Finance for a Forest-Positive Future: the transition to sustainable cattle and soy production
Executive Summary

The Biomes: Amazon, Cerrado and Chaco

Sustainable business models for soy and cattle in the Amazon, Cerrado and Chaco

3.1 Soy expansion in the Brazilian Cerrado
3.2 Cattle ranching in the Cerrado and Amazon
3.3 Soy expansion in the Argentinian Gran Chaco
3.4 Cattle production in the Paraguayan Gran Chaco

Be a Part of the Solution: investing in the transition to sustainable cattle and soy production the Amazon, Cerrado and Chaco
There is a $30 billion* investment opportunity to support the sustainable production of cattle and soy in the Amazon, Cerrado and Chaco biomes of South America. Proven business models are available to expand production and farmer incomes while avoiding further biodiversity loss and water, climate and social impacts. At the same time, growing international market demand for deforestation-free products, upcoming regulatory changes in consumer countries, and investor expectations are also driving the need for a major transition in our food production systems. Accelerating innovative finance in these regions can make a critical contribution to these pressing global challenges.

Finance plays an essential role in shifting land-use dynamics, helping to increase production through yield improvements and better use of already-cleared lands. Finance is a critical piece of the puzzle for this sectoral transition and complements other efforts such as supply chain sourcing policies, monitoring and transparency, jurisdictional approaches, and expanding ESG requirements from investors.

Although cattle ranching and soy production are the primary drivers of habitat loss in the Amazon, Cerrado and Chaco, this document describes clear pathways to expand production of cattle and soy in these biomes without further habitat conversion. Cattle production in these regions is currently very low productivity, and with already-demonstrated practices, cattle yields can be increased by three to five times current levels while maintaining a largely grass-fed, pasture-based system. Soy also offers opportunities for productivity increases, although more modest than with cattle (e.g. 20% to 30% in Brazil’s Cerrado). In addition, there are millions of hectares of low productivity pasturelands that can be used for soy expansion without further clearing of native vegetation. In the Cerrado, for example, there are an estimated 18 million hectares of pastureland suitable for soy – more than twice the area needed for soy expansion to 2030.

There is a growing interest from lenders and investors in innovative finance mechanisms and several have been deployed already. Such mechanisms contribute to the broader efforts of the financial sector to align lending and investments with the goal of net-zero greenhouse gas emissions by 2050 through initiatives like the Glasgow Financial Alliance for Net Zero (GFANZ), Net-Zero Asset Owner Alliance, Net Zero Asset Manager Initiative, Net Zero Banking Alliance, among others. However, there are multiple challenges to scale implementation, including the need to deepen institutional support for these efforts among lenders and investors, build a track record for longer-term credit facilities and how to manage risk, design products with streamlined environmental requirements and a compelling offer for farmers and ranchers, and offer common metrics that allow financers to credibly communicate their contributions to a low-carbon food system.
Innovative Finance for the Amazon, Cerrado and Chaco (IFACC), a new initiative to foster lending and investment for sustainable agriculture in Brazil, Argentina and Paraguay, harnesses the momentum from companies, banks, and investors to create a breakthrough in the commitment and implementation of new mechanisms. IFACC has initial commitments of $3 billion including $200 million of new disbursements by the end of 2022 with a goal to scale up to $10 billion of commitments and $1 billion of disbursements by 2025. IFACC will work with producers, companies, banks, and investors to overcome barriers, catalyze finance towards the transition for sustainable agriculture and help companies, banks and investors meet net-zero commitments and net nature positive targets.

The IFACC initiative is a partnership between the Nature Conservancy (TNC), the Tropical Forest Alliance (TFA) and the United Nations Environment Program (UNEP). These three partners are all leading institutions in this space with highly complementary capabilities, which creates a unique opportunity for IFACC to serve as the “go-to” team for banks, companies and investors expanding innovative finance in the region. IFACC will support its signatories in creating and implementing deforestation-and conversion-free (DCF) financial solutions by providing support on environmental and social management, connections to concessional capital groups and other capital providers for the longer-term more patient capital needed for these transitions, sharing the best intelligence on who is doing what and what is working, and making accessible the best available data and studies on the business case and impacts.

This report outlines the business case for sustainable soy and cattle production in the Amazon, Cerrado and Chaco and the role of finance in this transition.
The Amazon, Cerrado and Chaco biomes of South America are three of our planet’s most important stores of carbon, freshwater and biodiversity—and also major food production centers, especially of soy and beef. The Brazilian Amazon is almost 19% cleared and nearing what scientists consider a potential tipping point of 20-25% clearance, the Cerrado is now half cleared, and the Chaco has lost 25% of its original forest cover to date. Deforestation and conversion from agricultural expansion releases greenhouse gases, increases biodiversity loss, and displaces local communities. Accelerating innovative finance in this region can make a critical contribution to these pressing global challenges.

