# Investing in Smart Production

## GRSB – GTPS Joint Working Group on Forests

## WORKSHOP REPORT

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## Preface

On November 5, 2014, the GRSB-GTPS Joint Working Group on Forests (JWG), in collaboration with the Tropical Forest Alliance 2020 (TFA 2020), held a technical workshop titled *Investing in Smart Production* during the Global Conference on Sustainable Beef in São Paulo, Brazil.

The workshop sought to address the challenges involved with integrating the benefits of deforestation-free cattle production and moderate intensification, and fostering investment conditions to facilitate productive and sustainable ranching practices.

Workshop participants included a wide range of stakeholders from the Brazilian beef value chain and international participants, including financial institutions, development agencies, meatpackers, academic researchers, agricultural experts, and civil society groups.

## Acknowledgements

The hosts are grateful to all those who participated in the workshop, especially to the presenters for their thoughtful insights and comments during the preparation of this report. We would also like to thank the GTPS and GRSB staff for their helpful assistance in planning the event, and the Gordon and Betty Moore Foundation for their generous support for the workshop.

## Disclaimer

This document is a report of the discussions that took place during the technical workshop on November 5, 2014 as well as conversations with presenters before and after the workshop. This report does not necessarily reflect the views or opinions of workshop hosts, sponsors, speakers, or participants. Additional background research was conducted by the authors of this report to provide a coherent synthesis of the ideas expressed during the workshop.

## To cite this report

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## About the GRSB-GTPS Joint Working Group on Forests (JWG)

The Joint Working Group on Forests (JWG) is a technical working group of the Global Roundtable for Sustainable Beef (GRSB) and the Brazilian Roundtable on Sustainable Livestock (GTPS), focused on engagement and collaboration to address forest-related issues in cattle supply chains. Led by the National Wildlife Federation, the JWG serves in an advisory role to the Consumer Goods Forum on efforts to mobilize resources to achieve zero-net deforestation by 2020.

For more information on this workshop and the JWG, please visit: **www.GRSBeef.org**
Please note: the JWG can be found under *Technical Working Groups*.

**The Global Roundtable for Sustainable Beef (GRSB)** is a global, multi-stakeholder initiative developed to advance continuous improvement in the sustainability of the global beef value chain through leadership, science, and multi-stakeholder engagement and collaboration. The GRSB envisions a world in which all aspects of the beef value chain are environmentally sound, socially responsible, and economically viable.

**The Brazilian Roundtable on Sustainable Livestock (GTPS)** is composed of representatives from different segments that make up the beef value chain in Brazil. The goal of the GTPS is to discuss and formulate, in a transparent manner, principles, standards, and common practices to be adopted by the sector, which contribute to the development of sustainable cattle ranching that is socially just, environmentally friendly and economically viable.

**The Tropical Forest Alliance 2020 (TFA 2020)** was catalyzed by the Consumer Goods Forum (CGF) commitment to mobilize resources within their respective businesses to help achieve zero-net deforestation by 2020. In support of this commitment and other efforts to reduce deforestation in tropical forest countries, TFA 2020 is engaging with governments around the world, a range of civil society organizations active in both producer and consumer nations, and multinational corporations.

Funded in part by the Gordon and Betty Moore Foundation

# Background Information

Cattle ranching is the leading driver of deforestation in the Brazilian Amazon with pastures occupying approximately 60-70 percent of all cleared areas. [1]

The large-scale removal of tropical forests for cattle production is a critical issue of environmental and social concern, with clear connections to forced labor, land grabbing, habitat destruction, biodiversity loss, and global climate change. Although the rate of deforestation in the Brazilian Amazon has decreased by over 80 percent since 2004[2], a significant and commendable achievement, cattle ranching still remains one of the leading drivers of forest loss in this ecologically important region.

