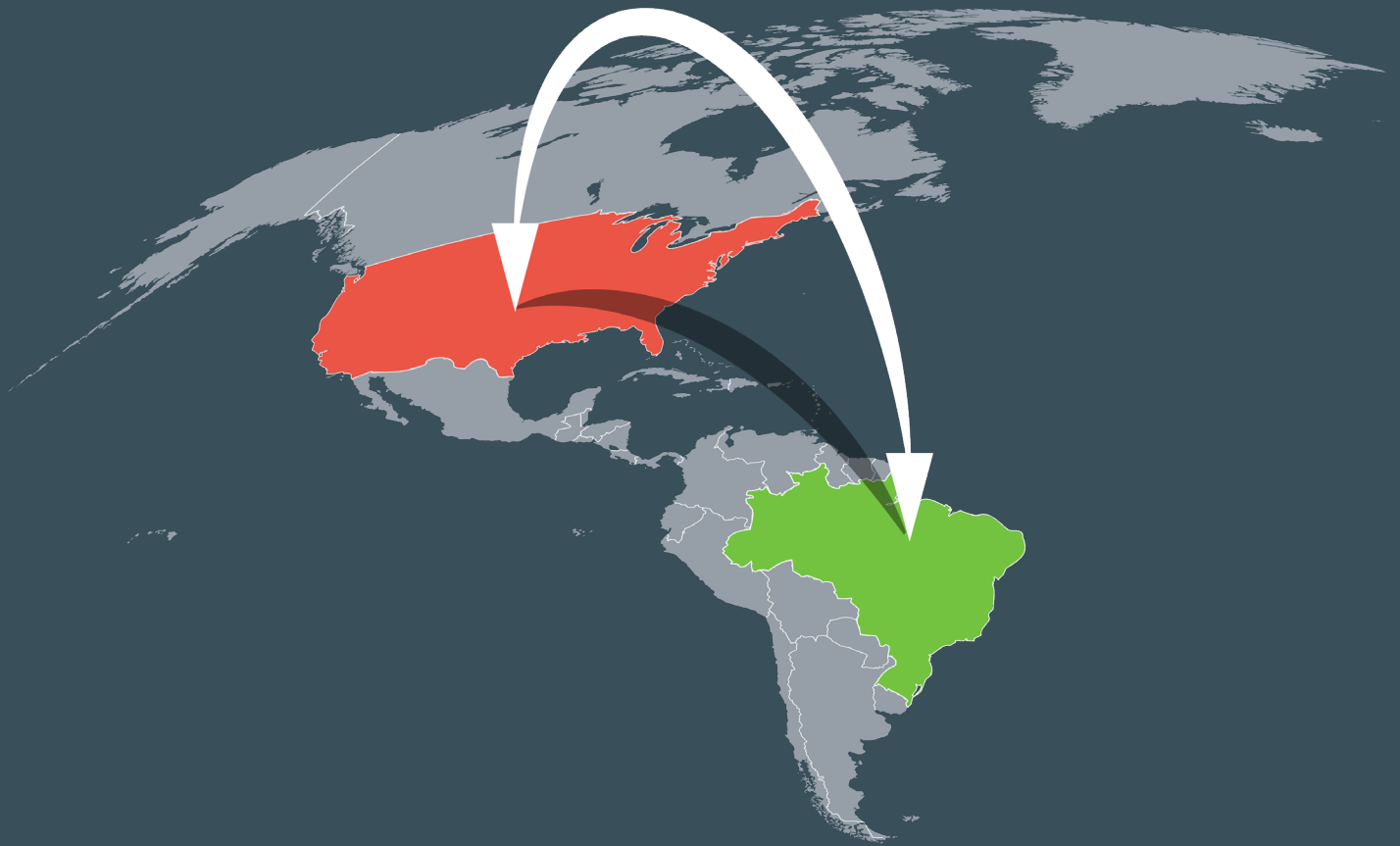




**RADAR
VERDE**

BEEF TRANSPARENCY IN THE BRAZILIAN AMAZON



UNITED STATES OF AMERICA

To what extent do meatpacking companies authorized to export to the United States demonstrate control over their cattle suppliers to prevent deforestation in the Amazon





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Executive Summary

Between 2021 and 2023, the United States recorded a significant 214.4% increase in beef imports from Brazil compared with the average of the previous three years. This increase was driven by the need to curb food inflation caused by extreme weather events that reduced global food production. However, this growing demand for beef may lead to increased deforestation in the Amazon, further aggravating the climate crisis and global food insecurity.

Deforestation in the Amazon contributes substantially to greenhouse gas emissions in Brazil, accounting for approximately 50% of total emissions in 2022. Deforestation also affects beef production by reducing the availability of pasture areas and increasing pressure on water resources, intensifying the effects of climate change.