<table>
<thead>
<tr>
<th>Biome</th>
<th>Total Area</th>
<th>Agriculture</th>
<th>Cattle ranching</th>
<th>Remaining native vegetation</th>
<th>Net loss (native vegetation) (2010–2020)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon</td>
<td>409.4 Mha (larger than E.U.)</td>
<td>6.1 Mha</td>
<td>57 Mha</td>
<td>330 Mha</td>
<td>13.5 Mha</td>
</tr>
<tr>
<td>Cerrado</td>
<td>197.1 Mha (almost 5 times the size of California)</td>
<td>23 Mha</td>
<td>47 Mha</td>
<td>108 Mha</td>
<td>8 Mha</td>
</tr>
<tr>
<td>Gran Chaco</td>
<td>107.7 Mha (nearly the size of France and Spain, combined)</td>
<td>9.6 Mha</td>
<td>10.2 Mha</td>
<td>97.4 Mha</td>
<td>4.35 Mha</td>
</tr>
</tbody>
</table>

Source: MapBiomas
The Amazon is the world’s largest tropical forest. Sixty percent of its 5.5 million square kilometers (2.1 million square miles) are in Brazil; and its total area is larger than the European Union (EU) and more than half the size of the United States (USA). The Amazon contains a third of known plant and animal species on land and plays a key role in the global carbon cycle and hemispheric hydrological systems, as well as regional and global economic activity. The Amazon is home to some 30 million people, including approximately 1.6 million members of more than 400 different indigenous communities.

Scientists warn of a potential “tipping point” of 20-25% clearance, beyond which the Amazon could rapidly transition to a non-forest ecosystem. Since the 1950s, the Amazon rainforest has lost 18% of its total forest cover and 19% in Brazil. Cattle ranching is the single largest driver of Amazon deforestation, responsible for more than 90% of forest loss between 2008 and 2019.

The Cerrado is a tropical savanna that covers nearly one-quarter of Brazil. It is South America’s second largest biome, with an area larger than the whole of Western Europe and almost five times the size of California. Nearly a third of Brazil’s plant and animal species live in the Cerrado, making it the most biodiverse tropical savanna in the world. The vast underground root systems of its shrub-like vegetation store enormous quantities of carbon and water. It is a key source of water for many of Brazil’s rural communities and cities, containing the headwaters of eight watersheds and three large aquifers. The environmental threats to the Cerrado receive less attention than the Amazon even though the deforestation and conversion rates there have been higher. Nearly half of the Cerrado’s native vegetation has been converted in recent decades, largely to pasture and farmland for cattle and soy production, as the region has grown into one of the world’s major agricultural production centers. Deforestation and conversion from soy production is particularly intense in the four Brazilian states on the Cerrado’s agricultural frontier known collectively as MATOPIBA: Maranhão, Tocantins, Piauí and Bahia. In the MATOPIBA regions, 55% of soy production in the 2016-17 season came from areas cleared in the last 20 years.
The Gran Chaco is a hot and semi-arid lowland area and the second-largest forest in South America. Two-thirds of its 1.1 million square kilometers – nearly the size of France and Spain, combined – are in Argentina, with the rest spread across Bolivia, Brazil and Paraguay. Its massive forests are home to unique vegetation and wildlife, including 3,400 species of plant, 500 species of bird and hundreds of mammals, reptiles and amphibians. Nine million people also live in the Chaco, including several indigenous and local communities. Currently it is being cleared at a fast pace. Between 2000 and 2019, the Amazon and Cerrado each lost about 7% of their primary native vegetation, whereas the Gran Chaco lost 9%.^7

The Argentinean portion of the Chaco covers 20% of the national territory. A quarter of the Gran Chaco forest in Argentina has been cleared for cattle ranching and agricultural production (predominantly soy, corn and wheat), mostly in the last 20 years. The Paraguayan Chaco covers almost 250,000 square kilometers and includes dry open forest and savanna in the northwest, as well as wet seasonally flooded regions in the southeast. Forest cover in all three regions of the Paraguayan Chaco declined significantly between 2010 and 2019: by 11% in Alto Paraguay, 5% in Presidente Hayes, and 17% in Boquerón. Forest loss in the Paraguayan Gran Chaco is largely driven by the expansion of cattle ranching. 

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8 TNC’s analysis based on Mapbiomas, 2019. Available at https://mapbiomas.org/
Sustainable business models for soy and cattle in the Amazon, Cerrado and Chaco

Farmers in the Amazon, Cerrado and Chaco can expand production of cattle and soy to meet growing global demand without further deforestation and conversion of native vegetation.

Cattle ranching in all three regions is currently very low productivity, and proven practices can increase cattle yields three to five times while maintaining a largely grass-fed, pasture-based system. Soy producers can also improve productivity on existing properties and expand onto low productivity pasturelands instead of native vegetation. Renting out pastures for neighboring crop production, coupled with sustainable intensification of cattle ranching, has emerged as a profitable business arrangement in some regions.

Finance can help shift land-use dynamics toward forest-positive production models. Innovative mechanisms can provide capital for upfront investment needs with more favorable terms than are currently available in the market (for example, longer tenors, grace periods, lower interest rates and more flexible underwriting requirements). Existing products, such as annual working capital loans and farmland investment funds, can also be adapted to a DCF approach.

While numerous innovative finance mechanisms are emerging, there are multiple challenges to scale implementation including the need to deepen institutional support for these efforts among lenders and investors, build a track record for longer-term credit facilities and how to manage risk, and design products with streamlined environmental requirements and a compelling offer for farmers and ranchers.