With the largest commercial cattle herd in the world, Brazil is at the forefront of both global production and export of cattle products, yet also poised to reap the benefits of global environmental leadership. Despite these leading production and export trends, much of the Brazilian cattle sector is still characterized by relatively low stocking densities and marginal productivity per hectare. The country's unique position affords it exceptional opportunities for development of the cattle sector that is explicitly linked to environmental dividends. Recent research has estimated that the current productivity of cultivated pastureland in Brazil is only one-third of its potential, and a productivity increase of only 20 percent would be enough to meet projected increases in demand for Brazilian beef until at least 2040, with no further conversion of natural ecosystems. [3]

Moderate intensification, which emphasizes a variety of low-tech and cost effective practices to improve pasture and herd management, already exist for the cattle sector in Brazil.[4] Efforts to strengthen support and increase the adoption of these *moderate intensification* or *semi-intensive* practices have been widely promoted by governments, NGOs, and academics as a way to increase the productive capacity of existing ranches, recover degraded landscapes and, in doing so, reduce pressure to clear additional forest for pasture.

In order for these 'win-win' scenarios to exist, such that *rebound effects* and other negative externalities are mitigated, a robust understanding must be developed of the prevailing market and governance factors that influence the adoption of moderate intensification practices and the impacts these processes have on land use dynamics in the Brazilian Amazon and elsewhere in the tropics.

This report summarizes the key opportunities and challenges of moderate intensification within the context of deforestation-free commitments and sustainable finance in the Brazilian ranching sector. ■

# Key Messages from the Workshop

## Session 1: Zero-Deforestation Commitments are Working

→ The cattle sector has made significant progress to address deforestation on direct suppliers (Tier 1 Ranches) and these efforts deserve support and recognition.

→ Substantial gaps remain in the monitoring and traceability of indirect suppliers (Tier 2 Ranches). Support for efforts that address indirect suppliers is the next step on the path to fully deforestation-free production; this will further reduce risks, help expand market access, and bolster the global reputation of Brazilian beef.

→ Many stakeholders are not yet participating in deforestation-free supply chains. Efforts to expand monitoring and traceability to meatpackers not currently participating in the G4 Cattle Agreement would help increase the coverage of these supply chain initiatives and would level the playing field in this industry.

→ Market incentives linking retailers, meatpackers, and producers coupled with strong government backing can support continued monitoring and traceability from G4 meatpackers as well as encourage wider adoption of these practices to non-G4 meatpackers.

## Session 2: Moderate Intensification has Enormous Potential

→ There remains enormous opportunities to recover degraded pastures, improve productivity (stocking densities and yields), and increase the profitability of Brazilian cattle ranching through the adoption of moderate intensification practices.

→ The G4 Cattle Agreement represents one of the strongest mechanisms currently in place to reduce deforestation in cattle supply chains in the Brazilian Amazon. For moderate intensification to effectively reduce deforestation while avoiding *rebound effects* and other negative externalities, it should be strategically integrated with the G4 Cattle agreement (or G4-like agreements).

## Session 3: Finance for Sustainable Practices is Available

→ Finance for moderate intensification is available; however, issues related to accessibility have created bottlenecks that are limiting the flow of credit.

→ A unified and reliable source of information on land tenure, legality, and risk exposure holds great potential to increase the flow of finance to cattle operations.

→ The current cap on technical assistance may be hindering adoption of moderate intensification practices, especially with smaller ranches (< 1,100 hectares).

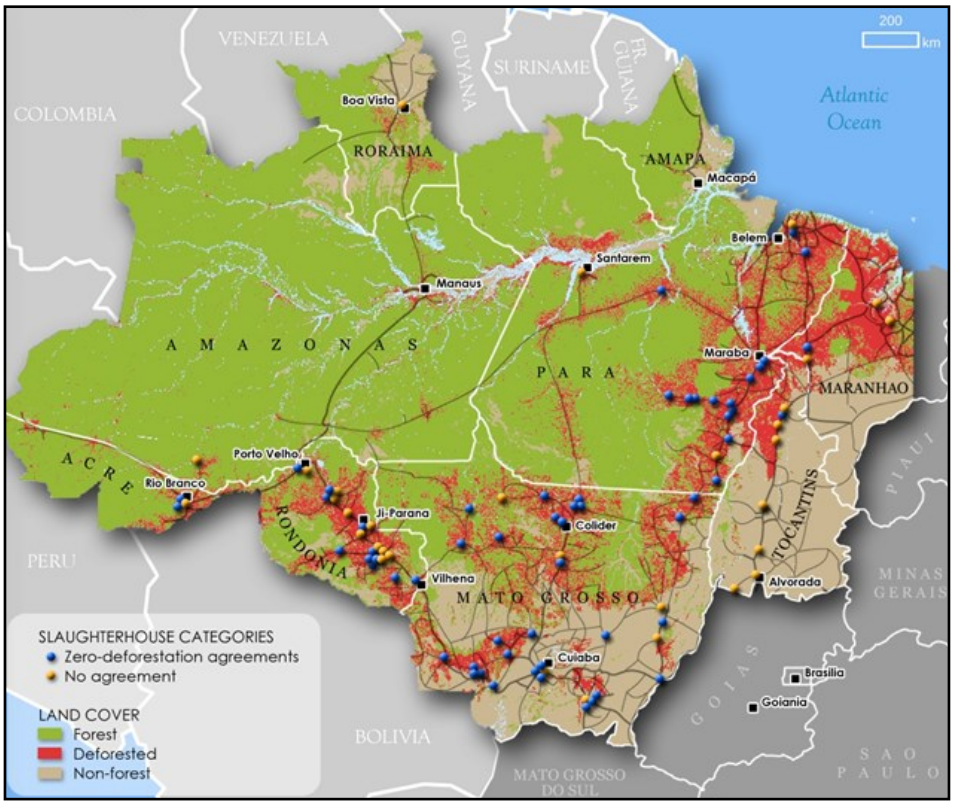
# SESSION 1: Zero-Deforestation Commitments

