Re-WIRE

Agri-Food Value Chains: Executive summary

Report for consultation

The Food and Land Use Coalition

SYSTEMIQ

in collaboration with

WBCSD World Business Council for Sustainable Development

Executive Summary

Introducing a new framework to guide value chain transitions

Value chains are the arteries of food systems. Over the past 50 years, they have funneled innovation and finance to deliver historic gains in productivity, food security, and economic growth. Yet most value chains face major physical risks, generate unsustainable social and environmental impacts, and are vulnerable to long-term declines in productivity. Climate change threatens to slash global crop yields by up to 35% by 2050.[1] And the same value chains that once created abundance now contribute to nature loss, climate breakdown, poverty, and poor health. As a result, food and agriculture businesses face a mounting array of reputational, legal, and business continuity risks.

These challenges have been known for some time. Still, progress in making value chains more resilient and less risky has been extremely slow. Early adopters have shown what is possible through deforestation- and conversion-free (DCF) sourcing, regenerative agriculture, and investments in alternative proteins. But deeper, structural shifts are needed to move beyond incremental change and accelerate the transition to regenerative and resilient value chains.

Geopolitical shifts and shrinking public finance make private sector leadership more vital than ever. Tariffs are rising, development budgets are under pressure, and roughly $9 trillion in private capital is tied up in the food system.[2] Companies now face a choice: continue investing in brittle models or redirect capital into regenerative systems that build resilience, competitiveness, and human capital. A new approach is needed if companies are to manage risk and stay competitive.

Everything starts with a clear, shared understanding of the problems and realistic routes to reduce risk while sustaining economics. To this end, Re-WIRE consolidates evidence on risks, impacts, finance, and transition feasibility into a clear, comparable fact base (see Section 1 of the full report). Its primary audience is business leaders in procurement and sustainability who need to understand systemic risks and identify practical procurement and finance levers (see Section 2, chapters 3 and 4 on soy and beef). However, it is designed to be useful across stakeholder groups throughout the food system. Above all, Re-WIRE identifies opportunities and tests the feasibility of transitioning towards value chains that are better for business, farmers, local communities, governments, and consumers.

1 Boston Consulting Group. (2025). Building Resilience in agrifood supply chains.
2 Elwin, P., Amadi, E., Mitchell, E., & Hunter, P. (2023). Financial markets roadmap for transforming the global food system. Planet Tracker.

Global findings from analysis of risks, impacts, and the state of the transition

Chapter 2 applies the Re-WIRE indices on risk, impacts, and state of the transition to eight commodity-country value chains based on soy, beef, cocoa, and wheat. The analysis reveals:

Escalating risks: Six of the eight value chains assessed face significant to high climate risks. Human rights violations remain widespread, particularly in cocoa (child labor and forced labor in West Africa), beef (unsafe working conditions in Brazil and the United States (US)), and wheat (exploitative migrant labor in India). Regulatory exposure is intensifying: cocoa is highly dependent on European Union (EU) markets and therefore exposed to new deforestation and due diligence laws; US soy is vulnerable to tariff escalation; and Indian wheat faces politically driven export bans.

Broadening impacts: Beef has the most severe footprint across climate, nature, health, and livelihoods. Beyond deforestation, soy creates public health risks in the US and Brazil through pesticide exposure and water pollution. Cocoa highlights the difficulty of tackling entrenched social issues: despite two decades of company commitments and certification programs, child labor remains widespread, and most smallholders earn below a living income. Wheat in India highlights severe air pollution from stubble burning, while US wheat has lower impacts but a heavy dependence on agrochemicals that drives water pollution and pesticide exposure.

Incremental transition: Regenerative and productive approaches remain marginal. 2025 commitments to deforestation-free soy and beef are at risk. Cocoa has the highest uptake of certification (around 30%), but evidence suggests this uptake has had only a modest impact relative to the scale of risks. Wheat and soy lag far behind, with regenerative adoption at 1% or less in India (wheat) and the US (both wheat and soy). Soy and beef initiatives in Brazil have slowed land-use change through DCF sourcing, but approaches such as sustainable intensification or regenerative crop-livestock-forestry integration that improve the impact of farming have not scaled significantly.

Together, these findings show why systemic transition is urgent: risks are material today, and viable solutions exist but have failed to scale.

