

BRAZILIAN AGRICULTURAL POLICY FOR CLIMATE ADAPTATION AND LOW CARBON EMISSION

EXECUTIVE SUMMARY

2020-2030

MINISTRY OF AGRICULTURE, LIVESTOCK AND FOOD SUPPLY (MAPA)

BRAZILIAN AGRICULTURAL POLICY FOR CLIMATE ADAPTATION AND LOW CARBON EMISSION

MAPA Mission

To promote the sustainable development of agriculture and the safety and competitiveness of its products

> Brasília **MAPA** 2022

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> Director of Sustainable Production and Irrigation Fabiana Villa Alves

General Coordinator of Climate Change and Conservationist Agriculture CGMC Soraya Carvalho Barrios de Araújo

ABC+

Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission

2020-2030

2022. MINISTRY OF AGRICULTURE, LIVESTOCK AND FOOD SUPPLY

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MINISTRY OF AGRICULTURE, LIVESTOCK AND FOOD SUPPLY

Department of Innovation, Sustainable Development and Irrigation SDI Department of Sustainable Production and Irrigation DEPROS General Coordination of Climate Change and Conservationist Agriculture

> Address: Esplanada dos Ministérios, Bloco "D", Anexo B, sala 20 POSTCODE: 70.043-900 – Brasília/DF Tel: (61) 2023.3324 www.agricultura.gov.br

STAFF

PREPARATION OF THE DOCUMENT

Eleneide Doff Sotta; Elvison Nunes Ramos; Fabiana Villa Alves; Fernanda Garcia Sampaio; João Nicanildo Bastos dos Santos; Juliana Bragança Campos; Mariane Crespolini dos Santos; Ricardo Kobal Raski; Roberto Soares Rocha e Sidney Almeida Figueira de Medeiros

SUPPORT TO COMMUNICATION: PROGRAMA RURAL SUSTENTÁVEL (PRS)

Coordination of Communication Mariana Resende

Graphic Design and Layout Júlia Mendes

For more information on the PRS, please visit: www.programaruralsustentavel.org.br

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CONTRIBUTORS AND REVIEWERS

Abílio Rodrigues Pacheco Ademir Hugo Zimmer Adonias Castro Filho Afonso Peche Filho Airton Kunz Ailson Augusto Loper Alberto Carlos de Campos Bernardi Alessandro Gardemann Alessandro Sanches Pereira Alexandre Berndt Alexsandra Duarte de Oliveira Álvaro Luiz Mafra Ana Gutierrez Ana Luiza da Costa Cruz Borges Ana Luiza Pupe de Brito Jansem Ana Paula Contado Packer Ana Silvia Costa Silvino André Amaral André Cestonaro do Amaral André Luis Alves Miguel André Luiz de Carvalho André Miguel Antonio Felipe Guimarães Leite Arcângelo Loss Arminda Moreira de Carvalho Arthur Bragança Ayrton Kuntz Barbara Brakarz Beata Emoke Madari Bernadete Lange Bruno Carneiro e Pedreira Bruno José Rodrigues Alves Caio Marcio Almeida Carlos Arduini Carlos Eduardo Pacheco Lima Carlos Eugenio Martins Celso Vainer Manzatto Cláudia Pozzi Jantalia Claudinei Kurtz Cledimar Rogério Lourenzi Daniel Luis Mascia Vieira Daniela Mariuzzo

Darlan Rodrigo Marchesi Davi José Bungenstab Débora Gomide Santiago Deisi Cristina Tapparo Denilson Dortzbach Diego Melo de Almeida **Diogo Carlos Leuck** Durval Dourado Neto Edson Junqueira Leite Eduardo Delgado Assad Erich Gomes Schaitza Fábio Bueno dos Reis Junior Evandro Carlos Barros Everardo Chartuni Mantovani Fabricio Camargo de Lima Fausto Takisawa Fernando Castanheira Neto Fernando Mendes Flávio Augusto Portela Santos Flavio Jesus Wruck Florian Arneth Francislene Angelotti Frederico Cintra Belém Gabriela Maia Gervásio Paulus Giampaolo Queiroz Pellegrino Gladis Pereira **Gladys Beatriz Martinez Gleiciane Silva** Gustavo Barbosa Mozzer Gustavo Brunetto Gustavo Chianca Gustavo dos Santos Goretti Gustavo Henrique M. F Araújo Gustavo José Braga Hans Christian Schmidt Henrique Debiasi Hugo Borges Rodrigues Hugo Bruno Correa Molinari Humberto Neto Ivan Crespo Jaine Cubas

