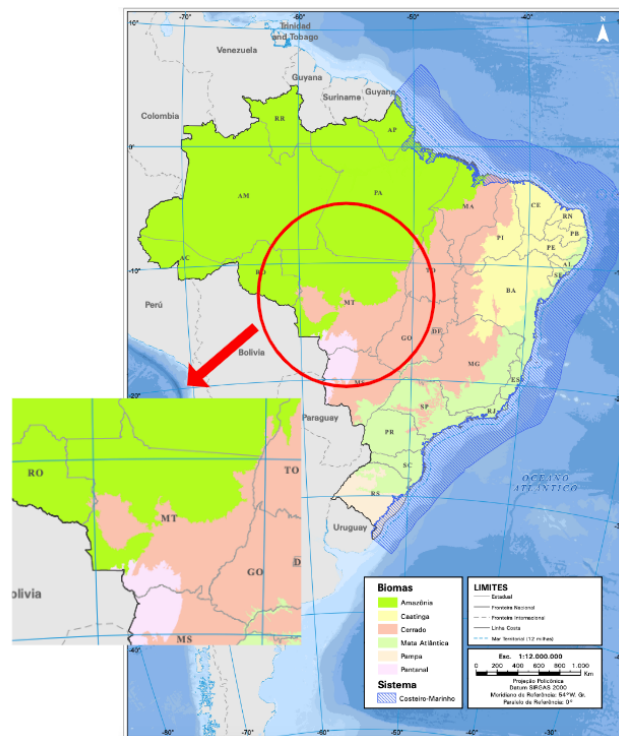
a flex crop and creating a new market for the commodity, with impacts on the production, thus the environment, and price volatility (Murphy and Clapp, 2012).

As the Food Regimes concept would argue, it is impossible to understand why Brazil is producing more than one hundred twenty million tons of soy (FAO, 2020), eventually at the cost of environmental degradation, without putting it into the perspective of a global food system. The country is currently the main supplier of soy for China and the European Union, and still retains 40% of the volume for domestic use, mainly to its livestock population, which is another important commodity for export (Imaflora, 2016). In the last years, and especially during the presidency of the far-right leader Jair Bolsonaro (2019-2022), the agribusiness sector has been accused nationally for not producing food, but a commodity, and consequently causing food insecurity, while at the same time, at the international level, being seen as the sponsor of the destruction of the Amazon forest. This makes soy the paramount case of a "food from nowhere" (Bové and Dufour 2001) or a "hyperobject", being everywhere and nowhere at once, impossible to completely locate or control but also impossible to ignore (Kregg, 2020, p.9).

Arguments pointing to soy as the cause behind Brazil's food insecurity and its environmental degradation are not simple to respond, but both are well justified under the logic of neoliberalism, defined by Bernstein (2010) as "a political and ideological programme to 'roll back the state' in the interests of the market and its major capitalist actors" (Bernstein, 2010, pp. 127). This explains why the majority of the Brazilian productive land is not being used to produce popular items of the national diet (rice, beans, potatoes, etc.), but to grow *commodities*, although, as mentioned previously, soy is embedded in many food products, specially from animal origin. With a vast territory, tropical weather, plenty of water availability and the technology to manage the soil, Brazil would have the capacity of supplying the domestic and international market, but it is exposed to the volatility of food prices as any other country in the world, producer or importer.

In the case of environmental degradation in Brazil and its connections with the soybean production, it can be traced back to the change of the federal District, from Rio de Janeiro to Brasília - a city that was built in the heart of the Cerrado Biome in the 1950s - and the following colonization project of the Military Regime (1964 - 1985). Based on the idea of "*integrar para não entregar*", a slogan that means something as "to integrate to not hand over" in the words of the dictator Castelo Branco (1964-1967) himself, the regime promoted the colonization of the Amazon as part of its nationalization project. The construction of highways, such as the *Transamazônica*, connected the region to other parts of the country and a series of incentives was offered to those interested in producing in those states. At the same time, technological advances, essential to make it possible for soybean and other crops to expand into the biome, were widely influenced by the interests of large commodity traders (Imaflora, 2016) and enabled by Embrapa, the national research agency for agriculture.

Map 1 - Brazil and Mato Grosso (MT) with the states and its biomes



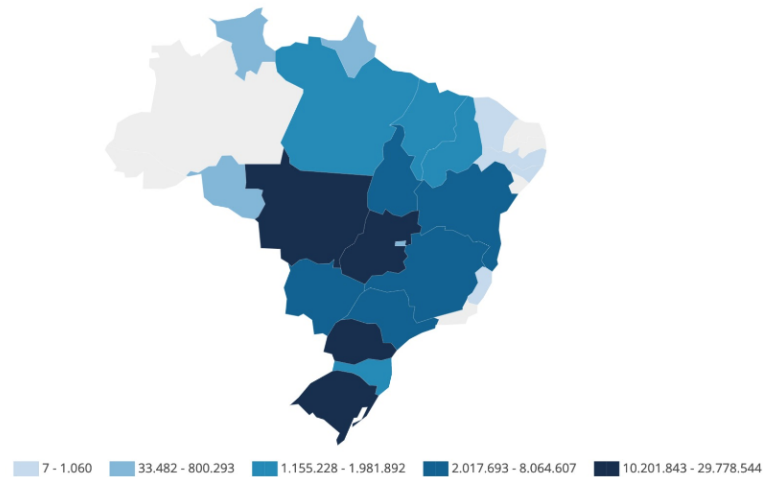
Source: IBGE, 2019, edited by the author.¹

Nevertheless, it was in the 1990s, once the expansion of the soybeans to the Cerrado region was settled that the activity became a threat to the Amazon forest. In 2006, Greenpeace released a report showing that the rainforest was being destroyed at the second highest rate ever recorded, motivated by a rising demand for land to grow soy and cattle (Greenpeace, 2006). As a response to the public pressure, especially from European consumers, soy industry and civil society organizations signed the *Amazon Soy Moratorium*, an agreement to not buy or sell soy coming from areas that were deforested after 2006. In 2016, Greenpeace assessed that "because of the moratorium, the threat of soy is no longer seen as a major driver of deforestation in the Brazilian Amazon" (Greenpeace, 2016, p.1).

With the attention and mitigation turned to the Amazon, as the biggest tropical forest and usually referred to as the "lungs of the world", the soy frontier moved east and north, to new areas of the Cerrado known as *Matopiba*. According to Imaflora (2016), soybean growing in Mato Grosso expanded mainly in areas occupied by pastures and other crops, but in the case of Matopiba, the new areas were converted from native vegetation. The result is a great risk to the environment and climate consequences, besides the exacerbation of the huge inequality in the population, in a "development at all costs" kind of project (Imaflora, 2016, p. 48).

¹ Mato Grosso (MT) is the only Brazilian state covered by three different biomes: Pantanal, Cerrado and the Amazon.

Map 2 - Soybean production in Brazil, in tons



Source: Censoagro, IBGE (2017)

More recently, the growing concern in the light of climate change and the *moralisation of the economy* (Nadine, 2022) or *green capitalism* (Friedmann, 2005), led to the emergence of numerous sustainability projects and certification schemes, with the aim to add more transparency and social value to the commodity. The International Trade Center maintains an updated database for sustainability standards and accounts for more than 56 programmes related to the soy sector in Brazil. They come either from the State, at a regulatory framework, or voluntary-based, from the traders and international organizations, as is the case of the Amazon Soy Moratorium.

Previous studies however, have already warned about the governance challenges in promoting sustainability. Clapp and Isakson (2018), referring to voluntary initiatives, argued that they suffer from shortcoming in practice, mainly due to its broad scope, overlapping themes between different initiatives and weak prospects for widespread change. Such challenges tend to be even more evident in the soybeans chain, formed by multiple independent producers, which in turn have contracts with different traders or cooperatives (named "indirect" suppliers), responsible for the processing in the local facilities and further distribution. That makes traceability and any grain differentiation (for example, between GMO and non-GMO) an onerous task. Another hazard comes from the nature of the soybeans itself, a commodity whose value rests on the volume on which it is produced, thus wholesale. Looking for volume to supply the rising demand, a trader such as Bunge is likely to buy from any farmer with availability of the grain, asking for a minimum list of requirements. In the same way, a food processor, such as Unilever, or a whole market, such as the European Union, can't tell if the amount they are receiving comes from a certificate farm or not.

Nevertheless, traceability is frequently promoted by certification schemes, seen as market-oriented (Clapp, 2016) as they are a response to the sustainability demand coming from consumers, but also shareholders engaged with Corporate Social Responsibility, guaranteeing that financial interests are covered in the short term. To add onto that, there is a lack of public awareness, who play a big role in demanding (and paying for) the shift in the chain. Although sustainability initiatives are flooding the supermarket, in bio products, fair trade certificates and organic labels, that is not the case for soybeans which are still invisible to the consumers' eyes. That was crucial for the sustainability movements in cacao, coffee or wine. In that sense, palm oil would be the closest example to soybeans, as a commodity that is embedded in many foodstuffs, though rarely as a final product. Since the public became more aware of its impacts, more

transparency has been added in the chain in recent years.

At the institutional level, the European Union, which represents 12% of the Brazilian soy exports (OEC, 2020), announced the intention to gradually ban the import of six commodities, soy included, originating from any deforested areas (thus legal or not) after December 2020 (European Commission, 2021). The initiative is in line with the Sustainable Development Goals (SDG's), a blueprint towards "peace and prosperity for people and the planet, now and into the future" (United Nations, 2015) presented by the UN as part of its 2030 Agenda for Sustainable Development. A shift in agricultural practices is implicit in many of its interconnected goals, and more explicitly in SDG 2 (Zero Hunger) and SDG 12 (Responsible Consumption and Production). The commitment signed by all 193 United Nations Member States became a framework for governments and the private sector, influencing investments and policy making and reinforcing the role of sustainability and climate action as the leading frame of the global development agenda until 2030 (Tulder, 2018).

Likewise, in 2019, the agreement in principle for the creation of a Free Trade Agreement between the leaders of the Mercosur and EU soon became an environmental debate, with soybeans and deforestation representing the main argument of the countries standing against it as is the case of France, Belgium and Ireland. To corroborate with the narrative defended by these European countries, the environmental destruction was at its peak (Prodes, 2021) a result of Jair Bolsonaro's dismantle on environmental agencies that monitor the area. The treaty will only enter into force after the ratification by all countries involved, including the European Parliament and the Parlasur, but made little progress since then.

Although historically Europe had an important role in pressuring Brazil for environmental accountability and still today propose more ambitious projects in this regard, the region is facing a decline in its influence, once China represents 73% of the Brazilian soybeans exports, and willing to invest in the sector (Oliveira and Schneider, 2016). The anti-Europe movement also finds echo in Bolsonaro's nationalist speech. The president's words and actions, however, don't seem to always resonate with the understanding of other actors of the soybean chain, who publicly defend the conservation of the environment, although moved by different interests. Besides the traders, who run their own certification schemes and publish sustainability reports annually, Aprosoja, the soybeans producers association of the state of Mato Grosso, see sustainability as a matter of improving productivity, with the use of technology and techniques from precision agriculture (Aprosoja, 2016).

In this context, the call for a reform in the soybeans chain is emerging as a topic for research, but its impacts are just starting to be felt in the ground. Although as stated in the beginning of this chapter, the topics are most of the time seen in opposition, it is quite clear at this point that the sustainability imperative, whether it comes from more conscious consumers in the Global North or from a classical business case perspective, will influence development projects, power relations and the future of the environment at the global and local levels.

Research objectives and questions

Objective:

To understand the effectiveness of different types of regulation on sustainability, and how they are perceived by soybean producers in the state of Mato Grosso, Brazil.

Research question:

To what extent regulatory and voluntary initiatives are promoting sustainability in the soybeans production in Mato Grosso?

Sub questions:

1. How different sustainability initiatives, private and state-led, encourage a more sustainable production of soybeans in the case of Mato Grosso?
2. How are sustainability initiatives in the soybeans chain perceived by independent farmers in the state of Mato Grosso?