For the remainder of 2025 and into 2026, we will:

- Invite feedback on the framework and its value to decision makers;
- Explore opportunities to expand the Re-WIRE framework to cover a broader set of value chains and geographies
- Explore opportunities to deepen the analysis to subnational territories and unpack the economics of the transition in priority value chains; and
- Identify how Re-WIRE can complement and strengthen existing initiatives.

Stakeholders—from business leaders to governments, farmers, and civil society—can test the framework in their own value chains, share insights, and help shape a credible roadmap for resilient, regenerative food systems.

Figure 1. *Re-WIRE risk index for selected commodities*

Deep Dive Executive Summary: The future of Brazil-China soy

DCF is necessary, but not sufficient

Deforestation- and conversion-free (DCF) approaches have shifted corporate norms, reduced illegal deforestation, and improved traceability. Today, the five largest traders report 93–99% DCF sourcing for Brazil-origin soy, representing at least 37% of national production. But progress remains politically fragile, vulnerable to rollback, and insufficient to eradicate deforestation and conversion or to secure the long-term resilience of soy value chains.

DCF is a foundation—not the end point. To sustain progress and address wider pressures—climate volatility, degraded soils, biodiversity loss, and community health impacts—economic incentives must be embedded into finance, procurement, and national policy, ensuring DCF becomes the market floor while unlocking broader regenerative and productive models.

Soy's global importance and rising risks

- **Concentration:** Brazil and the US account for 68% of global soy production; China is the largest buyer, sourcing 60% from Brazil and 32% from the US.
- **Nutritional efficiency gap:** Despite being protein-rich, soy contributes only 3.3% of global calories; ~75% is used in animal feed, with calories lost in conversion to meat, dairy, and eggs.
- **Rising pressures:** Climate volatility, EU deforestation regulations (covering ~13% of Brazil's output), and negative impacts on health, livelihoods, and biodiversity all undermine resilience.

Soy remains one of Brazil's most profitable exports. But sustaining its competitiveness requires aligning production with resilience, rural development, and global food security goals.

Initiatives exist, but remain fragmented and fragile

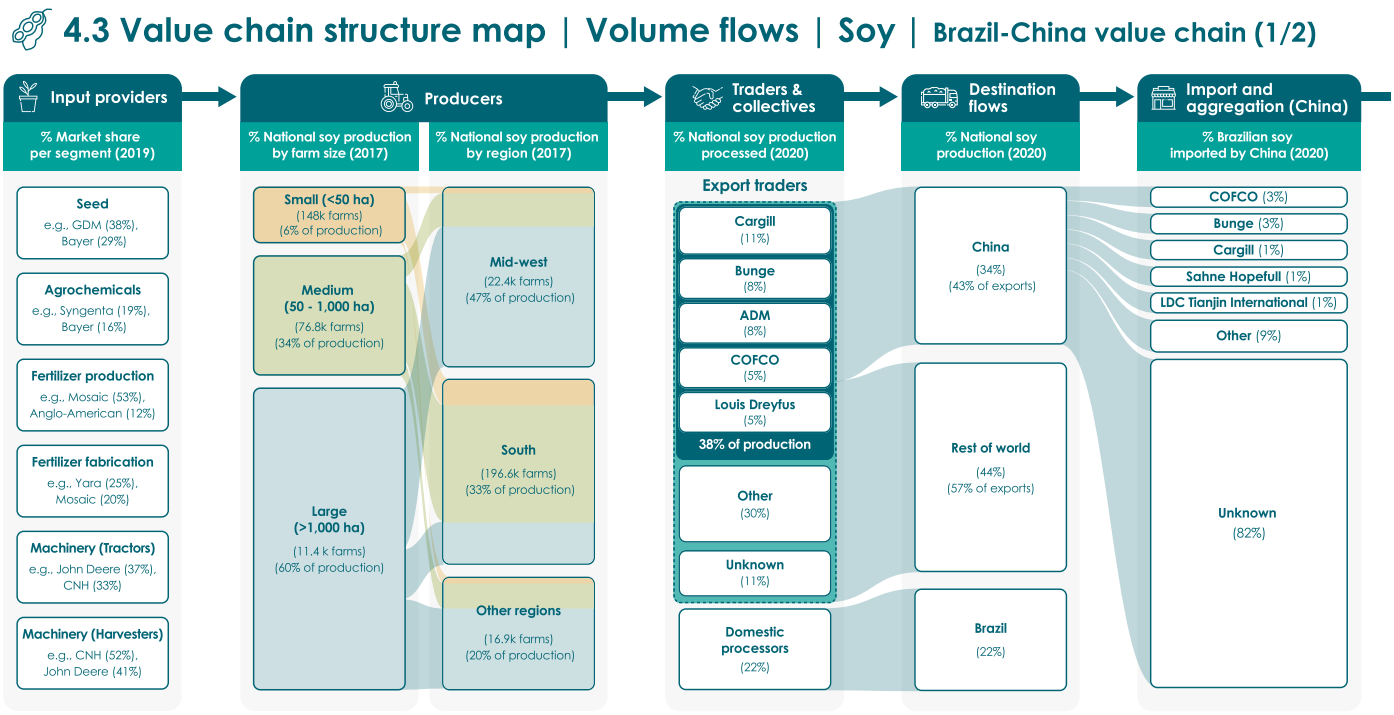
The Amazon Soy Moratorium slowed deforestation, and state-level initiatives such as Mato Grosso's Produce, Conserve, Include (PCI) have shown promise by integrating conservation and productivity. Yet both remain politically contested and under-financed. Early finance innovations (e.g., Responsible Commodities Facility, Innovative Finance for the Amazon, Cerrado and Chaco (IFACC) and pilot Chinese sourcing deals (e.g., COFCO–Mengniu) are promising, but volumes remain limited. Isolated projects cannot drive transformation at scale: without structural changes in credit, procurement, and trade, DCF gains will remain vulnerable.