The US FOREST Act, proposed by the United States, aims to restrict imports of products associated with illegal deforestation. The Act requires supplier companies to:

- Trace the origin of their products and confirm that they do not come from illegal deforestation;
- Maintain and publicly update data on their control policies and supply chain;
- Ensure compliance with local laws and disclose detailed information on direct and indirect suppliers.

KEY FINDINGS

Radar Verde's analysis identified that six companies with 11 meatpacking plants in the Legal Amazon authorized to export beef to the US face significant deforestation risks. These plants are exposed to risk factors covering 6.6 million hectares of forest, equivalent to approximately three times the size of the state of New Jersey in the US, or slightly more than three times the size of the state of Sergipe in Brazil. The assessment also revealed that:

- Meatpacking companies in the Amazon authorized to export beef to the US do not comply with the proposed US FOREST Act;
- The effectiveness of anti-deforestation policies at 90% of these meatpacking plants was low or very low, considering the disclosure of policy information regarding direct and indirect cattle-supplying farms;



- Overall, 63% of the meatpacking plants demonstrated control over their direct suppliers;
- None of the meatpacking plants published audited control data on their indirect suppliers, demonstrating a lack of robust control over indirect cattle suppliers, which is essential to meeting the requirements of the FOREST Act.

DISCUSSIONS AND RECOMMENDATIONS

To align with the US FOREST Act, promote anti-deforestation practices, ensure forest conservation and, consequently, food security, we recommend:

- Prioritizing the purchase of beef from meatpacking companies that adopt strict anti-deforestation policies covering both direct and indirect suppliers;
- Encouraging independent audits to ensure the effectiveness of anti-deforestation policies and data transparency;
- Requiring greater transparency from companies regarding the origin of cattle and their environmental control practices, including the disclosure of data from the Rural Environmental Registry (CAR) and Environmental Recovery Plans (PRA);
- Increasing public and private investment in sustainable agricultural practices and forest conservation, such as expanding contributions to the Amazon Fund;
- Including in the US FOREST Act a ban on imports of products from newly deforested areas, even when deforestation is legal, in order to discourage any form of deforestation.

The proposed US FOREST Act represents a significant step forward in the fight against deforestation associated with agricultural production. However, the current lack of compliance by Brazilian meatpacking companies with the requirements of the Act highlights the need for stricter measures and the implementation of the proposed recommendations. Adopting these measures will help protect Amazon forests, mitigate climate risks, and promote global food security.



Introduction

Between 2021 and 2023, the United States increased meat imports from Brazil by 214.4% compared with the average of the previous three years (Box 1). This increase resulted, in part, from the need to reduce food inflation in the US (USDA, 2022). One of the causes of this global inflation was the increased frequency and severity of extreme weather events, which reduced food production.

Climate change is related to higher meat prices in three main ways: by making it more difficult to grow feed for cattle, reducing cattle productivity due to heat stress, and increasing water demand in a context of water scarcity (World Economic Forum, 2024). However, in pursuit of greater food security, the United States imports meat that may lead to more deforestation in Brazil, increasing climate risk and, consequently, causing greater food insecurity. This is a vicious cycle. It is therefore no coincidence that deforestation accounted for about half of Brazil's greenhouse gas emissions in 2022 (Tsai et al., 2023).

In this context, several organizations in the United States have called on the country to adopt measures to prevent the import of products associated with deforestation. In 2021, 40 organizations supported the FOREST Act 2021 bill, whose three pillars (McCarthy, 2021) are:

- Prevent products linked to illegal deforestation from entering the US, based on the Lacey Act, which prohibits the import of illegal timber and wildlife products into the country. The Lacey Act helped reduce imports of illegal timber into the United States by between 32% and 44% (Union of Concerned Scientists, 2024);
- Create the possibility for the US to prosecute individuals and organizations that contribute to illegal deforestation;
- Create a fund to help countries move away from deforestation and develop effective enforcement and conservation programs.

The proposed Act initially includes the following products: palm oil, soy, cocoa, cattle, rubber, and timber. Cattle products are mentioned in the 2023 version of the FOREST Act: in 2022, the United States imported beef and leather products from Brazil valued at approximately US\$1.1 billion, and 95% of deforestation was illegal (US Congress – FOREST Act: Section 2, paragraph 11, subparagraphs A and B, 2023). Although the bill has not yet been approved, it is relevant to assess its potential impact in the



context of increased exports to the US.