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Jens Brueggemann Jéssica Yuki Lima Mito João Antônio F. Salomão João Carlos de Moraes Sá João Cláudio da Silva Souza João de Ribeiro Reis Junior João Dionísio Henn João Ferrari Neto João Francisco Adrien Fernandes João Roberto Santana Artusi Jônadan Hsuan Min Ma Jonathas de Alencar Moreira Jorge Enoch José Antonio Marengo Orsini José Eloir Denardin Jose Felipe Ribeiro José Henrique de A. Rangel José Henrique Silva José Ricardo Macedo Pezzopane José Silvério Josiléia Acordi Zanatta Juan Vicente Guadalupe Gallardo Juliano Assunção Julio Cesar Pascale Palhares Júlio César Salton Julio Cezar Franchini dos Santos Julio Cezar Ramos Katia Marzall Ladislau Araújo Skorupa Leandro Bortolon Leandro do Prado Wildner Leidiane Ferronato Mariani Leidiane Mariani Lineu Neiva Rodrigues Lourival Vilela Luciana Carrijo Luís Augusto Crisóstomo Luis Gustavo Barioni Luiz Adriano Maia Cordeiro Luiz Calvo Ramires Junior Luiz Carlos Balbino Luiz Fernando Carvalho Leite Luiz Fernando Ribeiro de Barros Luiz Gustavo Ribeiro Pereira

Manfred Muller Manoel Mendonça Manuel Cláudio Motta Macedo Mara Cristina Moscoso Marcela Paranhos Marcela Resende Marcelo Ambrogi Marcelo Augusto Boechat Morandi Marcelo Dias Muller Marcelo Francia Arco-Verde Marcelo Zanella Márcia Dompieri Marco Aurélio Pavarino Marco Olivo Morato de Oliveira Marcos A. Carolino de Sá Marcos Heil Costa Marcus Vinicius Alves Maria da Penha Mariana Ferreira Matias Mariangela Hungria da Cunha Martha Mayumi Higarashi Maurel Behling Miguel Marques Gontijo Neto Mirella de Souza Nogueira Costa Moacyr Bernardino Dias-Filho Mozar de Araújo Salvador Natali Maidl Naylor Bastiani Perez Nelson Ananias Filho Nuno Rodrigo Madeira Otávio Marangoni Souza Octavio Damiani Osvaldo Machado Rodrigues Cabral Patrícia Machado Patrícia Menezes Santos Patrícia Perondi Anchão Oliveira Paulo Armando Victória de Oliveira Paulo Francisco da Silva Paulo Júlio Silva Neto Pedro Augusto Loyola Pedro Luiz Oliveira de Almeida Machado **Priscila Sleutjes** Rafael Gonzalez e Daiana Gotardo Ramon Costa Alvarenga

Renato Serena Fontaneli Ricardo Gava Robélio Leandro Marchão Robert Michael Boddey Roberta Aparecida Carnevalli Monteiro Roberto Dias Algarte Roberto Guimarães Jr. Roberto Giolo de Almeida Rodrigo da Costa Gomes Salete Alves de Moraes Saulo Pastor Santos Sebastião de Campos Valadares Filho Segundo Sacramento Urquiaga Caballero Sérgio Raposo de Medeiros Suiá Kafure Rocha Tadário Kamel de Oliveira Taiguara Alencar Talita Vieira Fideles Tamar Roitman Tatiana Duarte Tiago Quintela Giuliani Vanderley Porfírio-da-Silva Walkyria Bueno Scivittaro Wanderson Henrique de Couto Warley Efrem Campos William Goulart da Silva Wilson Andrade Wilson Vaz de Araujo

INSTITUTIONS CONSULTED

| Associação Baiana das Empresas de Base Florestal | ABAF-BA |
|---|----------------|
| Agência Reguladora de águas, Energia e Saneamento do Distrito Federal | ADASA |
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| Associação Brasileira das Entidades Estaduais de Assistência Técnica e Extensão Rural | ASBRAER |
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| INCT Microrganismos Promotores do Crescimento de Plantas Visando | |
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| Associação Sul-Mato-Grossense de Produtores e Consumidores de Florestas Plantadas | REFLORE-MS |
| Serviço Nacional de Aprendizagem Rural | SENAR |

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| Sociedade Brasileira de Sistemas Agroflorestais | SBSA |
|---|-------|
| Universidade do Estado de Santa Catarina | UDESC |
| Universidade Estadual de Londrina | UEL |
| Universidade Estadual de Ponta Grossa | UEPG |
| Universidade Federal de Minas Gerais | UFMG |
| Universidade Federal do Paraná | UFPR |
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| Universidade Federal de Santa Maria | UFSM |
| Universidade Federal de Viçosa | UFV |
| Universidade Federal de Mato Grosso do Sul | UFMS |
| Organização das Nações Unidas para o Desenvolvimento Industrial | UNIDO |



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PRESENTATION

This document addresses the global strategy for the second cycle of the plan known as "Plano Setorial de Adaptação e Baixa Emissão de Carbono (Plano ABC)" henceforth to be known as the "Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission (ABC Plan)". This new cycle, called ABC+, establishes the national strategic agenda on the subject, for the period from 2020 to 2030.

Anchored in the National Policy on Climate Change (PNMC), established by Law No. 12187, of December 29th, 2009, ABC+ continues the sectoral policy established in 2010 to tackle climate change by the agricultural sector. It is, therefore, the evolution of the ABC Plan towards the next decade, with the objective of supporting the fulfillment of the global commitments assumed by Brazil, as well as other planning instruments of the Federal Government, aimed at sustainable development.