Capital providers that can provide low-cost, long-term financing or share risks with commercial lenders and investors play an important role in overcoming these challenges across the markets discussed in this document. In addition, the general movement among companies, financial institutions, and investors to de-carbonize the economy, including agricultural production systems, is an important trend that will enable greater investment in sustainable cattle and soy business models in the region.
Brazil produces and exports more soy than any nation in the world, accounting for more than 30% of global production. Half of that soy is grown in the Cerrado, on 18.2 million hectares of land. By 2030, another 7.2 million hectares of the Cerrado is expected to be farmed for soy. According to TNC models, under business as usual 5 million of those hectares will come from already-cleared pastures but the other 2.2 million hectares will involve clearing native vegetation.\[11\]

Additional deforestation and conversion of native vegetation can be completely avoided with sustainable business models. TNC estimates the Cerrado has approximately 18.5 million hectares of pastureland suitable for soy production, more than double the amount needed for soy expansion by 2030. In addition, improved farming practices could increase productivity on soy farms by up to 30%,\[14\] - a further opportunity to expand production without clearing native vegetation.

Most soy farmers in the Cerrado who want to expand into new areas or improve the efficiency of their operations must self-finance or navigate complicated government bureaucracies to access limited public funds. On their own, they must weigh land prices, the costs of conversion, yield potential and other economic factors when deciding whether to expand on existing pastureland or native vegetation. Large markets exist for annual crop finance in Brazil, but options for long-term loans are limited, and buying cheap forested land for new production is often the default, business as usual economic choice.

Financial mechanisms can tip the scales in favor of DCF soy and benefit lenders and investors who responsibly support the sector's growth. Acquiring and converting pastureland is nearly as profitable for a farmer as acquiring and clearing forest. A 2019 study of a typical soy producer in the MATOPIBA regions found a 14.3% return on investment for acquired forest versus a 13.8% for acquired pasture.\[15\] Innovative financial mechanisms, like lower-cost and longer-term financing, could close this gap and accelerate the transition to DCF soy.\[16\]

By 2030, another 7.2 million hectares of the Cerrado is expected to be farmed for soy - According to TNC models, under business as usual.

5 million of those hectares will come from already-cleared pastures.

But the other 2.2 million hectares will involve clearing native vegetation.

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11 Soy production in the Amazon is conditioned by the Soy Moratorium, therefore IFACC is focusing solely on soy in the Cerrado.
12 Refer to Eligibility criteria of soy in the Brazilian Cerrado based on
Some agribusiness companies and banks have already created lending programs that offer long-term financing for recovering degraded pasturelands and increasing yields, including Syngenta, Banco Itau, Louis Dreyfus, Bunge and Banco Santander (See Table 1). Syngenta’s Reverte program, for example, offers loans with terms from eight to 10 years with a two-year grace period, so farmers have time to implement improvements on their properties. Participants in the program coordinate with Embrapa, Brazil’s agricultural research organization, to restore pastureland and use Syngenta’s digital platforms to monitor their operations.\footnote{Syngenta Group News Service. 2021. “Conservation Program in Brazil could lead to more profitable farms and ranches.” https://www.syngenta-group.com/en/our-stories/conservation-program-brazil-could-lead-more-profitable-farms-and-ranches}

All agricultural financial mechanisms, including existing equity and debt instruments, have the potential to incorporate features that ensure DCF production. Equity funds, such as a FIAGRO \footnote{FIAGRO - Fundo de Investimento em Cadeias Agroindustriais https://www.b3.com.br/pt_br/produtos-e-servicos/negociacao/renda-variavel/fundo-de-investimento-em-cadeias-agroindustriais-fiagro.htm} or farmland investment funds that acquire farm properties, can incorporate DCF requirements and incentives. Existing debt products such as annual crop finance or securitized agriculture receivables, can also be adapted to a DCF approach, for example by offering better terms for farmers who have legal reserve surplus.\footnote{The Nature Conservancy. 2020. “Environmental Framework for Lending and Investing in Soy in the Cerrado,” https://www.nature.org/content/dam/tnc/nature/en/documents/brasil/tnc-environmental-framework-soy-eng.pdf}

An example of a debt financial mechanism which is included within the classification of ‘Green CRA’ category in Table 1 is the ‘CRA.Verde tech’ \footnote{CRA Verde. Tech https://www.craverde.tech/} issued by Gaia Securitizadora. The issue, in the amount of US$ 11 MM, is divided into senior and subordinated tranches, and is backed by farmers’ assets and agricultural insurance. The deal includes mandatory compliance with environmental and agronomic terms and conditions such as zero deforestation, reforestation goals and soil management, which are monitored by a third party (Produzindo Certo). Producers gained access to cheaper funding with a longer-than-usual term (4-year tenor versus the traditional 1-year crop finance term).