Chapters overview

This research is structured in six chapters, including Introduction and Conclusion. In chapter 2, I present the analytical and methodological framework in which this document is based, as well as the definition of important concepts for the development of the research, such as sustainability, Corporate Social Responsibility (CSR) and Global Food Chains (GVC). For chapter 3, I highlight the historical background which constitutes the soybeans expansion to Mato Grosso and what sustainability means in this context, based on a Food Regime perspective, from the adaptation of soybeans to the Cerrado soil and climate, to the Corporate-Environmental Food Regime and the dominance of the ABCD group of traders, the influence of Europe and the attempts of a more responsible production. Moving on the chapter 4, I will analyze the initiatives already in practice in the Brazilian soybeans chain, such as the Amazon Soy Moratorium, the RTRS, and the Forest Code monitored through the CAR and how such different initiatives, voluntary and regulatory, encourage the spread of positive environmental and social attributes in the case of the soybeans produced in Mato Grosso. In the 5th chapter, addressing a gap in the available literature, I will take the issue to a grounded perspective, to understand how sustainability requirements are received by the farmers of the region, how (*or if*) it is reshaping the production and consequently the relation with other actors in the chain. Finally, in the 6th chapter, I make the conclusion remarks and set the recommendations for future research.

Chapter 2.

Analytical framework and research methodology

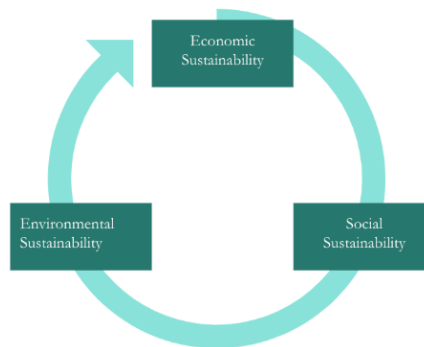
This document aims to reveal how the sustainability of agricultural production, promoted by a set of different actors in recent years, is translated into the context of the soybeans chain in the mid-north region of Mato Grosso, and how effective the regulation is in promoting it. To do so, the research is firstly based on a Political Economy of Food perspective to the extent that it recognizes that "the food systems consist of a constellation of actors, relationships, activities and institutions" (Winson, 2020, pp. 279). Such approach is entailed on the additional theories that are central to the understanding of the issue here stressed: the Corporate Social Responsibility (Frynas, 2005; Luhmann and Theuvsen, 2017) in the age of the Corporate-Environmental Food Regime (Friedmann, 2005) and the literature on voluntary and multistakeholder initiatives regarding the environment (Litfin, 1998; O'Neill, 2009; Clapp, 2017; Clapp and Thistlethwaite, 2012).

Before continuing, some important concepts should be disclosed right away, to avoid ambiguity but also to elucidate what is the character of this research. The first of them is the concept of *sustainability*. The term was turned into a "mantra" with the raising awareness of climate change, specially from the 1992 Earth Summit in Rio onwards, and it is currently used to embody many different frameworks. In its first appearances, more than two hundred years ago, "sustainability" was used to refer to forest management in Europe (Ponte, 2019). From the 1970s, the concept started to gain the meaning we attribute to it now, with social movements calling for a radical change, and governments taking their first actions to shape business conduct. In 1987, the definition evolved to be more inclusive, symbolized by the report of United Nations Brundtland Commission that described it as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Commission, 1987, p.16).

More recently, what has been witnessed, from the mid-1990s and also evident in the 2030 Agenda for Sustainable Development, is a shift of power from local authorities to business, presented as Corporate Social Responsibility. According to this thinking, sustainability is a matter of combining economic, social and environmental prosperity, also named as the triple-bottom *line* of Corporate Sustainability², theorized by Elkington (1997).

² The distinction between Corporate Social Responsibility (CSR) and Corporate Sustainability (CS) should be stated, as I used both terms above. CS is seen as a more efficient framework, straightly connected with the definition of sustainable development. However, the three-dimensional conceptualization of CSR (Carroll, 1979) that integrates economic, social and environmental pillars is very similar to the triple-bottom line definition proposed by CS, which includes economic, social, and environmental aspects. With no significant differences and blurry boundaries between both, Montiel (2008) goes as far as to suggest an integrative approach according to the objective of the research, which is how I chose to treat the topic in this document.

Figure 1 - The triple-bottom line of Corporate Sustainability



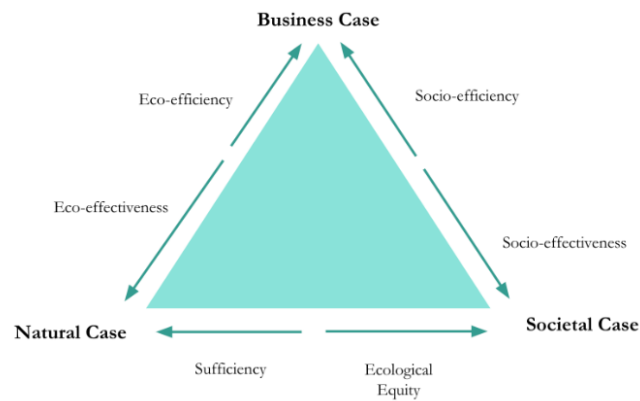
Source: (Elkington, 1997)

Consequently, new terms were incorporated to justify the participation of firms in the sustainability agenda - *eco-efficiency*, the most popular of them - aiming to develop a *business case*. Under this argument, deeply rooted in the neoliberal idea of efficiency, sustainability is seen as a way to improve the economic performance of the firms, by managing natural and social resources more strategically, for example by recycling, reducing energy waste, reallocating staff, etc. For Carroll and Shabana (2010), the business case is primarily concerned with what businesses get in return, mainly in financial terms, for pursuing CSR strategies and policies. To illustrate how the business case of Corporate Sustainability guides the actions of the firms involved in the soybeans GVC and the creation of "sustainable value", here is an extract of the *sustainability approach* taken from the website of the LDC Group, one the ABCD traders:

"Sustainable value is at the heart of our purpose as a company. We are passionate about creating fair and sustainable value, both for our business and for other value chain stakeholders: our people, our business partners, the communities we touch and the environment around us" (LDC, 2022, p.1).

However for Dyllick and Hockerts (2002), eco-efficiency is not enough for a company to become truly sustainable. Instead, they describe Corporate Sustainability as "meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities etc), without compromising its ability to meet the needs of future stakeholders as well" (Dyllick and Hockerts, 2002, p.131), in a reference to the Brundtland (1987) definition. The authors suggest a more complete model, adding the concepts of "natural case" and "social case" in the extremes, and six criterias managers should focus their efforts on: eco-efficiency, eco-effectiveness, socio-efficiency, socio-effectiveness, sufficiency and ecological equity.

Figure 2 - An extended framework for Corporate Sustainability



Source: (Dyllick and Hockerts, 2002)

The framework provided by Dyllick and Hockerts (2002) is useful in evaluating to what extent the initiatives promoted by different stakeholders involved in the soybeans GVC, such as the traders and the farmer's association, are effective in transforming the chain into a sustainable one, which is the first sub-question. By adding eco-effectiveness, socio-effectiveness, sufficiency and ecological equity to the business case, we take sustainability to a more holistic ground, moving away from the concept of efficiency to a more complete understanding of the actions of these companies and their impacts, measuring their *effectiveness*.

Given the number of variants of the same concept, it is crucial to put sustainability in the context of soybeans production in Mato Grosso, in practical and verifiable terms. As previously mentioned in the Introduction chapter, the main concern regarding the sustainability of the soybeans GVC is its environmental impact (e.g deforestation, intense use of chemicals, gas emissions) rather than economic and social. This is especially the case from the North region of Mato Grosso, including the cities of Sorriso, Sinop, Lucas do Rio Verde and Nova Mutum, crossed by the highway BR 163. I don't mean by that to ignore other impacts on the economic and social levels of the production, especially because many of them are intertwined with the former. There are many examples: the intense use of chemicals has an impact on the health of the communities and workers, besides the local biodiversity. In the same way, accumulation through deforestation takes ecosystems to the edge, and displaces smaller landowners. Thus for every aspect of the production discussed, I will consider the economic, social and environmental pillars usually endorsed by sustainability projects, however due to scope of this research paper, I will focus on the *environmental* aspect of them from now on, and the exceptions will be stated.

In the chapters to come I analyze the effectiveness of different sustainability initiatives according to two literature realms of political economy: Food Regimes Analysis and Multiple Stakeholder and Voluntary Governance. With the Food Regime Analysis, and more specifically the "Corporate-Environmental Food Regime", I elucidate how the soybeans production in Mato Grosso became a sustainability matter right after its consolidation in the territory, pushed by the "green capitalism" (Friedmann, 2005), Corporate Social Responsibility (Dyllick and Hockerts, 2002), but also by social movements, mainly located in the Global North. Previous to that, I believe it is important to situate the expansion of soybeans to the Brazilian Cerrado on the papers of the Second Food Regime (Friedmann and McMichael, 1989; Friedmann, 1993) in which Brazil emerged as the most important new agricultural country "by means of state guided policies of industrialization through import substitution" (Friedmann, 1993, pp. 44). The theory will also be useful to introduce the historical relation around food between Brazil and the EU and the evidence showing that the pressure for sustainability is coming mainly from the

European market, creating at least two different markets for the Brazilian soybeans, namely the European and the Chinese.

By explaining the strategic role played by agriculture and food in the capitalist economy, the Food Regimes theory inevitably deals with the concept of Global Value Chains (GVC). According to Ponte (2019), "GVC refers to the full range of activities that firms, farmers and workers carry out to bring a product or service from its conception to its end use, recycling or reuse" (Pontes, 2019, pp. 3). Not rarely, different steps like growing, processing and distributing take place across countries, making it a *Global Value Chain*, as is the case of the soybeans chain. Such characteristics need to be taken into account when addressing sustainability in soybeans, as it deals with different ecosystems, cultures and markets.

An important part of the soybeans GVC is performed by the traders, and especially the ones known as the "ABCD group". Responsible for operating a network of producers, processing facilities and distribution, they work as the *link* between the farmers and the global market, taking grain to wherever is needed, whatever the purpose. But to consider them to be a *link* or mere intermediaries is to undermine their influence on both the supply and demand side. Murphy and Clapp (2012), for example, see their operation as much more complex:

"They [the ABCD group of traders] have the capacity to produce, procure, process, and deliver the raw material inputs that are at the heart of the modern agri-food system, and they are uniquely placed to exploit opportunities across a wide range of activities tied both directly and indirectly to the production and trade in agricultural commodities. As a consequence, they continue to exert a great deal of influence over global food systems and over the lives and consumption patterns of farmers and consumers throughout the world." (Clapp and Murphy, 2012, pp. 8).

Likewise, in his theorization of the Corporate Food Regime, McMichael highlights the role of the market as the organizing principle of the agrifood system today, replacing the empire or the state from previous regimes and introducing "an era governed increasingly by financialization and neoliberal advocacy of market rule" McMichael (2013). Although maintaining skepticism about the consolidation of a "third food regime", Friedmann (2005), shares the view of transnational companies (TNCS) managing agri-food supply chains using private and international regulations for food quality and mentions the appropriation of consumer environmentalism to further increase accumulation. What Friedmann (2005) calls "Corporate-Environment Food Regime" is based on quality audited supply chains that follow international food standards, enabling food retailers and agrofood corporations to profit from demands raised by social movements, such as environment conservation, food safety and fair trade.

Similarly, Ponte (2009), defines the current trend of agribusiness embracing sustainability issues as a process of 'green capital accumulation' in which suppliers (thus soybeans producers) remain as the main responsibilities for substantially implementing sustainable practices. For the firms, the role is restricted to formulating codes of conduct, reporting, monitoring areas and, in some cases, managing their own certifications. Subsequently, I deal with the rise of private, multistakeholder and regulatory initiatives on sustainability, considered an important correlated movement of the Corporate-Environment Regime. I focus mainly on the mitigation of environmental impacts proposed by such frameworks, and the different devices they use to encourage a more sustainable production of soybeans in this region of Mato Grosso. I do that, however, considering what Clapp and Thistlethwaite (2012) already concluded, that "any suggestion that state-based regulation should be scaled back for firms engaging in voluntary measures should be viewed skeptically" Clapp and Thistlethwaite (2012, pp. 62).