Solutions are viable, but mid-sized producers are left out

DCF approaches cover the largest share of the market (at least 37%), but the likely scale-up of DCF soy will be insufficient to eliminate legal land clearing. More regenerative systems, such as crop–livestock–forest integration (CLFI), have only reached 3-4% of the market. They address a broader set of outcomes, improving yields, diversifying income, and restoring soil health. But they require 3–5 year payback periods, making them inaccessible under current credit structures. Certified soy has shorter paybacks but weak market demand.

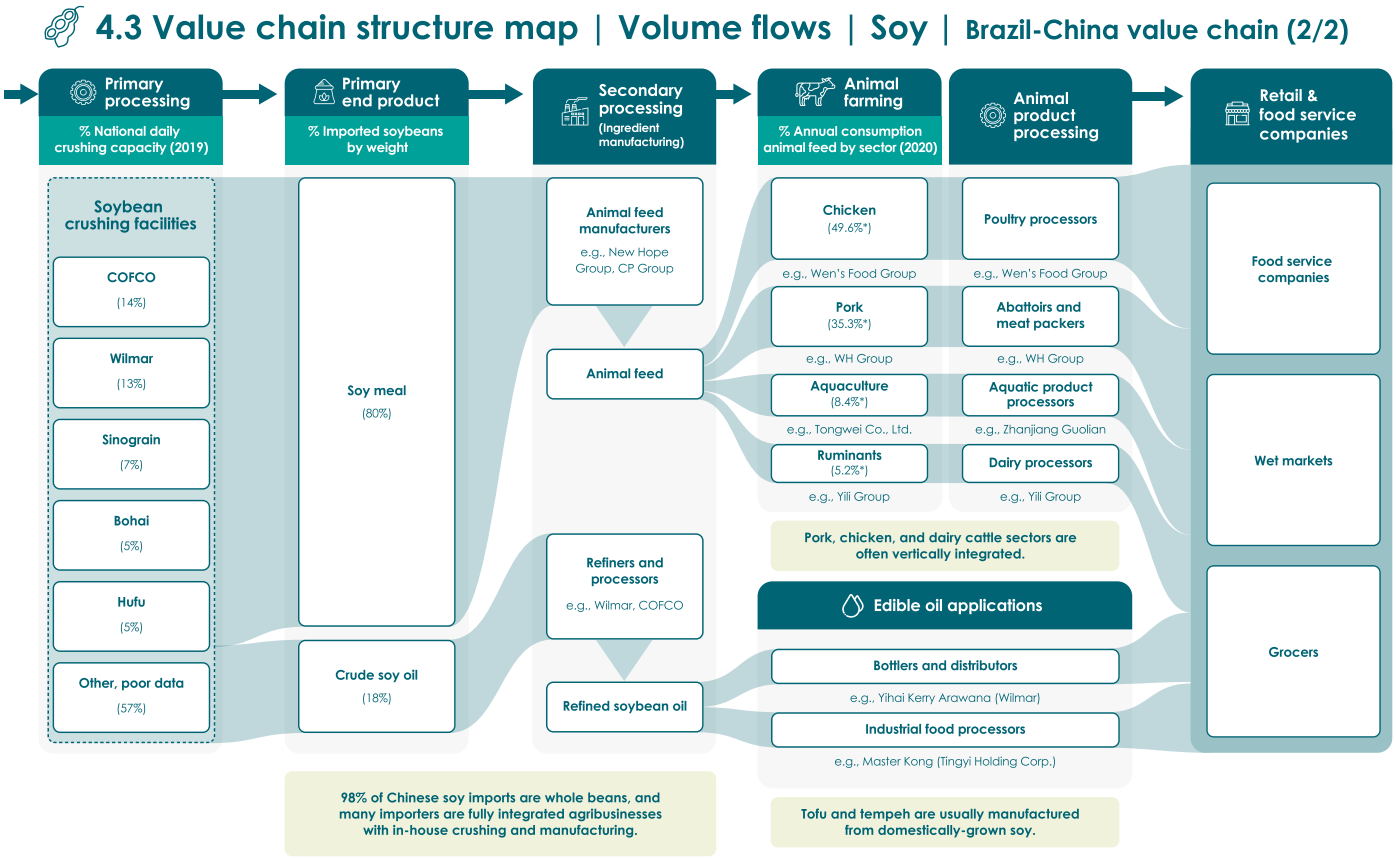
Mid-sized farms (50–1,000 ha) represent a third of production, are prevalent in high-risk regions, and are flexible enough to adopt new models. Yet they face thin margins, degraded soils, and limited access to credit. Redirecting finance to this group is one of the most powerful levers for system change.