Financial mechanisms for DCF soy benefit stakeholders up and down the value chain. Lenders and investors harness reputational benefits, new business opportunities and make progress to their net-zero and other sustainability commitments. Traders develop long-term contractual relationships with farmers and can secure access to export markets with stricter environmental requirements. Producers borrow money on better terms and avoid yield reductions from regional deforestation and conversion.\footnote{The Nature Conservancy. 2020. “Environmental Framework for Lending and Investing in Soy in the Cerrado,” https://www.nature.org/content/dam/tnc/nature/en/documents/brasil/tnc-environmental-framework-soy-eng.pdf}

Benefits for

<table>
<thead>
<tr>
<th>Lenders &amp; Investors</th>
<th>Traders</th>
<th>Producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Harness reputational benefits</td>
<td>• Develop long-term contractual relationships with farmers</td>
<td>• Borrow money on better terms and avoid yield reductions from regional deforestation and conversion.</td>
</tr>
<tr>
<td>• New business opportunities</td>
<td>• Can secure access to export markets with stricter environmental requirements</td>
<td></td>
</tr>
<tr>
<td>• Make progress to their net-zero and other sustainability commitments.</td>
<td></td>
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Sustainable business models for soy and cattle in the Amazon, Cerrado and Chaco  •  IFACC 10
In 2020, TNC published its “Environmental Framework for lending and investing in soy in the Cerrado,” created to guide lenders and investors in successfully expanding their environmental finance programs or adapting existing products to a DCF approach. The Framework includes an overview of the business case for DCF soy expansion in the Cerrado and provides environmental requirements and monitoring approaches for DCF finance mechanisms.  

<table>
<thead>
<tr>
<th>Product name and responsible organizations</th>
<th>Description</th>
<th>Crop finance (&lt;1 year)</th>
<th>Yield improvements</th>
<th>Long term (3 to 10 years)</th>
<th>Equity investments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Long term financing</strong> Bunge, Santander and TNC</td>
<td>• Catalyze the conversion of pastures to soy areas through loans for the acquisition of new lands (7-10 years) and/or investment needs to increase yields in current or leased properties (3-7 years); • US$50M committed with expectations to expand to US$200M; • Actively seeking borrowers.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td><strong>Program of long-term loans</strong> Louis Dreyfus, WWF</td>
<td>• Catalyze the conversion of pastures to soy areas through loans for investment needs in current properties (3-7 years). Acquisition of new lands not included; • First loan disbursed in Q3 of 2019.</td>
<td>☑</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Green CRA</strong> Agribusiness WWF and companies, partner banks</td>
<td>• Guarantees’ securitization of deliveries backed by owner’s assets; requires compliance with environmental terms including DCF production; • Seeking partner companies and banks.</td>
<td>☑</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Irupé Creditech Vision Brazil Investment and Pawa Finance</strong></td>
<td>• Loans with discounted interest rates tied to achievement of measurable forest conservation goals; • Long term objective of USD 1B in loans</td>
<td></td>
<td>☑</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reverte Syngenta</strong></td>
<td>• Finances producer investments in sustainable practices, primarily focusing on restoring degraded pastures for crop expansion; • Promotes increased productivity in the short term to improve ROI (return over investment) through production practices that inhibit land and soil degradation; • Already an ongoing program, with first loan disbursed in Q3 of 2021.</td>
<td></td>
<td>☑</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Responsible Commodity Facility</strong> BVRio-SIM</td>
<td>• Offers financing at competitive cost for DCF production and/or restoration of Legal Reserves;29 • R$ 200 Million available; • Seeking transaction partners.</td>
<td></td>
<td></td>
<td>☑</td>
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</tbody>
</table>

Brazil is the world’s largest exporter of beef. It also has the world’s largest commercial herd with 218 million head of cattle—more than two-thirds of which are raised in the Amazon and Cerrado. Although Brazilian beef is primarily produced for domestic consumption (in 2020, 74% of beef in Brazil was consumed internally), demand for Brazilian beef is expected to grow approximately 35% over the next two decades, with exports to China being the fastest growing segment of the market. Brazil also exports significant amounts of leather, which is a low share of slaughterhouse revenues but can represent as much as a quarter of operating margins.

Under business-as-usual, cattle ranchers will meet expected demand by converting Amazon and Cerrado forest into new pastureland. Around 25% of Brazil’s total pastureland is in the Amazon, and another 33% is in the Cerrado. Cattle ranching is responsible for an estimated 93% of deforestation in the Amazon and 70% in the Cerrado.

Ranchers can meet growing demand through improved management of pastureland they already own and operate. Brazil’s productivity lags behind not only USA and many EU countries, but Brazil’s own proven potential. With moderate shifts in production practices, Brazil could significantly increase its own productivity. More than a third of Brazil’s 180 million hectares of pasture are in some stage of degradation. Ninety percent of Brazilian cattle operations make few investments in technology, land and pasture management, and animal husbandry. Without proper management, new pastures can become unproductive for grazing after just three or four years.

More than 36 million hectares of pastureland in the Amazon and 53 million hectares in the Cerrado are suitable for sustainable intensification. Cattle ranchers can improve animal stocking rates and pasture productivity with rotational grazing, regular soil fertility analysis, improved weed and pest control, and integrated crop-livestock systems. Average meat production on a degraded pasture is only 30 kilograms per hectare per year, while a well-managed pasture can produce up to 180 kilograms per hectare per year – using proven techniques. Intensified production systems also allow animals to be raised to maturity within 30 months, which is a requirement of the rapidly growing market in China.
Without options for long-term financing, however, the costs of increasing pasture productivity—ranging anywhere from $100 to over $2,000 per hectare depending on the level of degradation and management approach—are prohibitive.