While cattle ranching remains one of the largest drivers of deforestation in the Brazilian Amazon, the industry has made significant strides in addressing the impacts of cattle ranching on rates of forest clearing in the past several years.

In 2009, following several influential NGO reports detailing the environmental and social impacts of the cattle industry in Brazil and the links between major international brands and deforestation,[5] Brazil's largest meatpackers, (JBS-Bertín, Marfrig, and Minerva - *responsible for around half of the legal slaughter in the Amazon*) signed an agreement (known as the G4 Cattle Agreement), setting out a timeline by which they would only buy from ranches which the meatpackers can show to have no post-2009 deforestation.[6]

In April 2014, independent audits of JBS, Marfrig, and Minerva's deforestation monitoring systems were published. The audits indicate that all three meatpackers have developed and implemented effective monitoring systems to regulate the cattle they purchase from direct suppliers in the Amazon Biome.[7] These sophisticated systems enable meatpackers to block the purchase of cattle from ranches with deforestation, slave labor violations, or those located on indigenous lands or conservation areas. ■

**Figure 1: SIF-registered Slaughterhouses in the Brazilian Amazon** [8]




The slaughterhouses identified on the map (left) are registered under the Federal Inspection System (SIF), allowing them to sell their products in both domestic and international markets.

While they only represent a fraction of the total slaughterhouses in the Amazon, nearly two thirds of these SIF -registered slaughterhouses have zero-deforestation agreements; and the majority of these are under the G4 Cattle Agreement.

## KEY ISSUE: Indirect Suppliers *(Tier 2 Ranches)*

→ G4 meatpackers have made significant progress with direct suppliers (Tier 1 Ranches).

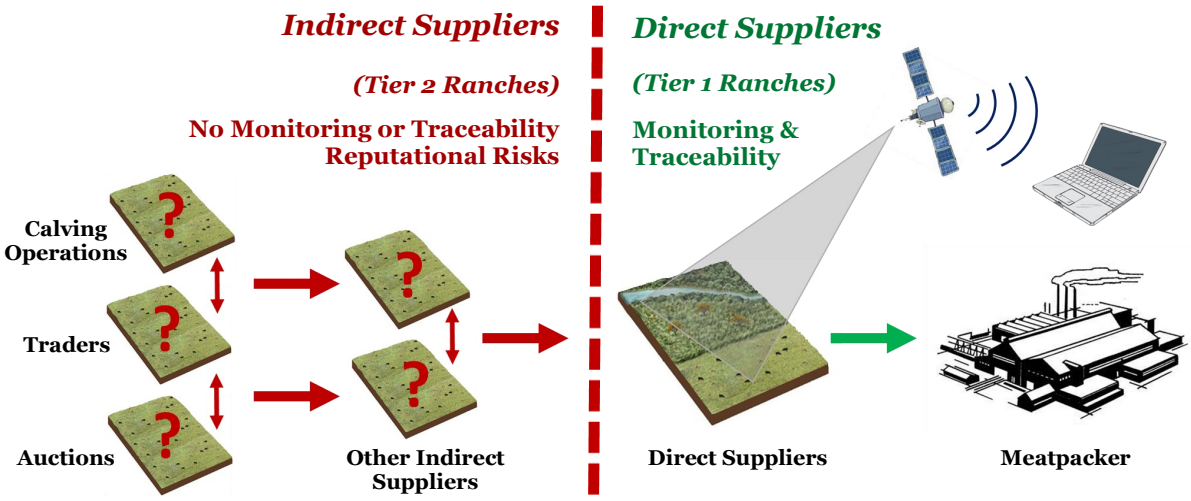
→ Support is needed to help address indirect suppliers - *where most deforestation occurs.*[9]

