



SYSTEMIC CREDIT PROGRAM:

AN INNOVATIVE METHODOLOGY FOR CREDIT IN FAMILY FARMING

Financier



Technical Implementer



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1 INTRODUCTION

THE PROBLEM

In the financing of agricultural production, credit is allocated by product and purpose (operating, investment, and trading). In other words, the lines of credit finance specialized production systems. Farming on smallholdings, however, is a peculiar type of production system, which is not based on just one product but on a system of multiple products and multiple purposes. Regarding purposes, farming activities can be aimed at trading and domestic consumption, with important interrelationships. For example, a chicken coop can contribute to the internal consumption of eggs, the sale of chickens and eggs, and supply fertilizer for a commercial vegetable garden.

Furthermore, the separation between private and business life is practically non-existent in family farming. While a traditional entrepreneur is advised to keep personal and business accounts separate, adopting formalized management with well-defined roles and constant monitoring, these boundaries become blurred in family farming. The routine of the family and that of the business merge, creating an environment where responsibilities are shared and changing according to day-to-day needs. In this context, the inseparability between private and business issues does not indicate a lack of professionalism but rather an intrinsic characteristic of the family-owned smallholding model.

This merger of private and business life poses significant challenges for financial institutions. As a business model, family farming faces difficulties in credit evaluation due to the complexity of measuring income, costs, and productivity. Although adjusted for these recipients, programs in Brazil, such as PRONAF (the National Program for Strengthening Family Farming), face obstacles such as the difficulty of obtaining guarantees and the rigidity of banking processes. The traditional credit structure, segmented into lines of credit for operating costs, investment, and trading, is not adjusted to the multifaceted reality of family farmers, who often need a flexible combination of resources. Furthermore, the execution of the funds, which are directed to the suppliers instead of the farmer, limits the ability to adapt and negotiate better conditions.

THE SOLUTION

The **Systemic Credit** program was created to address these challenges. Unlike traditional agricultural financing, the program consists of a line of credit that adopts an integrated and coordinated approach, considering the farm a complex production system. Aimed at small family farmers, especially those linked to farming networks, the credit program aims to strengthen family farming through a systemic diagnosis of the family and farm, identifying opportunities to increase production by reconciling the maximum efficiency of the farm's resources and the combination of crops for domestic consumption and trading.

Accessing the Systemic Credit program starts with a diagnosis of the farm, which will determine the investments required to achieve the sustainability and productivity objectives laid out in an intervention plan. Ongoing technical assistance ensures the effective application of resources and allows for adjustments as needed. The program's activities enable smallholder farmers to make improvements, including investments in infrastructure, the purchase of equipment, working capital, and capital to diversify the product or business. The technical assistance program goes beyond its core services, fostering rural community leadership development and encouraging the adoption of agroecological practices.

The Organic Farmers Association of Mato Grosso do Sul (APOMS) is responsible for devising and monitoring the Systemic Credit program. Rabo Foundation provides the financial resources for the loan fund as well as the technical assistance. The partnership to make the funds available is through the Cresol Centro-Sul RM/MS credit cooperative, and the structuring was developed by Alimi Impact Ventures.





IMPACT

Regarding the outputs, the program has implemented 47 projects financed by the systemic line of credit, of which 45 are individual farmers and two are cooperatives. In addition to the 45 families directly supported by the line of credit, another 200 families and four associations indirectly benefited through the credit obtained by the cooperatives. As for technical assistance, 25 rural youngsters took part in a long-term course to develop leadership capabilities, known as rural community development agents (see the “Socioenvironmental Benefits“ section), and 26 farmers attended two short-term courses on plans for conversion to organic farming. Finally, a teaching unit for training courses and a seedling nursery were installed at the Family Farming Training Center in Glória de Dourados.

In terms of socioenvironmental benefits, the program has contributed to the following **Sustainable Development Goals (SDGs)**:



SDG 1 (No Poverty) by creating opportunities to increase income;



SDG 2 (Zero Hunger and Sustainable Agriculture) through the efficient use of resources on the farm, increasing productivity through a systemic approach to multiple products;



SDG 5 (Gender Equality) by promoting inclusive farming, with women taking loans and participating in leadership training courses;



SDG 8 (Decent Work and Economic Growth) by improving living and working conditions, reducing the physical burden in farming;



SDG 13 (Climate Action) by encouraging smallholdings to adopt sustainable farming practices.

THIS REPORT

The purpose of this report is to describe the intentions, design, implementation, and results achieved by the Systemic Credit Program in supporting family farmers. To do this, field visits were made to farms and cooperatives, interviews were conducted with farmers, financial institutions, and organizations involved, and quantitative data was collected.

The report is organized into five sections, including this introduction. The second section presents the APOMS Network of farmers as a relevant context for creating and implementing the Program. The third section presents the Systemic Credit Program, comprising a loan fund and a non-reimbursable technical assistance fund. The fourth section presents the program's performance in terms of products and services. The fifth and final section describes the social and environmental benefits generated.



WHO WE ARE

The **Systemic Credit Program** is designed by the APOMS Network in partnership with Alimi Impact Ventures, with funding from the Rabo Foundation. The Cresol Centro-Sul RS/MS credit cooperative implements the loan fund. The Climate Smart Institute produced this report on the socioenvironmental benefits generated by the Program.

APOMS Network. It is an organization formed by farmers from Mato Grosso do Sul that promotes family, organic, and agroecological farming. The network supports smallholder farmers by offering technical assistance, training, and facilitating access to markets. Its work strengthens sustainable practices and the economic development of rural communities.

Rabo Foundation. Rabobank's foundation is dedicated to supporting small farmers and cooperatives worldwide. The foundation promotes sustainable agricultural development and financial inclusion by providing funding and technical assistance. It aims to help small farmers improve their productivity and access markets, strengthening the economic resilience of rural communities.

Alimi Impact Ventures. It is an impact investment consulting firm that supports sustainable companies and fund managers in Latin America. They offer solutions such as business modeling, strategic financial options, and value chain analysis to scale socioenvironmental impact investments. It works from a systemic perspective to promote sustainable development.

Cresol Centro-Sul RS/MS. It promotes credit cooperatives, with a strong presence in Mato Grosso do Sul. The cooperative offers financial solutions for family farming and small entrepreneurs, contributing to the region's sustainable development. In addition to providing access to credit, Cresol promotes financial inclusion and training, strengthens the local economy, and helps cooperative members expand their activities.

