



**NOVO CAMPO PROGRAM  
A STRATEGY FOR SUSTAINABLE  
CATTLE RANCHING IN THE  
AMAZON**



Instituto  
Centro  
de Vida





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**MAY 2015**

**Alta Floresta - Mato Grosso**

## NOVO CAMPO PROGRAM - A STRATEGY FOR SUSTAINABLE CATTLE RANCHING IN THE AMAZON

PREPARED BY



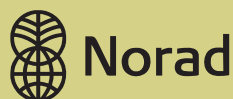
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## THE CHALLENGE OF CATTLE RANCHING IN THE AMAZON

*This publication relates part of the story of the pioneers of new era of development in Mato Grosso, the principal ranching and farming frontier in the Legal Amazon. To produce and achieve results, respecting socioenvironmental conditions: this is the intention of these ranchers who have had the courage to implement innovative practices and lead a search for new markets.*

*The coexistence of ranching activities with Amazon Forest conservation requires from rural producers a new mindset and the adoption of new technologies. The Instituto Centro de Vida (ICV) has demonstrated how the implementation of good agricultural practices for cattle ranching can make a difference in the search for sustainability, with benefits for everyone.*

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*Sumaúma, (Ceiba Pentandra), an iconic tree in the Amazon Forest*

*On the left, the Paraíso Ranch owned by Aldo Danetti, partner with the Novo Campo Program*



Until recently, standing forests and natural environments were believed to have no practical utility. Today it is proven that these areas in-fact provide fundamental ecosystem services, including regulating climate, rainfall and pollination. The Amazon region has an average annual rainfall of 2,500 to 3,000 millimeters, which provides conditions for pasture to grow more rapidly than in other regions of Brazil.

The advance of pastures and agricultural land in the Amazon has brought numerous problems. The Amazon biome is composed of diverse ecosystems which are vital for regulating our climate, both in Brazil and globally. Deforestation in the region is one of the principal causes of global climate change, and threatens the loss of living species which still remain to be studied.

The Inter-Governmental Panel on Climate Change (IPCC) finds that the global climate is already warming due to green house gas emissions. The consequences of continued deforestation in the Amazon will be felt by all, and extend globally, far beyond Brazil.



© Filipe Lage Bicalho/divulgação ICV

*Area of exhausted pasture*

## THE AMAZON AND THE RURAL FRONTIER

For the past 30 years, the expansion of ranching and farming has accelerated deforestation in the Amazon region, and principally in Mato Grosso. The State, considered the gateway to the largest tropical forest in the world, leads the nation in cattle and soybean production.

Ranching in Mato Grosso, and in most of Brazil, has been slow to implement new technologies. Land is undervalued and few ranchers have effective control of their activity. There is abundant land available and few cattle per hectare. Considering an increasingly demanding market and the need to maintain native forests intact, it is essential to improve the management of rural properties and to make them more productive.

## REGULATING CATTLE AND MEATPACKING - THE TAC

In 2010, the Federal Prosecutors Office (MPF) compelled meatpacking companies operating in the Amazon region to sign an operating and legal agreement called Term of Conduct Adjustment (TAC). The agreement provides rules and regulations to avoid encroachment of pasturelands on the Forest. Before that, the Mato Grosso State government had already implemented the environmental registry of rural properties (CAR), one of the primary obligations for meeting the TAC.

**TODAY, IN THE MUNICIPALITY OF ALTA FLORESTA, MORE THAN 80% OF PROPERTIES ARE REGISTERED THROUGH THE CAR**

The MPF agreement obliges meatpacking companies to adopt procedures that respect established social and environmental criteria. The TAC requires



companies exclude all goods and services which may have been produced by or involved with slave labor, illegal possession or use of land, rural violence, illegal deforestation or the unauthorized use of indigenous lands or areas of conservation, like parks and reserves.

The objective of the TAC is to guarantee that the beef supply chain in the Amazon respects social and environmental criteria and that the commercialization of cattle meet standards imposed by national and international legislation (Federal Constitution, Forest Code, National Environmental Policy, National System of Protected Areas - Snuc, Interamerican Convention of Human Rights).