→ Ranchers openly discuss loopholes in the current monitoring and traceability systems - *"The animals are not embargoed, just the land".*[10]

→ Non-compliant ranches have options to circumvent the current monitoring initiatives:

- Cattle can be sold to non-embargoed ranches (a form of laundering).[11]
- Embargoed properties can be sub-divided to create non-embargoed areas and cattle from the embargoed property can then be sold via these "compliant" parcels.[12]

**Figure 2: Supply Chain Monitoring and Traceability *(Direct vs. Indirect Suppliers)***




## Recommendations for Deforestation Monitoring

→ Substantial investments have been made in monitoring and traceability by JBS, Marfrig, and Minerva. The entire value chain can help promote continued improvements in the sustainability of the Brazilian cattle sector by *acknowledging* and *rewarding* the progress made by these meatpackers.

→ The entire value chain - *particularly the retail segment* - should encourage meatpackers to work towards addressing deforestation on indirect suppliers. Encouraging these efforts will help close some of the gaps in the current monitoring and traceability systems and continue to strengthen deforestation-free supply chains for beef in the Brazilian Amazon.

→ The recent audits of the G4 Cattle Agreement did not include checks by mapping experts of the deforestation monitoring systems. Supporting map-based audits will help improve the accuracy, reliability, and robustness of the auditing process.

# SESSION 2: Moderate Intensification

**Moderate Intensification** is achieved through the application of good management practices (such as *Boas Práticas Agropecuárias)* to improve the social, environmental, and economic performance of cattle ranching within the framework of the existing production system. Such practices may include fencing, improved mixtures of grasses, and better breeding techniques.

Traditionally, ranching in Brazil has been extensive (primarily pasture-based systems with low-levels of inputs and outputs relative to grazing area), and in many ways has been the default land use for rural properties in a complex process of land occupation, speculation, and cultural tradition. In general, a landowner or settler would clear forest (where possible) and raise cattle, but typically faced limited access to financing, technical assistance, and basic technologies to help improve productivity. In general, this resulted in vast carbon emissions and loss of biodiverse tropical forests with only marginal increases in efficiency, food security, and profits.

More recently, Brazil has formalized much of the industry, substantially growing its beef exports while also facing increased pressures to limit deforestation. Currently, Brazil has the largest commercial cattle herd in the world (208 million head)[13], ranks second (after the United States) in production[14], and is the largest global exporter of beef products.[15]

Despite these leading production and export trends, much of the Brazilian cattle sector is still characterized by degraded pastures (60 percent of the total area of cultivated pastures in the Amazon Biome is to some degree degraded)[16] and relatively low productivity per hectare (average stocking density is approximately 1.2 head of cattle per hectare, yielding about 60 kg of beef CWE per hectare).[17]

Low-tech and cost effective practices to improve pasture and herd management already exist. The Brazilian Corporation of Agricultural Research (Embrapa) has developed *Good Agricultural Practices* (known as the BPA - *Boas Práticas Agropecuárias*) for the cattle sector. The BPA provides ranchers with a set of guiding principles, technologies, methods, and techniques to mitigate risks and enable economically viable and environmentally sustainable cattle ranching in Brazil.[18] In particular, rotational grazing techniques recommended for pasture improvements are being adopted in a number of countries as part of new approaches to sustainable livestock management.

Despite efforts to help improve yields, the current productive capacity of cultivated pastureland in Brazil is estimated to be only one-third of its current potential. Recent research estimates that a productivity increase of about 20 percent would be enough to meet projected increases in demand for Brazilian beef until at least 2040, without a need for further conversion of natural ecosystems.[19]

At a national (or sub-national) level, moderate intensification represents an important tool to help address the environmental and production challenges of supplying domestic and international markets with beef.