Furthermore on the methodology aspect of this research, an inquiry of the most relevant initiatives was made, with the contributions of online interviews with representatives from public, non-governmental institutions and private initiatives. They are the Coordinator of

Agricultural Chains from Imaflora, a Brazilian NGO focused on the sustainable use of natural resources, a representative of the RTRS in Brazil, the assistant secretary of environmental management at the SEMA and a project manager from Aprosoja MT. Finally, to get a grounded perspective, semi-structured interviews with four independent soy producers were handled, also via video call. All interviews occurred during July and October of 2022, which was also a tumultuous period in Brazil, with the presidential elections exposing two different discourses around the environment, national sovereignty and the economy, topics that are central to this research. An overview of the interviews is available in the Appendix of this document.

Additionally, other documents available on the internet, such as sustainability reports or provided by the sources, from photos of the early days in Mato Grosso to contracts with the ABCD traders, are included in the analysis and correctly referred to, as they help to untail the conditions and consequences of the sustainability initiatives analyzed here. A great part of this access, especially when it comes to the production side, was possible even from overseas thanks to my background, as someone who grew up in the region, in the city of Ipiranga do Norte - also a motivation to tell this story. A story that is as much about the past as it is about the future and where global and local intertwine.

Chapter 3.

Mato Grosso: a story of commodified development

3.1 Second Food Regime and the expansion of soybeans to the Cerrado

For many years in my life, I took the BR 163 with my family towards the South of Brazil for the holidays. We would begin our journey in the first hours of the day in Ipiranga do Norte (MT), and arrive at our destination, Tapera (RS) in the last hours of the other day. The distance of 2.386 km was divided in two intense days of traveling, with a few stops to fuel the car and sleep in Campo Grande (MS), capital of Mato Grosso do Sul, halfway. Flying was not a viable option until at least 2008, but even after that, we would still go with the car a couple of times. Last time, in 2020, it was the Covid-19 pandemic that made traveling with the car a safest option. After years without making that trip, something was more clear to me than before: everything looks pretty much the same. We were passing by five Brazilian states, at least three different biomes. In Europe it would be the same distance to leave The Hague (NL) and arrive in Moscow (RU). And yet, the landscape hardly changed. Between one city and another, the fields have been taken by a "green sea", as many producers say to refer to the monoculture that is responsible for this revitalization of the countryside: *soja*.

The reasoning behind such a domination is well structured in the theory of the Second Food Regimes, that refers to this period of time as an internalization of the U.S. model of national agro-industrialization by development states "adopting Green Revolution technologies, and instituting land reform to dampen peasant unrest and extend market relations into the countryside" (McMichael, 2014, pp. 5). The road I used to take to see my relatives in the South is not any road, but a federal highway built with the very intention to expand agriculture activity to the Brazilian Cerrado, more precisely, with soybeans. The BR 163 starts in the South and heads the Center-West and North of Brazil. It connects important production sites to the main ports in the coast, where the soybeans depart in bulk carriers for China and the European Union. It also distributes the fertilizers coming from Russia, Canada or China through the coast to where it is needed. With a shortage of railroads, the soybeans production, including its inputs, its labor force, its machinery, its subproducts, travels by the BR 163. Not coincidentally, the construction of the highway started in 1971, as part of the *Programa de Integração Nacional* (National Integration Program) promoted by the Brazilian Military Regime. Men from the military forces and civilians would work in challenging conditions, opening the road through the Amazon forest and the Cerrado. It was during that period, in the 1970s, defined as "the major turning point of soybean production" (Oliveira, 2021, pp. 7), that Japan began to collaborate with South American governments, mainly Brazil and Argentina, to expand soybean production and assure its supply in the face of a moratoria imposed by the US, the world's bigger producer of the protein by then.

While Japan was offering cheap credit and infrastructure, Embrapa, the state-owned agricultural research company created by the militaries, was in charge of adapting the culture to the tropical climate and acidic soils of the Cerrado. The soybeans production in Brazil had already reached 1 million tons before that, but concentrated in the South. According to Oliveira (2021), the production took place in small-scale farms (<100ha) owned by migrants from Japan and Europe, in rotation with wheat and/or maize. With *soja Doko*, the new seed variety developed by Embrapa named after Toshi Doko, the president of the Federation of Business Entities of Japan, and the introduction of chemical fertilizers to repair the soil, the Cerrado savanna staged a new era of industrialization.

The "march to the west"³ enabled by the soybeans and promoted by the State, happened

³ The term was first used by president Getúlio Vargas (1930-1945) in his project to incorporate the supposedly empty lands in the West in its development plan.

in a moment of crisis of social reproduction faced by *colonos*⁴ families in the South, as explained by Oliveira (2021) and shared by the people I heard for this research. At that time, it was common for a couple to have four, five, six children that would help with the work in the fields and at home, many of them studying up until elementary school. With the arrival of new specialized machinery coming from the North and additional technology introduced by the 'green revolution', the wheat-soy production required less manual work and more capital. As a consequence, less productive and smaller farmers were replaced by more capitalized and specialized ones, generating displacement and land concentration. The Cerrado came to represent an opportunity for expanding the production and also a new beginning for those who sold their properties in the South for a much higher price than it was being sold in Mato Grosso.

The National Institute for Colonization Agrarian Reform (INCRA) was created in 1970, to plan and execute colonization projects and to settle landless or land-insecure families from various parts of Brazil in the new frontier (Barrozo, 2008 in Rausch, 2013). Although with some occasional successful cases, the colonization model promoted by the national agency was not the most effective. Instead, private colonization enterprises were responsible for settling 3.9 million hectares of land in Mato Grosso, between 1970 and 1990, in opposition to 55ha of state-led colonization in the same period (Rausch, 2013). In 1984, opponents of the military regime's strategy to prioritize the colonization of a new agricultural frontier using industrial ways of production and eliminating medium and smallholders founded the landless workers movement, the MST. Later, displaced families that joined the movement would also be allocated in the region, through the agrarian reform program by INCRA.

As a rule, whoever arrived in the Cerrado should "open the land", the term used until today to refer to deforestation. "We had some experience of opening areas in the South, but nothing on that scale", said one producer remembering those early days in Ipiranga do Norte, in 1998. He remembers hearing a popular saying back then: 'plante que o governo garante' (plant and the government will ensure), indicating that deforestation was seen as the first step to facilitate the possession of the land. To open an area of Cerrado proportions could take up to six months, starting at the end of the rainy season.⁵ First, two tractors dragging a big chain (*correntão*) would pass by all over the area to tear down the twisted trees and the native grass, typical of the Cerrado. With the vegetation still humid from the rains, it was not difficult to put the first chunks down. After three months waiting for the remnants to dry in the land, it was time for the fire. The same area could burn for days, watched by the men. Sometimes a tractor would pass again and gather the remains, and a new fire could be held to burn thicker woods. Finally, workers, mainly informal ones called "root pickers", would manually collect what was left.

During the months of July and August, the sky turned gray and the sun was a red ball, colored by the smoke emerging from the ground. The air that was already dry would become unbearable. But once the rain started, it was time for sowing. First rice, more resistant to the newly opened and weak soil, and then soy. "At that time, the soil only served to hold the plant standing", says the same producer, referring to the difficulty of the first years cultivating a new area. Until today, the beginning of the rainy season brings a sense of a new year.

⁴ Popular term used to refer to agricultural families in the South of Brazil, descendants of 19th century European migrants who formed colonies in the region.

⁵ In Mato Grosso and the Center-West of Brazil, the seasons are divided into "dry" (Winter) and "rainy" (Summer). The rain, registered in bigger volumes from September to May, is directly related to the humidity provided by the Amazon forest (Araujo, 2021).

Image 1 - Men watching the fires cleaning the native coverage of the Cerrado to prepare the land for soy. Year: 1998.



Source: picture taken by one of the interviewee

The saying shared by the producer earlier sums up the spirit of those years: to plant, no matter what. The incentives were coming from the government, the banks, the traders, the agribusiness and the international market. Little or nothing was said about the impacts of burning the biome and the environmental legislation in force was seen as a less important matter. The Forest Code approved by the military in 1962, thus the first years of the expansion of soybeans to the Cerrado, introduced terms as APP ("permanent protection area", according to the presence of hills or springs) and Legal Reserve, fixed in 50% for the Amazon and 20% for all the other regions. Mato Grosso joined the Amazônia Legal delimitation in 1977, which in theory should mean that for every new area, half of it should be left with native vegetation. In 1988, the new Constitution stated that "everyone has the right to an ecologically balanced environment" (Planalto, 1988, p.1), and, as a basic human right, it should be taken into account in every public policy, legislation on any topic, economic activity or construction work. In 1996, pressured by the record on deforestation and in the context of the ECO 92, president Fernando Henrique Cardoso approved a provisional measure, that increased the area of legal reserve in the Amazon forest to 80% but reduced the reserve in the Cerrado areas within the Legal Amazon, which is the case of Mato Grosso to 35%.

Meanwhile in the fields, the newcomers would need an environmental license, signed by an environmental engineer and validated by the Ibama, to retain 20% from burning, as told by another pioneer in Ipiranga do Norte. She remembers that a helicopter with Ibama agents landed unexpectedly on their property once when they were burning some remaining woods. "At the beginning we were surprised with their arrival, we lived in such a remote area. But they just wanted to know if we had the license, and we did. It was not as rigid as it is now". After 1999, the state, thus no longer the federal agency, became responsible for environmental licenses and police. The history of corruption and inefficiency of FEMA (now SEMA-MT) however, made it difficult for the agency to carry out licensing and enforcement (Rausch, 2013).

Since 1988, when the monitoring by satellite from Prodes/Inpe began, Mato Grosso was the second state that most deforested the Amazon. According to Bonato (1987), the soybean production in Mato Grosso went from 7 thousand tons in 1977 to 1 million tons after only seven

years, in 1984. In the publication by Embrapa from that period called "The soy in Brazil - history and statistics", the expansion of soybeans in the state is celebrated as "astonishing" (Bonato, 1987, pp. 27) thanks to the adaptation of cultivars and cultivation system that respects the local conditions. There is no mention as to what such "evolution" represented for the native vegetation that was there.

The optimistic view is not exclusive to the publications of that time. Today, the stories of fire and scarcity are told with a proud sentiment, of pioneer people who look at the cities Sinop (1974), Sorriso (1986), Lucas do Rio Verde (1986), Nova Mutum (1981) and Ipiranga do Norte (2000) and see development, opportunity, growth. After the first years of settling, the cities would look like the Image 4 of Ipiranga do Norte. In the extremes, warehouses or *silos* from the ABCD group of traders and local cooperatives. Around, the green soy plantations merge the limits of urban and rural. A remaining APP is seen on the top of the image, where a little river flows. With an economy based on the revenues from industrial agriculture, the city of 8 thousand habitants has a basic infrastructure, with banks, agribusiness and a few local businesses. The closest hospital is in Sorriso, 70km, as well as the closest cinema and the nearest fast food restaurant. Yet, its GDP per capita is close to R\$96.000,00 (IBGE, 2021) or U\$18.000,00 - that is three times the national average, according to the World Bank (2021). Ipiranga do Norte is connected to BR 163 through the MT 242, a fifty minutes drive. From there, its soybeans reach the port in the North (Miritituba - PA) or in the South (Santos - SP or Paranaguá - PR).

Image 2 - The city of Ipiranga do Norte seen from above, with the warehouses identified by the author.



