



CT Sistemas
Agroalimentares

Executive Summary

Establishing a New Paradigm:

METRICS AND INDICATORS

to Boost Regenerative
Agriculture in Brazil



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FICHA TÉCNICA

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Texto idealizado pelo CEBDS e associadas participantes da Câmara Temática de Sistemas Agroalimentares

COORDENAÇÃO:

Carla Gheler Costa – CEBDS

CONTEÚDO E REVISÃO:

Carla Gheler Costa - CEBDS

Juliana Lopes - CEBDS

Anderson Ignácio - CEBDS

Gabriela Mota da Cruz - Consultora

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EMPRESAS PATROCINADORAS DA CÂMARA TEMÁTICA DE SISTEMAS AGROALIMENTARES

Bayer, Nestlé e Unilever

REDES SOCIAIS CEBDS:

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ENDEREÇO CEBDS:

Rua São José, nº 40. Edifício São José,
3º andar. Centro, Rio de Janeiro - RJ.
CEP: 20010-020

Rua Dr. Virgílio de Carvalho Pinto, 445
3º andar (CIVI CO), São Paulo, SP.
CEP: 05415-030

Contato: (21) 2483-2250

E-mail: cebds@cebds.org

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CEBDS - CONSELHO

EMPRESARIAL BRASILEIRO PARA O DESENVOLVIMENTO SUSTENTÁVEL.

Estabelecendo um Novo Paradigma:

Métricas e Indicadores para Impulsionar a Agricultura Regenerativa no Brasil. São Paulo/SP. Outubro, 2025.

1. INTRODUCTION AND NEW PARADIGM

Regenerative agriculture is becoming recognized as an essential approach to addressing food security and climate change challenges in Brazil and the rest of the world. This study is a strategic and collaborative effort by the Thematic Chamber on Agrifood Systems of CEBDS (Brazilian Business Council for Sustainable Development), including the participation of Landscape Accelerator Brazil (LAB)¹.

Regenerative agriculture is more than just sustainability. It is actively seeking to improve soil health, increase biodiversity, improve water cycles, sequester carbon and improve the quality of life of the rural population. Practices such as no-till farming, crop rotation, Integrated Crop-Livestock-Forest (ICLF) system and the use of bioinputs are essential elements of this approach, and together represent a potential to mitigate 80% of greenhouse gas emissions. Therefore, Brazil, as the world's fourth largest food producer and largest global exporter of commodities, is expected to take a leading role in this agenda.

The lack of clear standardized metrics has been limiting the ability of producers to implement regenerative methods and, crucially, to access adequate financing and incentives. This study aims to fill this gap by providing guidelines for developing criteria and metrics to recognize and validate properties that adopt regenerative practices, and these guidelines are applicable to both large- and small-scale producers.

PATROCÍNIO
MASTER



PATROCÍNIO
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¹ LAB is a joint initiative between CEBDS, WBCSD and BCG, in partnership with the Ministry of Agriculture and Livestock (MAPA).

2. SCIENTIFIC EVIDENCE AND FEASIBILITY

The study is largely supported by evidence demonstrating the effectiveness of regeneration in environmental, ecosystem, and socioeconomic terms.

2.1. Environmental and Climate Benefits

- **Carbon Sequestration:** Cerri et al. (2024)² show that adopting good management practices (GMP) in more than 30% of the agricultural areas of the Americas (334 million hectares) can lead to the sequestration of 13.1 (±7.1) petagrams of CO₂ equivalent in 20 years. This would offset nearly 39% of GHG emissions from agriculture over the same period.
- **GHG Mitigation in Livestock:** The effective and sustainable management of pastures and shortening the production cycle of animals can potentially result in a negative carbon footprint for cattle ranching, achieving a reduction estimated at -1.2 kg of CO₂ equivalent for each kilogram of meat produced in optimized systems.
- **Water Resilience:** Adopting cover crops and practicing crop rotation can significantly enhance the soil's water retention capacity, improving the crops' resilience to droughts.
- **Biodiversity:** Strategies for agricultural diversification, including crop rotation and crop diversity, consistently increase biodiversity without compromising productivity.

2.2. Socioeconomic Benefits

- **Profitability:** Studies point out that regenerative agriculture results in higher profitability for farmers, in addition to boosting productivity and improving the nutritional quality of food.
- **Quality of Life:** Regenerative agriculture actively seeks to improve the quality of life for rural producers and the overall population, and is considered a fundamental pillar of the transition.

² CERRI, C.E.P. et al. Carbon farming in the living soils of the Americas. Front. Sustain. Food Syst. 8:1481005, 2024.

3. THE FRAMEWORK OF METRICS AND INDICATORS

The study is focused on the development of a system of metrics that goes beyond simply measuring practices and instead focuses on measuring outcomes. The metrics were developed in collaboration with LAB, IPAM, EMBRAPA and MAPA.

3.1. Classification of Metrics

The framework proposed here classifies metrics into five categories of regenerative outcomes (water, biodiversity, climate, soils, and socioeconomic) and then sorts these metrics based on their level of readiness in Brazil:

- **Central Metrics:** Indicators for measuring and evaluating specific practices (e.g., rate of application of inputs) or outcome indicators currently feasible for MRV in Brazil.
- **Related Metrics:** Indicators used to assess actual environmental and socioeconomic changes, including the reduction in input usage per crop, or the intensity of carbon sequestered per unit of production.