Brazilian ranchers need technical assistance and long-term financing to improve pasture productivity for commercially viable DCF beef. Cattle ranching intensification requires an initial investment and additional operational costs for fencing, pasture recovery, soil enhancers, advanced machinery and personnel training. Even moderate productivity improvements can not only enable Brazil to meet future demand without further habitat conversion, but also allow for a reduction in the cattle footprint, thereby freeing up pastureland for production of soy and other agricultural products.

DCF beef producers in the Amazon and Cerrado typically reap the rewards of intensification after just a few years. Cattle ranchers from six intensification initiatives in the Brazilian Amazon needed to make an initial investment between $410 per hectare and $2,180 per hectare but were able to recover that money after 2.5 to 8.5 years through improved productivity on their properties by 30% to 490%. A Harvard Business Review study found that “sustainability practices lead to improved profitability across the value chain,” and ranchers who invested the most in sustainable practices profited the most.

A key challenge is that most farmers lack access to long-term financing to make upfront investments for intensification. Most financial institutions in Brazil are currently focused on working capital financing, and ranchers’ access to financial institutions is usually proportional to the size of their operations. Technical assistance can help improve production practices and reduce risk to financial institutions, creating more favorable conditions towards access to long term finance. Still, in some regions, lack of land titles is an added barrier to the producer.

Therefore, transition to DCF cattle needs long-term funding with tailored grace periods and risk sharing mechanisms, combined with technical assistance solutions.

Banks and capital markets have already started to diversify the pool of green financing products with requirements like valid land titles and leases, reference dates for zero forest conversion, and no net increases in greenhouse gas emissions per kg of beef produced. The table on the next page shows different initiatives supporting sustainable cattle intensification and DCF beef.

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34 Zu Ermgassen, Erasmus et. al. 2013. “Results from on-the-ground efforts to promote sustainable cattle ranching in the Brazilian Amazon”. https://www.mdpi.com/2071-1050/10/4/1301


Table 2 • Examples of existing deforestation-conversion-free cattle mechanisms in Brazil

<table>
<thead>
<tr>
<th>Product name and responsible organizations</th>
<th>Description</th>
<th>Cattle finance (&lt;1 year)</th>
<th>Yield improvements</th>
<th>Long term (3 to 10 years)</th>
<th>Equity investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC Program Federal Government</td>
<td>Created in 2010, the National Program for Low Carbon Emission in Agriculture consists of 7 public financing credit lines. Degraded pasturesland and recovery and Crop-livestock integration (ILPF) - agroforestry systems (SAFS) are some of the use of proceeds of the program.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Roncador Farm Bradesco and &amp;Green Fund</td>
<td>Loans made by Bradesco and &amp;Green fund to innovative business models to deliver finance and technical assistance to farmers.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Agri3 fund Rabobank, UNEP, IDH and FMO</td>
<td>Long term financing with Grupo Carvalho Dias to enforce forest protection and reforestation as well as restoration of degraded pasturesland. The blended finance structure allows de-risking that reduces the final cost to the beneficiary. The initiative allows for yield improvements combined with legal compliance obligations.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>São Marcelo Farm/ Jacarezinho IDH</td>
<td>Launched by IDH in 2018, the mechanism implemented in the Juruena Valley, Mato Grosso, aims to support the increase of sustainable production, zero-deforestation and traceable beef that meets customer demand for such products. It does so by engaging in a landscape approach via the “Produce, Conserve, Include” (PCI) Initiative convened by IDH.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Amazon Sustainable Cattle Ranching (PECSA) Altheia Climate Fund ICV</td>
<td>Cattle ranching technical assistance and management firm created in 2015 by Altheia Climate fund and ICV. Provides Amazon-based ranchers with access to technology, finance and markets for sustainable beef production - considering each ranch and applying technologies to increase economic results while conserving natural resources.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sustainable Agriculture Finance Facility (SAFF) Rede ILF</td>
<td>A credit facility for ranchers who receive a sustainable agriculture certification, enhancing the adoption of sustainable agricultural technologies (SATS) and providing long-term, low-cost, flexible financial and technical resources.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Low Carbon Ranching (PIBC) - Novo Campo ICY</td>
<td>The Novo Campo program promotes sustainable practices in ranches in the Amazon, improving yields and E&amp;S standards, aiming to reduce deforestation, conserving or regenerating natural resources and strengthening local economies.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pasto Vivo Project Luxor Group, Meraki Group</td>
<td>Partnership among Pretaterra, Grupo Luxor, Meraki Impact, Renature and Embraça, created in 2020. Its purpose is to be a solution for large scale agroforestry cattle breeding, in crop-livestock-forestry integration model. Contemplates an increase in legal reserves and areas of permanent protection (APRPs).</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Calf Sustainable Production Program Carrefour Foundation and IDH</td>
<td>Founded in 2019 by Carrefour Foundation and IDH, aims to change the production and marketing dynamics of livestock in Mato Grosso. Includes training to increase production efficiency and reduce carbon emissions, and support to small ranchers on land tenure and environmental regularization.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

