



markestrat
Agribusiness

Executive Summary



AGRI3
FUND

September 2021

Initial context

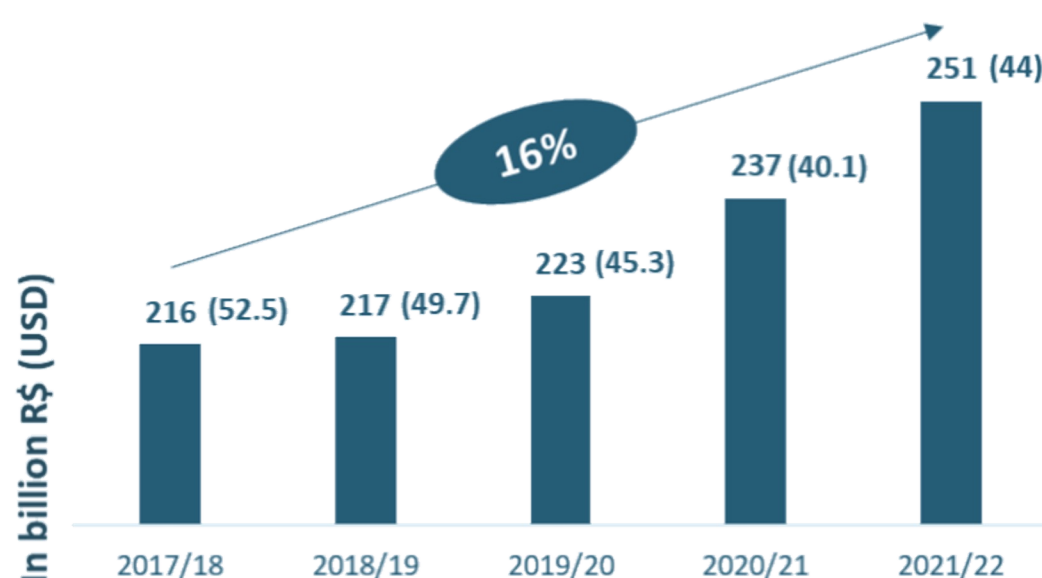


There are competitive financial public resources available in Brazil, but they are not enough to meet Brazil's sustainability goals

Rural Credit in Brazil

- To adequate all producers to meet demands in the forestry code, Brazil needs a total of **R\$ 406.3 billions** (US\$78.9 billions);
- In 2021/22, Brazil will make available **R\$ 251 billions** in Rural Credit. 29% will be destined to investments and 71% for crop management and selling improvements;
- Considering investments to overcome environmental challenges and implementation of better production practices, the main programs available are "Programa ABC" with **2%**, "Pronamp" **2%** and "Pronaf" **7%** of the total amount;
- Considering above mentioned programs, the loan tenor range is **8 to 12 years**, grace **3 to 8 years**, and **annual** interest rate of **2-7%**;

Evolution of Brazil's granted rural credit



The main increases in the rural credit 2021/22 were in the "Pronaf" and "Pronamp", 19% and 4% respectively.

Producers face several challenges to access rural credit, especially small farmers.

Main challenges faced by producers:



Producer with debts



Land regularization



Low individual credit limit



Unfamiliarity with the lines and how to access



Non-compliance with the forest code



Excessive bureaucracy



Required guarantees



Delay in the releasing credit process



Guarantor requirement

Source: Markestrat Analysis based on Interviews and desk research.



Executive Summary Content

01	Objectives of the study	04
02	Study Stages	05
03	Roadmap	13

1. Objectives of the study

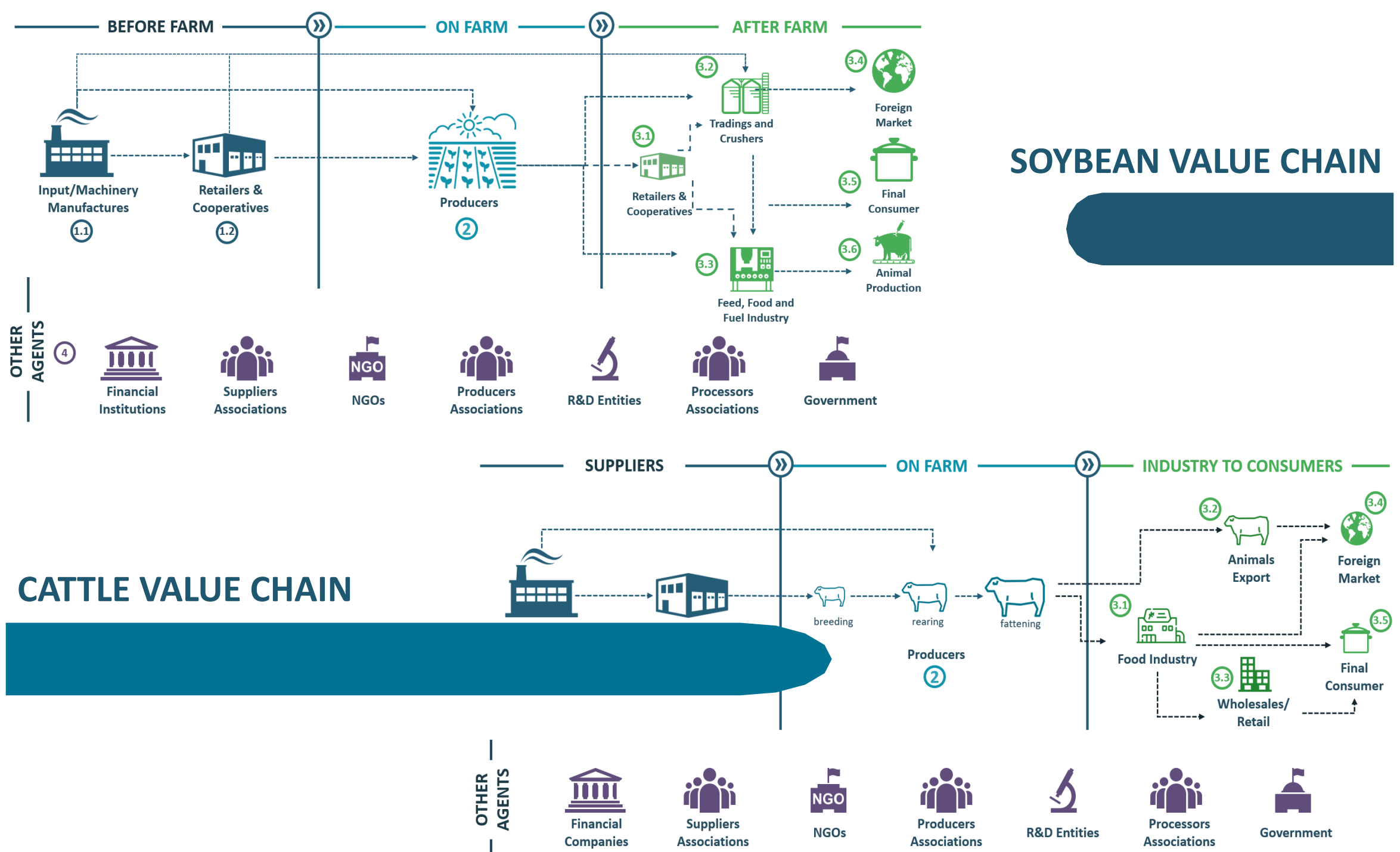
This study was developed with the following objectives:

- (I) To determine sustainability challenges and how they are currently addressed in 'business as usual' agricultural loans for key commodities and client groups;
- (II) To identify key sector interventions on a roadmap towards sustainable production;
- (III) To establish business cases that illustrate financial structures available or in development in the Brazilian market, that aim to provide financial incentives through credit loans towards a more sustainable production for soybean and cattle.

The ultimate goal of the project was to indicate financial products that may support farmers, ranchers, and other related stakeholders in transitioning to more sustainable practices.

SELECTED VALUE CHAINS

Cattle and Soybean were the Brazilian supply chains selected for the study, due to both the worldwide relevance of the country as soybean and beef supplier and the possible impact of those activities on the environment, considering existing sensible regions for expansion.



2. Study Stages



The study was composed by four main steps in order to achieve the previous objectives:

- **Step 1:** Soybean and cattle main sustainability challenges identification, in which the supply chains were described, and challenges were identified;
- **Step 2:** Potential Intervention Mapping, in which possible interventions that could help overcome the challenges were raised;
- **Step 3:** High Potential Intervention Deep Dive, in which interventions were clustered and existing cases were presented;
- **Step 4:** Suggested Models and Roadmap for implementation, in which financeable sustainability projects were suggested and detailed.

SOYBEAN AND CATTLE MAIN SUSTAINABILITY CHALLENGES IDENTIFICATION METHODOLOGY

The challenge identification stage consisted in mapping the main sustainability challenges related to soybean and cattle production in Brazil, as a result of desk researches, internal interviews (Rabobank, Agri3 and IDH team) and external interviews (stakeholders in both value chains, such as producers, associations, trading companies, industries, banks, among others).

The information obtained was used to detail why the challenges were classified as such, what are their main causes and what are the practices and initiatives that are currently applied in attempt to overcome them.

CLASSIFICATION OF THE IDENTIFIED SUSTAINABILITY CHALLENGES

Scope		
The Scope considered represent the key sustainability risks.		
S1 Water Use & Scarcity	S4 Waste & Pollution	S7 Food Safety
S2 Deforestation & Biodiversity	S5 Working Conditions	S8 Animal Welfare
S3 Greenhouse gas emissions	S6 Antibiotics	S9 Governance

Context		
The challenge is related to an institutional context, to a social issue (farmer) or to the production system.		
C1 Institutional Environment		
C2 Farmer		
C3 Production system		

Impact Level		
The scope of the impacts of the environmental issues, from local to regional, and national.		
I1 Local		
I2 Regional		
I3 National		

Farm size		
Farm size can indicate the impact of challenges.		
F1 Small		
F2 Medium		
F3 Large		

Agri3 Result Area		
The Agri3 results areas covered by the challenges.		
R1 Forest Protection and Reforestation		
R2 Sustainable Agriculture		
R3 Improved Rural Livelihoods		

Step 1: Sustainability Challenges

... and their classification charts



SOYBEAN

Challenge	Scope	Context	Impact Level	Farm Size	Agri3 Result area
1. Weeds and bugs resistance	S1 S2 S4	C2 C3	I1	F1 F2 F3	R2
2. Climate change effects	S1 S3	C3	I1	F1 F2 F3	R2
3. Soil fertility	S1 S2 S4	C2 C3	I2	F1 F2 F3	R2
4. Biodiversity loss	S2	C3	I3	F1 F2 F3	R1
5. Water footprint	S1	C3	I1 I2	F3	R2
6. Deforestation and traceability	S1 S2 S3 S7	C2	I2	F2 F3	R1
7. Forestry code compliance	S1 S2 S3	C1	I3	F1 F2 F3	R1
8. Legal deforestation	S1 S2 S3	C1	I2	F2 F3	R1
9. Education and knowledge	S5 S9	C1	I3	F1 F2 F3	R3
10. Lack of infrastructure and public services	S5	C1	I1 I2	F1 F2	R3

Scope	
S1	Water Use & Scarcity
S2	Deforestation & Biodiversity
S3	Greenhouse gas emissions
S4	Waste & Pollution
S5	Working Conditions
S6	Antibiotics
S7	Food Safety
S8	Animal Welfare
S9	Governance
Context	
C1	Inst. Environment
C2	Farmer
C3	Production system
Impact Level	
I1	Local
I2	Regional
I3	National
Farm size	
F1	Small
F2	Medium
F3	Large
Agri3 Result area	
R1	Forest protection
R2	Sust. Agriculture
R3	Imp. livelihoods

CATTLE

Challenge	Scope	Context	Impact Level	Farm Size	Agri3 Result area
1. Biodiversity Loss	S2	C3	I2	F1 F2 F3	R1
2. Climate Change Effects	S3 S4	C3	I3	F1 F2 F3	R2
3. Water footprint	S1 S4	C3	I2	F1 F2 F3	R2
4. Animal welfare	S6 S8	C3	I2	F2 F3	R2
5. Livestock effluents	S1 S4	C3	I2	F2 F3	R2 R3
6. Deforestation and traceability	S2 S3 S7 S9	C2 C3	I2	F1 F2	R1 R2
7. Soil compaction and erosion	S1	C3	I1	F1 F2 F3	R2
8. Degraded pasture	S2	C3	I2	F2 F3	R1 R2
9. Production practices improvement	S2 S7 S8	C2	I1	F1 F2	R2
10. Management practices	S5	C2	I2	F1 F2	R3
11. Sustainability in feed production chain	S3 S7	C2	I2	F2 F3	R2
12. Forestry code Compliance	S2 S9	C1	I3	F1 F2	R1
13. Traceability on beef chain	S8 S9	C1	I3	F3	R2
14. Education and knowledge	S2 S5 S7	C1	I3	F1 F2	R3



AGRI3 FUND

Step 2: Potential Intervention Mapping



In order to guarantee a systemic approach, to determine clearly the roles for different stakeholders and considering that solutions are intertwined, the 26 interventions (initiatives and solutions) mapped were grouped in 4 financeable projects, as follows:

Financeable Project 1: Forest Recovery and Management



To meet Forest Code rules, farmers must follow PRA (Environmental Recovery Plan) which demands financial resources and other means (knowledge and expertise). The challenge for implementation is that NPV of this kind of project is negative and it is key to create conditions to generate income (e.g. environmental services, carbon market).