The **Climate Smart Institute** Association developed this report. For the Climate Smart Institute, water is the common thread of life, responsible for the connection between land and sea. Its mission is to promote water resilience and strengthen the health of aquatic ecosystems in Brazil. To this end, it develops grassroots entrepreneurship programs, conducts impact studies, produces documentaries, and establishes collaborative partnerships.



2 THE APOMS NETWORK

The Systemic Credit line works in the context of farmer networks, with APOMS as the central link. The APOMS Network (the Organic Farmers Association of Mato Grosso do Sul) is an organization that has been working for over 25 years to support smallholder farmers in the south of the state of Mato Grosso do Sul, promoting organic and sustainable agriculture. The Network was created in 2000 to improve smallholder farmers' and their families' quality of life by producing healthy food with less environmental impact.

The network currently includes around 160 families across twelve municipalities, including family farmers, land reform settlers, *Quilombola**, and Indigenous communities. The APOMS Network offers integrated solutions to these problems through a collaborative model that involves technical training, facilitating access to rural financing, and a sales cooperative.

ACTIVITIES OF THE APOMS NETWORK

Technical Assistance. The APOMS Network plays a crucial role in the technical training of its members, with an emphasis on organic farming and agroecology. The Training Center for Family Farming (CETAF) promotes courses, field days, and technical visits, ensuring farmers have access to the latest innovations in agroecological practices. CETAF also offers a structure for research and development with laboratories and experimental farming areas. This technical assistance is essential to ensure sustainable and more productive practices, as well as innovation in the family farming sector, which receives little attention and investment from agricultural research institutions.



**Quilombola* communities are traditional Afro-Brazilian communities formed by people who escaped slavery in Brazil.



CETAF - Family Farming Training Center in Glória de Dourados (MS)

Sales Channels. COOPERAPOMS, the Network's trade cooperative, is responsible for organizing the sale of organic products, enabling farmers to participate in institutional contracts, such as supplying food to public schools and barracks. This structure strengthens the farmers' negotiating power, ensuring better prices and greater stability in product distribution.



COOPERAPOMS Distribution Center in Dourados (MS)

Access to Inputs. Organic and agroecological farming relies on specialized inputs not often found in retail stores, especially in small towns. Furthermore, given the demand, these inputs, when available from retailers, are expensive. The APOMS Network also supports the supply of inputs, promoting collective purchases or buying inputs and storing them on its premises for later sale at cost prices to farmers. Finally, the APOMS Network also has a seed bank, nurseries, and scientific experiments that generate seedlings and other inputs for farmers, especially those linked to organic farming.

Credit Access. The moments of interaction between APOMS technicians and farmers are also used to evaluate the farms and recommend improvements and lines of credit available to them. Thus, the Network facilitates credit access, connecting farmers to credit cooperatives such as Cresol Centro-Sul RS/MS, which offer conditions adapted to farmers’ realities. In this way, smallholder farmers receive funding and the support they need to use these resources effectively.

THE VALUE CHAIN AND IMPACTS OF THE APOMS NETWORK

The APOMS Network operates an integrated value chain that covers all stages of farming, from the supply of inputs to food delivery to the end consumer. This chain is supported by sustainable practices that minimize environmental impact and maximize socioeconomic benefits for smallholder farmers.

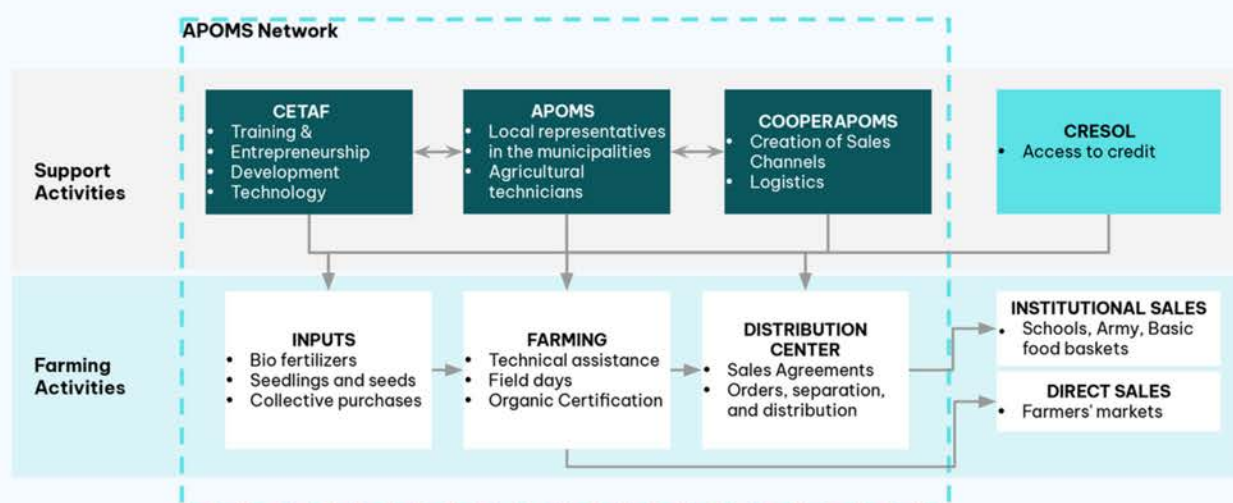


Figure 1 – APOMS Network Value Chain

The chain begins with the supply of inputs, including biofertilizers and seedlings, often produced locally by the network itself or acquired through collective purchases, which saves up to 30% on production costs. The production phase is closely monitored by APOMS technicians, who offer support in agroecological practices, organic certification, and farming optimization. CETAF and APOMS technicians are the physical and human resources that support input supply and farming activities. In addition, APOMS offers participatory certification at a low cost to the farmer, making it possible for members who adhere to the certification to use the organic seal.

In terms of trading, COOPERAPOMS centralizes logistics and product distribution. One of the network's main advances was the establishment of supply contracts with public schools and barracks, ensuring a stable source of income for the farmers. These contracts increase the value of products by up to 30% compared to prices obtained in traditional markets. Also, the cooperative manages the weekly collection and distribution of the products, covering around 1900 km on four routes in the state of Mato Grosso do Sul, to ensure that the food arrives fresh and follows the specifications of the contracts.