Source: Municipality of Ipiranga do Norte (2018)

Drawing a parallel with the Second Food Regime, Brazil is mentioned by Friedmann (1993) as the most important of the new agricultural countries, submitting crops and livestock into corporate, often transnational, agrofood complexes and resulting in the industrialization of agriculture itself. The case of the Military Regime in Brazil, which has on the BR 163 in the expansion to the West as one of the symbols of its economic boom is a case of a "Development State" described by McMichael (2009, pp. 141). The environmental impacts of this universalized development project that dramatically reshaped central Brazil soon started to be advocated by consumers and social movements in the Global North. In 30 years time, from the arrival of the first *colonos* in the North of Mato Grosso, deforestation went from being a requirement for

formalizing land titles to an environmental crime, as we will see in the next session on Corporate-Environmental food regime.

3.2 Corporate-Environmental Food Regime and the sustainability imperative in Mato Grosso

To avoid BR 163, you must go to the airport of Cuiabá, the Mato Grosso capital. Last time I was there, in 2021, a special sign caught my attention. Not just because it was really big and standing in a privileged site, just above the check-in counter, but also because of its content. It said: "Mato Grosso is the place on the planet that produces most food and preserves the environment. 62% of preserved nature". The billboard had the signature of the state's government. It was impossible not to ask why, in such a strategic place like the airport, the local government wanted to assert such a message. People fly to Mato Grosso for two reasons basically: tourism, in its natural parks in the Pantanal, in the Amazon forest or in the Chapada dos Guimarães. Or business. Most of the time, *agribusiness*. The sign is therefore a nod to both profiles of travelers.

Image 3 - Billboard in the Airport of Cuiabá claims food production and environmental preservation.



Source: author file

As seen previously, the concept of sustainability became a mantra in recent years, informing the actions of politicians, corporations and consumers - and the food system occupies the center of the debate, mainly due to its impact on the CO2 emissions and biodiversity loss. For Friedmann (2005), capitalism would be at an "ecological phase", one that represents

"a shift in rules of economic activity so that profits are renewed through less depletion of resources (which can mean lower material costs), less pollution (which can create demand for new technologies), and selling products that are culturally defined as environmentally superior" (Friedmann, 2005, pp. 230).

This ecological shift or "green capitalism", according to the author, emerged as a response to demands raised by social movements and didn't take long to be felt in the new

soybean frontier. The first years of the new millennium in Mato Grosso were years of consolidation for the soybean and for the families to enjoy some comfort after the challenges of the 1990s. The period is also remembered by the introduction of transgenic technologies by chemical companies from the US and Europe, who came to dominate the seed and associated agrochemical markets in Brazil, displacing public and domestic enterprises (Oliveira, 2021). In the international arena, however, the concerns about food safety and environmental effects of industrial farming had already inspired a market for organic foods. Europe represented the main importer of Brazilian soybeans until that moment, according to data by the OEC from 2005, led by Netherlands (20,7%), Germany (10,7%) and Spain (8,47%), first with some restrictions to transgenic imports, but as it happened in the South, governments of the North eventually embraced a non-intervention posture (Friedmann, 2005). That opened the way for corporations to create their own "carefully regulated" (Friedmann, 2005, pp. 253) supply chains, according to consumer demand. In the case of the Brazilian soybeans, these main corporations include: the traders, ADM, Bunge, Cargill, Louis Dreyfus; the manufacturers Unilever, Danone, Procter&Gamble, Mondelez, BRF, Nestlé; the retailers Walmart, Carrefour, Aldi, Lidl; and big chain restaurants: McDonald's, KFC, Starbucks.

Hence the Corporate-Environmental food regime is "a convergence of environmental politics and retail-ed reorganization of food supply chain" (Friedmann, 2005, pp. 251). For the soybeans production in Mato Grosso, a *responsible* or *sustainable* chain would require adaptation to the pillars presented earlier, including social, economic and environmental targets. The project of development at all costs was no longer acceptable. For others, like the mayor of Lucas do Rio Verde (2005 - 2012) it was also time to diversify the city economy, which was solely dependent on grain production. Who told me the story of the arrival of Sadia⁶ (today, BRF) in Lucas do Rio Verde is the former secretary of the Environment that currently works at SEMA-MT, in Cuiabá. The installation of one the most known food manufacturers in Brazil represented the industrialization of the region, establishing a direct connection between the soybeans and maize production with meat processing. Among the conditions to install in Lucas do Rio Verde, that included infrastructure work and intensification of social programs, every potential supplier should be up to date with the national environmental legislation.

By that time, the reputation of Mato Grosso as a land of opportunities and prosperity started to be questioned by members of the civil society, nationally and internationally, who were concerned with the environmental and social impacts of industrial agriculture. The state governor, the rural entrepreneur Blairo Maggi received from Greenpeace the title of "*Motoserra de Ouro*" (Golden Chainsaw Award), as the person who most contributed to Amazon forest destruction on that year. Aware of the importance of environmental issues for the international market after a visit to Europe, the Lucas do Rio Verde mayor, also a producer himself, told the secretary of the Environment: "we are going to make a big project in Lucas do Rio Verde: comply with the Brazilian forest code". The 'big project' named 'Lucas do Rio Verde Legal' was a partnership between the Municipality, the American NGO The Nature Conservancy (TNC), the union of rural producers and Fundação Rio Verde, and fund by Fiagril (company owned by the mayor), Syngenta and the Instituto Sadia de Sustentabilidade. Also at that time, the environmental licensing of small (<400 ha) and medium (400–1,500 ha) properties was directed to the scope of the local office. Being in close contact with the producers was crucial for development of the project, according to the secretary.

As a starting point, the task force created a database for 100% of the rural properties within the municipality, named CAR (Rural Environmental Registration). It consisted basically in mapping the areas of Legal Reserve (which according to the law should be at least 35%) and APPs (Permanent Protected Area, according to the presence or not of springs and hills) in every

⁶ Sadia is one of the biggest brands of refrigerated foods, mainly meat-based, founded in the South of Brazil in 1944. In 2009 it joined its biggest competitor, Perdigão, to create the BRF (Brasil Foods S.A), exporting to more than 100 countries (BRF, 2022).

property. Assistance and training regarding labor conditions and the correct management of agrochemicals were included along the way. After completing a report for each of the independent producers, the priority was to recover areas closer to springs with native vegetation, as well as the shortages of Legal Reserve, so the properties would finally be in agreement with the Forest Code. It was concluded that most of the springs inside rural properties, a total of 4.800 ha, needed to be restored. Almost all of them (4.328 ha), were effectively replanted until 2015, making the program gain recognition and inspire other municipalities in the region to implement their own projects to increase law compliance.

Later, the project would be adopted at a state level, through SEMA-MT, before calling attention of the Ministry of the Environment and triggering the discussions of the New Forest Code, from 2012, when the SICAR (Rural Environmental Registration System) was considered its greatest innovation. The former secretary is responsible today for coordinating the program at the state level, in Cuiabá, but reaffirms the economic justification of the project: "the idea was to 'shield' Lucas' production for international markets. We didn't know back then that we were creating the [national] SICAR". Today, the city that started the project has 75% of the properties already registered and validated in the national SICAR, far above the national and state averages.

The example coming from Lucas do Rio Verde Legal will be held in detail later, as it was, as stated by the interviewee, the initial movement towards the rural environmental registration. I decided to present it sooner as a clear example of how the corporate-environmental regime was already in place in Mato Grosso in 2005, only a few years after the *correntões* dragged most of the native vegetation down. As evidenced by the project and reinforced by the testimonial, the companies embrace demands from social movements, but the response is nevertheless selective, since they continue to choose demands that best fit their purpose and profits (Friedmann, 2005). In the case of the soybeans production in Mato Grosso, it is a deforestation-free chain, rather than other social, economic and even environmental issues (such as the agrochemicals dependency) that is being target by the companies in the chain as the ultimate and common goal, although it is not at all the only concern raised by social movements or 'consumers demand'. Focusing on one key problem impacts the effectiveness and commitments made by the private sector but also at the public level, as illustrated by the Lucas do Rio Verde Legal case and the New Forest Code, criticized by environmentalists (Azevedo et al., 2017).

The case from Lucas do Rio Verde also illustrates the dynamic between international standards and local regulation, central to the Corporate-Environmental food regime. Friedmann (2005) argues that while international rules establish standards for the governments, specially in the South, it is the national regulation that allows for enforcement. She suggests that the South has been the "laboratory for elements of the corporate-environmental food regime" (Friedmann, 2005, pp. 256), after a period of state-centered development in the 1970s. The structural adjustment policies that came after that facilitated the insertion in global food markets through edible commodities, based on principles of international quality supply chains and operated by transnational agrofood corporations, in this case BRF, but also the ABCD group of traders. Responding to a market demand that could also be framed as a "business case" of corporate social responsibility, these corporations take advantage of their capacity to organize suppliers to enforce and audit producers using inter-governmental standards.

Back to Mato Grosso, the New Forest Code and the introduction of a single system for all rural properties, the SICAR, meant a more strict interpretation of deforestation rules, but at a time where most of the areas were already opened. With new seed technologies introduced by GMO, no-till techniques and modern machinery, the focus shifted to the *verticalization* of the productivity, thus enhancing the production of soy per hectare, rather than in the *horizontalization*, or the opening of new areas. Consequently, the cost of the production went from R\$28,00/60 kg in 2007 to R\$51,00/60kg (CONAB, 2022) an investment that is covered by the farmers, through credit, and compensated (or not) with fluctuating international prices offered by the traders. Analyzing the hidden costs of environmental upgrading in the coffee and wine GVCs, Ponte

(2022) pointed out for leading firms capturing value for themselves, "while extracting more demands from their suppliers and promoting a further consolidation of their supply base. In the meanwhile, serious environmental challenges remain unaddressed" (Ponte, 2022, pp. 818). It is no overstatement to say that the same applies for the soybeans GVC, although with some particularities, the main of them and already mentioned, being soy is a commodity which is valuable for its *quantity* not its *quality*, as is the case of coffee and wine.

Likewise, the discourse of sustainability in Mato Grosso, as endorsed by the sign at the airport, but also in the material from Aprosoja, the ABCD group sustainability reports and even shared by NGOs such as Imaflora, concentrates in its capacity of increasing production without the need of new deforestation, while complying with the Forest Code. The argument suggests that there is a way of a monoculture, chemical intense, used for animal feed like soybeans to be sustainable, as long as it uses the right technologies and protects 35% of the native vegetation. It is justified by the idea of guaranteeing food security for a global growing population and resonates with the economic agenda of institutions such as FAO and the World Bank. In that case, even if some labor or environmental standards improve, it comes with the cost of "deepening long standing processes that disposes and marginalize peasants and agrarian communities, and create more poor consumers and more people without stable incomes to consume at all" (Friedmann, 2005, pp. 257).

Ponte (2019), affirms "Green is the new black" (Ponte, 2019, pp. 13) for business that became more active in shaping sustainability discourses and practices, first by adopting in self-regulatory and market-based initiatives aimed at cleaning the environmental impact of their operations, and more recently by identifying ways to transform sustainability in a value that consumers care about and pay for. In reality, and similarly to what the Coordinator of Agricultural Chains from Imaflora expressed in our interview, corporations are still lobbying against stricter environmental regulation or funding candidacies that represent their interests. In a clear example of such practice, the ABCD group of traders did not commit to the same goals in the Cerrado as they did in the Amazon, according to the source from Imaflora, as it would represent a significant drop in their number of suppliers. He mentions the case of the *Instituto Pensar Agro*, financed by different associations that in turn are maintained by international agro corporations, including Bunge, Cargill and BRF, but also Nestlé, Monsanto and Bayer. The organization provides 'technical support' to the deputies that represent agribusiness in the Brazilian Congress, known as *bancada ruralista*.

Considering that a great part (60%) of the soybeans produced in Brazil is directed to export, change in environmental rules also depends on the pressure coming from the countries receiving Brazilian soy. Although Europe is seen as more ambitious in that regard, with the recent announced ban in food imports, including soy and beef, linked to deforestation and human rights violations, and the negotiations of a EU-Mercosur Trade Agreement paused while the environmental impacts are not yet clear, the continent had lost its bargain power in face to China, its hegemonic successor. For Friedmann (2005) and also for the different people I heard during this research, Chinese consumers will not demand or be offered food with the same sustainability criteria as Europeans. That is also clear for the RTRS representative in Brazil, who said that 85% to 90% of their volume of certified soybeans ends in Europe. Besides creating a division between privileged consumers with access to safe and sustainable food and those who can not afford it, the contrast between both of the main markets of Brazilian soy also compromise the effectiveness of sustainable initiatives.