Its scope is to promote adaptation to climate change, and get control of greenhouse gas (GHG) emissions in Brazilian agriculture, with increased efficiency and resilience of production systems through integrated landscape management.

In this second phase, it focuses on the urgent need to adopt strategies that increase the adaptive capacity of the agricultural sector in the face of climate change, moderating its damage and exploring opportunities. To this end, three strategic pillars make up the basis of ABC+ actions:

ntos/sustentabilidade/plano-abc/arquivo-publicacoes-plano-abc/final-isbn-plano-setorial-para-adaptacao-a-mudanca-do-clima-e-baixa-emis

i) the Integrated Landscape Approach (ILA); ii) the joint focus on GHG mitigation and adaptation, and; iii) incentive for maintenance and expansion of Sustainable Production Systems, Practices, Products and Processes (SPS_{ABC}). Such pillars are detailed in the documents "Strategic Plan" (PE), published in April 2021, and "Operational Plan" (PO), published in October 2021, at ABC+10.

This publication, in the form of an Executive Summary, presents, in a compiled and summarized form, a summary of the main information contained in the two documents above mentioned.

Trusting that agriculture and food supply are at the heart of a fair and equitable development model, we are increasingly convinced that, with its model of sustainable tropical agriculture, Brazil has a leading role to play in achieving the Sustainable Development Goals (SDGs) of the 2030 Agenda, and in accelerating climate action under the Paris Agreement.

In this context, ABC+ is the main tool of the Ministry of Agriculture towards sustainable development of the Brazilian agriculture, reinforcing the country's potential to produce and preserve at the same time.

1. INTRODUCTION

INTRODUCTION

After ten years of implementation of the Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission (ABC Plan), the Ministry of Agriculture, Livestock and Food Supply presents the ABC+. In this second phase, it upholds promotion of technologies and production systems, which, in addition to emitting smaller amounts of GHG and being more resilient, allow greater productive efficiency, incorporating new concepts and approaches.

Operational actions of the ABC+ are structured over three new concepts: Integrated Landscape Approach (ILA), focusing on increasing the resilience of agricultural production systems; synergy between GHG mitigation and adaptation, and; adoption and maintenance of Sustainable Production Systems, Practices, Products and Processes (SPS_{ABC}).

ABC+ emerges from the lessons learned from the ABC Plan (2010 to 2020), as well as from public documents, prepared by institutions from different spheres, dealing with themes related to agriculture and climate change. In the process of building it up, 28 national actors were consulted, in addition to the 27 state management groups (GGE). Over 200 authors, collaborators and reviewers, and 50 partner institutions, contributed to this process.

To the technologies promoted in the previous cycle, new SPS_{ABC} were added, maintaining the solid scientific and technological support adopted in the first phase. As main changes, three new SP-SABC were included: No-Till systems for Horticulture (SPDH), Irrigated Systems (SI) and Intensive Cattle Finishing (ICF). In addition, Agroforestry Systems (SAF), together with the Integrated Crop-Livestock-Forestry Systems (ICLF), are in ABC+ called a major technology named "Integrated Systems" (IS). The scope of three other previous SPS_{ABC}s was also expanded, with changes in their names into: Practices for Recovery of Degraded Pastures (PRPD) (formerly "Recovery of Degraded Pastures"). Now it also considers the recovery and renewal of pastures with some degree of loss; Bio-Inputs (BI), which includes Plant Growth Promoter Microorganisms (MPCP) to the previous "Biological Nitrogen Fixation" (FBN), and; Waste Management at Animal Production (MRPA), replacing the "Treatment of Animal Waste", as it considers other residues besides animal waste, and stimulates the use of the by-products obtained, such as bioenergy and biofertilizers.

In this second phase of operation, the new SPS_{ABC} , with proven capacity to adapt to climate change and GHG mitigation, based on scientific criteria, will be carried out continuously throughout its operation time. To this end, biannual reviews of its guiding documents are foreseen.

This document summarizes the main points necessary for understanding the ABC+.

1.1 CONCEPTUAL BASIS

The conceptual basis established in ABC+ represent an advance in the use of natural resources, and in the paradigm of sustainable development of the Brazilian agricultural sector, signaling current and important issues in the national and international context.

A. Integrated landscape approach (ILA)

ILA brings a strong incentive for farms environmental compliance; valorization of landscape; recovery and conservation of soil quality, water and biodiversity, and; the valorization of local specificities and regional cultures. In short, it associates production and conservation, provided that the use of arable lands and their environmental compliance are stimulated and become complementary.

In the scope of ABC+, it is assumed that the management of agricultural lands must take into account the various elements of the rural landscape and the natural biome in which it is inserted, at its different levels and scales. Thus, the diversified, systemic and dynamic aspect of rural areas is enhanced, with the watershed as a basic planning unit.