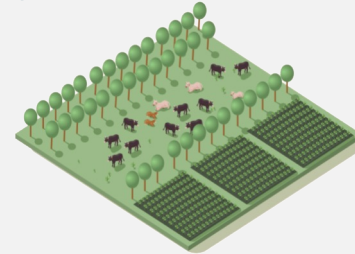
Financeable items

1. Recovery of PPA (permanent preservation areas)
2. Recovery of water spring
3. Recovery of LR (legal forestry reserve)
4. Purchase of areas for LR (Legal Reserve) purpose;
5. Project to economically explore forestry product to generate income
6. Carbon finance models
7. Training on how to sustainable explore forestry products and wood

WHAT ARE THE ASSOCIATED CHALLENGES?

Deforestation, forest code compliance, biodiversity loss and climate change. Lack of access to payment for environmental services.

Financeable Project 2: Production Intensification / Best Practice



Intensification of production is key to reduce area expansion while increasing farms profitability. Besides, using modern and sustainable production techniques reduces the use of chemicals, fertilizers and promotes an increase in soil biodiversity. This usually requires technical knowledge and a wide spectrum of investments.

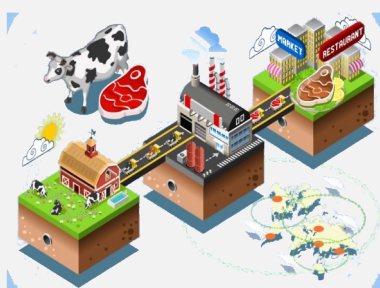
Financeable items

1. Crop-livestock and crop-livestock-forest systems
2. Recovery of degraded pastureland
3. Alternative cultivation techniques (e.g. regenerative techniques)
4. Machinery and equipment
5. Education and technical assistance on best practices of production
6. Soil correction and fertilizing
7. Investment on erosion management techniques (e.g. terrace and contour)
8. Efficient irrigation methods

WHAT ARE THE ASSOCIATED CHALLENGES?

Legal and illegal deforestation (pressure on area expansion), education and knowledge, weed and bugs resistance, soil erosion and water footprint

Financeable Project 3: Certification and Traceability



A sustainable product origin is crucial for a sustainable supply chain, with special attention for products from areas with high deforestation risk. But many cattle or soybean buyers (beef industries, traders and cattle producers - feed, breeding, rearing and fattening) have difficulties in identifying an origin and assuring a chain of custody for sustainable products along the supply chain. Some farmers also lack the resources for orientation and verification processes that validates the sustainability of their products by a third party.

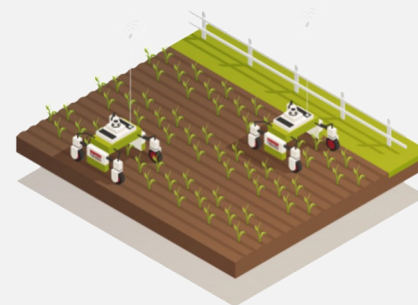
Financeable items

1. Animal monitoring systems (incl. indirect producers)
2. Traceability in deforestation risk areas
3. Soybean certification
4. Other certifications (e.g. beef and low carbon certifications)
5. Effluent treatment systems and garbage disposals

WHAT ARE THE ASSOCIATED CHALLENGES?

Deforestation and traceability, forest code compliance, animal welfare, sustainability in feed production chain, traceability on beef chain, supply chain governance.

Financeable Project 4: Digital Farming and Sustainability



Digital agriculture is related to precision agriculture and management improvement, that in turn are key to make better use of resources, improve productivity and reduce pressure on area expansion. The adoption of digital technology requires a series of investments through the property: from adequate internet infrastructure, machinery and implements, hardware and software, as well as improvements in productive processes and management.

Financeable items

1. Machinery and equipment
2. Hardware and software
3. Internet Access
4. Smart irrigation systems
5. Team training
6. Renewable energy projects;

WHAT ARE THE ASSOCIATED CHALLENGES?

Pressure on area expansion; legal deforestation; weed and bug resistance; soil erosion; water footprint.

Step 3: High Potential Interventions



BRAZILIAN CASE STUDIES OVERVIEW

PROGRAMS	PILLAR	AGENTS INVOLVED	MAIN OBJECTIVE	Financial Mechanism	CURRENT STATUS
SAFF	2	- Cattle and Soybean Producers; - Assignor (Cocamar); - Asset Management (JPG); - Investors;	Encouraging the adoption of ILPF	FIDC	Structured pilot in producer adhesion stage
Crédito Rural Traive	1	- Soybean producers; - Fintech (Traive); - Investors; - Securitizer;	Monetizing investors through green financing	Green CRA	First deal already closed and structuring the next two
Programa Carbon Trust	1	- Cattle producers; - NGO (Carbon Trust); - Climate fund; - Commercial bank.	Reduction of CO ₂ emission	Non-reimbursable resources from ESG funds	Resource approved waiting for bureaucratic procedures to unfold
IDH-Carrefour - Sustainable Production of Calves Program	3	- Calf producers; - Rearing and fattening farm (São Marcelo and Agrojacarezinho); - Implementing partner (Acrimat, NatCap); - Funder and coordinator (IDH); - Funder (Carrefour).	Strengthen the calf production chain by creating a sustainable production area; Increase the income and productivity of small calf producers.	No producer financing. Institutional investments in AT	Running Pilots
Solidariedad: cattle program in the Amazon region	2	- Cattle producers; - NGO (Solidariedad); - Sustainability fund (JBS);	Provide technical assistance and knowledge for the adoption of best practices and prevent deforestation in the Amazon region	No producer financing. Institutional investments in AT	Running Pilots
Coopercitrus	4	- Cooperated farmers - Cooperative technical office	Provide services that can leverage farmers income while economizing inputs and operations.	No producer financing Direct payment for services by producers	Project operational

HOW ARE THE CHALLENGES FULFILLED?