3.2. Metrics for Regenerative Agriculture in Brazil

The metrics presented here are the result of extensive consultation and discussion since the study was initiated in 2023³. These metrics are not fixed or exhaustive. Rather, they are initial proposals that can serve as a baseline for further discussion and the development of regulatory frameworks, while also supporting existing public policies.

³ Available at: <https://cebds.org/publicacoes/agricultura-regenerativa-no-brasil-desafios-e-oportunidades/>

Metrics for measuring the results of regenerative agriculture practices in agricultural production in Brazil (✓ - direct relationship; ☑ - indirect relationship)

Metrics	Unit of measurement	Related metrics	 Water	 Biodiversity	 Climate	 Socioeconomic	 Soil
GHG Emissions	MT CO ₂ e	Carbon intensity per unit of production or harvest.			✓		
Organic carbon in soil or organic matter content in soil	Mg C/ha		☑	☑	✓		✓
Above-ground carbon sequestration	MT CO ₂ e		☑	☑	✓	☑	☑
Biological health of the soil	BioAs (EMBRAPA)		☑	☑	☑	☑	✓
Application rate and type of input	kg/crop	Efficient use of nutrients (N and P) and environmental impact coefficient. Use of integrated pest and disease management. Use of bioinputs.	✓	✓	✓	☑	✓
Crop diversity	Unit	Functional index of crop diversity.	☑	✓	☑		✓
Presence of natural habitat (native vegetation) in the agricultural landscape	%/Km ²	Habitat connectivity index. Legal reserve surplus. Presence of permanent preservation areas.	☑	✓	☑	☑	☑
Change in land use (deadline in the forest code)	ha		☑	✓	✓	☑	☑
Use of freshwater	m ³ /production unit	Water stress risk level. Intensive water use per production unit or harvest.	✓	☑	☑	☑	☑
Productivity	t/ha			☑		✓	☑
Producers' perceptions of changes in quality of life and farm success	Socioeconomic data of the farm – production/ha/crop, financial return	Net income from the property. Average productivity of the farm per crop and per hectare.				✓	☑

Source: Prepared based on the CEBDS study (2023) and the contributions from the LAB.

By advancing these metrics, it becomes easier to strengthen the engagement of the private sector. This is achieved by linking regenerative projects to corporate decarbonization goals and expanding access to new financing mechanisms.

4. THE FINANCING OF THE TRANSITION

Financing is an essential component to making the transition achievable; relying only on public resources is insufficient.

4.1. Public Financing (The base)

- **ABC and RenovAgro Plan:** Programs like the ABC Plan (2010-2020) were crucial in helping to recover 26.8 million hectares of degraded pastures and to mitigate over 193 million tons of CO₂e. Its successor, RenovAgro, continues to offer subsidized credit and incentives.
- **Challenges:** The ABC Plan faced some obstacles related to access for small- and medium-sized producers due to bureaucratic barriers and a lack of technical assistance.

4.2. Private Financing and Blended Finance

The solution to scaling depends on the strategic combination of public and private capital:

- **Mechanisms:** Blended finance leverages first-loss guarantees and subordinated capital to **reduce risk** for private investors and to attract more capital..

Examples:

- **Funds such as ECOInvest** (which is looking to raise up to US\$11 billion in climate-aligned capital) and companies' initiatives demonstrate the viability of this model.
- **Market and PES:** The carbon market and Payment for Environmental Services (PES) represent additional revenue opportunities for the producer.
- **The Role of Cooperatives:** Cooperatives are fundamental factors in facilitating access for small-scale producers, aggregating demands to reduce transaction costs, and providing the scale needed to access carbon markets and blended finance.

5. WAY FORWARD

Regenerative agriculture offers a strategic pathway for Brazil to tackle the interconnected challenges of environmental sustainability, climate change, and food security, positioning itself as a production model that harmonizes conservation and economic returns. However, in order to unlock large-scale adoption, it is critical to tackle structural barriers, including supply chain fragmentation, financing gaps, and the need for standardized, trusted metrics.

The success of the transition depends on:

- **Robust Metrics:** Defining and implementing reliable indicators are important aspects to attracting investments, ensuring transparency and measuring results.
- **Innovative Financing:** The alignment of blended funds, carbon markets and PES, along with the strengthening of cooperatives, are absolutely necessary for achieving the goal of scaling up practices and overcoming economic challenges.
- **Coordinated Articulation:** Success depends on coordinated collaboration among the public, private, and civil society sectors, cementing Brazil as a global leader in the transition to sustainable, fair, and regenerative agrifood systems.

By aligning financing, robust metrics, and effective public policies, Brazil has the opportunity to position itself as a global leader in the transition to regenerative production systems. Achieving a successful transition requires a concerted effort between government, private actors, and civil society to integrate financial incentives, standardize assessment frameworks, and expand sustainable practices throughout the agricultural and livestock production chain. The guidelines provided in this report offer a clear path for the business sector and policymakers to cooperate in building a more sustainable and resilient future.



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