The socioenvironmental impacts promoted by the APOMS Network are significant. Firstly, the organic farming system adopted by smallholder farmers contributes to preserving biodiversity and reducing the use of chemical inputs, which aligns with the best practices for mitigating climate change. Moreover, the technical assistance offered by the network and the inclusion of farmers in a structured value chain increase the productivity and income of farmers, improving their living conditions and creating more income-generating opportunities for them.

The APOMS Network also plays an important social role in promoting the integration of *Quilombola* and Indigenous communities. This social impact is amplified by improved access to healthy, organic food for local consumers, especially for children in **42 public schools** supplied by the network. Thus, the APOMS Network transforms farmers' lives and generates lasting benefits for communities and the environment.



A farmer who is a Cooperapoms member who also sells their products in the retail network in Mato Grosso do Sul.

3 THE SYSTEMIC CREDIT PROGRAM

The Systemic Credit Program targets smallholder farmers, family farmers, and settlers in the Cerrado region of southern Mato Grosso do Sul, who are already part of farmer networks. Through a systemic approach, the program implements interventions at key farm points capable of accelerating systemic transformations.

BOX 1

Continuity of Previous Credit Experience

The Systemic Credit Program continues the work of the APOMS Network, and the Rabo Foundation with smallholder farmers in the Cerrado region of Mato Grosso do Sul. The first line of credit, implemented between 2019 and 2022, aimed to create an innovative solution for granting credit and overcoming traditional obstacles to credit access, especially related to the lack of formal guarantees. This first line of credit resulted in coordination between a simplified credit plan that overcomes credit evaluation obstacles, a technical assistance structure, and access to sales channels that mitigate loan risks. This combination of a revolving credit facility with a light and flexible mechanism and technical assistance served 50 smallholder farmers in the APOMS Network's region of operation, paving the way for income generation and adopting more sustainable farming practices.

As a follow-up, the Systemic Credit program was built on this experience of facilitating the granting and use of credit and the support activities that follow the loan. In addition, it innovates in the design of the intervention on small farms. The new line of credit adopts a participatory diagnosis and a more complex intervention plan, accelerating opportunities to increase farm production and income.

Among the 45 individual farmers participating in the Systemic Credit Program, 17 were borrowers of the first line of credit. In the first line of credit, there were 50 borrowers with an average ticket of BRL 14,000 (EUR 2,300) (inflation-adjusted), while the average ticket for this sub-group rose to BRL 23,600 (EUR 3,900). Thus, the Systemic Credit program is a step up from the first initiative, as a more considerable loan amount demonstrates learning and the potential for greater transformation in production capacity.

Resources. The Rabo Foundation has allocated BRL 1.55 million (EUR 321,000), comprising a loan fund of BRL 1.3 million (EUR 275,000) and a non-reimbursable technical assistance fund of BRL 250,000 (EUR 46,000). The loan fund was operated by Cresol Centro-Sul RS/MS, branch in Glória de Dourados. Under the management of the APOMS Network, the technical assistance served to mobilize APOMS technicians and sustain the functioning of CETAF components that provide support for technical assistance. Furthermore, the social capital fostered by mobilizing several clusters of member farmers and their respective sales channels is critical to the program's activities. As producers' network worth mentioning there are COOPERAPOMS, in Dourados, and COOPERAI, in Ponta Porã.

Activities. The technical assistance resources enabled APOMS technicians to conduct a participatory diagnosis of the farmers in the network and draw up a customized intervention plan. Diagnosis as a credit evaluation tool is at the heart of the Systemic Credit line, as it is a credit evaluation method that innovates by taking into account multiple dimensions of the functioning of small family farms (see box 2). In addition to the diagnosis, ongoing technical assistance and training courses were conducted. CETAF was also assisted through maintenance and improvements to parts of its facilities.

BOX 2

The Innovation of Participatory Diagnosis through a Systemic Approach

The participatory diagnosis is the core innovation of the Systemic Credit Program, distinguishing it from traditional financing approaches. While conventional models fragment financial support into isolated activities, participatory diagnosis integrates a systemic view of the farm, approaching it as an interdependent set of factors. This approach is based on the work of Carlos Armenio Khatounian, Professor at the Luiz de Queiroz College of Agriculture, University of São Paulo (ESALQ/USP), in his work "*A Reconstrução Ecológica da Agricultura*" (The Ecological Reconstruction of Agriculture).

The systemic approach treats farms as an interconnected and dynamic system. This holistic perspective considers not only the physical components, such as the soil, crops, and livestock, but also the social, economic, and cultural aspects of the family involved. Thus, the diagnosis is participatory, as APOMS technicians interact directly with the farmer to understand both the physical and intangible systems, including the family's goals and values. The aim is to identify key points which, when modified, will leverage the sustainable evolution of the system.

The evaluation of multiple aspects of the farm, as done in the participatory diagnosis, indicates improvements to the property that reinforce commercial production and internal consumption, increasing underutilized resources. For example, leftover maize or sugar cane and the availability of a family member's time can help expand milk production by buying a heifer. Thus, the intervention plan intends to use the resources without having any leftovers through different products, such as farming and milk. This type of economy of scope reduces the average cost by diversifying products, which increases income for a smallholding that faces obstacles to growth through economies of scale (reducing the average cost by increasing the quantity of a product).

The diagnostic process generates an intervention plan that responds directly to the identified needs. The intervention plan begins with general information about the farming family, listing the residents on the farm, their relationships, and the property's location. In addition, a brief history of the family is presented. Then, the farm is evaluated, considering the crops grown and the animals on the property, to then understand the division of labor between family members. After that, it is possible to identify the activities' income (or economic results), which can have three sources: income from sales of farm products, income from domestic consumption of farm products, and wages received from work outside farming. Finally, once the potential points for improvement have been identified, possible improvements are planned by costing or investment, estimating the increases in revenue with the changes to the system (an illustrative intervention plan is shown in a complementary publication).

The diagnosis facilitates understanding the farm's space and activities using visual tools such as sketches and aerial images, resulting in more efficient and effective interventions. The main benefit of this innovation lies in bespoke interventions. This starkly contrasts with traditional financing, which tends to compartmentalize investments, ignoring the complex interactions on a farm. This collaborative process, which involves the active participation of the farming family, ensures that the action plan is practical and implementable while allowing for adjustments as the farm evolves. By directly connecting the diagnosis to each farm's actual needs and potential, the Systemic Credit Program promotes more sustainable, integrated, and adapted development, ensuring more efficient use of resources and strengthening the resilience of farms in the face of climatic and economic challenges.