Figure 2. *Volume flows in the soy value chain, Brazil-China – From input providers to importers*



Sources: Future of Sustainable Food Systems, Trase, SIDRA, ResourceTrade.earth

Figure 3. *Volume flows in the soy value chain, Brazil-China – From importers to retail & food service*



Sources: Trase, USDA ERS, Malaysian Palm Oil Council, China Animal Feed Industry Association, McKinsey

*These sectoral estimates use 2020 feed output shares from the China Animal Feed Industry Association as a proxy for soybean meal consumption shares. While this provides a directional approximation consistent with species-specific feed demand structures, it does not account for variation in soymeal inclusion rates across species or shifts in feed formulation since 2020. Actual soymeal use by sector may differ, particularly for pork and chicken, which typically have higher inclusion rates, and ruminants and aquaculture, which typically have lower ones.

Finance and influence are misaligned

- **Credit flows entrench the old model.** Brazil's rural credit system channels ~90% of soy external finance, but 70% goes to the largest 5% of farms. Low-carbon credit lines, e.g., ABC+/RenovAgro, account for only 2% of the total.
- **Intra-value-chain finance dominates, but is confidential.** Forward contracts, barter, and pre-purchase agreements—often backed by Chinese importers—account for twice as much as external soy finance, often with little sustainability linkage.

Redirecting rural credit and intra-value-chain finance to mid-sized producers, with blended finance to de-risk adoption, could unlock large-scale transition.

What private sector action looks like in practice

Near-term actions can lock in DCF as the baseline by targeting finance and technical assistance for mid-sized producers at the highest risk of clearing land. In the longer term, there is a need to develop a higher-ambition vision for the soy value chain that takes DCF as a floor, and work towards aligning outcomes and metrics for more regenerative, resilient soy production.

- **Companies and traders:** Embed traceability into procurement and pre-finance; standardize onboarding checks in high-risk regions; and combine DCF implementation with targeted finance and technical assistance for producers at the highest risk of clearing land.
- **Cooperatives:** Offer bundled inputs, advisory services, and credit access to lower costs and reduce leakage.
- **Financial institutions:** Redesign loan terms to reward sustainability, backed by guarantees and concessional finance.
- **Chinese buyers:** Safeguard long-term sourcing by recognizing DCF as the floor and supporting resilient trade partnerships.

Next steps

The soy transition does not require new systems—it requires repurposing existing ones. The immediate priorities are:

1. Consolidate DCF as the market baseline, embedding traceability into contracts and finance.
2. Redirect capital flows to mid-sized producers, using blended finance to de-risk transitions and scale regenerative practices. Targeted finance and technical assistance must be provided to producers at the highest risk of clearing land.
3. Build a shared Brazil–China vision, framing the transition around resilience, sovereignty, and competitiveness to secure buy-in from producers, buyers, and governments.