## SHIFTING THE PARADIGM

If, on the one hand, law enforcement has increased, on the other, producers who have implemented new practices have realized the benefits of structured and pro-

fessional operations management when compared with traditional management.

**TODAY, THE OUTLOOK OF PRODUCERS CONCERNED WITH ACCESS TO MARKETS IS TOTALLY DIFFERENT FROM THAT OF THE MIGRANT RANCHERS WHO FIRST ARRIVED IN THE AMAZON FROM THE SOUTH. "AT THE TIME OF COLONIZATION, DEFORESTATION WAS THE RULE. INTEGRATE NEW LANDS OR ELSE LOSE THEM" - RECALLED THE RANCHER MILTON DOS SANTOS SOUZA, WHO CAME TO MATO GROSSO AT 26 YEARS OLD**

Demand for agricultural commodities on a global scale and expansion of the agricultural frontier have increased due to the growth of the World's population, urban migration, and the rise of per capita income in developing nations like Brazil.



*The Amazon Forest from above - Cristalino State Park*

© Barbara Veiga / ICV

## PROJECTIONS THROUGH 2022

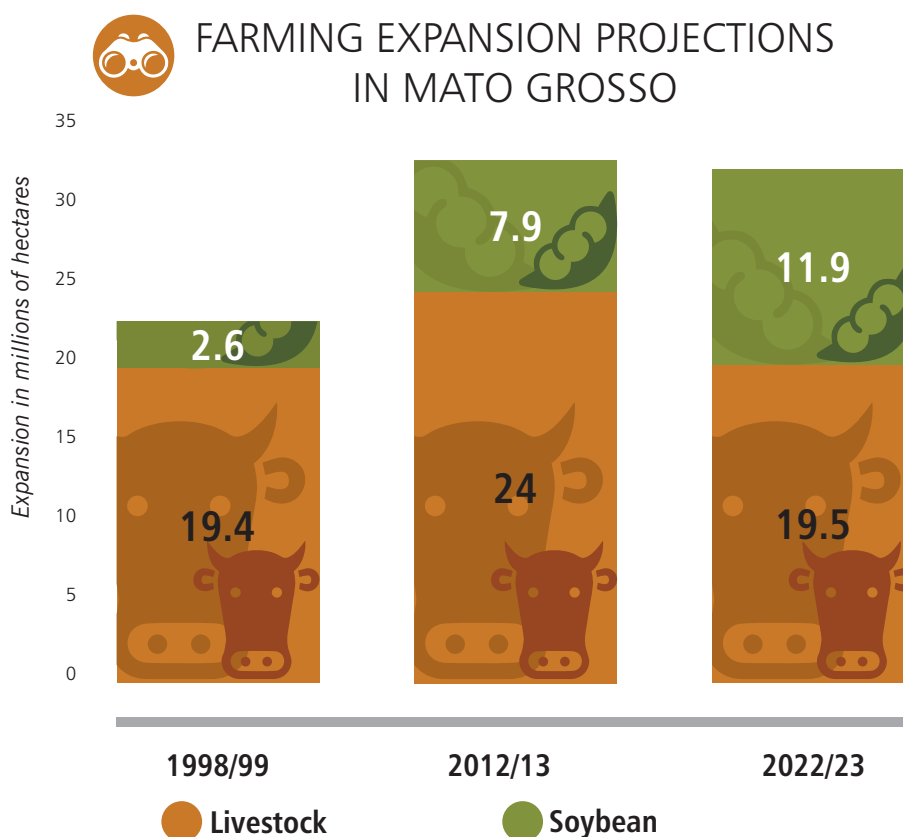
According to projections by the Mato Grosso Institute of Agricultural Economy (Imea) agribusiness will require more cropland by 2022. Presently, Mato Grosso possesses 36,5 million hectares of rural farm and ranch lands. Of that total, 24 million hectares are pastures, while 8.7 million are employed for agricultural production.