Assistance for the participatory diagnosis of improvements to the farm.



The involvement of all family members is essential in structuring the systemic improvement plan.

Outputs. Diagnostic activities and intervention plans constitute the process of evaluating and granting loans to individual farmers and cooperatives. Furthermore, support activities through technical assistance enabled the establishment and operation of a seedling nursery and a teaching unit called the “agroecological technology showcase.” The showcase is a demonstration area for different crops, offering a practical visualization of the theoretical teachings of agroecology. A seedling nursery was set up to supply the APOMS Network. CETAF also hosted the Community and Rural Development Agents Course (see section 5). Outside of CETAF’s facilities, two courses on plans for conversion to organic farming were held at farmers’ markets.

Outcomes. The outcomes are the program’s effects but are not under the direct control of the project’s management. These results can be seen from the causal logic established in the relationships between resources, activities, and outputs, represented in Figure 2. Loans with a systemic view of the farm create new income opportunities through product trading and production for domestic consumption. Improving the farm can also lead to a better quality of life and work (reduced physical workload) and reduced waste. The training courses reinforce the effects of the line of credit on inclusive farming, involving women in credit and training activities. In addition, training courses and intervention plans promote the adoption of sustainable farming practices. Finally, the course for rural community development agents motivates young leaders from various parts of the state.

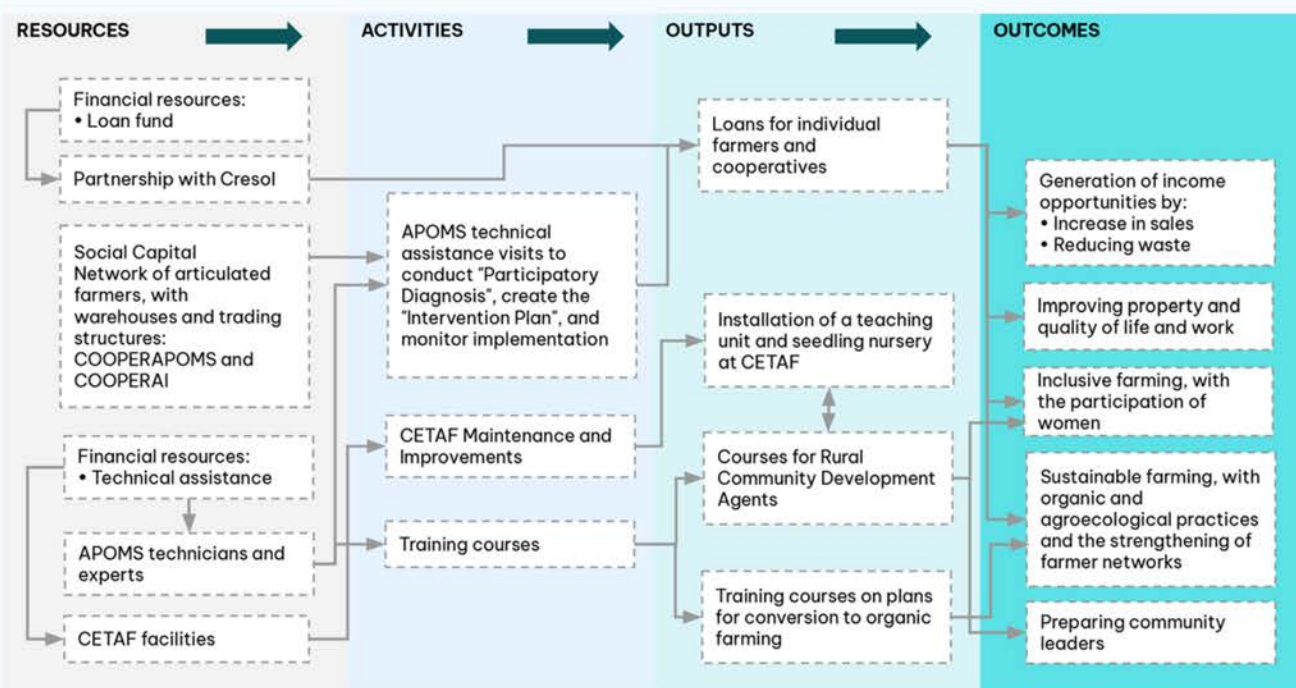


Figure 2 – Theory of Change of the Systemic Credit Program



Among the improvements envisaged in the systemic approach, the optimization of water resources has been applied and is aligned with complementary strategies for restoring springs.

4 THE PROGRAM'S PERFORMANCE

RESULTS OF THE CREDIT LINE

APOMS technicians made around 90 visits to individual farmers to assess the possibility of participating in the Systemic Credit Program. From the participatory diagnoses, 45 credit contracts were executed for individual farmers, 32 of which were formally registered intervention plans. On average, farmers took out a loan of BRL 23,600 (EUR 3,900) for different purposes. In addition to individual farmers, the program assisted two sales cooperatives with loans of BRL 120,000 (EUR 20,000) for each organization. At an interest rate of 8.3% per year, the intervention plans stipulate payment in 5 installments over 3 years, with a grace period of between 12 and 18 months.

- ***32 intervention plans formally registered.***
- ***45 loans to individual farmers***
- ***2 loans made to sales cooperatives assisting smallholder farmers.***

TECHNICAL ASSISTANCE RESULTS

The technical assistance implemented a showcase of agroecological technologies and supported the smallholder farmers through technical visits, field days, and training courses. The activities in the seedling nursery have contributed to producing around five thousand seedlings a year, which have been used especially in the Glória de Dourados Natural Park, located on CETAF's premises. A total of 26 farmers benefited from training courses on plans for conversion to organic farming. One of the courses was held at the Native and Creole Seeds Fair in Juti, Mato Grosso do Sul, and at TECNOFAM (Technologies and Knowledge for Family Farming). Finally, 25 young people participated in the Rural Community Development Agents Course.

- *A showcase of agroecological technologies implemented.*
- *5,000 seedlings a year supplied by the nursery to the Glória de Dourados Nature Park.*
- *26 participants in two training courses on conversion plans.*
- *25 participants in the Rural Community Development Agents Course.*



Single caption for both photos: CETAF's seedling nursery meets the needs of its members.