PROGRAMS	GUARANTEES	TECHNICAL SUPPORT	LAND USE CHANGE INCENTIVES (SUSTAINABILITY)	ACCESS TO CREDIT LINE BY THE PRODUCER	DIVERSITY IN PRODUCER PROFILE (SIZE AND LEVEL OF ENVIRONMENTAL COMPLIANCE)	CLEAR INCENTIVE TO JOIN THE PROJECT
SAFF	●	●	●	Progressive fee according to adopted practices	●	Reduced financing rate
Crédito Rural Traive	●	●	●	Contract parameters / prerequisite	●	Reduced financing rate
Programa Carbon Trust	●	●	●	Minimum bank parameters Positive side effect of AT	●	Free AT Facilitator in the access to credit (guarantor)
IDH-Carrefour - Sustainable Production of Calves Program	●	●	●	Pre-requisite for traceability Positive side effect of AT	●	Free AT Access to differentiated buyer market (5%)
Solidariedad: cattle program in the Amazon region	●	●	●	Positive side effect of AT	●	Free AT Agricultural Input Subsidy
Coopercitrus	N/A	●	●	Indirect incentive to current area (productivity vs. area expansion)	●	Profit increase

● Well fulfilled ● Partially fulfilled ● Not fulfilled N/A – not applicable



Step 4: Suggested Models

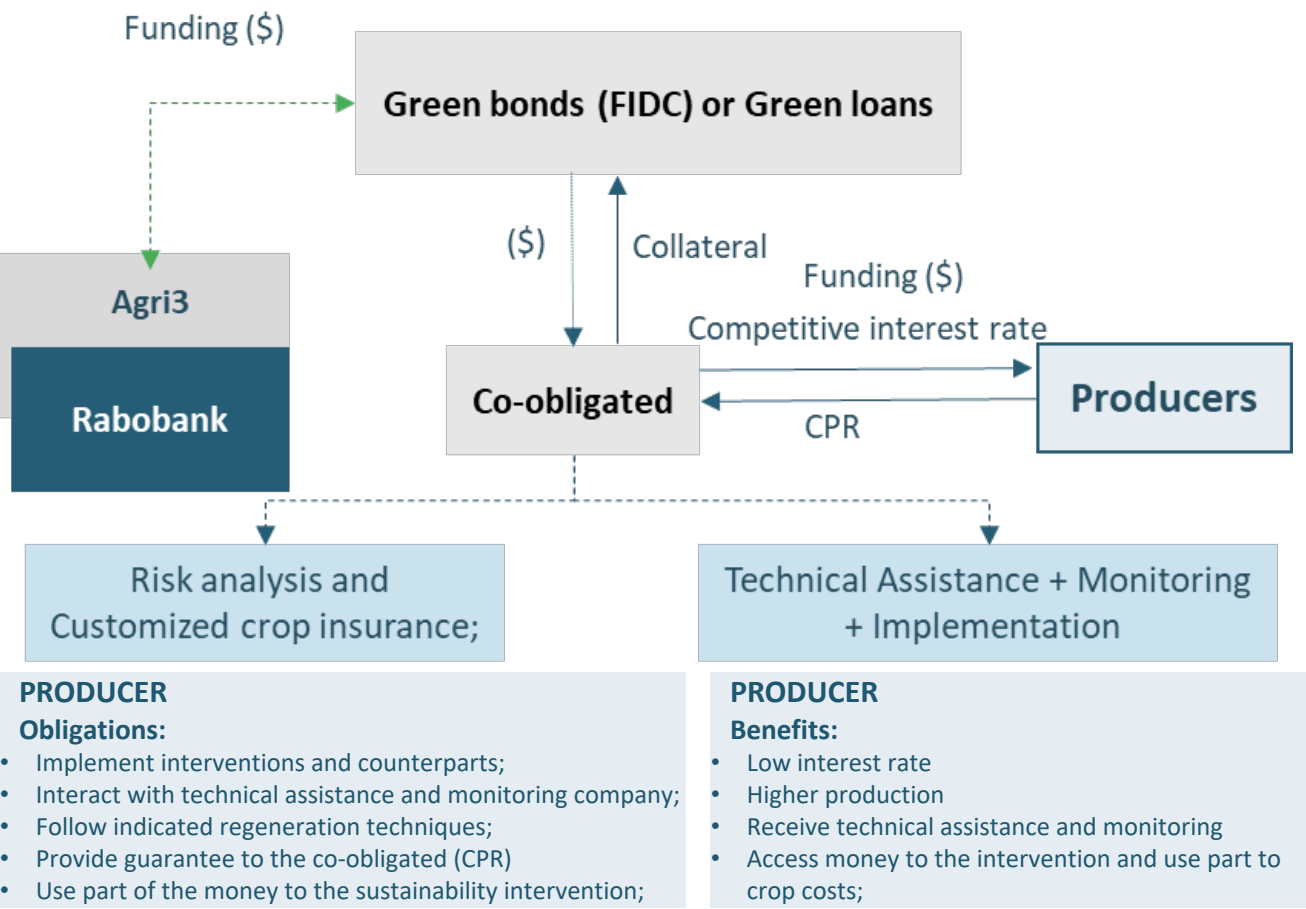
The business models' suggestions – based on the previously described cases - aim to finance the items presented in Step 2. For each model, product features were suggested in terms of loan tenor, grace, annual interest rate, incentive mechanisms for the adoption of sustainability practices, financial structures and an estimate for monitoring costs. The flow chart describes the players involved, as well as their scope within the suggested model. Also, the potential additionalities are highlighted, according to the maturity level reached by the producer with the improvements resulting from the investments made with the loan.

FINANCEABLE PROJECT 1: FOREST RECOVERY AND MANAGEMENT

SUGGESTED PRODUCT FEATURES					
Loan Tenor	Grace	Interest Rate (annual)	Incentive Mechanisms for Sustainability Practices	Financial Mechanism	Monitoring costs (TA and satellite)
Short term (1 to 3 Years) in case of reforestation and long term in case of land purchase.	0 to 5 Years, depending on the financeable item	According to credit/risk analysis	Resources to finance overall activities and sustainable practices as counterparts	Green bond (FIDC, CRA) and Green loan	0.3%, incl. in the interest rate (in partnership with co-obligated)
PRODUCER'S SUSTAINABILITY MATURITY					
Initial		Intermediate		High	
• Purchases of legal reserve areas (ex: item 4) or investment on recovering existing areas; • Natural recover of the area without any investment in adequacy but seal the preservation area; • Most producers are in this stage of sustainability maturity;		• Producer in the process of recovering PPA, water springs and legal reserve, investing in recovery (e.g. items 1, 2 and 3); • Producer investing and doing forest recovery management, accelerating the legal term for recovery		• Producer with mature forest in areas of legal reserve, water springs and PPA; • Explore economically the legal reserve area, doing sustainable management of the forest; • Preserves surplus of legal reserve • Has access to the carbon credit market;	

Obs: The maturity stage of the producer's sustainability (initial, intermediate or high) must be identified, and the goal must be to take the producer to the next stage

This project aims to help producers to access money for operation funding and technical assistance, being obligated to use part of the money on the recovery of forestry, accelerating the regeneration of areas and maintenance of surplus of legal reserve area.