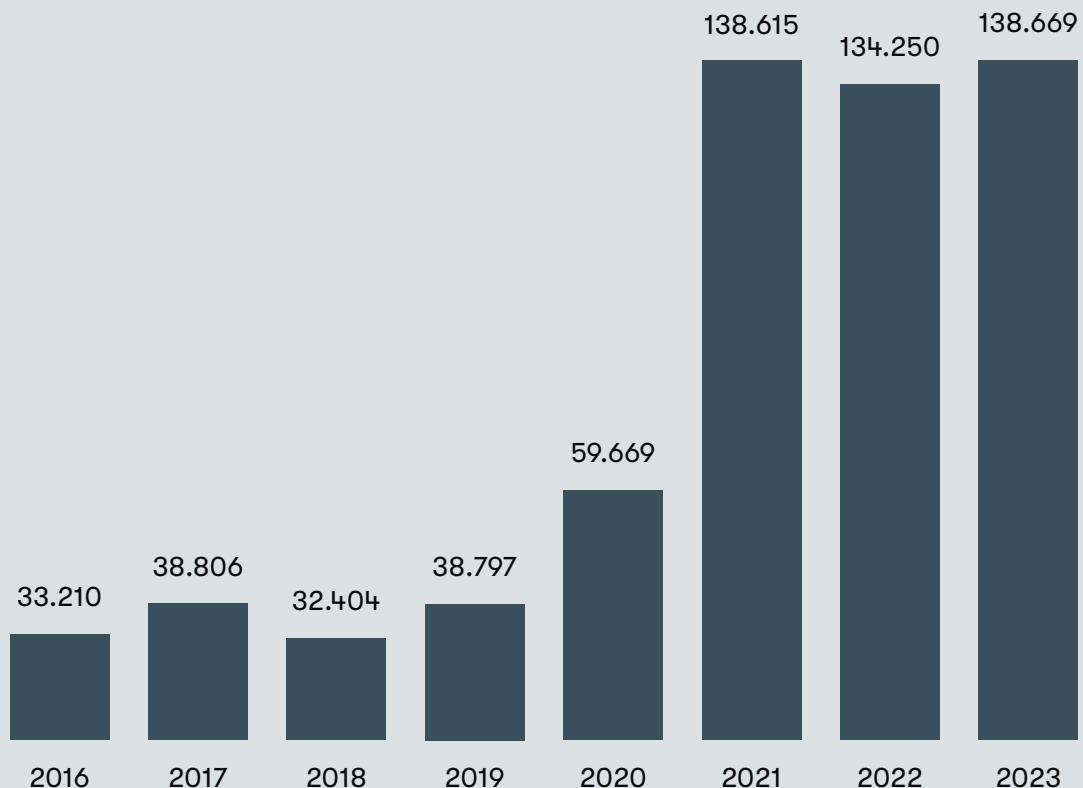
In this technical note, we at Radar Verde assess whether companies operating meatpacking plants authorized to export beef from the Brazilian Amazon to the United States comply with the trade requirements established by the latest proposed US socio-environmental regulation.

Our assessment is based on the results of Radar Verde 2023, an independent tool that evaluates the level of transparency, monitoring, and control of meatpacking companies regarding the existence of an anti-deforestation policy. Radar Verde seeks evidence of companies adopting zero-deforestation policies to ensure that the beef they sell is not directly or indirectly associated with deforestation in the Amazon (Imazon & O Mundo Que Queremos, 2023).

Box 1. Growth in Brazilian beef exports to the United States

Between 2021 and 2023, the United States increased meat imports from Brazil by 214.4% compared with the average of the previous three years (Figure 1). Factors that influenced the growth in imports include: the lifting in 2020 of the sanitary barrier that had been introduced in 2017; droughts in Australia that hindered exports from that country to the US (BRASIL, 2020); an exchange rate favorable to Brazilian exports; and China's temporary embargo on Brazilian imports in September 2021.

Figure 1. Brazilian beef exports (tons/year) to the US between 2016 and 2023



Source: ABIEC (2023).



2 The US FOREST Act and its potential to block products associated with deforestation in the Amazon

The FOREST Act 2023 establishes rules to prevent the purchase of specific agricultural commodities associated with deforestation, including incentives such as those listed below.

Covered Commodities. The Act includes products such as palm oil, soy, cocoa, cattle, and rubber. Companies selling these products in the US must publicly disclose their due diligence systems and information on their supply chain.

Requirements for the companies. Companies must trace the origin of their products and confirm that they do not come from illegal deforestation. They must publicly maintain and update their monitoring data and the enforcement of their policies annually. Companies intending to market products made wholly or partly from covered commodities must make updated information on the implementation of due diligence systems and their supply chain publicly available in order to facilitate third-party monitoring (US Congress – FOREST Act: Section 3, Paragraph 4, subparagraph C, 2023).

Suppliers policy requirements. Suppliers of the commodities must provide:

- Measures to identify and ensure compliance with their policy;
- Detailed data on direct and indirect suppliers and supply chain traceability;
- Data detailing the complete list of direct and indirect suppliers and supply chain traceability information, including refineries, processing plants, farms and plantations, and their respective owners, entities and farmers, maps, and geolocations for the commodity;
- Steps taken to prevent deforestation;
- Measures to ensure compliance with local laws;
- The policy and data on monitoring and enforcement of that policy must be publicly available and updated at least once a year.