Simultaneously, these practices help safeguard native ecosystems and biodiversity as well as mitigate the effects of global climate change.

At the ranch level, moderate intensification represents an important tool to help improve pasture and herd management, therefore improving productivity and potentially the profitability of the operation.

In many ways, the broad policy objectives of moderate intensification at the national or sub-national level (avoided deforestation or land sparing) complement the ranch-level objectives (increasing productivity and profitability).

Complementary mechanisms at various scales can be integrated to help increase the effectiveness of efforts to reduce deforestation and promote more productive ranching. Supply chain initiatives (such as the G4 Cattle Agreement) that focus on market links among individual ranches, meatpackers, and retailers can be supported and strengthened by parallel initiatives at the jurisdictional level to encourage large-scale transformation and further improve the sustainability of the cattle sector in Brazil.

Under the right conditions, strategic links between deforestation-free commitments (such as the G4 Cattle Agreement) and moderate intensification can provide a wide range of social, environmental, and economic benefits, such as increased productivity for ranchers and land sparing effects that safeguard biodiversity and wildlife habitat.

For these win-win scenarios to exist, effective governance systems and market incentives must be well positioned to mitigate potential *rebound effects* and other negative externalities (described in more detail on page 10). ■

Rachel Kramer/ NWF

## KEY ISSUE: Rebound Effects *(Jevons Paradox)*

→ Agricultural intensification is often assumed to have inherent land sparing effects, and these have been linked to avoided deforestation and other ecological benefits. However, these outcomes are not necessarily guaranteed. Effective governance mechanisms and market incentives are essential to mitigating *rebound effects* and other negative externalities that may result (directly or indirectly) from these processes. Some examples of these unintended and undesirable outcomes may include the following:

(1) Input efficiencies that improve productivity may increase the profitability of cattle ranching in Brazil, thereby encouraging more producers to enter the market and/or incentivizing existing producers to expand their operations.

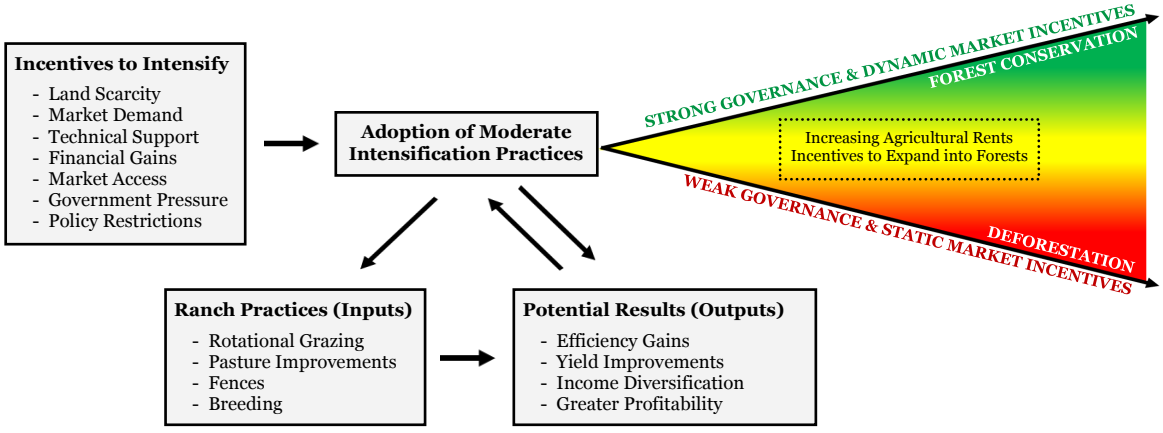
(2) Productivity gains may increase the supply of beef in the market, putting downward pressure on price and, in doing so, increase the quantity demanded from consumers.

(3) The aggregate effects of moderate intensification may lead to higher land values in (or near) regions where these practices have been adopted, potentially increasing competition for land (through speculative processes).

→ These processes, whereby gains in efficiency (more productive ranches) lead to increasing - rather than decreasing - rates of resource consumption (i.e. land and a potential clearing of forest for pasture), have been described more generally as *Jevons Paradox*.