AGRI3/RABOBANK

Obligations:

- Provides financing in the green bond structure or triangulate a green loan with a co-obligate;
- Apport to subordinated and mezzanine share to turn bonds attractive for other investors;
- Takes responsibility for a higher percentage of defaults risk.

Benefits:

- Producer's commitment to sustainability
- Takes the guarantee from the co-obligated, that receives a CPR of the producer

CO-OBLIGATED

- Cooperative, retailer, associations, trading companies;
- Pre-select eligible farmers;
- Coordinate the program with producers and build bridges with Rabobank/Agri3;
- Provision of technical assistance to Producers
- Monitoring intervention implementation;
- Provides customized risk analysis for both, credit score and customized crop insurance

Rabobank could seek and partner up with a co-obligated with a wide network of potential farmers. This could lever the project to a large group of producers; Rabobank can structure investment products and attract investors for the project. Some could be clients or prospect of the bank. Agri3/Rabobank could create a sustainability label for the soybean producer, offering as an advantage the priority in the disposing of grains to trading companies

Agri3 can contribute by taking on higher risk tranches of the funding - either in a subordinated or a first loss position - or guarantee the longer tenors on some of the funding - encouraging the mobilization of commercial finance - potentially offsetting early defaults.

POTENTIAL ADDITIONALITIES

Initial

- Producer actively plants forests in PPA and legal reserve areas;
- Technical assistance to support moving to the next stage;
- Promote anticipation of reforestation;
- Collective action of producers to access carbon credit market;
- Improvement in landscape and biodiversity;

Intermediate (in addition)

- Generate income from the forest through sustainable management;
- Accessing the carbon credit market;
- Accelerate Improvement in landscape and biodiversity;

High (in addition)

- Overall improvement in the community's livelihood;
- General benefits from positive environmental impacts;

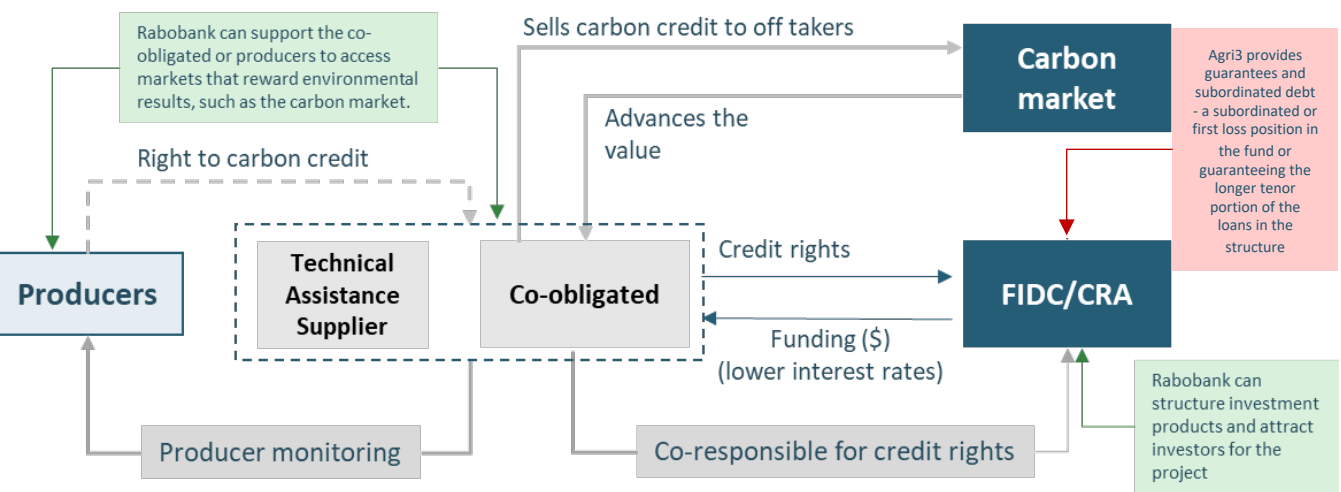
Step 4: Suggested Models

FINANCEABLE PROJECT 2: PRODUCTION INTENSIFICATION AND BEST PRACTICES FOR CATTLE PRODUCTION

SUGGESTED PRODUCT FEATURES					
Loan Tenor	Grace	Interest Rate (annual)	Incentive Mechanisms for Sustainability Practices	Financial Mechanism	Monitoring costs (TA and satellite)
It should target long terms such as 5 to 10 years	2 to 5 Years, depending on the financeable item	According to credit/risk analysis	Decreasing interest rate depending on the producer's sustainability maturity	FIDC, CRA	0.3% (in partnership with co-obligated)

PRODUCER'S SUSTAINABILITY MATURITY		
Initial	Intermediate	High
- Commitment to deforestation-free and adequate across the whole farm to the environmental legislation (recovering permanent preservation areas and legal reserves); - Producer's adopt sustainable practices (ex.: items 2, 6, 7) - Provide technical assistance and education among producers	- Focus on potentializing the environmental impacts; - Producers adopt credited sustainable production systems (ex.: items 1 and 3) - Minimum requirements for farm management, including basic environmental and economic improvements. - Sustainable trainings and education improvement offered to the farm's team	- Sustainable property management (ex.: water efficiency projects, circular economy, management including environmental KPIs) - Producer's access other avenues of income due to the adoption of sustainable production systems (ex.: carbon Market) - Participates or supports social initiatives, benefiting local communities (ex: supporting local schools, environmental programs, social programs)
Obs: The maturity stage of the producer's sustainability (initial, intermediate or high) must be identified, and the goal must be to take the producer to the next stage		

This project aims to improve sustainability practices at producers' level, through investments in production intensification thru technical assistance and technology transfer. Intended results are the benefits from intensification itself as well as access to the carbon market.



Further participation for AGRI3 in order to bring the project towards a **Transformational** status.

Parameters that were taken into consideration for the proposed structure (along with previous slide): product features, potential additionalities, targeted producer segment and potential further actions towards a transformational project.

CO-OBLIGATED

- Determines producers that will be accessed by the Project according to its risk assessment
- Provides operational services for farmers to help implement sustainable practices or production systems (technology transfer). These are reimbursed by sharing the profits with the producer.
- Monitors producers to verify if project goals are perceived
- Supports Rabobank and AGRI3 in determining viable sustainable goals and monitoring parameters for the Project.
- Potential players: coops, dealerships, trading, slaughterhouses.