Public procurement preference for commodities not produced on land subject to deforestation (legal). Suppliers that meet the requirements above are entitled to a price incentive for tie-breaking purposes in public procurement auctions for products covered by the policy. Specifically, when a government agency is deciding from whom to purchase products, the head of the agency must apply a ten percent price preference to suppliers that demonstrate deforestation-free origin. This means that the head of the agency will consider the price of a bid compliant with the FOREST Act 2023 as if it were 10% lower than it actually is. This would make the seller's bid more competitive and increase its chances of winning the contract.

Import declaration. One year after the enactment of the Act, importers must electronically declare that they have exercised due diligence to ensure that no commodity was produced on illegally deforested land.

Country assessment. Within 180 days after enactment, a list of countries without adequate protections against illegal deforestation must be identified. This list will consider factors such as deforestation trends, law enforcement capacity, and incidents of violence against Indigenous and local communities. The list will be reassessed at least every two years.

Development of an action plan. Listed countries must develop an action plan with the US Trade Representative, focusing on preventing illegal deforestation, law enforcement capacity, comprehensive monitoring, transparency, and data sharing related to land use and commodity supply chains.



3 Do meatpacking companies' policies in the Amazon meet the requirements of the proposed US FOREST Act of 2023?

Six companies operating 11 meatpacking plants in the Legal Amazon are authorized to export to the United States. Together, these companies have a slaughter capacity of approximately 10,000 head of cattle per day.

These meatpacking plants are exposed to deforestation risk factors affecting 6.6 million hectares, equivalent to approximately three times the size of the state of New Jersey in the US, or slightly more than three times the size of the state of Sergipe in Brazil.

The area exposed to deforestation risk for each meatpacking plant ranged from approximately 150,000 to two million hectares (Figure 2A). The company with the greatest deforestation exposure (2.9 million hectares) is JBS, which has four meatpacking plants authorized to export to the US (Figure 2B). The risk factors mentioned above include (Barreto et al., 2023):

- **Areas embargoed due to illegal deforestation.** Meatpacking companies that purchase cattle from these areas may face legal proceedings and reputational damage. Without systems demonstrating that cattle were born in areas free from deforestation, companies remain under suspicion of contributing to forest destruction;
- **Recent deforestation outside embargoed areas.** Purchasing cattle from these areas, even if the deforestation occurred in the past, may be viewed as direct or indirect support for illegal clearing, with more than 90% of the destruction being illegal. Ibama inspected only 1.3% of deforestation alerts between 2019 and 2020;
- **Future deforestation risk.** Areas with higher risk of clearing between 2023 and 2025 should be a concern for meatpacking companies. Without tools aimed at robust control of cattle origin, including indirect suppliers, companies may be accused of contributing to future deforestation, affecting their ability to obtain financing and access markets.

In 2023, 83% of the meatpacking plants operating in the Amazon belonged to companies that, in 2009, signed Terms of Adjustment of Conduct (TACs) with the Federal Public Prosecutor's Office (MPF). Through the TACs, signatory companies com-

¹ This value excludes overlapping deforestation risk when more than one meatpacking plant purchases cattle from the same region or purchasing zone.



mit to purchasing cattle only from farms free from deforestation. However, in 2023, none of the companies mapped by the research—not even meatpacking companies that are TAC signatories—responded to or provided evidence of their deforestation control policies when contacted by the Radar Verde survey.

Even without the active participation of the meatpacking companies, Radar Verde was able to assess company policies by analyzing their websites. According to data made available by the companies themselves, Radar Verde identified that the effectiveness of anti-deforestation policies at 90% of these meatpacking plants was low or very low, considering the disclosure of policy information on direct and indirect cattle-supplying farms.

Overall, 63% of the meatpacking plants demonstrated control over their direct suppliers, but none published audited control data on their indirect suppliers (Figure 3).

Three companies operating eight meatpacking plants carried out some control of direct suppliers but did not demonstrate robust and independent control of indirect suppliers (Figure 2B).