B. Interconnection between adaptation and mitigation

The increase in the frequency of extreme climatic events requires strengthening actions aimed at reducing the vulnerability of agricultural production systems, and increasing the resilience of the sector. Structured together, strategies, tools and processes, whose core is mitigation and adaptation, are essential elements in a short-, medium- and long-term perspective, according to their territorial scale.

Under ABC+, adaptation strategies focus primarily on promoting the adoption and maintenance of conservationist practices, considered a "complex of systemic technologies to preserve and restore (or recover) natural resources, with the integrated management of soil, water and biodiversity, compatible with the use of external inputs". Regardless of the production system and the region, these involve:

- I. Reduction or suppression of revolving soil;
- II. Maintenance of crop residues on soil surface;
- **III.** Species diversification, in rotation, intercropping and/or succession of crops;
- Ⅳ. Effective contingency systems, which include prevention, control and combat, through integrated risk management systems, weather forecasting and early warning, and territorial zoning, among others, and;
- V. Socioeconomic and environmental performance analysis systems, and;
- VI. Knowledge and technology transfer.

C. Adoption and maintenance of Sustainable Production Systems, Practices, Products and Processes (SPS_{ABC})

ABC+ encourages the maintenance and adoption of Sustainable Production Systems, Practices, Products and Processes (SPS_{ABC}), within the design of efficient use of areas with suitability for agricultural production, which are:

- Practices for Reclaiming Degraded Pastures (PRDP); No-Tillage System (NTS), segmented into;
- No-Tillage System (NTS), segmented into:
 - No-Tillage Grain Cropping System (NTGCS), and;
 - No-Tillage Horticultural System (NTHS).
- Integrated Systems (IS), segmented into:
 - Integrated Crop-Livestock-Forestry Systems (ICLF), and;
 - Agroforestry Systems (SAF).
- Forestry (FS);
- Bio-inputs, by:
 - Biological Nitrogen Fixation (BNF), and;

- Plant Gro oting Microbes (PGPM).
- Irrigated Systems (IS);
- Waste Management at Animal Production (WMAP), and;
- Intensive Cattle Finishing (ICF).

Through a systematic and continuous process of inclusion, different SPS_{ABC} will be fostered throughout the ABC+ duration, as long as they demonstrate effectiveness in coping with climate change, they can be based on consolidated scientific knowledge, and they are feasible and have verifiable indicators.

1.2 MAJOR GOAL

To promote adaptation to climate change and get control of greenhouse gas (GHG) emissions in Brazilian agriculture, with increased efficiency and resilience of production systems, considering an integrated landscape management.

1.3 SPECIFIC GOALS

- I. To keep support to adoption and maintainance of conservationist and sustainable agricultural production systems, with increased productivity and income, resilience and control of GHG emissions;
- II. Strengthen actions for transfer and dissemination of technologies, training and technical assistance, for Production Systems, Practices, Products and Sustainable Processes (SPS_{ARC});
- **III.** To promote and support applied research for SPS_{ABC}, SPSABC development or improvement, focusing on increasing resilience, productivity and income, and controlling GHG emissions;
- IV. Create and strengthen mechanisms to enable recognition and appreciation of farmers adopting SPS_{ABC};
- V. Foster, expand and diversify sources and instruments for economic, financial and tax supporting initiatives linked to SPS_{ABC};
- VI. Improve the ABC+ information management system, to carry out the Measuring, Reporting and Verification (MRV) of SPS_{ABC}, and the Monitoring and Evaluation of its portfolio of actions and results, and;
- **VII.** To promote agriculture integrated into the landscape, in order to encourage farm environmental compliance and sustainable production in farming areas.

1.4 SCOPE, TARGET AUDIENCE AND DURATION

The scope of ABC+ is national, but then fitting each Brazilian biome, considering their specificities. The Federative Units (States) and municipalities will be encouraged to formally join its execution, through the State Management Groups (GGE) and respective State or District Action Plans ABC+ (PAE ABC+).

ABC+ 's target audience consists of all segments, types and sizes of farms, without exception, including family and commercial farming, traditional peoples and communities.

ABC+ will be effective until 2030, governed by MAPA Ordinance No. 323, published in October 21, 2021.

Periodic biannual updates will be carried out to review technologies (SPS_{ABC}), actions and goals, as well as to keep up with demands from the society.



2. GOALS

GOALS

From 2020 to 2030, the goals are to expand the area of SPS_{ABC} em 72,68 million hectares, increase treated animal waste by 208,40 millions m³, and slaughter 5 million additional cattle under intensive finishin. Together, these goals contribute to the mitigation of 1.043,41 equivalent to 1.042,41 million Mg CO₂ eq, while decreasing vulnerability and increasing resilience of agricultural systems.

To this end, the respective commitments to expand adoption (accounted in million hectares, million m³ or million head of additional cattle), the potential to mitigate GHG emissions (million Mg CO_2 eq), and respective contributions to adaptation were defined for each SPS_{ABC}, summarized in Table 1.