The example of Roncador, Brazil’s fifth largest farm, is instructive. Roncador halted all deforestation in 2000. It intensified production on half its property and maintains the other half as protected forest. Cash generation grew 3.6 times just five years after intensification, and the intensified land provided 41 times more food over 10 years than it would have otherwise. In 2020, Roncador received an eight-year US$10 million loan from &Green with a 2.95% annual interest rate: and a six-year BRL150 million loan from Bradesco. It will use these loans to recover degraded pastures, grow beef and soy production on existing land by 60% by 2026, and restore more forest. The &Green terms apply a no-deforestation and no-exploitation policy at the supplier level, as well. Although most farms in Brazil are considerably smaller than Roncador, the basic approach of sustainable intensification can be replicated on farms throughout the Amazon and Cerrado.

The Amazon Sustainable Cattle Ranching (PECSA) example is another viable business solution for sustainable cattle investment. PECSA is a cattle ranching technical assistance and management company created in 2015 by Instituto Centro de Vida (ICV) and with investment from the Altheia Climate Fund. The company rehabilitates degraded ranches to make them productive, profitable, and deforestation-free. PECSA provides access to technology, finance, and markets for sustainable beef production to the ranchers based in the Amazon. The application of good production practices on PECSA’s partner ranches has generated compelling results over the last years, including: (i) productivity increases of 5 to 7 times the regional average; (ii) quality improvements allowing the animals to qualify for price premium programs; and (iii) reductions in costs and increases in gross margins. Moreover, the company’s business model requires compliance with rigorous environmental standards and reduced greenhouse gas emissions.

In 2021, TNC published its “Environmental Framework for lending and investing in sustainable intensification of cattle ranching in the Amazon and Cerrado,” created to guide lenders and investors in successfully expanding their environmental finance programs or adapting existing products to a DCF approach. The Framework includes an overview of the business case for sustainable intensification in the region and provides environmental requirements and monitoring approaches for DCF finance mechanisms.

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39 “Pasto Vivo Project. https://www.nature.org/content/dam/tnc/americas/brazil/tnc-environmentalframeworkcattle.pdf”

Sustainable business models for soy and cattle in the Amazon, Cerrado and Chaco • IFACC
Seventeen percent of Argentina’s Gran Chaco, or 12 million hectares, is currently used for agriculture and cattle ranching. Another 16 million hectares could be legally deforested under current law. Soy is the most cultivated crop in the region and is often grown in rotation with crops like corn and wheat. Productivity lags behind other parts of the country. Soybean yields in the Argentinian Gran Chaco were 19% below the national average over the last 10 crop seasons.

The Argentinean Gran Chaco has an abundance of underutilized land, especially degraded cattle pastures. A remote sensing analysis showed that 69% of existing pastures (7 million hectares) had moderate to severe degradation. Restoring this low-productivity pasture for soy production is an opportunity to align production and conservation. With the right financial products and incentives, farmers can expand on pastureland and increase yields while protecting forests and respecting the land tenure of smallholders and local communities.

Financial institutions play a role in financing for producers in Argentina, but not to the extent they do in Brazil, US and other agricultural countries. For working capital, producers use multiple sources while for investment capital they rely largely on their own financing, and public banks to a lesser extent. In general, there are different levels and costs of financing, which vary depending on the producer profile, the legal type of organization and its size.

Typically, the proportion of financing that comes from banks is lower in the Argentinian Gran Chaco than in the Pampas region, while financing provided from value chain actors (i.e. traders and input companies) is higher in the Chaco. The financing rates of traders, like those of banks, are highly variable according to the cycles of the national economy.

The emergence of deforestation as a factor of competitiveness in international trade and finance, and the Argentinian Gran Chaco as a focus of particular attention, is a relatively recent phenomenon, but with a strong potential to become more important in the coming years. In 2018, 18 banks signed the Sustainable Finance Protocol for the Banking Industry in Argentina, with the aim of facilitating and promoting “the implementation of best international practices and policies that promote integration between economic, social and environmental factors, to move towards Sustainable Development”.

40 TNC based on Mapbiomas, 2019.
41 TNC based on Consorcio Regional de Experimentación Agrícola and Ministerio de Agricultura, Ganadería y Producción, 2019.
42 INTA. 2021. Cartografía del estado de degradación de las pasturas del Gran Chaco Americano.
43 Arriazu Macroanalistas, 2017. Analysis of financial flows for beef and soy production and value chains in the Chaco Region.
The objective of ViSeC is to reduce environmental impacts with a focus on deforestation and other forms of land use change in Argentina’s Gran Chaco.
3.4. THE ROLE OF FINANCE IN SUSTAINABLE CATTLE PRODUCTION IN THE PARAGUAYAN GRAN CHACO

Paraguay’s economy relies heavily on cattle ranching with beef representing 12% of its GDP and having more than doubled since 2000. Traded in the country’s eastern region, cattle started moving to the Chaco region in western Paraguay when land prices in the east started rising due to soy farming, and many ranchers sold their properties, moved, and cleared land in the Paraguayan Gran Chaco\(^\text{16}\) - between 2009 and 2019, the cattle herd grew 32%, with a 6.38% growth in 2018-2019 alone.\(^\text{17}\) The Paraguayan Gran Chaco accounts for a herd of over 6.6 million head.\(^\text{18}\)