Deep Dive Executive Summary: The future of Brazilian beef

DCF progress is nascent

Brazil is the world's second-largest beef producer by volume (15% of global output), with over 80% consumed domestically. The three largest meatpackers control ~57% of slaughter capacity, yet traceability remains a challenge, especially for indirect suppliers. Reliable data on DCF beef volumes is lacking. Jurisdictional traceability initiatives are promising but remain early-stage.

DCF is necessary but not sufficient

To tackle drivers of deforestation and rising climate risks, DCF must be paired with incentives that raise productivity, cut methane, and improve resilience. Finance, procurement, and public policy should make DCF the market floor while supporting regenerative and productive systems.

Beef's national importance and rising risks

- **National staple:** Over 80% of Brazil's production is consumed domestically,[3] where high consumption is linked to health risks but is deeply rooted in national culture.
- **Climate risk:** Heat stress, forage degradation, and longer dry seasons are projected to reduce productivity.
- **Productivity opportunity:** Predominantly extensive systems produce just ~4 kg/ha—among the lowest globally—leaving room to double or even quadruple efficiency

Beef is deeply woven into Brazil's culture, economy, and politics; it is central to food culture and pivotal to land-use futures.

3 2022 Values. Source: FAO. (2024). FAOSTAT: Crops and livestock products.

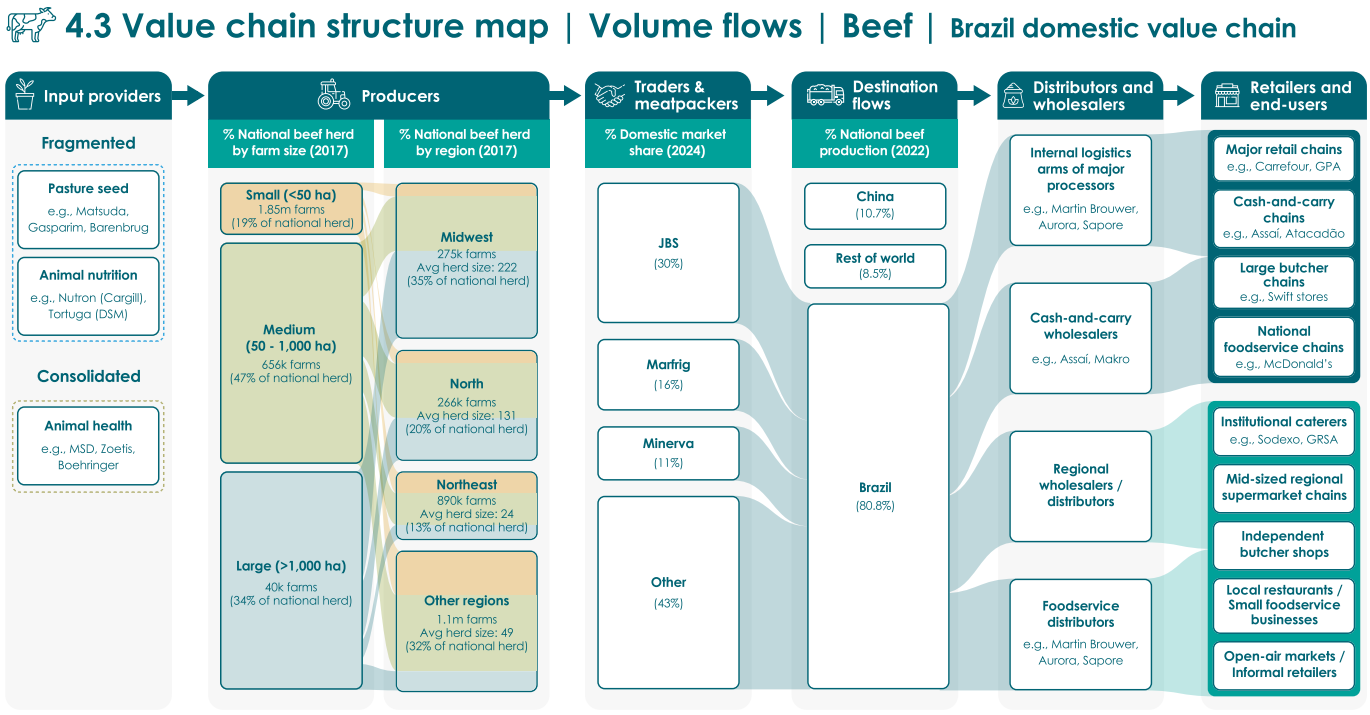
Initiatives exist, but have not yet established robust traceability

The *TAC da Carne* agreement, which legally binds meatpackers to exclude deforestation-linked suppliers, has made some measurable impact on reducing deforestation rates. States such as Mato Grosso, Pará, and Minas Gerais have made progress in establishing beef traceability systems, but this infrastructure is still nascent, and there is insufficient publicly available data to estimate verifiable volumes of DCF beef.[4] Furthermore, these initiatives do not typically target finance and technical assistance for broader improvements in productivity or other social and environmental impacts.