TABLE 1. Commitments to expand the adoption area (million hectares), treated waste (million m^3) and additional cattle (million head); the potential to mitigate GHG emissions (million Mg CO₂ eq), and contributions to adaptation, of SPS_{ABC}, by 2030, considering 2020 as the baseline year.

| SPS _{ABC} | EXPANSION OF ADOPTION (MILLION ha) | MITIGATION POTENTIAL OF GHG EMISSION (MILLION Mg CO ₂ eq | CONTRIBUTION FOR ADAPTATION |
|--|--|---|---|
| Practices for Recovery of Degraded Pastures (PRPD) ¹ | 30,00 | 113,70² | Increases the carbon stock and allows greater infiltration and stora- ge of water by increasing the amou- nt, proportional distribution, depth and decomposition of roots along the soil profile. Reduces erosion and increases adaptive capacity to prolonged droughts. |

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| SPS | ABC | EXPANSION OF ADOPTION (MILLION ha) | MITIGATION POTENTIAL OF GHG EMISSION (MILLION Mg CO ₂ eq | CONTRIBUTION FOR ADAPTATION |
|----------------|---|--|---|--|
| No-Till System | No-Till System for Grain Production | 12,50 ³ | 12,114 | It promotes conservation of natural resources, maintains permanent soil cover and improves its chemi- cal, physical and biological quality. It promotes greater availability of water and a favorable environment for crop root growth, increasing efficiency of water use. It redu- ces productivity losses and the vulnerability of grains to pests by reducing water availability for long periods. Contributes to reducing the negative impacts of extreme rainfall events on soil and water conservation. |
| | No-Till System for Horticulture | 0,085 | 0,886 | It increases efficiency in the use of inputs, reduces the loss of soil, water and nutrients by erosion, and reduces the thermal ampli- tude and temperature of the soil. It promotes less dependence on external inputs, and less use of fossil fuels. Makes it possible to improve the use of irrigation wa- ter. Reduces losses for erosion. |

| SPS | ABC | EXPANSION OF ADOPTION (MILLION ha) | MITIGATION POTENTIAL OF GHG EMISSION (MILLION Mg CO ₂ eq | CONTRIBUTION FOR ADAPTATION |
|-----------------------------|---|--|---|--|
| | Integrated Crop- Livestock- Forestry (ICLF) | 10,00 ⁷ | 37,90 ⁸ | It reduces the effects of water deficit, increases thermal comfort and animal welfare, improves the productivity of the system com- ponents and the use of natural resources, especially soil and water, and minimizes pasture los- ses in regions subject to sudden thermal inversions. |
| Integrated Systems (SIN) | Agroforestry Systems (SAF) | 0,10 | 0,389 | It improves physical, chemical and biological properties of soils, reduces erosion, increases wa- ter stock and quality, intensifies nutrient cycling, reduces the need for fertilizers and pesticides, increases biomass production, increases biodiversity and climate stability of production systems and improves the microclimate of production systems. It promotes diversification of production and increases the level of employment and farmers income. |
| Commercial F | orestry (PF) | 4,00 | 510,00 ¹⁰ | Increases water capture in grea- ter depth, and streamlines water cycles in their surroundings. It creates habitat for several animal and plant species, with increased biodiversity. It has high potential to generate products and biopro- ducts for different uses. |

BRAZILIAN AGRICULTURAL POLICY FOR CLIMATE ADAPTATION AND LOW CARBON EMISSION

| SPS _{ABC} | EXPANSION OF ADOPTION (MILLION ha) | MITIGATION POTENTIAL OF GHG EMISSION (MILLION Mg CO ₂ eq | CONTRIBUTION FOR ADAPTATION |
|--|--|---|---|
| Bio-inputs(BI) | 13,00 | 23,4011 | Increases root growth, allowing greater use of water available in the soil. Improves physical and chemical attributes of the soil. Reduces the use of chemical fertilizers based on nitrogen (N), phosphorus (P) and potassium (K), both by the supply of nutrients via microbes and by increasing the ef- ficiency of fertilizer use by plants. It induces plant's defense system. |
| Irrigated Systems (IS) | 3,0012 | 50,00 ¹³ | Reduces the vulnerability of pro- duction systems to dry spells and the risk of crop loss due to extreme events. Increases the stability and supply of food throughout the year. |
| Animal Production Waste Management (APWM) | 208,4014 | 277,8015 | Decreases external dependence on fertilizers and energy. It is a com- plementary source of income. |
| Intensive Cattle Finishing (ICF) | 5,0016 | 16,2417 | It promotes the best use of fora- ge resources. Increases system productivity |
| TOTAL SPS _{ABC} | 72,68 million ha 208,40 million m ³ 5 million cattle | 1.042, 41 million Mg CO ₂ eq | Decrease vulnerability and increase resilience of agricultural production systems. Promoting conservation of natural resources, increasing biodiversity and climate stability on production systems. |