Figure 2. Performance of zero-deforestation policies of meatpacking plants (A) and beef companies (B) authorized to export beef to the United States, according to Radar Verde 2023

A • MEATPACKING PLANTS

FEDERAL INSPECTION SERVICE (SIF)	MEATPACKING PLANTS AUTHORIZED TO EXPORT TO THE US	STATE	LEVEL OF EXPOSURE TO DEFORESTATION RISK (HECTARES)	SLAUGHTER CAPACITY (HEAD/DAY)	MAXIMUM CATTLE PURCHASE DISTANCE (KM)	SIGNATORY TO THE CATTLE AGREEMENT (TAC)?	LEVEL OF SUPPLY CHAIN CONTROL	LEVEL OF TRANSPARENCY		
								DIRECT SUPPLIERS	INDIRECT SUPPLIERS	OVERALL SCORE
4490	VALE GRANDE INDÚSTRIA E COMÉRCIO DE ALIMENTOS S/A(FRIALTO)	MT	2.002.368	400	350	YES				
1940	MINERVA	TO	1.407.544	840	400	YES				
175	JBS S/A	RO	1.397.006	700	340	YES				
2443	IRMÃOS GONÇALVES, COMÉRCIO E INDÚSTRIA LTDA	RO	1.353.352	1.800	250	NO				
3470	JBS S/A	MT	933.297	600	300	YES				
3000	JBS S/A	MT	450.321	800	350	YES				
3250	MARFRIG GLOBAL FOODS S.A	RO	420.848	1.500	300	YES				
4333	JBS S/A	RO	385.414	1.500	300	YES				
2500	MINERVA	MT	375.349	500	300	YES				
2911	MINERVA	MT	352.601	900	500	YES				
93	COOPERATIVA DOS PRODUTORES DE CARNE E DERIVADOS DE GURUPI (COOPERFRIGU)	TO	149.920	400	400	YES				