As the tension between private and public regulation gets clear, we will move to the next chapter, where I analyze the effectiveness of voluntary and regulatory frameworks in environmental governance, and how the main available initiatives aim to make the soybeans chain in Mato Grosso more sustainable.

Chapter 4.

Regulation in the age of sustainability

4.1 Voluntary vs Regulatory initiatives

As shown in Chapter 3, Mato Grosso, and especially the "mid-north" region that I am focusing on for this research, had strong influence from two different food regimes, doesn't matter how remote the cities might look from above, in the heart of South-America. The age of the Corporate-Environmental Food Regime, characterized by Friedmann (2005) for the predominance of multinational corporations appropriating demands from social movements, including questions of environment and labor rights, introduced a myriad of regulation attempts, from both private and public sectors. Previous studies had already addressed the effectiveness and limitations of voluntary private programs, and I will demonstrate how they relate to the reality of the soybeans GVC in Mato Grosso.

According to Clapp (2017), the popularity of voluntary initiatives targeting sustainability is related to neoliberal and market-oriented policies emerged in the 1980s, and became a prominent governance approach after the Rio Earth Summit, in 1992. Examples were coming from the industry, sometimes with the support from international organizations such as the UN Global Compact, the OECD's Guidelines on Multinational Enterprises, and the International Organization for Standardization's environmental management guidelines, ISO 14000 (Clapp, 2017). On a voluntary basis, GVCs also incorporated certification schemes, including well known examples such as coffee, bananas and palm oil. From the beginning, though, voluntary responsible behavior was defended in financial terms, since sustainability could potentially affect the performance of firms in the long term. In addition, some considered that, by regulating themselves through voluntary initiatives and corporate social responsibility strategy, firms would avoid future and more restrict regulation coming from the state. For Clapp (2017), "firms are encouraged to sign onto these initiatives not just to 'do the right thing' ethically, but also because it matters for their own profitability and returns" (Clapp, 2017, pp. 226). This represents an important limitation in terms of their effectiveness and potential to restrain harming practices, such as deforestation.

In another article about private voluntary initiatives on the financial market, Clapp and Thistlethwaite (2012) define four main types of such programs:

- Principles and Codes;
Considered the most broad of the categories, it consists in adhering to a set of principles or codes of conduct. Without measurement or monitoring, firms sign these agreements to show their commitment to corporate social responsibility and corporate sustainability. Many of these commitments come from NGOs or UN bodies. An example of that would be the UN 17 Sustainable Development Goals.
- Reporting/Disclosure Schemes;
Another consolidated practice in corporate social responsibility, sustainability reports respond to good governance principles such as accountability and transparency, with particular emphasis in monitory mechanisms. Being transparent, however, doesn't mean doing everything right. A firm can be transparent about its process, without actually improving its environmental performance.
- Environmental Management Systems Standards;
Clapp and Thistlethwaite (2012) see Environmental management systems as more straightforward than codes of conduct, as they generally involve a certification scheme, monitored and audited by a third party. They are described as a product of multiple

stakeholders that adopt standardized practices and commit to improvement, such as the ISO 14000, the well-known international series of standards.

- Market-Based Measures;

The fourth type of private voluntary program includes certification of particular products based on specific environmental standards, that respond to, or sometimes *create*, consumer demand. These can be controlled by a particular industry or in partnership with NGOs as "independent input and oversight providers" (Clapp and Thistlethwaite, 2012, pp. 69). With a wide range of actors involved in standards-setting, monitoring and enforcement, some of these schemes are stronger than others. Roundtables, such as the Roundtable for Responsible Soy, are an example of this type of voluntary initiative.

As expressed by the authors (2012), the four types of voluntary private programs share similarities and it is not rare to find a firm working with more than one at the same time. Despite the optimism with which they were first received, experiences in the last decades show that most of these initiatives fall short in key aspects. Among the main weaknesses observed are insufficient implementation and enforcement measures, high rates of complexity, and the potential to reinforce inequalities between rich and poor countries (Clapp and Thistlethwaite, 2012). They conclude by saying that "scaling back state based regulatory mechanisms in favor of voluntary corporate initiatives will do little to contain GHG emissions and costly climate change impacts"(Clapp and Thistlethwaite, 2012, pp. 93).







Friedmann (2005), also sees the national states as central in regulating food and agriculture, arguing that "private capital alone cannot regulate conditions of production, such as land use and labor markets, or of consumption, such as food safety" (Friedmann, 2005, pp. 257). If, on the one hand, the rise of voluntary initiatives reveals how businesses and consumers became more aware of environmental and social issues embedded in the food system, in practice, they are still seen as an opportunity for profit and accumulation, with few prospects for structural change. For Friedmann (2005) "many health and environmental problems, and most social problems, cannot be reduced to consumer demand" (Friedmann, 2005, pp. 257).

In my interview with the coordinator of Imaflora, we talked about the rise of international certification programs targeting the soybeans chain in Brazil and the role of the traders, who run their own sustainability programs with their suppliers. In his understanding, the consolidation of these initiatives, especially in the four years of Bolsonaro's government, shows how "the state has been ineffective in ensuring compliance with the national environmental legislation". More than assuming a role that belongs to the state because they care about the environment, he says, it is also a posture directed to the international community, who watched the acceleration of fires in Brazil since 2019 with concern and boycott threats. In their sustainability reports, the four traders on the ABCD group mention their actions towards improving sustainability on their operation, and it is possible to tell what and where they are focusing on: a) deforestation, rather than other environmental or social impacts; b) in the Amazon, with less data about the Cerrado and other biomes.

In a report for Mighty Earth, Lake (2020), ranked the performance deforestation of six of the largest traders in the soybeans GVC, including the Chinese Cofco and the Brazilian Amaggi, besides the ABCD group. Using publicly available reports from the Soft Commodities Forum to assess four areas of sustainability including, 1) sustainability policy; 2) monitoring, reporting and disclosure; 3) sourcing areas, and; 4) observed impacts and violations. The analysis proves that apart from their Corporate Social Responsibility strategies, engagement in certification schemes and increasing monitoring over the producers, traders such as Bunge and ADM continue to buy soy in municipalities considered "risk priority" in the Cerrado region, without full traceability. Regarding policy and commitments assumed by the traders, four of them

fail to set a clear cut-off date for deforestation and conversion, seen as crucial to establish a benchmark upon which companies can be held accountable. The full score is at table 1.

Table 1 - Soy Traders' Performance on Deforestation

	Policy	Monitoring, Reporting, Disclosure	Sourcing	Impacts And Violations	Score
 LDC. <small>Louis Dreyfus Company</small>	Red	Yellow	Green	Green	7
 ADM [®]	Green	Yellow	Red	Green	6
 AMAGGI	Red	Yellow	Yellow	Green	5
 中糧 COFCO <small>自然之源 糧食世界</small>	Red	Yellow	Yellow	Yellow	3
 Cargill [™]	Red	Yellow	Yellow	Red	2
 BUNGE	Yellow	Red	Red	Red	1

Source: Lake (2020)

The dialogue between private and public regulation on sustainability is a narrow one, sometimes intertwined. Most of the sustainability initiatives maintained by the traders are in order to adjust producers to meet the environmental, social and labor requirements of Brazilian legislation. In fact, many voluntary initiatives, including the RTRS and the traders certificate promote the reduction of fines and a more efficient land management as "a natural consequence" and the greatest benefit of joining these programs (Nogueira, 2021, pp.71). That only reinforces the importance of a solid Forest Code and governmental agencies in conditions to map and regulate areas, monitor, apply fines, stop illegal fires.

Apart from what the national law demands, the commitment of the traders with local communities is very low. A woman, producer, remembers with resentment of the day a group formed by members of civil society mobilized to get the funds to pave the industrial block of Ipiranga do Norte, where all the warehouses from the traders are located. The project was supposed to be a partnership between the municipality and private sector, a very common practice in the region. "The representative from ADM was the only one to say 'the paving is indifferent for us, we have no interest in it'. See, this was not right, because the asphalt would pass in front of their facilities anyway. They just wouldn't pay for it". Without asphalt, the center of the city is covered by mud or dust from the intense movement of trucks in the warehouses.

But a basic need of the community was not part of ADM's interests or their CSR strategy.

The extent of voluntary initiatives in a global value chain as soybeans is also informed by international relations. A spokesperson from Cofco declared recently in a book focused on the soybeans production in the Matopiba region that "Europeans expect zero deforestation, regardless of whether the environmental regulator has authorized any deforestation or not" (Moretti, 2021, pp. 105), which means that complying with the Forest Code from their own country is not enough for producers or traders aiming the European market. In another example, talking about sustainability initiatives promoted by Cargill, a manager affirmed that "the European market raises the bar" (Nogueira, 2021, pp. 71). This power dynamic exacerbated by voluntary initiatives was already outlined by Friedman (2005), who wrote that the "combination of basic public regulation underpinning higher private standards differentiates citizens - all of whom benefit equally from public regulation - into consumers - only some of whom can afford expensive quality standards" Friedman (2005, pp. 255). It also creates a problem of legitimacy when private and voluntary initiatives are being more strict than the national environmental law. For Ponte (2019), the business of sustainability, thus the monetization of environmental values, is not sufficient as a global solution to tackle climate change, but it is doing enough for the corporation's legitimacy and governance authority.

In the next session, I will analyze the main initiatives that I identified in my conversations with producers from Mato Grosso and corroborated by the trader sustainability reports to see if it is the case, as Ponte suggests, that green capitalism operates at the cost of brown environments.

4.2 Main initiatives in Mato Grosso

If Mato Grosso were a country, it would be the fourth largest soybean producer in the world, after Brazil, United States and Argentina. The state was responsible alone for producing 41 million tons of soy in the last harvest, in 2021, around $\frac{1}{3}$ of all Brazilian production, according to Conab (2022). In the same year (2021), the state occupied the 3rd position among the states that deforested the most, a total loss of 189.880 ha of forest. It is almost impossible not to refer to the agricultural activity in the state without using determinisms such as "the biggest", "the most", "the number one", and that is also true for its historical deforestation rate. Since 1988, thus the beginning of the expansion of soybeans to the Center-west, as described in Chapter 3, Mato Grosso is the second state that has lost most of its native vegetation, only recently surpassed by its neighbor, the state of Pará (Prodes, 2022). During this period, Brazil also assumed the lead on exports of soybeans commodity, overcoming the United States to become the main supplier for China and the EU, with the ABCD group of traders operating the flow from the field to the global market.

Following what happened with other GVC in the corporate-environmental regime, the conversations are recently leaning towards the certification of responsible soy, which would add more transparency to the chain and financial return for producers that follow practices considered "sustainable". Hereby I analyze some of the most advanced initiatives of that kind in Mato Grosso, that were either mentioned by producers in my interviews or advertised by the traders as part of their CSR plan. They are listed on table 2.

Table 2 - Matrix of the main sustainability initiatives available

	Voluntary or regulatory	Maintained by	Share/Size	Main criteria	Enforcement	Origin	Source
Forest Code	Regulatory	State	7%	APP and Legal Reserve	Regulating and monitoring	Mato Grosso	Deputy secretary
Amazon Moratorium	Voluntary	Multistakeholder	Applied in all Amazônia Legal area	Not sell, purchase and finance soy from areas deforested in the Amazon biome after July 2008.	Monitoring by the traders	Europe	Imaflora coordinator
RTRS	Voluntary	Multistakeholder	3,9% ⁷	Legal compliances and good business practices;	Third party auditing and certifying	Switzerland	RTRS representative
Soja Plus	Voluntary	Farmer's association	23% ⁸	Be an Aprosoja associate	Own auditing and certifying	Mato Grosso	Aprosoja project manager

Source: author's elaboration

4.2.1 CAR and the Forest Code

"My dream is that the producers understand environmental regulation the same way they understand soybeans and maize" (Assistant secretary of environmental management at the SEMA-MT).