¹ Considering recovery or reclaiming degraded pastures; ² Considering a default emission/removal factor of 3,79 Mg CO₂eq ha⁻¹ ano⁻¹ (IPCC, 2006); ³ Considering 4.5 million hectares in NTS and 8.0 million hectares in NT; ⁴ Considering C sequestration rates of 1,75 Mg C ha⁻¹ year ⁻¹ for SPD and 0,53 Mg C ha-1 year -1 for PD, and conversion factor for CO, eq of 3,67; ⁵ Considering at least 10% of the horticultural production area being converted from conventional to RRS (Reduced Revolving Systems) or NTSH; ⁶ Calculated based on the reduction of the use of 200 kg ha⁻¹ of nitrogen fertilizers, in 8 annual cycles, and considering IPCC default emission/removal factors of 0,01 for N₂O (IPCC, 2006), and conversion factor for CO₂ eq 3,67; ⁷ Considering 1 million hectares with tree species; ⁸ Considering emission/ removal factor of 33,79 Mg CO₂ eq ha⁻¹ year¹ (Carvalho et al., 2010); ⁹ Considering default emission/ removal factor of 3,79 Mg CO₂ eq ha⁻¹ year¹ (IPCC, 2006); ¹⁰ Considering default emission/removal factor for eucalyptus, pine and other commercial tree species (IPCC, 2006); ¹¹ Reduction calculated based on the replacement of chemical fertilizers by the adoption of microbial processes; ¹² Considering areas of intensification, with aggregation of areas under rainfed agriculture, and expansion, aggregating areas of pastures, especially degraded pastures; ¹³ Considering emission/removal factor of 3,03 Mg CO₂ eq ha⁻¹ year⁻¹ (Campos et al., 2020); ¹⁴ Whereas 27% of the total waste generated by agricultural production systems is treated by biodigestion or composting; ¹⁵ Calculated according to the methodology used in the Technical Note: "Diagnosis of the expansion of using technology for animal waste treatment (TDA) in Brazil between 2010 and 2019" (BRASIL, 2019); ¹⁶ Considering cattle finished in feedlot and dry feeding on pasture, although there is no official data on how much they represent of the total number of animals slaughtered in the country; ¹⁷ Considering a growth in herd under Intensive Finishing is 500,000 cattle per year, with mitigation potential of approximately 11,4 kg CO₂ eq/kg carcass, equivalent to 3.250 kg CO, eq/animal of 19@.

Source: Prepared by the authors.



3. ABC+ OPERATIONAL PLAN

ABC+ OPERATIONAL PLAN

To meet the goals proposed in ABC+, nine strategic axes were structured, interconnected and distributed among Programs and Strategies, according to the foreseen actions until 2030 (Figure 1).

FIGURE 1. ABC+ Operational Plan Programs and Strategies.



² Set upon involvement of public actors, "Program" deals with the array of actions under direct coordination of the Secretariat of Innovation, Sustainable Development and Irrigation (SDI), MAPA, and "Strategy" of those whose management is shared with other actors.

TABLE 2. Strategic axes, specific objectives, and actions proposed for implementation, by 2030, in the ABC+ Operational Plan.

| STRATEGIC AXIS | SPECIFIC OBJECTIVE | ACTION |
|---|--|---|
| Program for Access to Credit and Financing | Promote, expand and diversify economic, financial and fiscal sources and instruments linked to SPS _{ABC} | Support for getting resources through ABC program and other credit lines, to stimulate adoption and maintenance of SPS _{ABC} Promoting alignment of the ABC Program with other lines of credit from the Cropping Season Cre- dit Plan (Plano Safra), observing purposes, financed items and interest rates practiced Improvement and expansion of the monitoring mechanisms of Brazilian credit system for financing SPS _{ABC} in order to subsidize monitoring and evalua- tion actions by ABC+ Monitoring and participation in the update of the Farming Credit Handbook (MCR) Encouraging financial agents to meet SPS _{ABC} fi- nancing demands in different regions and priori- ties, according to mapping and outlook of vulne- rabilities and opportunities Encouraging insurance companies to consider lower risk when contracting agricultural insurances by far- mers who adopt SPS _{ABC} Encouraging creation of new financing mechanisms via green economy |



| STRATEGIC AXIS | SPECIFIC OBJECTIVE | ACTION |
|---|---|--|
| Strategic Cooperation Program | Cross-Sectional | Prospecting funding sources for writing cooperation projects, aiming at expansion of ABC+ actions Monitoring and following-up implementation and sys- tematization of data from cooperation projects Training employees to improve preparation, execution and monitoring of cooperation projects, at regional, state and municipal levels |
| Program for encouraging adoption and maintenance of SPS _{ABC} | Keeping motivation for adoption and maintenance of conservationist and sustainable agricultural production systems Promoting agriculture in a broad sense integrated into the landscape, in order to encourage farm environmental compliance and sustainable production in areas of agricultural use | Consolidating strategies for maintenance and conti- nuous improvement of SPS _{ABC} Supporting State Management Groups (SMG) in updating and executing their respective State Action Plans (SAP) Encouraging the Integrated Landscape Approach (ILA) in the definition of SPS _{ABC} at farm level Provision of basic inputs to support adoption and maintenance of SPS _{ABC} by family farmers, agrarian reform settlers, traditional communities and peoples as well as smallholders Promoting establishment of SPS _{ABC} by family farmers, agrarian reform settlers, riverside/traditional commu- nities and smallholders |
| Valuation and Recognition Program | Create and strengthen mechanisms that enable recognition and appreciation of farmers adopting SPS _{ABC} | Enabling mechanisms fostering recognition and appreciation of farmers and farms using SPS _{ABC} , as well as their produces |