POTENTIAL ADDITIONALITIES

Initial

- Accelerates producer adaptations to comply with the forest code.
- Land restoration for sustainable use
- Deforestation avoidance
- Avoidance of CO2 eq emissions
- Access to small and medium sized producers with support to overcome general barriers towards professionalization
- Increase in producer's income
- Overall improvement in rural livelihood

Intermediate (in addition)

- Initiatives are more efficient in terms of positive environmental impacts.
- Producers gain profitability through sustainable production systems
- Improvement in the livelihood of the farm's team

High (in addition)

- Model farms to be considered as benchmarks in the sector
- Overall improvement in the community's livelihood



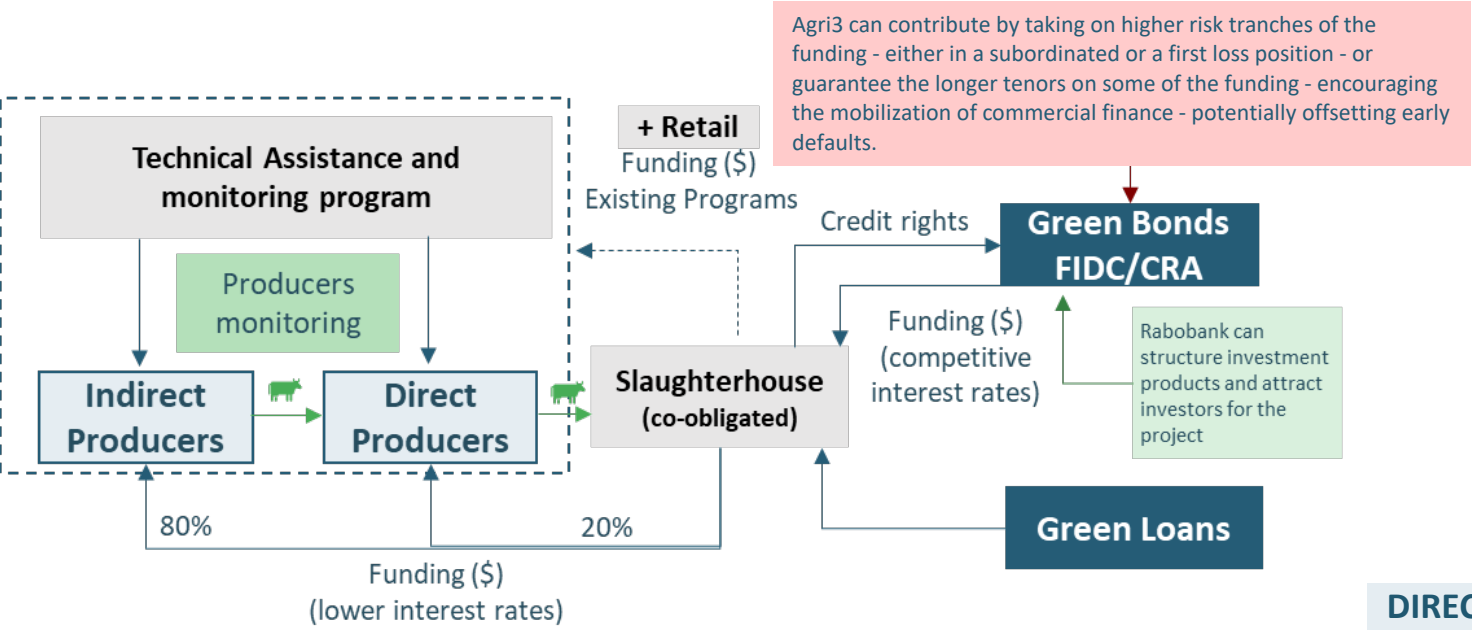
Step 4: Suggested Models

FINANCEABLE PROJECT 3: CERTIFICATION AND TRACEABILITY – BEEF CHAIN

SUGGESTED PRODUCT FEATURES					
Loan Tenor	Grace	Interest Rate (annual)	Incentive Mechanisms for Sustainability Practices	Financial Mechanism	Monitoring costs (TA and satellite)
It should target medium terms such as 5 years	Up to 2 years, depending on the financeable item	According to credit/risk analysis	Pre-requisites to access the financing line	FIDC, CRA or traditional lines offered to direct and indirect prod.	It should target medium terms such as 5 years
PRODUCER'S SUSTAINABILITY MATURITY					
Initial		Intermediate		High	
- Commitment to deforestation free and to adequate the property to the environmental legislation (permanent preservation areas and legal reserves) - Producer's without individual animal register system (sheets, documents)		- Producers adopt some structure of traceability and monitoring animal system (e.g., earing tag); - Animal welfare management and production practices - Producer's have some level of technical assistant		- Great part of producers already with a full traceability system; - Production certification relate to the use of fertilizer, approved pesticides, and water in feed production - Sustainable property management (ex.: animal welfare, water efficiency projects, management practices with KPIs) - Social initiatives, benefiting local communities (ex: supporting local schools, environmental programs, social programs)	

Obs: the maturity stage of the producer's sustainability (initial, intermediate or high) must be identified, and the goal must be to take the producer to the next stage

This project aims to improve traceability practices for Indirect and direct producers within the cattle value chain, improving sustainability practices in breeding and rearing cattle farms. Traced calves can be used as collateral and funding is conditioned to the accomplishment of sustainability prerequisites.



INDIRECT PRODUCER

- Guarantees offered:**
- Crop or cattle (traceability): monitored throughout the loan
- Obligations:**
- Must meet the sustainability goals pre-determined;
 - Receives technical assistance to comply with the technical parameters of the loan;
 - Adoption of a monitoring system;
 - Deliver the production to the direct producer.
- Benefits:**
- Resource to intensify the production;
 - Reduced (or null) guarantee needs;
 - Premium price in the product (calf);
 - Benefits from the intensification.