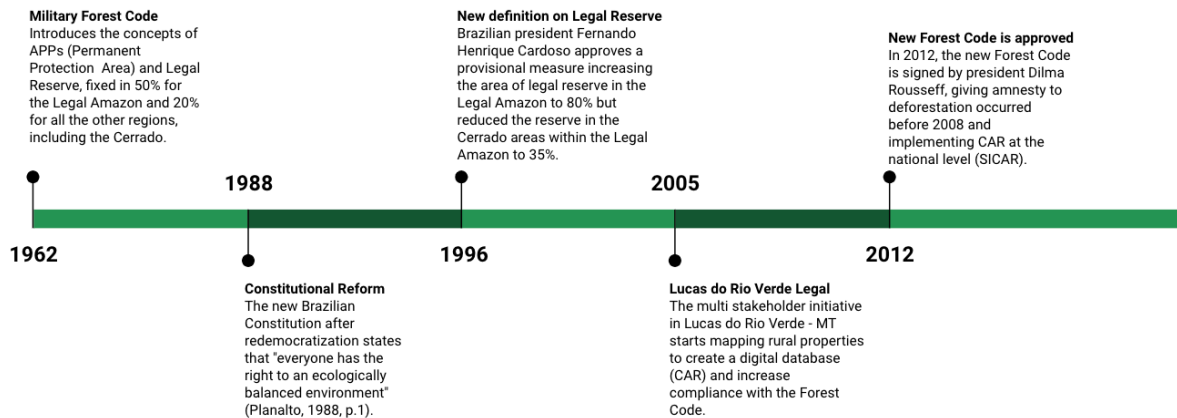
As seen before, the Rural Environmental Register (CAR) started in 2005, as a multi stakeholder initiative "Lucas do Rio Verde Legal", with the aim, as the name suggests, to regulate the properties under the Forest Code in force at that time. The relative success of the program in the local level called attention of the state secretary (SEMA-MT), who introduced the "Mato Grosso Legal", making the state a role model for environmental management in the region of the *Amazônia Legal*. The Forest Code in 2005, however, was still the same approved in the Military Regime, in 1962. Punctual provisional measures regarding the Legal Reserves and the APPs were announced by presidents José Sarney (1985-1990) and Fernando Henrique Cardoso (1994-2002),

⁷ According to the IBGE (2017), Mato Grosso produces soybeans in 8.862.732 ha. RTRS has an estimated area of 350.278 ha of certified area in the state.

⁸ Also according to the IBGE (2017), Mato Grosso has 7.097 properties dedicated to soy production. The Soja Legal program considered 1.656 properties participating in the program (Aprosoja, 2020).

but discussions towards a New Forest Code only gained force in 2009, pressured by rural representatives and environmentalists.

Figure 3 - Timeline of the Brazilian environmental legislation



Source: author's elaboration

The New Brazilian Forest Code was sanctioned by president Dilma Rousseff in May 2012, after intense debate and attention from the media and the international community. According to Santos Filho *et al.* (2015), the current code adopts two legal regimes, one of tolerance for conduct harmful to the environment carried out until July 22, 2008, and another rigid one, for acts practiced from that date. For environmentalists, the reform was considered an act of amnesty for environmental degradation. For others, like the producer and former secretary of Environment in Lucas do Rio Verde, who told me she was active in the discussions of the New Forest Code, it was a way to acknowledge that the native vegetation lost would not never go back to what it was, but they could still protect what was left, making a compensation. The concept of *consolidated areas* referring to areas opened before 2008, made the state of Mato Grosso, specially the Mid-North region, free from the obligation to repair what had already been done, and recognized a system created there: the CAR, now SICAR.

With the inscription in the system, each plot receives a code that provides information to be used in the monitoring, environmental and economic planning and deforestation control. It also determines the percentage of Legal Reserve, where economic exploitation is not allowed, which varies according to the biome that it belongs to: Legal Amazon 80%; Cerrado 35%; Others 20%. That is additional to the APPs, that also vary according to characteristics of the property, for instance, the presence of hills or springs.

Besides creating a database for all the rural properties in the country, the program includes a phase for validation⁹, regularization, by replanting or compensating APPS and Legal Reserve, and negotiation, in case of surplus, properties can trade their reserves with others in debt. Ten years after the New Forest Code, however, most of the rural properties in Brazil are stuck in phase 2. A study from the UFMG (CSR, 2022) revealed that only 0,4% properties out of 6,5 million registered in the national system had been validated, that is, moved to phase 3, regularization, when the recovery of areas actually takes place. In Mato Grosso, where the register started, the secretary affirms the rate is 7%. "We have 128 thousand properties or 77%

⁹ The property is not validated in the system only with the registration. Usually, the owners need to provide additional documents and technical reports so the secretary can map the area and its forest reserves with more precision.

registered in our database, and 45% have already been analyzed. Our biggest challenge is to validate it." For her, the lack of understanding and the poor work of 'technical responsables' such as environmental engineers, agronomists delay the process. To add on to that, the history of corruption in the agency also makes some of the producers not take its jurisdiction seriously. "But I will go to the confrontation line and address them all. The same I did in Lucas [do Rio Verde]". I ask her if other initiatives such as the certifications from the traders or the Aprosoja could be overlapping or getting in the way of the work of the state agency. "Not at all, because they are all based in the Forest Code. I need more people in the field talking about the CAR, that's what these initiatives do".

Most of the traders use the CAR as a form of monitoring the origin of their soy, and include its compliance as a requirement to be fulfilled by the producers on its contracts farming, although very broadly, as added in the Appendix.

4.2.2 Amazon Soy Moratorium

"The focus on the Amazon led to the expansion of the soy frontier to the Matopiba states. The traders didn't assume the same commitment when it comes to the Cerrado region" (Imaflora's Coordinator of Agricultural Chains).

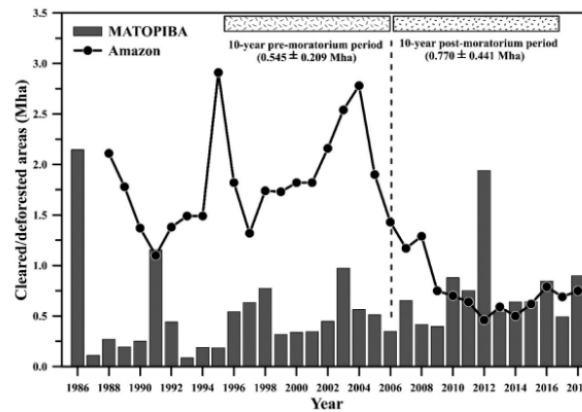
Considered "the main global Zero Deforestation benchmark" (WWF, 2016) by entities concerned about the environmental impact of soy production, the Amazon Soy Moratorium is the result of consumers and social movements' mobilization. In 2006, Greenpeace published a report titled "Eating up the Amazon", exposing the linkages between the increasing deforestation in the Amazon and the soybeans chain, claiming the transnational commodity traders and European food companies as co-responsible. By that time, Mato Grosso was already the leader in grain production in the country, and the frontier was moving up, towards the forest. The embarrassment caused by the release came in a moment of record of deforestation in Brazil, during the first years of the left-center president Luiz Inácio Lula da Silva (2002-2006-2010) and was an important step to consolidate its new environmental policy. As a result, the rate of deforestation in the Amazon was down 70% until 2010 (Dantas, 2022).

In the beginning, the commitment between ABIOVE - Brazilian Association of Vegetable Oil Industries - and ANEC - National Association of Grain Exporters, was not to purchase soy produced in the Brazilian Amazon in land deforested after July 2006, the date the Moratorium was signed. "It was time to develop and implement governance alternatives to ensure minimum sustainability criteria in the soybean chain", recalls Imaflora's coordinator of Agricultural Chains. Two years later, in 2008, the Brazilian Government became a signatory to the multistakeholder initiative and in 2012, following the discussions of the New Forest Code, the reference date changed from July 2006 to July 2008, thus using the same criteria of "consolidated areas" - and, again, having little impact on the soybeans production in Mato Grosso.

That also exposes one of the weaknesses of the initiative. Although the commitment is signed by the government, it remains voluntary for the traders and the industry, who operate the chain and the network of suppliers. The criteria, differently from other sustainability initiatives or the Forest Code itself, is reduced to a matter of geography and time: the Legal Amazon, after 2008. Although it helped to reduce deforestation in the Amazon tremendously during the period, the countermovement was the expansion of the soy frontier to the Matopiba region, replicating the same development model of Mato Grosso during the 1980s and 1990s - in the same biome,

the Cerrado. A comparison by Almeida de Souza et al. (2020), illustrates the impacts of the Moratorium in reducing the deforestation in the Amazon and increasing deforestation in the Matopiba.

Figure 4 - Temporal variations in savanna-cleared areas over the MATOPIBA region.



Source: (Almeida de Souza et al., 2020)

Another problem, vocalized by landowners in the region, is that the Moratorium contradicts the federal legislation, which would allow for 20% of economic activity in the biome, while alternatives that would reimburse them for keeping the forest as it is, such as carbon markets, are still not a reality. In 2019, when the fires in the Amazon dominated the headlines in the first year of Jair Bolsonaro's government, a coalition of investment institutions and global corporations inserted into the Brazilian soy sector published an open letter to the Brazilian Government, calling for the protection of the SoyM. In their words, besides the preservation of the forest, the SoyM "provides an efficient solution to ensuring legal FC [Florestal Code] compliance of soy from the Amazon; attracts investment into the Brazilian soy sector; and helps protects the water cycle on which all of Brazil's agricultural sector depends" (Fairr, 2019, p.1).

4.2.3 Round Table on Responsible Soy Association

"We can't guarantee that the soy is coming from certificated farms. The industry knows and is ok with that." (Representative of the RTRS Brazil)

In the same context in which the Soy Moratorium was created in 2006, representatives of the industry (Amaggi, Unilever, Coop) and NGOs (Solidaridad, WWF, Fetrauf-Sul) founded in Zurich, Switzerland, the Round Table on Responsible Soy Association, known as RTRS. It is probably the most advanced certification in the soybean chain, with the aim to enhance environmental, social and economic conditions of soy production through third party auditing. To achieve this, it introduced a global standard based on 106 criterias divided in five principles: 1) Legal compliances and good business practices; 2) Responsible Labor Conditions; 3) Responsible Community relations; 4) Environmental Responsibility; 5) Good agricultural practices (RTRS, 2022). New resolutions and decisions may come from annual Meetings Points and meetings of the Executive Board in Europe, and later adapted to the Brazilian context by a task force.

In its report from 2021, the RTRS estimated a global coverage of more than one million hectares, of which 939 thousand are in Brazil, its main location, followed by Argentina, India and

Paraguay. Still, it represents a small percentage (2.4%) when compared to the total area covered by soybeans in the country, which goes up to 3,9% when it comes to the state of Mato Grosso. Hence it is almost entirely focused on certifying soy to meet the demand of the European market, as admitted by one of the project's representative in Brazil.

The multi-stakeholder organization is open to everyone interested in becoming a member in one of the three categories: Producers, Industry, Trade & Finance and Civil Society (Meyer and Cederberg, 2013). In their study published in 2013, Meyer and Cederberg showed that SLC Agrícola and the Grupo Amaggi represented the greater part of the RTRS certification in hectares. The two groups are known to be the second and the third biggest farms in Brazil, occupying 726 thousands of hectares in the Cerrado region (Canal Rural, 2021). Asked if the certification was a viable option for medium or small soybeans producers as it is for the bigger ones, the representative said that, since the criterias require a certain level of investment and resource management in the property, it is more difficult for small and medium producers to join. Nevertheless, he mentions successful cases in which independent producers join as a group in partnership with a firm or through cooperatives.