→ Rebound Effects: Behavioral or systematic responses to the introduction of technologies or policy interventions that increase the efficiency of resource use. A rebound effect that results in negative resource savings (or *back-fire* scenario, whereby the conservation mechanism results in greater resource use) is an example of *Jevons Paradox*.

**Figure 3: Moderate Intensification and Potential Pathways of Development** [20]




## Recommendations for Successful Moderate Intensification

→ Strong forest governance and dynamic market incentives that can effectively adapt to changing conditions are needed to help mitigate potential *rebound effects*.

→ Governance policies should emphasize: spatial constraints for land made available to agricultural expansion, land tenure regularization for ranches, integrated multi-tier land use planning (local - state - federal), and effective and accountable regulatory and enforcement mechanisms based on strong disincentives for non-compliance.

→ Incentives that encourage moderate intensification and reduce pressure to deforest must be structured to adapt to dynamic market conditions. The effectiveness of these incentives (e.g. subsidies, taxes, REDD+, other PES systems, etc.) will be based on their ability to remain competitive within the context of increasing commodity prices and higher land values.

→ The G4 Cattle Agreement represents one of the strongest mechanisms currently in place to reduce deforestation in cattle supply chains in the Brazilian Amazon. For moderate intensification to effectively reduce deforestation and avoid *rebound effects*, it should be strategically integrated with the G4 Cattle agreement. The integration of deforestation-free supply chain initiatives and moderate intensification could help provide market-based incentives for land sparing activities and strengthen support for ranchers who adopt these practices.

→ The location of moderate intensification efforts can play an important role in these processes. Strong governance and market mechanisms targeting *active frontier regions* could help curb the rate of agricultural expansion in these critically important areas.

→ Efforts to accelerate the adoption of moderate intensification practices should target ranches with relatively greater willingness to adopt and capacity to implement these practices (i.e. regions that can be shown to have a comparative advantage to intensifying - greatest ratio of benefits to costs).

# SESSION 3: Sustainable Finance and Investment

Intensification has enormous potential as a means to develop the cattle sector while reaping environmental benefits, but who will pay for it?

A complex matrix of public and private agricultural finance currently exists in Brazil; however, significant challenges remain to addressing social and economic bottlenecks which impact the flow of credit to the ranching sector.

Feedback from ranchers confirms they are aware that credit exists; however, the perception, in many instances, is that finance is too difficult to access due to complex bureaucracy, lengthy approval processes, and often non-transparent credit conditions. In general, the due diligence activities and borrower requirements that lower risk for the finance sector (and ultimately make credit available) are often responsible for the burdensome conditions and lengthy timeframes that make credit less accessible to ranchers. As a result, the need for high-quality and timely information on both ends of the lending process - and the challenge posed by the lack of such information - are common themes in discussion of finance and intensification. The more readily lenders can access information on potential clients, and the more reliable that information is as an indicator of credit-worthiness, the easier, faster, and cheaper lending can be.

Reliable evidence of land tenure and legal compliance are key factors in the decision making process, and the broad efforts to increase CAR implementation across Brazil have been a positive step to help address some of these challenges. The Rural Environmental Registry (or Cadastro Ambiental Rural - CAR) is a key tool to assist in the process of environmental regularization of rural properties that includes a digital database of geo-referenced property information.[21] While the CAR does not represent the title to property, it has made progress in explicitly connecting individual owners to parcels of land, and has become a key tool for the finance sector and commodity purchasers, such as meatpackers and grain traders. The CAR has its limitations, however. It is never sufficient, in and of itself, as a broad due diligence and risk mitigation indicator, nor does it represent full compliance with environmental licensing requirements and labor regulations.

The implementation of moderate intensification practices presents a unique set of challenges for the finance sector. Capital improvements such as heavy equipment (tractors and other large durable goods) make lending guaranties and auditing procedures straightforward, but pasture improvements, technical assistance, and other less quantifiable good management practices require unique and often unconventional solutions.

Further exacerbating these bottlenecks, many public credit lines are structured to limit the amount of finance that can be applied to technical assistance - a critical component to scale up moderate intensification, thus hindering effective implementation. These restrictions significantly disadvantage smaller ranches, as they typically require greater investments per hectare, compared with larger ranches which are, in general, able to leverage efficiencies from economies of scale.