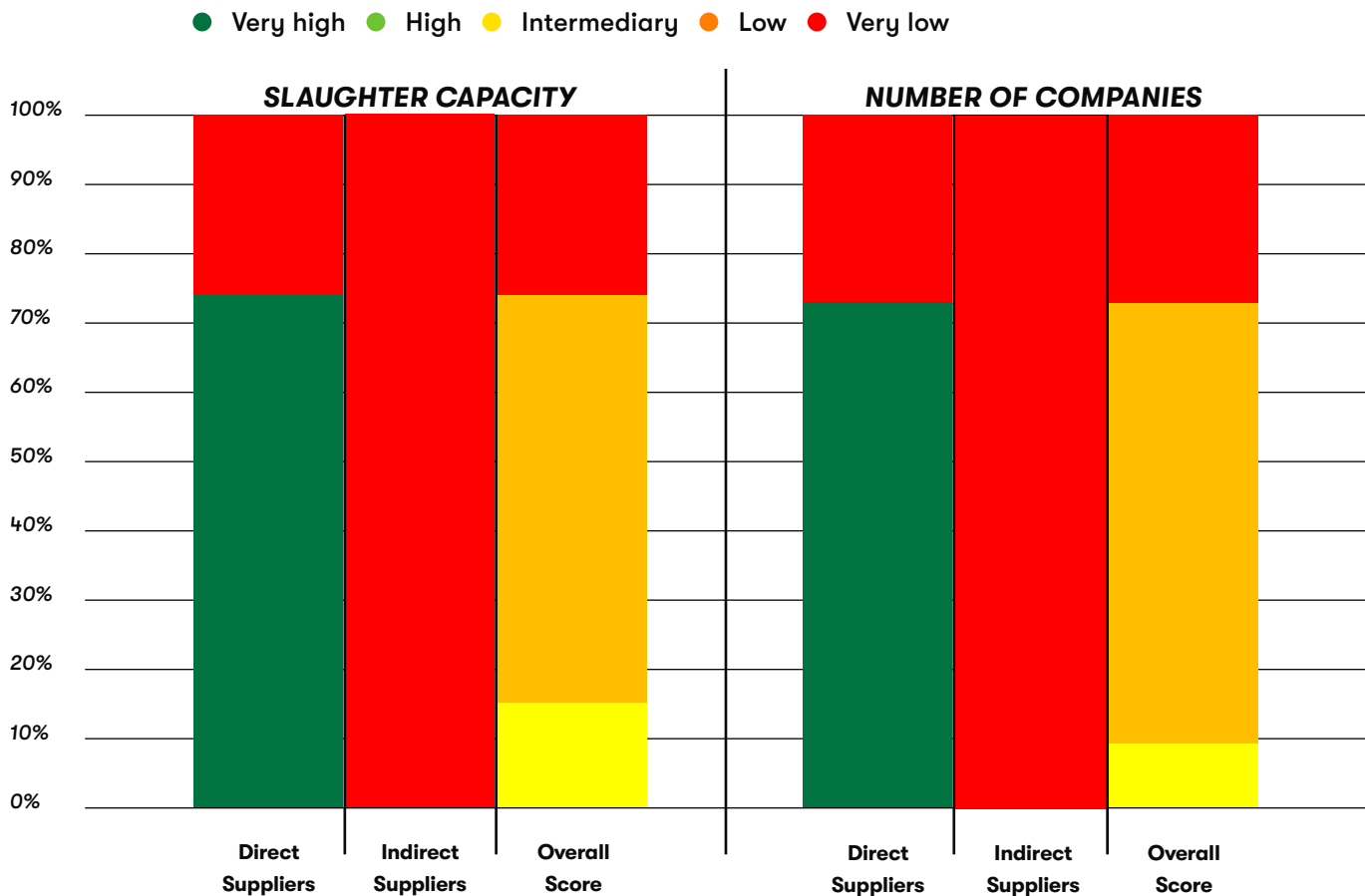
B • BEEF COMPANIES

COMPANIES	LEVEL OF EXPOSURE TO DEFORESTATION RISK (HECTARES)	SIGNATORY TO THE CATTLE AGREEMENT (TAC)?	LEVEL OF SUPPLY CHAIN CONTROL	LEVEL OF TRANSPARENCY		
				DIRECT SUPPLIERS	INDIRECT SUPPLIERS	OVERALL SCORE
COOPERATIVA DOS PRODUTORES DE CARNE E DERIVADOS DE GURUPI (COOPERFRIGU)	149.920	YES				
FRIGON - FRIGORÍFICO IRMÃOS GONÇALVES	1.353.352	NO				
JBS S/A	2.891.699	YES				
MARFRIG GLOBAL FOODS S. A.	420.848	YES				
MINERVA S. A.	2.122.182	YES				
VALE GRANDE INDÚSTRIA E COMÉRCIO DE ALIMENTOS S/A	2.002.368	YES				

> 90		Very high policy effectiveness
70 - 89		High policy effectiveness
50 - 69		Moderate policy effectiveness
30 - 49		Low policy effectiveness
0 - 29		Very low policy effectiveness
		Did not authorize disclosure of its results
		Did not respond

Source: Barreto et al. (2023); Radar Verde (2023).

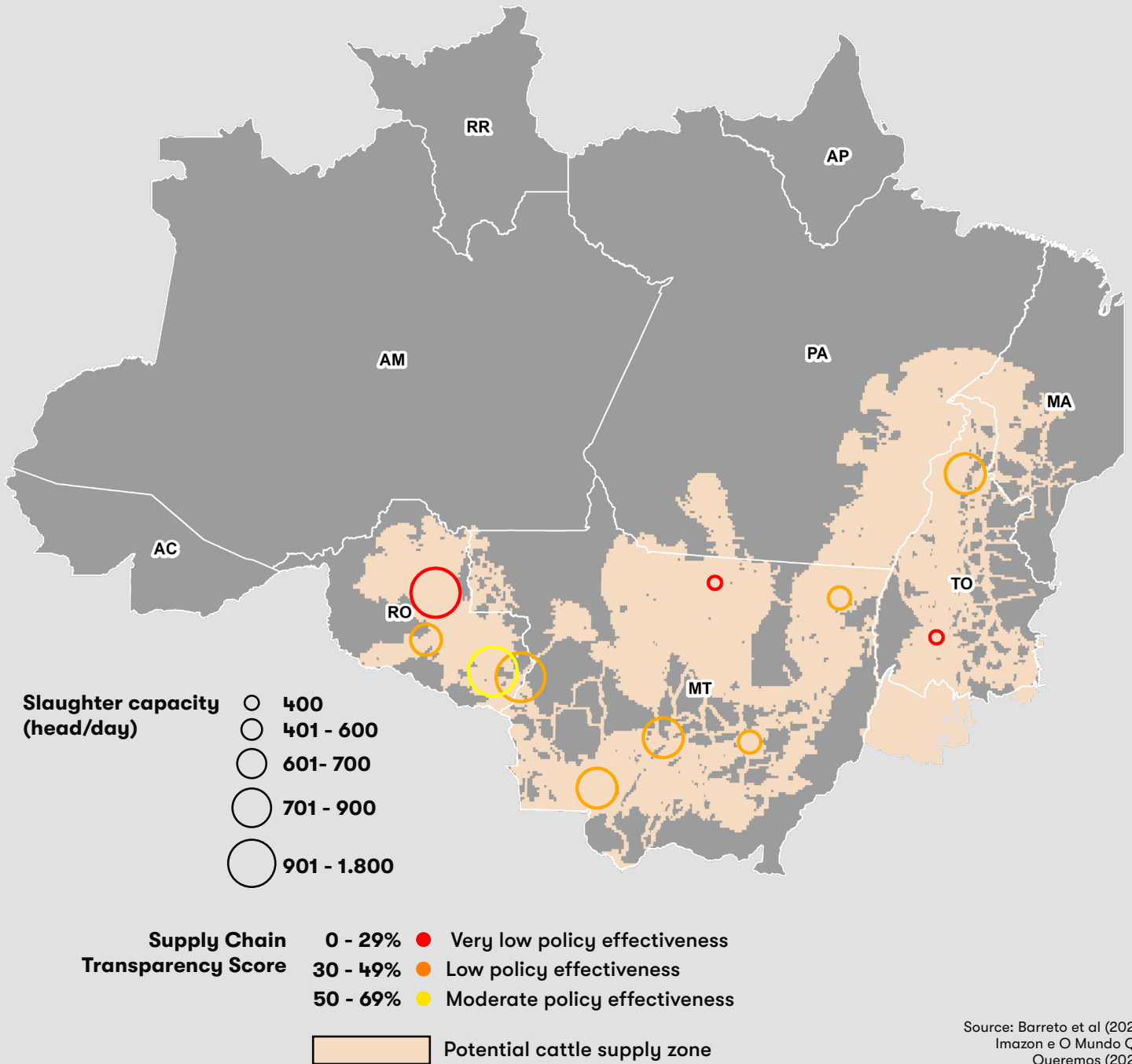
Figure 3. Transparency Score for cattle supply chain control by meatpacking companies authorized to export to the US (number of companies and slaughter capacity), according to Radar Verde 2023