In Sorriso, the association called "*Amigos da Terra*" ("Friends of the Earth"), a type of local entity maintained by agribusiness that promotes sustainable practices in the soybeans chain, certified 27 properties in the program, a total of 72 thousands ha. The initiative had the contribution from WWF Brasil and the French dairy company, Groupe Bel, who financed the auditing for the producer and later bought their equivalent of soybeans in credits in the RTRS platform (CAT, 2020). That is a normal way of doing business in the certification. Due to the particularities of the soybeans chain already mentioned, that includes a network of suppliers, different traders and cooperatives and finally the fact that it is embedded in many foodstuff without being a product itself, traceability of grain "from seed to plate" (Friedmann, 2005), is impracticable. As a result, credits¹⁰ represent the overwhelming majority of the volume of certified soy being traded, reaching 89% in 2018. For Staricco (2021), the practice disconnects the initiative from the reality on the ground and transforms sustainability - an "intangible" concept - into a commodity that can be exchanged (Staricco, 2021).

Furthermore, the certification includes all kinds of soybeans, meaning conventionally grown, GE grown and also organic, generating criticism towards its standards. In response, RTRS argues that to exclude genetically engineered soy would come at the cost of losing the opportunity to improve the soy chain and to shift from "business as usual" to a higher standard production (Meyer and Cederberg, 2013), since the GE seeds are massively used in the soy production - corresponding to 95% in the harvest cycle of 2021/2022 (Canal Rural, 2021). As for the use of chemicals as pesticides, all use should be documented and must not include agrochemicals listed in the Stockholm and Rotterdam Conventions as well as some of pesticides listed on the World Health Organization, some of them approved by Brazilian agricultural agencies, in another case of opposite approaches in voluntary and regulatory initiatives.

4.2.4. Soja Plus

"I'm sorry, I know these questions are very obvious. Do you have any children working in your farm?" (Aprosoja's project manager in an entry interview with a producer).

¹⁰ The certification makes a differentiation between physical material and credits. Once audited and certified, the producer is granted credits according to the volume of certified soy production. Organizations "willing to support responsible soy production" (RTRS, 2022) can do so by acquiring these credits, but it doesn't mean that the grains they will receive are the certified ones. To buy RTRS-certified physical material, the entire supply chain needs to be certified by the RTRS Chain of Custody, another standard that ensures the soy originates from certified sources.

With the surge of sustainability initiatives targeting the soybeans chain, the producer's association in Mato Grosso, Aprosoja-MT, the main representativity of that kind in the mid-north region, decided to create their own. The Soja Plus¹¹ is presented as a "management tool" available for all its members to join although it doesn't hold the status of certification yet, since the auditing is conducted by the Aprosoja staff. I followed an "entry interview" between a Project Manager from the association and producers (a husband and a wife) in Ipiranga do Norte, that would also include an inspection of the property and the handing of campaign material. After that first meeting, an individual report would show the current situation of the farm regarding the main criterias of the program: legal compliance, labor safety, infrastructure and land use. The interview went along for one hour and half, with most of the 198 questions to be responded with "yes" or "no".

The level of collaboration between the interviewer and the couple, owners of a 1,2 thousand hectares of land, was evident from the beginning of the conversation. The Aprosoja representative had some familiarity with the farm, and estimated that it would be suitable for the project. The informal setting also allowed me to participate without constraints. Throughout the meeting, many questions were introduced with a ton of excuse: "See, whoever knows the reality in the farms knows that this is a silly question, but we have to make it anyway", the manager would say. He explains that the initiative also started as a reaction to the "very strict" international standards of other certifications. "To be honest, we are tired of the Europeans telling us what to do, or the traders. [*With Soja Plus*] we have the capacity to organize our sector from a local perspective".

Even with a review of the standards to the context of the farms in Mato Grosso many questions made the interviewer uncomfortable to ask. The couple, in return, were proudly answering about all the improvements held in the farm since the state agencies for labor and environment started to monitor more actively the properties in the region. That was mainly regarding the infrastructure in the farm, such as accommodation for the temporary workers, *sajristas*, the kitchen and the diesel tank, that would have to follow to offer more safety and comfort for the workers (the property had five workers, all with formal contract). "First, we saw many of these [regulatory] rules as overrated, sometimes even disconnected to our reality on the farm. Now we see how it improved our routine and the worker's safety and even the environment around us", shares the woman.

The questionnaire includes basic questions concerning the reuse of chemicals' packaging (which is prohibited) to administration of agricultural aircraft, which is an input usually available for bigger producers, an indication that the Aprosoja members differ in size and that the initiative aims to include them all. With the CAR number, provided by the farmers, the report would show the information regarding the APPs and Legal Reserves of the farm, contributing to SEMA's goal of validating more areas in the system. After the meeting, the man inspects the main installations of the farm: the warehouse, the refectory, the chemicals' storeroom and takes pictures for the coming report. He then leaves some signs to be fixed in each of the areas in the property.

Soja Plus is another voluntary-based initiative to promote sustainability in the soybeans chain, but with a bottom-up approach, since the producers have a more active voice. In spite of the objective being to have all the members in the program, they are free to participate or not. Although it doesn't offer a certificate or a commercialization agreement, the programme aims to improve economic, social and environmental management in rural properties and offer free management appliances and training for the associates, but same as the concept of "consolidated areas", it works with the infrastructure the properties already have, instead of needing to

¹¹ The program was initially called "Soja Legal" in partnership with ABIOVE (Brazilian Association of Vegetable Oil Industries). Aprosoja decided to run it independently from 2010, though Some signs and materials keep the first name.

implement new ones.

Next, we shall see how the producers in Mato Grosso perceive these initiatives.

Chapter 5.

Sustainability in the field

5.1 How are sustainability initiatives perceived by producers in mid-north Mato Grosso?

"We are part of a system. The world expects us to produce food"
(Soybean producer from Ipiranga do Norte).

As one of the first soybeans frontier, the mid-north of Mato Grosso deals with sustainability in a specific way, as we have seen so far. Within the Forest Code, there is little space for expanding towards new areas through legal deforestation and the fires that continue to happen at a big scale in the state¹², were concentrated in the South and Northeast regions (ICV, 2022). As a "consolidated area", the impression from a local perspective is that there is not much left to do to enhance sustainability besides keeping the Legal Reserve and APPs (Permanent Protected Areas), usually 20% of the forest that is still there, until the recovering phase of the Forest Code is put into place. Today, producers in the region mobilize their own resources and machinery to *avoid fires* that are very common in the dry season, due to a combination of dry land, high temperatures and strong winds. With deforestation out of fashion, sustainability initiatives focus on improving some practices connected to the day-to-day routine in the farms, such as chemical packaging recycling, workers safety and water management. With efficient resource management, the promise is to produce more kilograms of soy in the same area and keep the role of providing food to the world, as the sector likes to remember.

This "depoliticised approach" (Taylor, 2018, pp. 89) in which technological innovations will solve environmental problems without threatening food security is shared by the World Bank (World Bank, 2007), the traders, the state of Mato Grosso and even NGOs, such as Imaflora. For the producers, it became an empowered discourse evoked in different circumstances, but mainly as an argument against public scrutiny. "What are the other parts of the world that produce food and preserve as we do, or create more jobs [*than we do*]? And yet, we are constantly under attack". I suggest that people "attack" the sector because soybeans are not perceived as *food* but as a *commodity* and ask if he wouldn't like to produce something else: "If we don't plant soybeans, someone else will. They could even take the land from us. We are part of a system". The idea of having the land taken if not used for planting soy has different dimensions, and even if it sounds exaggerated or conspiratory, finds echo in the land rush, in the power of market actors over independent producers and even in the old fear of having unproductive land taken to agrarian reform. A more complete answer from the producer would include that planting soy assures more financial returns than other crops. Not a reason to be ashamed of, but certainly a criteria that the virtuous discourse of providing food for the world prefers to leave aside.

Another aspect that influences how producers receive sustainability initiatives is their relation with the traders. We already saw that the ABCD group of traders operate the flow of soybeans from one place to another, but before that, at a local level, they are the ones to negotiate price, quantity and quality of the soybeans with a network of suppliers. I sensed mixed feelings of the producer towards the traders, in my conversations with them. First, there is acknowledgement for buying the grains they produce, the same determinism of "if not them, who would buy it?" that I got from the previous testimony on the reasons to plant soy. Once that is clear, they open the stage for more critique. When asked if having the traders monitoring their production makes them uncomfortable, another producer told me "it is no news that they know

¹² Mato Grosso was the 3rd state in deforestation in 2021 (RAD, 2021).

everything that happens in our fields, it is just that now is with the satellites". Traceability is a target which all the traders are committed with and the monitoring by third parties is expressed in the contract farming, as well as the clause regarding the Amazon Soy Moratorium. Producers get more independence when they build their own warehouse and dryer facilities and become an "indirect supplier", selling for a higher price and with a different form of contract. But the high cost of the installation and maintenance of that infrastructure is a barrier for most of the producers of the region.

The traders offer their own (voluntary) certification schemes for farmers, generally including monitoring, law compliance (registered in the CAR is enough) and other good practices in the organization of the farm. The premium, however, is a source of complaint for the producers. "The manager from one of these firms offered me something like R\$5.000,00 (U\$980) as a reward for joining the program. We had almost everything needed but I refused. The premium is nothing compared to the effort we make and the profits they make". The other producer, who joined the program, said she didn't have to implement anything new in his farm because of it. "The changes we made were because of the SEMA [environmental secretary] inspection, years earlier. They came here, saw everything was according to the rules and took advantage of that". She said they receive a premium, not on a regular basis, but doesn't give too much importance to it. "The main thing is not to get a fine and see our farm working well, in accordance with the environmental law".

With the Soja Plus program from Aprosoja, the process was similar. The producer received an audio message from the project manager, saying that his farm seemed to have everything in place to join the program and scheduled a visit. Besides responding to the detailed questionnaire, the producers heard that their property was a compliance model for the program. Once again, thanks to the changes made years early motivated by the state regulation. The report would show recommendations and points of attention, all in accordance with labor and environmental legislation. On the same day, the man left the signs to be fixed in different parts of the property, including one for the Legal Reserve and APP area, probably with the original 20% allowed in the 1990s, when it was opened, with sayings like: "hunting and fishing prohibited" and "danger: agricultural pesticides".

Image 4 - A "Soja Plus" sign in front of a Legal Reserve (probably 20% of the area) in Mato Grosso.



Source: photo taken by the interviewed

In my conversation with the SEMA-MT secretary and former environmental secretary from Lucas do Rio Verde, I asked her how the producers first received the Lucas do Rio Verde Legal project in 2007. "With a lot of resistance, of course. They would say 'don't count on me to obey an NGO', but I always said, 'this is no NGO business, it is our national law and we must follow'". In a city where everybody knows each other, especially among the producers, some of them would go and comply with the mayor, who gave the secretary his integral support, as an idealist of the project himself. The positive outcomes of the initiative, that would later inform the reform of the national Forest Code is in a great part thanks to its local scope and the trust the community had in the people ahead of it, conferring it legitimacy, which is a limitation in the voluntary initiatives like the certification from the traders and the Soja Plus.

The same way awareness is needed from the consumers, who can't recognize soybeans in their diets, a shift in the mentality is needed in the production side. For some, like the Aprosoja project manager and the RTRS representative witness, it is already in course, as the new generation assumes the management of the farms. For the Imaflora coordinator, their perception is not wrong, but might be romanticized. The political atmosphere of the elections in 2022, that put against each other the current president Jair Bolsonaro and the former Luiz Inácio "Lula" da Silva, representing different environmental agendas is an evidence that young or older, agribusiness holds against more strict legislation. In Ipiranga do Norte, Bolsonaro won with 74,28% of the votes¹³. A shared view by the producers is that taking care of the forest, the Cerrado or the Amazon, is in their interests as well, but they should be compensated for that, for example through carbon markets. The main initiatives seen in this paper, regulatory or voluntary, involve an investment from the part of the producer to adapt and little compensation for their environmental services. Sometimes the compensation is not getting a fine, sometimes it is a small

¹³ On October 30th, Brazil elected Lula for his 3rd mandate for the Presidency. Agribusiness was one the most vocal sectors in support of his opponent, Jair Bolsonaro.

premium from traders that already possess so much power over the producers with few commitments with the local communities, as shared in the interviews.