5 SOCIOENVIRONMENTAL BENEFITS

The analysis of the socioenvironmental impacts is reported from a qualitative perspective based on farmers' experiences and uses of credit.

CASE 1

Strengthening Family Farms: Systemic Credit Driving Production and Climate Resilience

A family of farmers who settled in a rural settlement in Mato Grosso do Sul in 2005 after years of farming experience in another country manages a 4-hectare property. The couple manages the property with the support of a family member. It includes areas of pasture, crops, a vegetable garden, and an agroforestry yard, and the farmers occasionally rely on temporary workers for specific tasks.

The intervention plan aims to increase agricultural production and improve working conditions on the family farm by reducing the physical effort involved in the activities. To this end, a micro-tractor was purchased via the Systemic Credit, which improves operational efficiency and reduces the physical workload. The intervention also included production funding through the purchase of fertilizer, which helped to maintain and improve the crops. A heifer with greater dairy potential was purchased, increasing milk production.

To assess the increase in income, data was collected on the sums received by the family for deliveries to the trade cooperative, comparing them with similar farmers in the same city who also delivered products to the cooperative but did not participate in Systemic Credit. To enable this assessment, we must isolate other aspects that may affect the family's deliveries unrelated to the line of credit under evaluation. For example, extreme heat events in early 2024 reduced the income of most farmers in the region. Thus, by examining only the family's income, one could conclude that the credit program contributed to the reduction in income when, in fact, there was an external factor that produced this effect. The comparison between one participant and other non-participants allows us to understand the program's effect better, given that all farmers suffered from climate issues. In other words, assessing similar farmers who did not take credit gives an idea of what would have happened to the participant without the program.

Chart 1 shows the sum of the six-monthly amounts paid to farmers in the family’s locality by the trade cooperative. It can be seen that the family that received credit represented around 20% of the value of the locality in the first half of 2022. The loan was taken out in August 2022, and the family has already seen a relative increase in deliveries of between 35% and 40% over the following three semesters.

Chart 1 – Participation of the family participating in Systemic Credit in deliveries in their locality, compared to similar farmers who did not participate in Systemic Credit

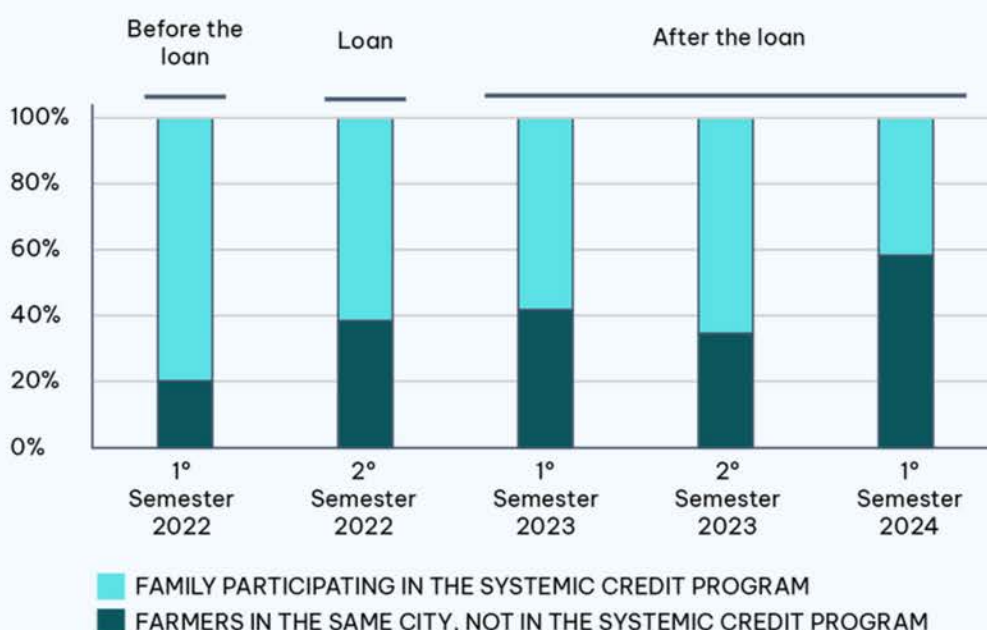


Chart 1 notes: The deliveries of the family participating in the Systemic Credit Program were compared with two other similar farmers in the same town. One farm focusing on different products was excluded because it had a different seasonality and scale of delivery. This assessment does not allow us to infer causality between the program and the increase in income, nor is it possible to infer causality between the program and favorable results in coping with adverse climatic events.

It is noteworthy that in the first half of 2024, when the adverse weather event was at its worst, the family participating in the Systemic Credit Program already accounted for 59% of the local deliveries and was the only farming family in the city that did not show a decrease in production. It is also important to note that in the first half of 2024, the family increased its income by 41% compared to the previous year’s first half, while its neighbors had a 32% reduction in income in the same comparison. Thus, the data suggests that the Systemic Credit family’s farm not only increased income but also reinforced its climate resilience.

Chart 2 shows the income evolution by comparing the moving average (6 months) of the revenues of the family participating in the program from deliveries to the sales cooperative. The chart also shows the moving average of similar farmers in the same location. For example, the beginning of the chart lines in July 2023 corresponds to the average sales between February and July (6 months). In fact, the two groups have similar average incomes over time, except for the first half of 2024, when the family of the farmer participating in the Systemic Credit Program demonstrates the ability to maintain the level of income in the face of the heatwave, while the other farmers have a reduction in average income.

Chart 2 - Evolution Of the Average Income Obtained by the Family Participating in the Systemic Credit Program Compared to Similar Farmers in the Region Who Did Not Participate in the Program



Chart 2 notes: The deliveries of the family participating in the Systemic Credit Program were compared with two other similar farmers in the same town. One farm focusing on different products was excluded because it had a different seasonality and scale of delivery. The amounts of the payments were omitted. This assessment does not allow us to infer causality between the program and the increase in income, nor is it possible to infer causality between the program and favorable results in coping with adverse climatic events.

CASE 2

A Farmer and the Sustainable Expansion of Production

A farmer who is a member of the APOMS Network grows a variety of vegetables on her property. Over the years, she has developed a diversified production, with a main product that is the focus of her activity. Before participating in the Systemic Credit Program, her production was limited to one greenhouse. With the program’s support, she installed a second greenhouse, which allowed her to double her production capacity, increasing her efficiency and generating greater productivity on her farm.