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BRAZILIAN AGRICULTURAL POLICY FOR CLIMATE ADAPTATION AND LOW CARBON EMISSION

| STRATEGIC AXIS | SPECIFIC OBJECTIVE | ACTION |
|--|--|---|
| Strategy for Governance, Monitoring and Evaluation | Improve the ABC+ information management system, to carry out the Monitoring, Reporting and Verification (MRV) and Monitoring & Evaluation of its portfolio of actions and results | Operationalization of the ABC+ Digital Governance System (SIGABC), to monitor the implementation of ABC+ promotion actions at national and state level Operationalization of the Multi-institutional Platform for Monitoring GHG Reductions in Agriculture (ABC Platform), to effectively monitor GHG emissions resulting from the adoption of SPS _{ABC} Improving interaction with the Rural Credit Opera- tions System and Proagro (SICOR), and with the Se- curities and Exchange Commission (CVM), to monitor the adoption of SPS _{ABC} Consolidation, systematization and evaluation of ABC+ execution results via the ABC Plan Integrated Information System (SINABC) Monitoring and validation of ABC+ by the National Executive Committee of the ABC Plan (CENABC) |
| Strategy for Technical Assistance and Rural Extension (ATER), Training and Technology Transfer | Strengthen actions for technology transfer and diffusion, training and technical assistance | Strengthening Technical Assistance and Rural Exten- sion Bodies (ATER), to support expansion and mainte- nance of SPS _{ABC} in Brazil Support implementation, expansion and systemati- zation of Technological Reference Units (URT), for the dissemination of SPS _{ABC} with greater potential for Brazilian regions Support dissemination of SPS _{ABC} among technicians, extension workers, project writers, financial agents/ analysts, liberal professionals, companies and rural producers, throughout the national territoryl |

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| STRATEGIC AXIS | SPECIFIC OBJECTIVE | ACTION |
|--|--------------------|---|
| Strategy for communication and awareness raising | Cross-sectional | Communication and dissemination of ABC+ to state management groups, technicians, extensio- nists, project writers, financial agents/analysts, farmers, famer associations, researchers, profes- sors, opinion makers, international community and sponsors of cooperation projects Awareness raising among key actors for the interna- lization of ABC+ in different scopes and audiences (state management groups, technicians, extension agents, project writers, banking agents/analysts, farmers, class associations, researchers, instructors, opinion makers, international community, sponsors of cooperation projects etc.) |
| Strategic Intelligence for Climate Risk Management | Cross-sectional | Promoting integration and availability of intelligen- ce and climate risk information in order to enhance resilience of SPS _{ABC} Proposition of a management model for climate intelligence in order to integrate different systems for information and resilience analysis, adaptive capacity and risk monitoring on SPS _{ABC} |

BRAZILIAN AGRICULTURAL POLICY FOR CLIMATE ADAPTATION AND LOW CARBON EMISSION

| STRATEGIC AXIS | SPECIFIC OBJECTIVE | ACTION |
|---|---|--|
| Strategy for Research, Development and Innovation | Stimulate and support applied research for the development or improvement of SPS _{ABC} , with effective mitigation and adaptive capacity | Identification, selection and verification of new SPS_{ABC}, regarding their ability to increase resilience, adaptive capacity, productivity and control of GHG emissions, with a view to eventual inclusion in ABC+ IIntensification and expansion of research projects for the technological improvement of SPS_{ABC} Development and improvement of methods to evaluate the effectiveness of resilience, adaptive capacity, productivity and control of GHG emissions of SPS_{ABC} Development of monitoring technologies and support for the adoption of SPS_{ABC} Ampliação e fortalecimento das ações de monitoramento de resultados relacionadas ao aumento da resiliência e adaptação Expanding and strengthening control of results related to increased resilience and adaptation Expansion and strengthening of actions developed under the Multi-institutional Platform for Monitoring GHG Reductions in Agriculture (ABC Platform) Incentive to raise funds to finance agricultural research aimed at SPS_{ABC} |







ABC+ is the improvement of the Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission (ABC Plan), established based on Decree No. 7.390, of 2010 (Article 3, item IV).

The main higher hierarchy norms that rule ABC+ are free translated from Portuguese and described in table 3. Please refer to bibliography section for the official names of laws and norms.