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Current trade and regulatory dynamics do not favor the sourcing of beef on deforestation-free land. Beef production is a vital part of Paraguay’s economy - 67%\(^\text{19}\) is exported which represents 15% of the country’s total exports\(^\text{20}\). The leading importer of Paraguayan beef is Russia, which imposes very few criteria on imports beyond sanitary controls (such as foot and mouth disease regulations).\(^\text{21}\) The exports of Paraguayan beef are concentrated in the hands of a few major exporter groups which have no zero-deforestation commitments or other processes to assure environmental compliance of their products or links to issues such as labor rights and encroachment into indigenous land. Moreover, while the Paraguayan forestry legislation has had a zero-deforestation policy for the Eastern part of Paraguay since 2004\(^\text{22}\), the law still allows land-use conversion in the Western Chaco region of Paraguay. Estimates show that there remains a significant area (close to 6.5Mha\(^{23}\)) in the Paraguayan Gran Chaco that can still be legally cleared.

Therefore, Chaco ranchers need concrete incentives to preserve native vegetation beyond legal requirements. Sustainable cattle intensification and the associated increase in farm profitability are critical to enable this shift. Paraguay’s cattle productivity lags behind its potential – average national stocking rate is 0.58 animal units per hectare and studies show that, in the Presidente Hayes Department of the Chaco, for instance, the stocking rate could be doubled with investments in cultivated pastures.\(^\text{24}\)

A study by Solidaridad\(^\text{25}\) compared the potential returns of sustainably intensified beef production versus traditional models for different Chaco eco-regions and different phases of the production cycle. Sustainably intensified beef production offered improved rates of return over business as usual in both dry and humid regions in any model (breeding, fattening or complete cycle). Technical assistance and access to adequate financing terms can help Chaco ranchers improve stocking rates on cattle production, leading to higher yields and increased profitability.

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\(^{19}\) Asociación Rural del Paraguay. 2017. “Paraguay y su Sector Carnícola.”


\(^{24}\) “Accepción Rural del Paraguay, 2017. “Paraguay y su Sector Carnícola.””


\(^{28}\) “Informe Técnico: Gaceta Tecnológica 45: Exportación de carne en el Paraguay y la Región del Chaco.”


Currently, Paraguayan higher quality beef is mainly exported to Chile, Israel, Taiwan and Brazil. However, European and North American markets are increasing demand for premium products, which could be part of the financial incentive for DCF cattle production.

Financing is an important piece of the motivation for cattle ranchers to transition to DCF beef production. Paraguay’s financial sector has started to recognize the importance of expanding lending options for sustainable agriculture, but it still lacks financial products that adhere to these principles and that are widely accessed by rural producers. In 2012, financial institutions founded the Mesa de Finanzas Sostenibles (Sustainable Finance Roundtable) to write common standards for social and environmental risks. The banks participating in the Mesa account for 83% of lending to the beef sector in Paraguay. The Mesa worked with the Central Bank of Paraguay to write Resolution 8/2018, a “guide for the management of environmental and social risks for entities regulated and supervised by the Central Bank of Paraguay.” They continue to coordinate with the Central Bank of Paraguay, the Ministry of the Environment, and the National Forest Institute to design and implement guidelines and financial products for sustainable development.

A challenge for DCF products in Paraguay is that the economy has been performing well in recent years and banks are already able to offer relatively low interest rates and longer tenors (e.g. up to 12 years, with up to 3 years grace). For innovative financial mechanisms to be effective, it is important therefore that they be integrated with broader initiatives to transition the cattle sector, including technical assistance and potentially access to premium export markets.

An example of an initiative where innovative finance could be integrated is the Asociación Agropecuaria de Agua Dulce (APAD). APAD is a group of producers – currently there are 80 members – located in one of the regions with the highest livestock growth rates in the country. They are present in the Bahía Negra district (Alto Paraguay), and have collaborated with different initiatives and alliances for sustainable development in the region. They have recently joined the Alianza para el Desarrollo Sostenible and seek to support the adoption of sustainable livestock production practices in the region and access differentiated markets for certified sustainable beef.

Another example of a potentially effective financial mechanism would be a vehicle for co-investment in sustainable cattle intensification, whereby revenues would be shared between rancher and investor and be bundled with technical assistance, like the PECSA model described in Brazil. By focusing on long-term relationships, finance and technical assistance, this solution could be attractive to ranchers and help accelerate the transition to sustainably intensified, DCF production.
Be a Part of the Solution: investing in the transition to sustainable cattle and soy production the Amazon, Cerrado and Chaco

A growing world population and the increasing demand for food are contributing to global habitat loss, carbon emissions, and straining our natural systems. The Amazon and Cerrado regions of Brazil and the Chaco regions of Paraguay and Argentina are at the center of this challenge as key hotspots of biodiversity, carbon sinks and leading food production centers. In 2019, Brazil alone was by far the largest deforesting country in the tropical region, with more forest loss than the next eight countries combined.