Using data collected from the sales cooperative, it is possible to compare the farmer’s average income with other similar farmers in the same city. The data for February 2023 represents the moving average of the previous months, the period before the loan was taken out, as the farmer obtained the loan in January 2023. Chart 3 shows that Systemic Credit participants’ average income is lower than that of similar farmers in the same city who did not take credit from the program.

Chart 3 - Evolution of the Average Income Obtained by the Farmer Participating in the Systemic Credit Program Compared to Similar Farmers in the Region Who Did Not Participate in the Program

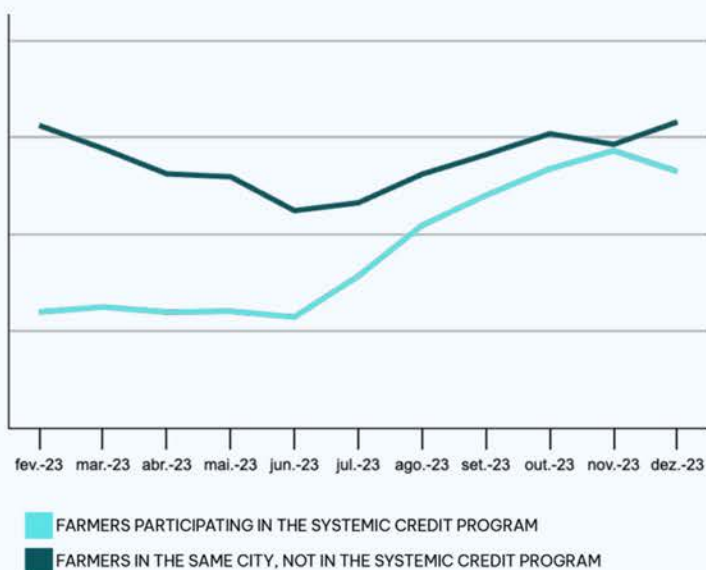


Chart 3 notes: The deliveries of the farmer who participated in Systemic Credit were compared with a group of six farmers from the same city who had a similar frequency of deliveries to the cooperative (frequency is the number of months with deliveries in that period) and who did not participate in the program. In this case, there was no control over the types of products or the farm size. This analysis does not allow us to infer causality between the program and the increase in income. It is only possible to observe an association between borrowing and a reduction in the distance between the average income of the Systemic Credit farmer and the other farmers around her who did not participate in the program. The income figures have been omitted.

A comparison of the moving average of the amounts received by the Systemic Credit farmer and similar farmers in the same municipality shows that she initially had a lower income. In February 2023, the moving average (equivalent to the average for the second half of 2022) of the amounts received by the farmer was 62% lower than the neighbors not participating in the program. Over 2023, the difference between the average income of the Systemic Credit farmer and farmers in the same locality who are not participating in the program becomes smaller while the lines on the chart get closer together. In November 2023, the farmer in the program had an average income similar to the other farmers in the comparison group.

CASE 3

Trade Cooperatives as Credit Borrowers

COOPERAPOMS and COOPERAI are cooperatives that support small farmers with the sales of their products. Each organization took out a loan of BRL 120,000 (EU20,000) from the Systemic Credit Program.

COOPERAPOMS is a cooperative in the Brazilian state of Mato Grosso do Sul. It was founded in 2018 to support the trading of agricultural products from family and agroecological farming. Its headquarters are at the APOMS Network Training Center, built with funds from the Banco do Brasil Foundation, and it has an infrastructure that includes a logistics fleet of two trucks and two pickups.

The cooperative supports around 80 individual farmers and four organizations with sales, facilitating the distribution of local production and ensuring better trading conditions. COOPERAPOMS is also heavily involved in brokering sales for the School Meals Programs, both in Dourados and for the state government, and began accessing the conventional market in 2022, partnering with a supermarket chain to create a line of organic products from the APOMS Network.

In addition to the 80 farmers who regularly deliver products to the cooperative, COOPERAPOMS can also serve another 80 farmers linked to the network who, although they don't deliver directly to the cooperative, participate in the technical assistance and input purchases. The cooperative constantly seeks new strategies to promote the collective purchase of inputs, aiming to reduce production costs and increase its members' competitiveness.

The primary purpose of the loan taken out by COOPERAPOMS under the Systemic Credit Program was to promote the collective acquisition of essential inputs for the production of its cooperative members. The strategy aimed to achieve gains in scale in negotiations with suppliers, significantly reducing production costs. The purchase included inputs such as fertilizer, natural pesticides, and irrigation equipment, essential to increase farmers' competitiveness.

COOPERAI (Cooperative of the Farmers of the Itamarati Settlement) was founded in 2008, initially for a free-range chicken project. COOPERAI quickly became essential for organizing and trading the products of the settlement's farmers. With 193 members, the cooperative offers a robust infrastructure, including an industrial kitchen equipped with a pumpkin peeler, fruit pulper, banana ripener, vacuum packer, and freezers. In addition, COOPERAI has an agricultural inputs store, a cold room, and a mini dairy, all of which contribute to the production and trading of local products.

The cooperative also stands out for its mechanized patrol, which comprises equipment such as tractors, forage harvesters, harrows, and trucks, which support the cooperative members' production logistics. Over the years, COOPERAI has registered with important government programs, such as the National School Meals Program ("PNAE") and the Food Acquisition Program ("PAA"), allowing a greater share of the farmers' products to be sold on institutional markets.

The loan taken out by COOPERAI was used strategically for the collective purchase of inputs, including fertilizer, natural pesticides, mineral salt, and irrigation equipment. This action reduced production costs and increased farmers' competitiveness and income. By promoting collective purchasing, the cooperative was able to negotiate better conditions with suppliers and pass these benefits on to its members. Currently, around 120 families access these inputs through the cooperative's store, strengthening their productive capacity and ensuring greater operational efficiency.



The impact of the loans to the Cooperatives

The loans taken out by COOPERAI and COOPERAPOMS aim to solve a critical problem for farmers who adopt organic and agroecological practices: access to essential inputs. This challenge arises due to several factors. Firstly, farmers are scattered in rural areas, often in small, remote towns. In local stores, the scale of sales is small, which makes it difficult to find specific inputs for organic and agroecological farming, or it means that these inputs are sold at remarkably high prices.