TABLE 3. Free translation of federal laws and norms endorsing ABC+ 2020-2030.

| LAW | LEGAL PROVISION (SUMMARIZED) |
|---|--|
| Law No. 12.114, of December 9, 2009 | Creates the National Climate Change Fund, amends articles 6 and 50 of Law No. 9,478, of August 6, 1997, and makes other provisions |
| Law No. 12.187, of December 29, 2009 | Establishes the National Policy on Climate Change – PNMC, and makes other provisions |
| Decree No. 9.578, of November 22, 2018 | Consolidates normative acts issued by the Federal Executive Branch that provide for the National Fund on Climate Change, referred to in Law No. 12,114, of December 9, 2009, and the National Policy on Climate Change, and referred to in Law No. 12,187, of December 29, 2009 |
| Decree No. 10.145, of November 28, 2019 | Provides for the Inter-ministerial Committee on Climate Change |
| Decree No. 10.431, of July 20, 2020 | Establishes the National Executive Committee of the Sector Plan for the Consolidation of a Low Carbon Economy in Agriculture |

| LAW | LEGAL PROVISION (SUMMARIZED) |
|---|--|
| Decree No. 10.606, of January 22, 2021 | Establishes the Integrated Information System of the Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission and the Technical Committee for Monitoring the Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission |
| MAPA Ordinance No. 323, of October 21, 2021 | Establishes the Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission, with a view to Sustainable Development ABC+ covering the 2020-2030 decade |



5. BIBLIOGRAPHIC REFERENCES

BRASIL. **Decreto n° 10.145, de 28 de novembro de 2019.** Dispõe sobre o Comitê Interministerial sobre Mudança do Clima. Brasil, 2019. (BRASIL. Decree No. 10.145, of November 28, 2019. Provides for the Interministerial Committee on Climate Change. Brazil, 2019.)

BRASIL. **Decreto nº 10.431, de 20 de julho de 2020.** Institui a Comissão Executiva Nacional do Plano Setorial para Consolidação de uma Economia de Baixa Emissão de Carbono na Agricultura. (*BRASIL. Decree No. 10.431, of July 20, 2020. Establishes the National Executive Committee of the Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission.*)

BRASIL. **Decreto nº 10.606, de 22 de janeiro de 2021.** Institui o Sistema Integrado de Informações do Plano Setorial para Consolidação de uma Economia de Baixa Emissão de Carbono na Agricultura e o Comitê Técnico de Acompanhamento do Plano Setorial para Consolidação de uma Economia de Baixa Emissão de Carbono na Agricultura. (BRASIL. Decree No. 10.606, of January 22, 2021. Establishes the Integrated Information System of the Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission and the Technical Committee for Monitoring the Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission.)

BRASIL. **Lei n° 12.187, de 29 de dezembro de 2009.** Institui a Política Nacional sobre Mudança do Clima - PNMC e dá outras providências. Brasil, 2009. (*BRASIL. Law No. 12.187, of December 29, 2009. Establishes the National Policy on Climate Change PNMC aand makes other provisions. Brasil, 2012.*)

BRASIL. Ministério da Agricultura, Pecuária e Abastecimento. **Plano setorial de mitigação e de adaptação às mudanças climáticas para a consolidação de uma economia de baixa emissão de carbono na agricultura: plano ABC (Agricultura de Baixa Emissão de Carbono) / Ministério da Agricultura, Pecuária e Abastecimento, Ministério do Desenvolvimento Agrário, coordenação da Casa Civil da Presidência da República. – Brasília: MAPA/ACS, 2012. 173 p. (BRASIL. Ministry of Agriculture, Livestock and Food Supply Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission: ABC (Low Carbon Agriculture) plan/ Ministry of Agriculture, Livestock and Food Supply, Ministry of Agrarian Development, coordination of the Civil House of the Presidency of the Republic. – Brasília: MAPA/ACS, 2012. 173 p.)**

BRASIL. Ministério da Agricultura, Pecuária e Abastecimento. **Plano setorial para adaptação à mudança do clima e baixa emissão de carbono na agropecuária com vistas ao desenvolvimento sustentável (2020-2030): visão estratégica para um novo ciclo** / Secretaria de Inovação, Desenvolvimento Rural e Irrigação. – Brasília: MAPA, 2021. (BRASIL. Ministry of Agriculture, Livestock and Food Supply Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission towards sustainable development (2020-2030): strategic vision for a new cycle / Secretariat for Innovation, Rural Development and Irrigation. – Brasília: MAPA, 2021.)

BRASIL. Ministério da Agricultura, Pecuária e Abastecimento. **Plano Setorial para Adaptação à Mudança do Clima e Baixa Emissão de Carbono na Agropecuária 2020-2030**/ Ministério da Agricultura, Pecuária e Abastecimento. Secretaria de Inovação, Desenvolvimento Rural e Irrigação. – Brasília: Mapa/DEPROS, 2021. 133p. (BRASIL. Ministry of Agriculture, Livestock and Food Supply Brazilian Agricultural Policy for Climate Adaptation and Low Carbon Emission 2020-2030/ Ministry of Agriculture, Livestock and Food Supply. Secretariat of Innovation, Rural Development and Irrigation. – Brasília: Mapa/DEPROS, 2021. 133p.)



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