Source: Barreto et al (2023);
Imazon e O Mundo Que
Queremos (2023).

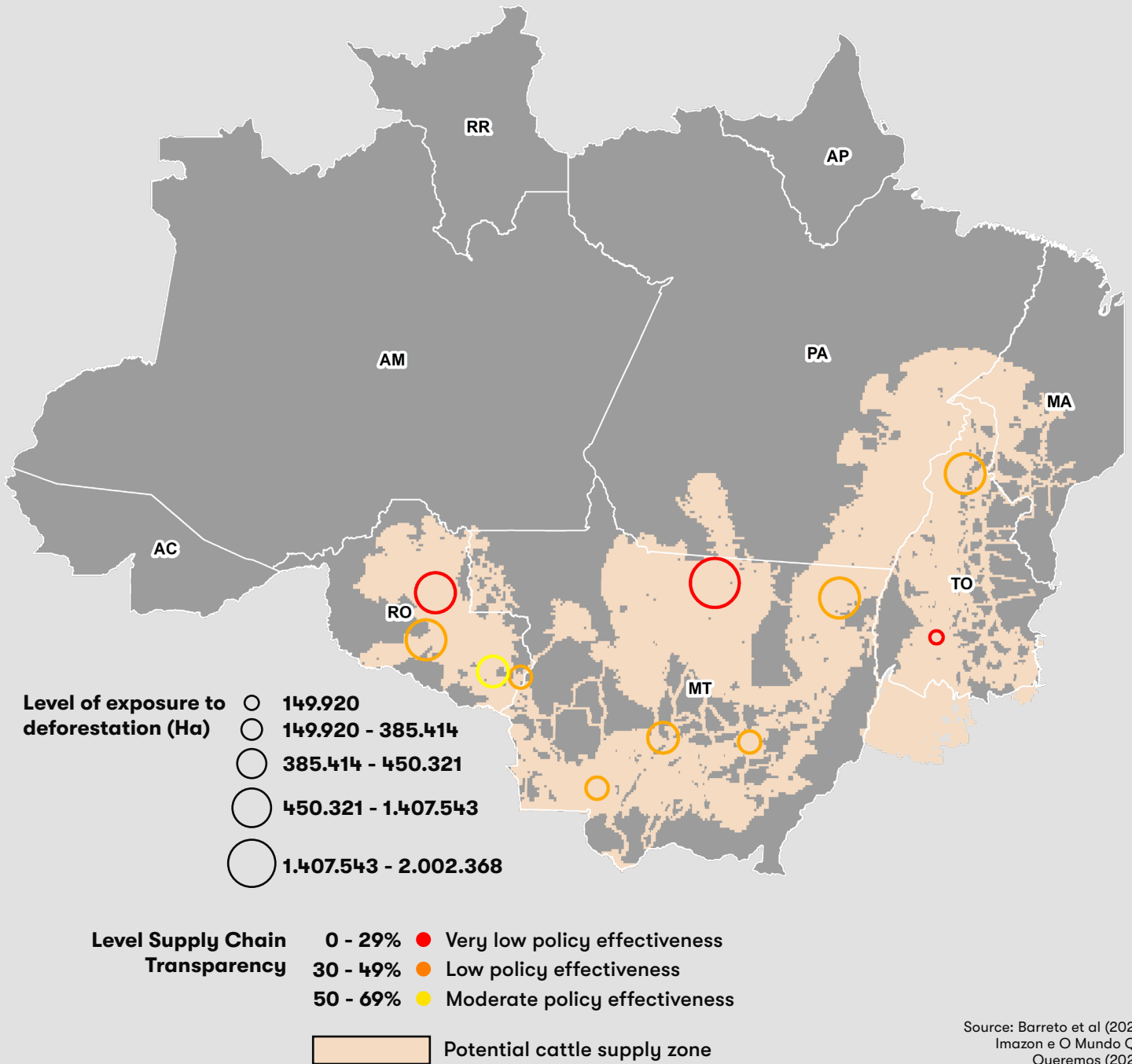
Figures 4 and 5 show the distribution of companies in the Amazon classified according to their performance in terms of the Transparency Score for cattle supplier chain control, their respective installed slaughter capacities (Figure 4), and deforestation risk exposure level (Figure 5). For example, in Rondônia there is a meatpacking company with high installed slaughter capacity but no zero-deforestation commitment (Figure 5). Rondônia and Mato Grosso are home to the two meatpacking companies with the greatest deforestation exposure and the poorest environmental performance (Figure 5).