For 2022, the challenge is to increase production of cattle and soy in the region without causing further deforestation. While agriculture, already technologically intensive, will increase production and land use, cattle production can reduce land use: pasturelands can be scaled back to 19.5 million hectares while maintaining current total herds.

The same 29 million head of cattle will require 20% less pasture.

Our solution, presented in this publication, increases productivity by means of the “verticalization” of cattle production, meaning its intensification, using less land than presently required. Deforested areas occupied by extensive ranching practices can thereby be converted to agricultural uses.

“These projections have already been field tested and can be attained in Mato Grosso in ten years without further deforestation. It is possible to reduce rangelands by nearly five million hectares, devote these lands to agriculture and, at the same time, increase the productivity of both sectors,” affirms Vando Telles de Oliveira, coordinator of the ICV’s Cattle Ranching Initiative.



SOURCE: IMEA/2012

**IN RANCHING, THE TREND IS TOWARDS VERTICALIZATION, PRODUCING IN THE SAME AREA WITH THREE AND EVEN FIVE TIMES PRESENT LEVELS OF PRODUCTION**

every stage of the purchase, production, processing, packing, and distribution of agricultural and animal-derived raw materials, inputs and products.

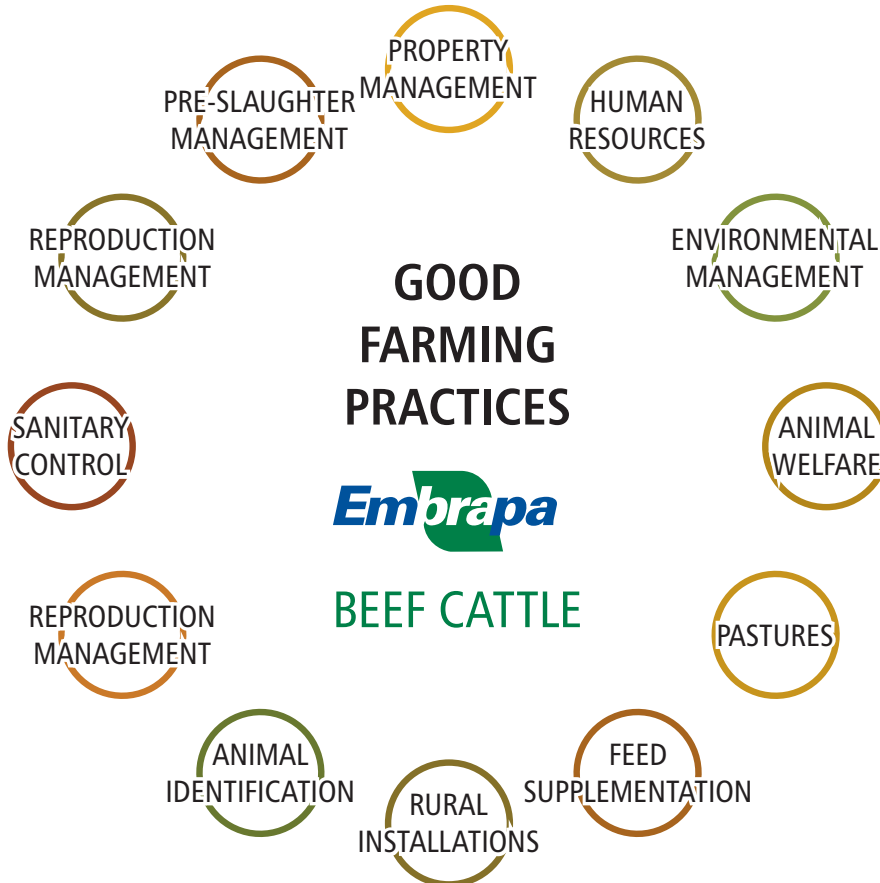
**THE “GAP” IS THE AGGREGATE OF PRINCIPLES, PRACTICES, TECHNOLOGIES, AND STANDARDS APPROPRIATE FOR THE PRODUCTION OF RAW MATERIALS, ANIMALS AND ANIMAL PRODUCTS FOR THE SUCCESS OF AGRICULTURAL ACTIVITIES AS WELL AS HUMAN AND ANIMAL HEALTH AND WELL BEING**

Following the guidelines established by Embrapa’s Good Agricultural Practices (GAP) guidelines, it is possible to promote rural development together with environmental conservation and quality of life for local communities.