I share a quote from one of the producers that expresses their overall feeling towards sustainability, as a concept they got used to incorporating in their work, in their practices and discourse, being soybeans producers in Mato Grosso.

"I heard the president of our union say the other day, and I agree with him. We don't own any land, we just rent it until we die. It belongs to the future generations. It is not that we are against the environment. We are just tired of others making money out of it while we are the ones being criticized".

While "others" are allowed to profit from a sustainable soybeans chain, such as the traders and the food industry that will sell their products for a premium price to consumers in the Global North, the commitment producers assume to taking care of the environment, for themselves and for others, is not yet compensated as they envisioned. As mere actors who are "part of a system", a system that Friedmann (2005) would call the Corporate-Environmental Regime, turning their environmental service into an asset is what they consider to be the most fair.

Chapter 6.

Conclusion

Throughout this research, I dealt with different people involved in the soybeans chain through interviews, reports and previous studies that illuminated the complexity of addressing sustainability in a food commodity that is more frequent in economic briefs than in the supermarket. While they all seem to agree that something must be done to make the soybeans production less harmful for the environment and for the people that work with it, differences revolve around how to achieve that.

From the historical perspective and the system thinking provided by the theory of Food Regimes, it is possible to identify why deforestation is the main performance indicator of sustainability in the soybeans chain, especially in the context of the mid-north region of Mato Grosso. The development model promoted by the State and the *correntões* was quickly surpassed by the Corporate-Environmental Regime in the early 2000s and a myriad of certifications, programs, agreements aimed at more sustainable food chains. Among those, a multi stakeholder initiative coordinated by the environmental secretary of Lucas do Rio Verde established the ground as to how sustainability and soybeans production would converge, in three principles a) comply with the Forest Code; b) monitor all rural land by registering them in a digital system and using satellite images; c) recognize areas deforested before 2008 as "consolidated", thus without the need to reforestation. The same strategy was later applied at state and national levels, with the reform of the Forest Code in 2012, as well as in the main voluntary initiatives analyzed in this paper.

The tangled relation between regulatory and voluntary private initiatives is a symptom of neoliberalism and is also apparent in my object of study. Voluntary initiatives have the compliance of the Forest Code as a basic requirement, and that usually means that the property is registered in the SICAR. While the state environmental agency (SEMA-MT) fails to analyze and validate each rural property because of bureaucracy and corruption, voluntary private initiatives narrow their criterias to respond to public pressure, especially from consumer markets in Europe. As a result, voluntary private initiatives are sometimes more strict than the Forest Code itself, leading to contestation and raising questions of legitimacy, as is the case of the Amazon Soy Moratorium, based on a zero-deforestation policy. In another example, the RTRS also prohibits the use of chemicals that are still allowed by the Brazilian Ministry of Agriculture. On the other hand, initiatives coming from the traders and the Aprosoja association take the Forest Code as enough evidence that soybeans production in the Cerrado region is sustainable and thus keeping their commitments of zero new deforestation with their shareholders, in a classic business case of Corporate Social Responsibility.

At the end of the chain there are the producers in the mid-north of Mato Grosso. Some of them are still the ones that burned the Cerrado respecting 20% of the Legal Reserve in the 1990s, according to the environmental license they got at that time. With their life standards improved by the soybeans production, it is sometimes difficult for them to problematize the activity and even actors that hold so much control over them, such as the traders. The strengthening of the sector representativity, through landowners' unions and associations such as Aprosoja shaped their views around environmental impacts, which is justified with a discourse of the sector's claimed contribution to food security and solved with yield intensification. Additionally, they expect to be reimbursed or subsidized for providing an environmental service for society, a topic that is open for discussion, since it could mean another case of "amnesty for environmental destruction", similar to what happened in the reform of the Forest Code. The code in force considers benefits for regulated areas, including financial ones, which were not fully mentioned due to the scope of this research.

Considering the objective of this research, to understand the effectiveness of different types of regulation on sustainability, and how they impact on the production of soybeans, I have some final considerations. First, is to what I consider to be important elements in order for a sustainability initiative to thrive, from an environmental sustainability perspective. From a regulatory point of view, the Forest Code approved in 2012 after intense discussions involving the agricultural sector, environmentalists and civil society had an important contribution in updating the rules for APPs and Legal Reserves, as well as the creation of a national data system (SICAR), to monitor areas, inform environmental and economic planning and control deforestation. In the evaluation of the SEMA-MT assistant secretary, the reform of the environmental legislation motivated better practices and law enforcement in related areas, such as labor rights, safety at work and land regulation. On the not so bright side, the full implementation of the code, which would culminate in the recovery of native coverage and negotiation of assets, is still far from being implemented, with only 7% correctly mapped and validated in the system the case of Mato Grosso, and 0,4% at the national level, for reasons such as bureaucracy, corruption and the exposure of state agencies to government alternance.

Regarding the private-voluntary initiatives, this study's findings resonate with the weaknesses already pointed out by Clapp (2017) and Clapp and Thistlethwaite (2012) and further highlight the issue of legitimacy, as they still fail to engage a significant number of producers to promote a substantial change in chain. Specifically to the soybeans chain, is the fact that the commodity, as much as it has changed the countryside landscape in Brazil, is still invisible to consumer's eyes. Public awareness is crucial for adherence and effectiveness of voluntary initiatives, such as the examples of cocoa and coffee have shown. Not only is soybeans primarily used for fodder instead of direct human consumption, in addition 70% of the Brazilian soybeans export is purchased by China, which is still less vocal about implementing environmental restrictions.

Considering all these aspects, the example from the "Lucas do Rio Verde Legal" seems to have better neutralized the weaknesses in private and public initiatives. The multistakeholder program apparently worked (advancing more than other initiatives in recovering and taking the model to the state and national levels) because every actor involved assumed an expected role. The corporations (BRF, Friagril, Syngenta) financed it, the NGOs (TNC and Solidaridad) suggested the appropriate framework, based on traceability, and the state, represented by the local environmental secretary, assumed its execution, taking advantage of the trust local producers had regarding their representatives. If the project goes as far as to represent an integrated network for a democratic and sustainable future, as stated by Friedmann (2005), further research would be needed, but it is definitely an emblematic case.

Reflecting on the limitations of this paper, I mention the element of power relations that is inseparable from initiatives of this kind and could be better explored in future research. I would also recommend that the topic be investigated with additional fieldwork, so the receptiveness of sustainability initiatives is understood in its nuances. Most of the farmers I talked to, via phone, had the same profile (being independent medium size producers), with a similar form of contract with the traders and relationship with the institutions. I also note that the research took place amidst an agitated political situation in Brazil, the Presidential elections of 2022, in which sustainability and the environment were sensitive topics.

Finally, I would like to reiterate that sustainability in the chosen object of study is interpreted as eliminating new deforestation, mainly due to its proximity to the most important tropical forest in the world, the Amazon. Some initiatives succeed more in that goal, in other words, they are more effective than others. Nevertheless, and here I quote the Imaflora coordinator "these initiatives don't change the exploitative essence of the activity". Instead, they carry the potential to hide other problematic aspects of the soybeans cultivation, such as the continuous destruction of the Cerrado, the accumulation of land, the dependency on multinational corporations, the displacement of peasants and natives and the chemical intensity.

Adding to that, is the dilemma, manifested by many social movements in Brazil and around the world, that the agribusiness sector continues to dedicate their political, infrastructure and financial power to produce a commodity for export, rather than actual food, while the domestic population is exposed to vulnerability.

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Appendix

Appendix 1 - Overview of interviews

	How many	Representing	Date	Via
Producers	04	The producers	Jul - Oct 2022	Online
Imaflora's Coordinator of Agricultural Chains	01	NGOs perspective	September 2022	Online Semi-structured interview
Representative of the RTRS Brazil	01	Multi Stakeholder initiative	August 2022	Online Semi-structured interview
Project Manager from Aprosoja	01	Sector mobilization	August 2022	Following an entry interview for the Soja Plus project (via video call)
Former Secretary of the Environment in Lucas do Rio Verde	01	Multi Stakeholder initiative	October 2022	Online Semi-structured interview

Appendix 2 - mention to environmental obligations in a contract farming

9.5. Na produção do Produto e no cumprimento de todas as suas obrigações estabelecidas neste Contrato, o Vendedor obriga-se a cumprir as legislações ambiental e trabalhista em vigor nas áreas do Local de Produção, bem como obriga-se a não empregar e a exigir e a fazer com que seus fornecedores não empreguem mão-de-obra infantil ou em condição análoga à condição de escrava.

9.5 In the production of the Product and in the fulfillment of all its obligations established in this Contract, the Seller undertakes to comply with the environmental and labor legislation in force in the areas of the Production Site, as well as undertakes not to employ and to demand and to ensure that its suppliers do not employ child labor or in conditions analogous to slavery.

9.6. O Vendedor declara em caráter irrevogável e irretratável que o Produto vendido ao abrigo do presente Contrato não é e nem será produzido em Terras Indígenas, Unidades de Conservação de Proteção Integral ou integrantes do Bioma Amazônia que tenham sido desmatadas após julho de 2008, tampouco em áreas que tenham sido provisória ou definitivamente embargadas pelo Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis – IBAMA e/ou cujos proprietários ou

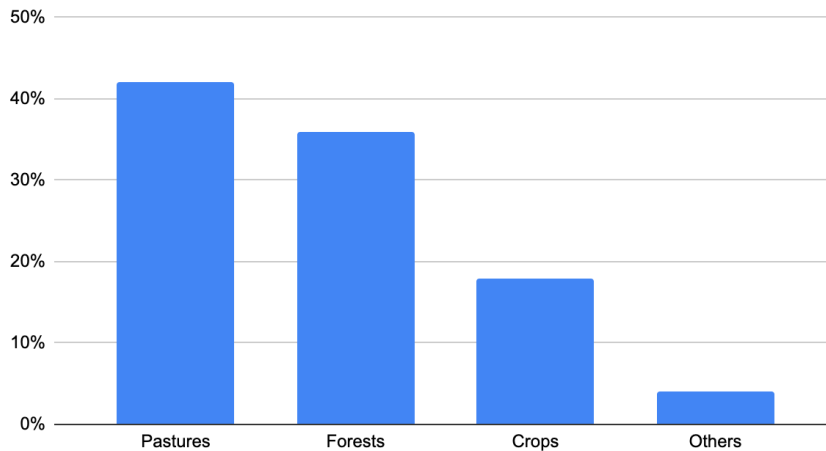
responsáveis estejam na lista do Ministério do Trabalho e Emprego como empregadores que tenham submetido trabalhadores a condições de trabalho análogo às de escravo.

9.6 The Seller irrevocably and irreversibly declares that the Product sold under this Agreement is not and will not be produced in Indigenous Lands, Integral Protection Conservation Units or members of the Amazon Biome that have been deforested after July 2008, nor in areas that have been temporarily or definitively embargoed by the Brazilian Institute for the Environment and Renewable Natural Resources – IBAMA and/or whose owners or responsible are on the list of the Ministry of Labor and Employment as employers who have subjected workers to working conditions analogous to slavery.

11.8. O tratamento dos dados pessoais se dará unicamente em observância à execução deste Contrato, incluindo tratamento de dados pessoais necessários à análise de crédito e monitoramento de áreas de lavoura com a finalidade de atendimento à legislação ambiental, bem como monitoramento de áreas de lavoura dadas em garantia ao cumprimento do Contrato, quando aplicável, por meio da contratação de empresa terceirizada.

11.8. The processing of personal data will be carried out solely in compliance with the execution of this Agreement, including processing of personal data necessary for credit analysis and monitoring of farming areas in order to comply with environmental legislation, as well as monitoring of farming areas given in guarantee compliance with the Agreement, when applicable, by contracting an outsourced company.

Appendix 3 - Land use in Mato Grosso, in hectares (IBGE, 2017)



Appendix 4 - Map of the mid-north region of Mato Grosso (Google Maps, 2022).