DIRECT PRODUCER

- Obligations:**
- Must meet the sustainability goals pre-determined
 - Be part or enter in a program that will provide technical assistance for indirect producers or develop independently its suppliers.
 - Support in the determination of the producers that will be accessed by the Project according to its risk assessment
- Benefits:**
- Producers' commitment
 - Higher production
 - Sustainable production

POTENTIAL ADDITIONALITIES

- Initial**
- Accelerates producer adaptations to comply with the forest code.
 - Basic technical assistance that also helps to overcome general barriers towards professionalization
 - Individual animal registering and monitoring (first step to a traceability process)
 - Hectares of deforestation avoided
 - Avoidance of CO2 eq emissions
 - Increase in producer's income
 - Origin certification

- Intermediate (in addition)**
- Producers gain profitability through traceability and monitoring systems (direct and indirect producers)
 - Initiatives are more efficient in terms of better animal welfare practices
 - Improvement in the sustainability and technical practices

- High (in addition)**
- Promote a good management of a monitoring and traceability system
 - Overall improvement in the sustainable feed in beef chain

Step 4: Suggested Models

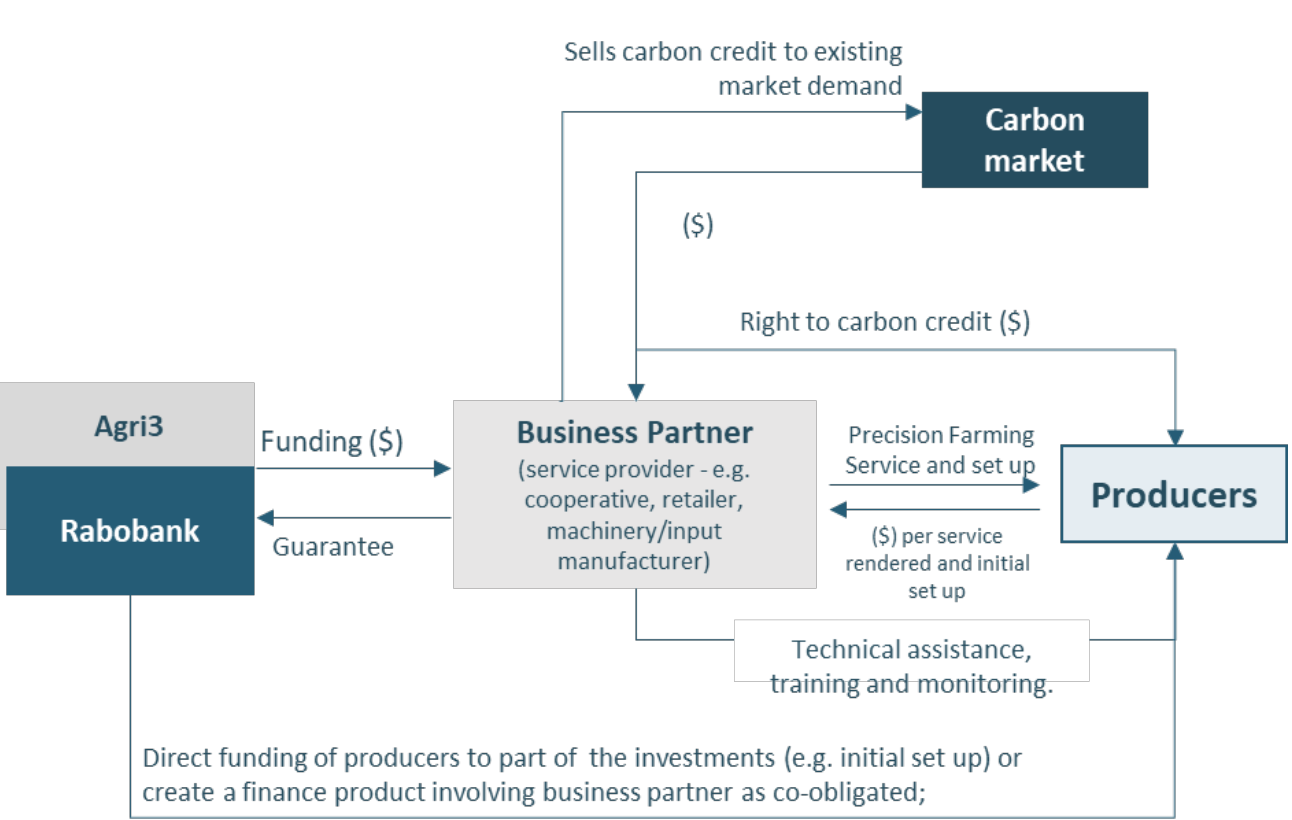


FINANCEABLE PROJECT 4: DIGITAL FARMING AND SUSTAINABILITY

SUGGESTED PRODUCT FEATURES					
Loan Tenor	Grace	Interest Rate (annual)	Incentive Mechanisms for Sustainability Practices	Financial Mechanism	Monitoring costs (TA and satellite)
5 to 10Y for machinery and equipment. 2Y for services and setup;	2 to 5 Years, depending on the financeable item	According to credit/risk analysis	Increase of productivity and costs reduction	Green bonds (FIDC, CRA) and Green loan;	0.3% (in partnership with co-obligated)
PRODUCER'S SUSTAINABILITY MATURITY					
Initial	Intermediate		High		
- Internet connection on farmhouse for everyday activities; - Soil analysis for better use of specific resources;	- Variable rate application (fertilizer and crop protection products); - Yield monitor, maps and imagery (through use of drones and/or satellites); - GPS Tracking for machinery; - Resources economy measurement (ag inputs, fuel);		- Connection between already cited technologies and meteorological tools; - Machine automation, auto guidance and telematics; - Renewable energy as source of power for farm operations; - Big data and Analytics; - Access to carbon credit market;		

Obs: The maturity stage of the producer's sustainability (initial, intermediate or high) must be identified, and the goal must be to take the producer to the next stage

This project aims to improve sustainability indicators through the funding of technologies (digital equipment or services) for producers, enabling more optimal usages of resources and gains in productivity. Also, producers can have the possibility of accessing the carbon market after achieving sustainability gains.



PRODUCER Obligations:

- Pays for precision farming services;
- Give access to monitoring and be open to technical assistance recommendations and training program.
- Comply with socio-environmental standards defined by Agri3/Rabobank;

PRODUCER Benefits:

- Access to precision farming technologies without making large investments and at competitive service cost;
- Receives credit so he can access precision farming services
- Increase of production
- Agri inputs cost reduction
- Access to carbon credit market revenue;

AGRI3/RABOBANK Obligations:

- Partner up with a business partner that will offer setup investments and digital farming services;
- Provides financing to the business partner;
- Define parameters to qualify eligible producers

Benefits:

- Engagement of valued business partner to foster digital farming and sustainability practices;
- Producer's commitment to sustainability investments

BUSINESS PARTNER Obligations:

- Use money to acquire precision equipment, techs that enable the provision of precision farming services to producers;
- Structure operations to seek carbon credit market and compensate farmers;
- Renders precision farming service to the producers;
- Provision of training and technical assistance to the producers
- Prepare the technical project to support the implementation of the producer and to serve as an instrument to obtain the credit to be presented to the Agri3/Rabobank

Benefits

- Receives funds from the green investor to enable operations;

Agri3/Rabobank could track sustainability KPIs improvement indirectly through business partner monitoring system. For instance, monitoring soil organic matter and water pollution could be easily measured through installed sensor such as soil moisture optical sensor.