Another obstacle is the size of the packaging. Products are usually sold in large packages, but smallholder farmers often only need small portions. As the stores don't partition these packages, farmers must buy much larger quantities than they need. This generates additional costs in the acquisition of inputs and storage and increases the risk of losses due to the expiration or deterioration of stored products.

The solution offered by cooperatives, through the collective purchase of inputs, directly addresses these problems. By buying on a large scale, the cooperative can negotiate lower prices, significantly reducing farmers' costs. In addition, the cooperative allows larger packages to be broken down into smaller portions tailored to the farmers' needs. This not only reduces acquisition and storage costs but also prevents waste.

The cooperatives' structure also facilitates logistics. When farmers deliver their products to the cooperative for trading, they can simultaneously pick up the inputs they need, or, in some cases, the cooperative itself uses its fleet of trucks to deliver the inputs directly to the farms. Regions where conventional stores don't offer a good variety of inputs end up well-served by cooperatives that ensure access to all farmers.

These collective purchases of inputs directly benefited 120 farmers from COOPERAI and 160 farmers from the APOMS Network, totaling 280 families. COOPERAPOMS also serves two other farmer associations.

BOX 3

Socioenvironmental Benefits of the Loan Fund

The Program's line of credit results in opportunities to generate income through various mechanisms. Firstly, individual farmers leverage the resources available on the farm in different crops to increase production efficiently (SDG1 and SDG2).

Secondly, the cooperatives offer easy access to organic and agroecological farming inputs for around 280 families and two smallholder farmers associations. This access reduces production costs, generating opportunities to increase income (SDG1), and favors the adoption of more sustainable farming practices (SDG13).

Another aspect is the improvement in the quality of life and work, especially evidenced by the purchase of a micro-tractor on the farm. This equipment significantly reduces the physical workload and, at the same time, increases productivity (SDG8).

Finally, as shown in Table 3, the credit line served 45 individual farmers, nine of whom were women, corresponding to 20% of the beneficiaries. In this way, the program also promotes gender equality (SDG5).



Contributions to the SDGs:



Creating opportunities to increase income



More efficient use of property resources



Reduced physical workload



20% of borrowers are women



Adoption of sustainable farming practices

THE PARTICIPATORY DIAGNOSIS AND INTERVENTION PLAN

The participatory diagnosis and the preparation of the Intervention Plan are part of the technical assistance linked to the line of credit. The activities are part of a method of evaluating and planning production on smallholdings. Still, they also serve as a tool for assessing and granting credit and a mechanism for mitigating credit risk. Within the Systemic Credit Program's logic, this process occurs before the loan arrives at the property.

A total of 34 diagnoses with intervention plans were formally registered: 32 for individual farmers and two for cooperatives. The average family gross monthly revenue before taking out the loan is BRL 7,900 (EUR 1,300), and typically, an increase of around 50% is expected after three years of using the credit (details in Table 1). This increase has led to improvements in commercial production and domestic consumption. Of the farmers assessed, it is estimated that 76% of income comes from commercial agricultural production. In comparison, 16% of income comes from off-farm work, and around 4% comes from on-farm production for internal consumption.



The farm's adaptation plans are designed based on a systemic analysis of the integration of activities.

Table 1 - Description of Families with Formally Registered Intervention Plans

VARIABLE	MINIMUM	MAXIMUM	AVERAGE	TOTAL*
Number of family members	1	10	3,41	32
Farming area (ha)	1	15,85	10,69	26
Family Monthly Gross revenue** before loan	3.070,00	17.325,00	7.933,99	32
Family Monthly Gross revenue** expected after the loan***	4.638,00	24.633,00	11.825,44	32

* Out of the 32 intervention plans

** Gross revenue figures (in BRL) include all products sold and consumed at home and do not consider production costs.

*** The gross revenue figures (in BRL) expected after the loan are projections by APOMS technicians, not the measurement after the loan.

RURAL COMMUNITY DEVELOPMENT AGENTS COURSE

The Rural Community Development Agents Course (ADCR) was devised by APOMS in partnership with the Federal University of Grande Dourados (UFGD), in collaboration with Cresol Centro Sul RS/MS, SEAF / SEMADESC (MS state government) and Embrapa Pantanal. The course aims to train young people from rural areas to take on leadership roles and become protagonists in the development of their communities. The organizers' motivation is rooted in the perception that there are many young people with great potential in rural communities who are often not recognized or valued, neither by the community itself nor their families, and often not even by themselves. Therefore, this course seeks not only to train leaders but also to awaken in young people the desire to actively engage in social and productive transformations in rural areas.

The course directly addresses a common theme in family farming, which is the engagement of young people, both to ensure the succession of the property and to bring aspects of innovation to forms of farming and product formats to the market.

The course was 450 hours long, with classroom activities and tasks to be conducted individually by the participants in their communities. The course covered essential topics such as agroecology, cooperativism, public policies for family farming, and technical assistance and rural extension methodologies. Practical activities such as workshops and technical visits are supplemented by discussions on topics such as society, social classes, and the division of labor, helping young people to develop a critical understanding of the world around them. Table 2 details the content of the course program.



Class dynamics in the training course for Rural Community Development Agents (ADCR)

Table 2 - Course Syllabus

SYLLABUS TOPIC	CONTENTS
Awakening the Agent in the Local Community	Introduction to the concept of community development agent, encouraging them to understand how they can act as leaders in their communities. Furthermore, the visit to organic vegetable farms and the conservation unit helps to put their future work into context.
How Society Works	Reflections on the social and economic structures that shape the world in which they live, such as the social division of labor and capitalism. With practical planting activities and technical visits, they start to understand how these issues connect with the rural context.
Agroecology	Introduction to the principles and practices of agroecology, highlighting the importance of sustainable land management. The relationship between technical assistance and agroecological practices is also addressed, with visits to agroecological farming units to reinforce learning.
Social Organization	Cooperativism and associativism, presenting models of organization that can strengthen small farmers. Participation in seminars and visits to cooperatives such as COOPERAPOMS and APOMS broaden young people's vision of how these organizations can be powerful tools for local development.
Technical Assistance and Rural Extension ("ATER") Methodologies	Application of the Rapid Participatory Diagnosis ("DRP") and other tools that can be used to understand the needs of communities. The practical activities, such as planting seedlings and the field day, reinforce the importance of participatory methods for building sustainable solutions.
Public Policies for Family Farming	Public policies in Brazil aimed at strengthening family farming include PRONAF, PAA, PNAE, and the National Land Credit Program (PNCF). This stage also includes a technological showcase, offering practical insight into agroecological farming and how these policies can be applied.