## GOOD AGRICULTURAL PRACTICES (GAP)

The Good Agricultural Practices (GAP), established by Brazil’s Ministry of Agriculture, introduce operating standards at

The technical and scientific foundation for our work in Mato Grosso was established by Embrapa’s GAP for beef cattle ranching:





## MAIN INTERVENTIONS IN THE RANCHES

*The Mitaju Ranch, owned by Milton Souza*

*ICV selected ten properties in the region of Alta Floresta, Northern Mato Grosso State, to participate in a pilot program testing operating procedures for the Novo Campo Program. Of these, two raised dairy cows while the remaining raised beef cattle. Ultimately, although good results were also achieved with the dairy farms, demand for the Program favored an emphasis on beef production and the dairy farms are not considered*

*in this analysis. Of the eight properties raising beef, two were substituted in the middle of the pilot program. The results presented here are therefore based on the experiences at six different beef cattle ranches, of varied sizes and types.*

*The pilot program tested a new production model based on integrated property management, promoting the progressive implementation of Embrapa's Good Agricultural Practices (GAP).*

© Barbara Veiga / ICV



Above, intensified pasture lands on the Mitaju Ranch



## CRITERIA FOR PARTICIPATION IN THE PILOT PROJECT

*The ranch is in a process of compliance with environmental rules and is registered through the Rural Environmental Registry (CAR).*

- *Different sizes and types of properties were selected in order to demonstrate that the GAP could be applied to producers of all sizes.*

- *Participating properties were selected from within the municipality Alta Floresta. The distance between producers was established within a radius of approximately 20 kilometers, distributed throughout the municipality with the intention of disseminating the model in the region.*

- *ICV sought partners able to serve as a reference for the wider community.*



## FIRST STEP, DIAGNOSIS

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Upon accepting an offer to participate in the project, information on each ranch's activities were gathered. All the indicators of Embrapa's GAP were checked such as cash flow, employment and labor practices, or the condition and size of herd. A specialized consultancy in cattle ranching contracted by ICV, compiled the necessary data over a period of one to three days, depending on the size and situation of each property.

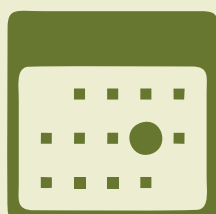
Based on this information, an individualized project was developed for each participating producer, considering the economic and technological feasibility of the changes proposed. Interventions were

established according to the intentions of each property owner, with attention to align the goals of the project with the interests of these local producers.

After that, the reforms and changes defined in the projects were implemented. This work focused on the understanding of the daily activities of the ranch and of its adaptation to a new production model, in order to achieve the best possible results. The execution included monthly visits to guide and verify the implementation, as well as the constant monitoring of economic, agricultural, and zoo-technical Indicators.

## PROPERTY MANAGEMENT

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The rural property came to be managed as a business, having to meet social and environmental as well economic requirements for success.

### ***Monthly consultations***

The consultancy encompasses the consecutive phases of planning, implementing and monitoring the ranch. It includes ongoing assessments of progress and compliance. Based on assessments, progress can be closely monitored and if necessary, changes can be made in order to better attain the objectives. Monthly consulting sessions allow for adjustments to scheduled investments, based on ongoing assessment results.

***THE LEARNING PROCESS TOOK ADVANTAGE OF PRACTICAL EXPERIENCE, ANALYZING MISTAKES AND ASSIMILATING SUCCESSES***



### **Control of Production Costs**

Through careful book keeping, production costs can be closely managed. Good accounting allows for the consideration of all expenses, which were not previously considered by the ranchers when making important management decisions. Access to this data enables land managers to accurately estimate production costs and profits per hectare, thus changing their vision of the rural businesses.