Agri3 can share the risk of certain tranches of the loan in order to manage the risk for the bank - with potential for extending tenor/providing competitive pricing/or willingness to participate from the bank

Estimated costs of digital farming (Soybean R\$.ha⁻¹):

- Connectivity: R\$75 to R\$150 per ha (US\$ 15 to US\$ 30/ha)
- Area systematization: R\$100/hectare (US\$ 20/hectare)
- Soil analysis: R\$50 per hectare (US\$10/hectare)
- Technical assistance for adoption support: R\$150/ha (US\$30/ha)
- **Total cost of technology package: from R\$450/ha (US\$90/ha)**

POTENTIAL ADDITIONALITIES

Initial

- Capacitation of labor force for environmental practices
- Use of biological ag inputs and less pollutant fertilizers;
- Increase producer's profit through reduction of costs
- Collective action of producers for soil analysis
- Overall improvement in rural livelihood

Intermediate (in addition)

- Increase producer's profit through reduction of ag inputs usage
- Reduction of soil erosion due to machine course optimization
- Water Spring and groundwater preservation

High (in addition)

- Model farms to be considered as benchmarks in the sector
- Overall improvement in the community's livelihood
- Integration between farm operations and suppliers/trading and traceability automation

3. Roadmap



As a result of Steps 1 thru 4, key enablers for financeable projects going forward are highlighted below, as well as main challenges that need to be addressed by green loans.

KEY ENABLERS

Some initiatives are addressing the challenges with innovative mechanisms.

ATTRACTIVENESS OF OPERATION AS INCENTIVE FOR SUSTAINABILITY

Traive's case showed low EIR incentivizes producers to jump in sustainability initiatives. Besides, flexibility in use of resources turn investment more attractive.

EFFICIENT MONITORING

Monitoring systems, to assess implementation is key. Could be either based on an existing one (e.g., Satellite) or created, but low cost is key.

PRODUCERS KNOWLEDGE AND RELATIONSHIP

Knowledge of who is the producers, its reality and connection with them is key. At least on part of the solution must have the knowledge and relationship.

REVENUE GENERATION

Producers will be more intended to sustainability initiative when is possible to capture financial gains, such as premium price, carbon market resources or savings in input purchase;

INNOVATIVE CREDIT RATING METHODOLOGY

Reduction of risks attract more partners for the funding and allow reduction of costs such as insurance;

TECHNICAL ASSISTANCE AND COMMUNICATION

Initiatives succeeded when producers understand the mechanisms and link with sustainability at the same time have support to implement.

CHALLENGES ADDRESSED BY GREEN LOANS

1. COLLATERAL ALTERNATIVES AND FLEXIBILITY

- Land title regularization issue could derail funding and is key in areas more susceptible to deforestation;
- Farmers fund their yearly production with 3rd party resources and can not dispose an important share of traditional guarantees to green investments.

2. TECHNICAL SUPPORT

- Due to the low capacity of producers, technical assistance is essential for the activity to advance
- Low training, especially of the small producer

3. POSITIVE LAND USE INCENTIVES

- The financing line must be clear on how it will encourage land use change as it requires investment and returns may not be direct.
- Minimum requirement according to Brazilian laws are already a challenge to be met (at least 20% of area must be preserved). Thus, additional demands could turn funding lines less attractive;
- Payment for current environmental services or additional services are rare and is a bottleneck to create additionalities;

4. FINANCIAL ATTRACTIVENESS

- Current financing models (especially public lines) do not require an environmental counterpart at similar rates and are attractive in terms of grace and loan tenor;

5. DIVERSITY IN PRODUCERS' PROFILE

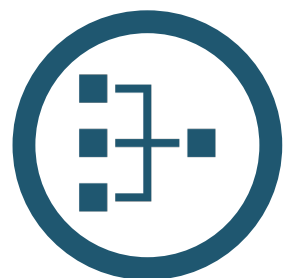
- Trend is to keep with already structured producers and mainly large ones. To achieve small and medium is important to think of lowering barriers and overcome requirements and investments that are sensitive to economics of scale;

6. COMMUNICATION AND CLEAR INCENTIVE TO JOIN

- The diversity of players and profiles requires clarity in the value proposition and efficient communication of benefits and segmented communication strategy;
- There is a cultural challenge: traditional producers with low propensity to adopt innovative credit models;

3. Roadmap

Also, key success factors are suggested so **Agri3** can excel in the funding of green loan.



1. COLLATERAL ALTERNATIVES AND FLEXIBILITY

- Use of innovative credit analysis tools with better measurement of systemic risk;
- Reduce cost of insurance by applying customized crop insurance;
- Create surety fund that “buys” part of the risk
- Involve co-obligated who know and are close to the producers
- Flexibility in collaterals (e.g., Calves traced or future soybean bag production as collateral)



2. TECHNICAL SUPPORT

- Partnership with existing programs.
- Co-obligated who already have a team and technical assistance service and are specialized.
- Non-repayable investment in technical assistance companies.
- Include the amount of technical assistance in the final financing rate.
- Investment shared with other agents in the chain that have an interest in the cause (slaughterhouse, retail)



3. POSITIVE LAND USE INCENTIVES

- Search for producers with signed TACs (conduct adjustment term);
- Include environmental aspects as counterparts or as prerequisites for access;
- Progressive fee according to adopted practices
- Payments for environmental services could be created connecting producers with forest surplus with other in need;;
- Indirect benefits: increased productivity and business profitability
- Technology transfer by the technical assistance team (ex ILPF)
- Longer tenors or competitive pricing as a result of Agri3 participation in the loan



4. FINANCIAL ATTRACTIVENESS

- Use carbon credit to reduce the financial fee.
- Competitive interest rate (not necessary bellow current rate, but competitive).
- Simplification of processes, less bureaucracy.
- Have a producer trustworthy intermediary.
- Agri3 could take part in a piece of Rabobank's financing



5. DIVERSITY IN PRODUCERS' PROFILE

- Increased flexibility in the use of the resource according to the producer's level of sustainability
- Partnership with players who are closer to the producers (e.g., Cooperatives)



6. COMMUNICATION AND CLEAR INCENTIVE TO JOIN

- Connection with buyers that pay premium price for the product originated;
- Attractive financing interest rate;
- Provide technical assistance
- Consider the need to subsidy agricultural Input purchase;
- Value proposition to farmers must show that there is a profit increase opportunity related to interventions (through productivity increase, cost reduction, access to higher selling prices).



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