Brazil's ABC Program (Low Carbon Agriculture) currently caps technical assistance at 5 percent (previously at 2 percent). According to recent research, this current cap is only effective for ranches larger than 1,100 hectares, which therefore fundamentally precludes many cattle ranches in Brazil from effectively implementing good management practices, which typically require moderate to high levels of technical assistance.[22]

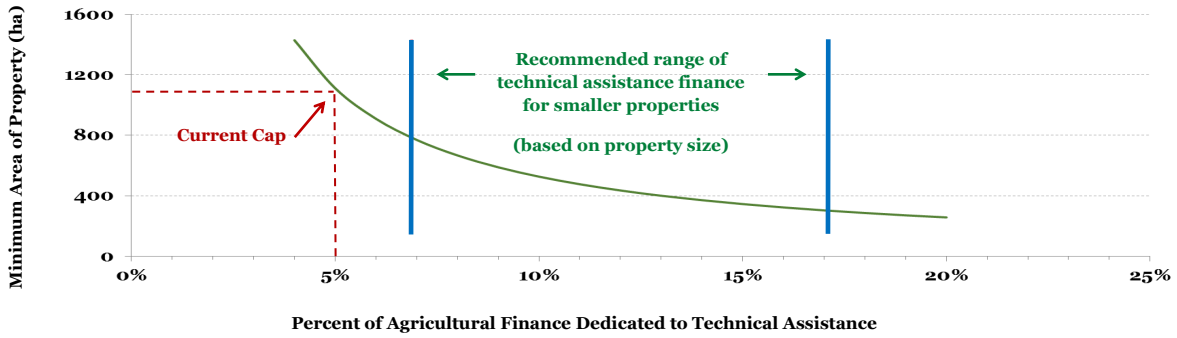
There are many challenges to addressing the bottlenecks that exist in the flow of finance to the ranching sector in Brazil. However, improved transparency and monitoring within supply chains and government and market initiatives that create potential avenues for streamlining information can help increase access to agricultural credit for moderate intensification practices. ■

## KEY ISSUE: Technical Assistance for Moderate Intensification

→ Technical assistance is a critical component of moderate intensification. The current 5 percent cap on technical assistance under Brazil's ABC program is hindering the adoption of moderate intensification practices, especially with smaller ranches (< 1,100 ha).

→ The implementation of pasture improvements, technical assistance, and other less physically tangible good management practices often lack collateral-based assurances (compared to capital improvements, such as heavy equipment and other durable goods); making lending guaranties and auditing procedures more challenging.

**Figure 4: Technical Assistant Cap in Agricultural Finance** [23]




## Recommendations for Improving Credit Conditions

→ The ABC technical assistance cap should not be structured as a *one-size fits all* solution. It should be based - proportionately - on the area of the property, making relatively more resources available to smaller ranches. As indicated by Figure 4 (above), the ABC cap for technical assistance (to smaller ranches) should range from 7 - 17 percent, respectively.

→ To ensure effective, reliable, and accountable implementation of moderate intensification practices, a dynamic system of *continuing education* (rather than disconnected and ad-hoc training sessions) should be supported to improve training for technical experts and other on-the-ground practitioners.

→ Financial due diligence mechanisms should be made more flexible to accommodate credit lines that make more funding available for technical assistance while maintaining an adequate degree of risk evaluation.

# Contacts

For more information on this workshop as well as other relevant activities of the GRSB-GTPS Joint Working Group on Forests (JWG), please visit our website (under Technical Working Groups).

**www.GRSBeef.org**

For questions or comments, or to become more involved in the JWG, please contact:

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# Workshop Speakers

Pictured from left to right (top): Eduardo Trevisan, *Imaflora*; João Shimada, *Earth Innovation Institute*; Luiz Amaral, *Rabobank*; Chris Wells, *Banco Santander*; (bottom): Mathias Almeida, *Marfrig Global Foods*; Mauricio Campiolo, *GTPS, and the Mato Grosso Cattle Breeders Association*; Holly Gibbs, *University of Wisconsin-Madison;* and Avery Cohn, *Tufts University*. (Not pictured here: Bernardo Strassburg, *International Institute for Sustainability)*. Photographer: Fernando Nunes.

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