Solutions are economically viable, but have long payback periods

Sustainable intensification approaches cover the largest share of the market (10-15%) and improve yields and farm profitability, but payback periods range from 3-8 years, longer than what most farmers can absorb. Crop-livestock-forestry integration (CLFI) systems deliver soil restoration, income diversification, and resilience with 3–5-year paybacks, but remain inaccessible under prevailing credit terms.

Figure 4. *Volume flows in the domestic beef value chain, Brazil*



Sources: Frontiers in Sustainable Food Systems, Trase, SIDRA, ResourceTrade.earth, Chain Reaction Research, ABIEC, RB Investimentos

4 A full list of initiatives that authors reviewed in the Brazil beef value chain is available in the methodology document.

Finance is misaligned

- **Many small and mid-sized ranchers cannot access credit.** Small and mid-sized ranchers make up 98% of Brazil's 2.5 million cattle producers,[5] but are often unable to access rural credit due to a lack of formal titles, Cadastro Ambiental Rural (CAR) registration, or sufficient collateral.
- **Rural credit favors large, documented producers.** Brazil's rural credit system channels ~70% of beef finance, and predominantly serves large, documented producers, while failing to consistently apply environmental conditionalities.
- **Private sector finance for meat-packers has no sustainability conditionality.** Over 90% of beef-sector bond underwriting from Western and Brazilian private banks goes to JBS, Marfrig, and Minerva,[6] despite documented instances of deforestation in their supply chains and an inability to disclose verified volumes of DCF beef.
- **Intra-value-chain finance is significant.** Deferred payments, cash advances, input finances, and other forms of informal credit are likely the sector's biggest financial engine and could be used to incentivize traceability or deforestation-free supply. However, these financial flows are confidential and not publicly disclosed.

Redirecting rural credit and intra-value-chain finance to compliant small and mid-sized ranchers—while making all finance conditional on legality, then DCF—is the most powerful lever for system change.

What private sector action looks like

- **Unilateral company actions:** embed traceability evidence in contracts, procurement and onboarding checks, payment timing, and working capital, with public progress reporting.
- **Cross-value-chain collaboration:**
  - **Establish legally compliant beef as the baseline:** collaborate to co-invest in traceability technologies and approaches for indirect suppliers and make trade-finance conditional upon legal compliance.
  - **Shift incentives for small and medium-sized producers:** make private finance and trade finance conditional upon legal, and then DCF beef production, and bundle inputs, technical assistance, and off-take contracts to support DCF mid-sized ranchers.
  - **Align on a shared ambition for regenerative, resilient beef:** develop a higher-ambition vision that takes DCF as a floor and work towards aligning outcomes and metrics for more productive, regenerative, resilient beef production.
- **Business policy advocacy:** advocate for stronger government enforcement of the Forest Code and the simplification and integration of CAR and Global Trade Alert (GTA) databases to reduce the burden of compliance for producers.

Benefits are shared. Meatpackers and banks reduce risk; retailers grow sales of healthier, traceable products; governments improve food security and enforcement efficiency; and producers gain productivity, resilience, and more stable income.

5 Instituto Brasileiro de Geografia e Estatística (IBGE). (2019). Censo Agropecuário 2017: Resultados definitivos.
6 Chain Reaction Research. (2020). Domestic banks finance 74% of Brazilian beef & soy.

Next steps

The beef transition must be made economically rational for producers. The immediate priorities are:

1. **Establish legal compliance as the market baseline** by investing in traceability, embedding traceability into contracts and finance.
2. **Make finance conditional on legal, DCF supply** and redirect finance and technical assistance to small and mid-sized producers; use blended finance to de-risk the transition to more sustainable, regenerative beef production. and scale regenerative practices.
3. **Build a shared vision for more regenerative, resilient beef**, framing the transition around rural development, resilience, and national pride to secure buy-in from producers, buyers, consumers, and governments.

Beef's cultural and economic role is undeniable, but so are its escalating costs. Protecting forests, raising productivity, and strengthening livelihoods can—and must—advance together.