Figure 4. Meatpacking plants authorized to export to the US: slaughter capacity, potential cattle purchasing zones, and Transparency Score for cattle supply chain control



Source: Barreto et al (2023);
Imazon e O Mundo Que
Queremos (2023).

Figure 5. Meatpacking plants authorized to export to the US: deforestation risk exposure level, potential cattle purchasing zones, and Transparency Score for cattle supply chain control





4 Discussions

If the US FOREST Act of 2023 is approved, it will represent an important step toward restricting imports of agricultural products produced in areas illegally deforested in Brazil while promoting sustainable agricultural practices. Achieving these two objectives is critical to reducing greenhouse gas emissions in Brazil, where nearly three-quarters of emissions come from agriculture and deforestation. The success of this Act would certainly help mitigate climate risks and increase the potential for food security.

Our analysis through Radar Verde reveals that meatpacking companies in the Amazon authorized to export beef to the US do not comply with the proposed FOREST Act. Despite being exposed to deforestation risks, these companies either do not have or have not robustly demonstrated compliance with deforestation control policies compatible with the US proposal.

Although some beef companies have demonstrated that they verify whether direct cattle-supplying farms are free from deforestation, the same does not occur when we assess control over indirect supplying farms. In this respect, no company demonstrated robust control over indirect supplying farms—that is, they did not publish independently audited results of their control initiatives. In addition, there are still companies that have not demonstrated any anti-deforestation commitment.

These results show that beef companies in the Brazilian Amazon are not aligned with the US proposal, which requires evidence that cattle buyers trace indirect supplying farms. This control is essential given the significant occurrence of deforestation on these farms (Barreto et al., 2023).

Regardless of whether the FOREST Act is approved, both Americans and Brazilians would benefit from ending legal or illegal deforestation. This is because food security depends on forest conservation, which mitigates climate risks. Therefore, US companies and the government should adopt additional measures to ensure that agricultural trade supports forest conservation.

As one of the main importers of Brazilian beef, the US government—and beef companies as well—could consider the following recommendations:

- Purchase beef from meatpacking companies that source cattle from regions with low deforestation risk;
- Purchase beef exclusively from companies that adopt zero-deforestation policies covering both direct and indirect supplying farms, in accordance with the requirements of the FOREST Act of 2023;



- Prioritize companies that demonstrate better performance of their zero-deforestation policies through independent audits, as adopted by Radar Verde;
- Encourage Brazil's state and federal governments to disclose information on cattle origin traceability (for example, Animal Transit Permits – GTAs) together with environmental information on farms (Rural Environmental Registry – CAR, Environmental Recovery Plans – PRA, and legal deforestation permits). This would enable companies to monitor compliance with zero-deforestation policies more easily;
- t Expand the scope and volume of public and private investment in improved productive and environmental practices in agriculture and forest conservation. Opportunities include increasing US contributions to the Amazon Fund and private investment in sustainable agricultural production. For example, the CEO of the American Chamber of Commerce (Amcham Brasil), Abrão Árabe Neto, stated that US companies are interested in strengthening economic and trade relations with Brazil, particularly in the areas of the green economy, clean energy, and sustainable technology (Noberto, 2023);
- Include in the FOREST Act a ban on imports from newly deforested areas, even when deforestation is legal. In addition to the need to discourage any form of deforestation, in 2012 Brazil granted amnesty for illegal deforestation, which encouraged further forest destruction and expectations of future amnesties.

By implementing these recommendations, US companies and the government would strengthen forest protection and, consequently, the mitigation of climate extremes. In addition, combating deforestation would encourage more productive use of degraded pastures in the country, as has occurred in the past, also contributing to increasing the potential for food security in both countries. (See Veríssimo et al., 2022).

² In July 2024, the US announced a \$47 million contribution to the Amazon Fund, completing the initial delivery of \$50 million of the \$500 million commitment announced by the US government in April 2023, and that the Biden administration will seek the remaining funding for the Amazon Fund until 2028.



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