Finance can play an essential role in shifting land-use dynamics, helping to increase production through yield improvements and better use of already-cleared lands without further habitat conversion. Innovative financial products are already protecting forests, raising yields and improving the livelihoods of farmers in the Amazon, Cerrado and Chaco, with benefits to actors across the supply chain (Table 3). Fine-tuning and scaling these models is an opportunity for financial institutions to catalyze this transition.

The IFACC initiative is a partnership between TNC, TFA and UNEP created to galvanize innovation in delivering effective financial solutions to curb agricultural emissions in a hot and hungry world. IFACC partners are all leaders in establishing environmental finance mechanisms globally and are partners in many of the innovative finance mechanisms established to date. The team’s highly complementary capabilities have been brought together to accelerate scaling of financial mechanisms such as farm loan products, farmland investment funds, corporate debt instruments and capital market offerings. The diagram below presents examples of financial solutions IFACC seeks to encourage.

Examples of Financial Solutions IFACC Seeks to Encourage

<table>
<thead>
<tr>
<th>Farm Loan Products</th>
<th>Farmland Investment Funds</th>
<th>Corporate Debt Instruments</th>
<th>Capital Markets Offerings</th>
<th>Other Innovative Mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term loans for pasture recovery, yield improvements, sustainable intensification (e.g. Syngenta / Reverte)</td>
<td>Equity funds that buy and manage land under a DCF model, e.g. pasture recovery, yield improvements without conversion of natural vegetation</td>
<td>Sustainability-linked loans with transparent and impactful performance metrics aligned with the DCF transition</td>
<td>Securitized agriculture receivables with DCF performance metrics or use of proceeds (e.g. Green CRA)</td>
<td>Producer services businesses that bundle technical assistance and finance to support farmer transition (e.g. PECSA)</td>
</tr>
<tr>
<td>Low-cost crop finance loans as an incentive not to convert native vegetation (e.g. RCF)</td>
<td></td>
<td>Green bonds with proceeds targeted to DCF transition investments</td>
<td>Other capital markets offerings that direct investment to DCF transition</td>
<td>Other innovative business and investment models</td>
</tr>
</tbody>
</table>

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IFACC will support its signatories in creating and implementing DCF financial solutions by providing support on environmental and social management, connections to concessional capital groups and other capital providers for the longer-term more patient capital needed for these transitions, sharing the best intelligence on who is doing what and what is working, and making accessible the best available data and studies on the business case and impacts. IFACC will serve as the “go-to” team for banks, companies and investors expanding innovative finance in the region.

IFACC has developed a set of Environmental and Social Minimum Expectations for new financial products (Appendix TKTK). They apply across these target geographies and commodities. They include a no-deforestation and conversion reference date no later than January 1, 2020 and compliance with all local and national laws, including forest protection, land tenure, protected areas, indigenous peoples and local communities, labor and working conditions, water and pesticide use. Additionally, TNC has created two guides for lenders and investors in Brazil to successfully expand their environmental finance programs and adapt existing products to a DCF approach: “Environmental Framework for Lending and Investing in Soy in the Cerrado” and “Environmental Framework for Lending and Investing in sustainable intensification of cattle ranching in the Amazon and Cerrado”. These Environmental Frameworks are consistent with the IFACC Environmental and Social Minimum Expectations, but provide greater detail on the context, business case, environmental requirements and monitoring approaches for beef and soy in the Brazilian Amazon and Cerrado.

Benefits for

<table>
<thead>
<tr>
<th>Soy Producers and Cattle Ranchers</th>
<th>Supply Chain Companies</th>
<th>Investors and Lenders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better capital conditions for expanding production and cattle ranching intensification with manageable environmental requirements</td>
<td>Accelerates implementation of DCF commitments and creates reputational benefits</td>
<td>Access to new funding sources, such as concessional capital from de-risking funds and Developmental Financial Institutions</td>
</tr>
<tr>
<td>Long-term access to markets requiring progressively more-demanding environmental requirements for DCF soy, beef and leather production</td>
<td>Strengthens relationships with producers, including through long-term contracts</td>
<td>Launch of new DCF financial products and access to new clients</td>
</tr>
<tr>
<td>Improved productivity and income with reduced regional habitat conversion</td>
<td>Enhances relationship with downstream customers who are increasingly requiring DCF soy and beef</td>
<td>Reputational benefits linked to promoting conservation in the Amazon and Cerrado; credible action in the “green finance” agenda</td>
</tr>
<tr>
<td>Consistency across financial products reduces complexity in the search for financing</td>
<td>Access to concessional capital, which accepts higher risk and/or lower returns to generate positive impact</td>
<td>Consistent approach to environmental requirements and monitoring;</td>
</tr>
<tr>
<td>Increased property value attributed to investments that successfully improve land productivity</td>
<td>Opportunity to expand finance business and grow export sales</td>
<td>Contributes to implementation of net-zero and other climate and biodiversity commitments</td>
</tr>
<tr>
<td>Ability to supply the growing China market with animals no older than 30 months</td>
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Source: TNC based on Cattle and Soy Environmental Framework

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64 https://storymaps.arcgis.com/stories/b0a7ce16afa843f-e8c6e6a5ada5a8b
65 https://storymaps.arcgis.com/stories/322b0f1049f4e4f988e3dc-15d7f12183