The course’s core teaching staff consisted of 7 people, 57% of whom were women. The course had 25 participants from twelve municipalities, 72% of whom were women, 20% Indigenous, and 64% residents of settlements. In terms of age, more than half of the participants were aged 20 or under (see Table 3). It is important to note that 96% of the participants said they had access to the internet at home, but only 1 said they had a computer at home, while two did not answer this question.

Table 3 - Course Participants by Age Group

AGE GROUP	TOTAL	PERCENTAGE
16 to 20	14	56%
21 to 25	6	24%
25 to 29	4	16%
30 to 34	0	0%
35 to 39	1	4%

Throughout the course, the young people were constantly encouraged to develop their leadership skills and apply the knowledge they had acquired in a practical way. The aim is that, at the end of the course, they will be able not only to drive change on family farms but also to be agents of change in the communities in which they live, helping to strengthen local and sustainable development. Some young people excel in leadership activities. For example, there are reports of participants who concluded the course getting involved in coordinating projects in communities, in local associations, and participating in calls for tenders to obtain funding for projects. One of the young women even ran for city council in the 2024 municipal elections.



Graduation of the Rural Community Development Agents



BOX 4

Socioenvironmental Benefits of the Technical Assistance

Technical assistance directly relates to the loan fund regarding credit evaluation and risk mitigation. Thus, this activity is directly related to generating opportunities to increase income, as it depends on the systemic planning of the farm. The diagnosis and intervention plan also contributes to the more efficient use of the property's resources, implemented by the loan. Finally, the intervention plans based on organic production and agroecology encourage adopting more sustainable practices in an area of 278 hectares covered by the 32 plans.

The **Rural Community Development Agents Course** aligns with the focus on reducing youth unemployment. The program was attended by 25 young leaders, including 18 women. The training offers a solid foundation in community management, agroecological farming, and cooperativism. In addition to training leaders, the course also created the conditions for integrating these young people into the rural labor market. In addition to training development agents, the technical assistance offered two courses on plans for conversion to organic farming.

Contributions to the SDGs:



Creating opportunities to increase income



More efficient use of property resources



Training of Rural Community Development Agents



72% of women in the Rural Community Development Agents Course



278 ha of farming area with intervention plans
2 courses on how to create a plan for conversion to organic farming



Farmers in the Itamaraty Settlement (Ponta Porã, MS) have improved their livestock farming practices as one of the activities on the farm.



Adaptations for protected vegetable cultivation (Glória de Dourados, MS)

CONCLUSIONS AND LESSONS LEARNED

The Systemic Credit Program's experience has highlighted the effectiveness of the systemic approach, especially when applied to family farming. Unlike traditional approaches, which focus only on technical, agronomic, and economic aspects, the systemic method also incorporates social issues and family values that directly influence the production process. By integrating these factors, the approach proved to be more adapted to the reality of smallholder farmers, where crop diversity, animal husbandry, and production for domestic consumption coexist with commercial farming.

One of the significant challenges facing family farming is access to conventional credit. The requirements of this system, which segments credit by product and purpose (funding, investment, or trading), often don't correspond to the reality of smallholdings, which operate with several simultaneous activities. The conventional structure does not offer the flexibility needed to deal with the complexity of family farms, where different activities are interlinked, and the scale is, by definition, small. In this sense, the systemic intervention plan, by providing integrated solutions, allowed families to increase their income and optimize the farm's resources, resulting in more efficient production with less waste and greater sustainability.

Another core aspect of this program was the crucial role of cooperatives. By creating structured sales channels, such as contracts with institutional programs (PNAE and PAA), cooperatives have made it easier for farmers to sell their produce and increased their access to markets with more stable demand. The loan taken out by the cooperatives also played a key role in enabling the collective purchase of inputs for 280 families. In addition to reducing costs, this practice solved one of the main problems faced by smallholder farmers: the difficulty of finding specific inputs for organic and agroecological farming in their regions and buying adequate quantities for their needs while avoiding waste and optimizing the use of resources.

When examining the program as a whole, it is clear that innovation in systemic credit depends heavily on a consolidated network of farmers who share values associated with organic, agroecological, and family farming. Associativism emerges as a key value in this context to strengthen farmer networks and ensure the credit program's effectiveness. The training and capacity building of technicians, who not only provide technical assistance but also have a deep understanding of the systemic approach, are key to the success of the program and a significant barrier to its implementation and growth.

Another critical lesson learned is that the systemic approach cannot be limited to creating intervention plans. The success of this method depends on continuous interactions, with regular follow-up diagnoses to adjust and reorient actions according to changes in the conditions of the farm and the external environment. Just conducting initial diagnoses and implementing an intervention plan is not enough; constant monitoring is needed to ensure interventions' effectiveness and lasting impact. In this respect, the availability of trained technicians remains a critical factor for success.

In short, the Systemic Credit Program has proved to be a promising solution to family farming challenges, promoting greater sustainability, productive efficiency, and social inclusion. However, long-term success requires a robust network of trained farmers and technicians and constant monitoring to ensure that interventions continue to be adjusted to the dynamic needs of farmers and their properties.

LESSONS LEARNED

- The systemic approach as a method of diagnosis and evaluation of credit proved effective in generating income opportunities and more adapted to the context of family farming.
- Sales cooperatives provide important support activities, so loans to these organizations extend the impact of the credit program to a more considerable number of families, with easier and lower-cost access to inputs.

Critical Success Factors

- The success of the systemic approach depends on a consolidated network of family farmers who share the values of associativism and organic and agroecological farming.
- Training technicians capable of combining technical knowledge of agriculture with the methods and values of the systemic approach is essential for the program's success.
- The systemic approach calls for continuous monitoring and interaction between technicians and farmers, which emphasizes technicians' training and a consolidated network of farmers.
- The financier and the financial intermediary must be organizations that share the fundamental intent of impact investment, in which the risk is weighted concerning the impact generated, thereby reducing the cost of credit.



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