**THE KIND OF UP-TO-DATE INFORMATION PROVIDED BY MONTHLY CONSULTATIONS DEMONSTRATES THE ADVANTAGES OF DATA-DRIVEN DECISION MAKING**

### MANAGEMENT OF HUMAN RESOURCES

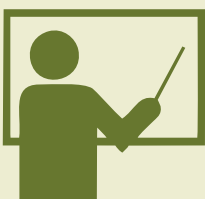
Engaging workers in new management practices is essential to the success of the project. Through training and education workers can collaborate in the implementation of necessary reforms.

### **Education and training**



© Eduardo Florence / ICV

*Consultant Filipe Bicalho working with the manager of the Bevilaqua Ranch, Ronildo Martins*



Improved management of human resources is achieved through creating opportunities for education and training. It is not enough for a landowner to plan technological and methodological innovations. Workers must implement these changes. “It is essential that workers be involved from the beginning. If workers see and understand the effectiveness of new practices they will be more likely to adopt them,” emphasizes Vando Telles. This is influential for changing the system of production.

Experience has shown that if workers in the field do not adopt new production strategies, investments are of limited value. Moreover, all of the ranches participating in the program are required to fulfill their labor agreements and obligations to their workers.

ENVIRONMENTAL MANAGEMENT

All participating properties receive an initial environmental assessment in order to establish environmental management goals.



***Isolation and restoration of degraded Areas of Permanent Preservation (APPs)***

The initial environmental assessment involves the identification and assessment of the situation of degraded sources and riparian forests, which according to Brazilian laws should be permanently preserved. Based upon the findings of the assessment, these areas are set aside for

© Barbara Veiga / ICV



*Aldo Danetti, shows an area undergoing forest restoration on his property*

forest restoration, with the intention of recovering biodiversity and essential ecosystem services.

“In some situations, simply fencing off an area was sufficient for the natural regeneration to take place due to the proximity of remnant native forest as a source of pro-



© André Nunes / ICV



*Eduardo Florence, analyst with ICV, counseling the technical team on the restoration of Permanent Preservation Areas (APP)*

pagules – wind, water and animal borne seeds,” explains ICV’s Project Manager, Eduardo Florence.

Where the conditions for natural regeneration do not exist, it is necessary to reintroduce native seeds. Planting native seedlings is the most common technique for the restoration of degraded forests, however it is also the most expensive and often requires prolonged maintenance to control pests and invasive species, as well as the use of herbicides and other chemical inputs.



The project opted for a direct application of a mixture of seeds including forest seeds as well as commercially available varieties of Leguminosae such as *Crotalaria* and *Cajanus*. This mix is applied directly to the soil after existing grass is cut and layered as mulch during the manual or mechanized preparation of the area. The technique guarantees higher biodiversity and proved cost effective.

***Installation of watering systems***

© Raissa Gerno / ICV



*Watering trough on the Mitaju Ranch*

All participating ranches established systems to pump water that can be collected and held in a reservoir for distribution to watering troughs in animal rest areas.

Irrigation provides animals with access to good water throughout the year. Research indicates that cattle gain weight in direct proportion to access to water and shade. Beef cattle obtain a 29% higher average daily weight increase with access to good water. Irrigation protects water resources for preservation areas while also improving production by ensuring livestock have access to water year-round.

protects water resources for preservation areas while also improving production by ensuring livestock have access to water year-round.

PASTURE



Preparation of grazing areas during the pilot phase passed through various steps prior to the division of pastures with barbless wire and/or the installation of electrified fences.

**Intensification of 10% to 15% of the pasture area**

© Eduardo Florence / ICV



Exhausted pastures which were later intensified

In the participating ranches, between 10% and 15% of the total area of pastures was intensified, especially in areas presenting signs of advanced pasture degradation. These areas were undergoing the sudden die-off of the *Brachiaria brizantha* grasses and the widespread occurrence of invasive species such as *Vernonia polysphaera* and termite mounds.

**SOIL PREPARATION FOR PASTURE IS SIMILAR TO THAT EMPLOYED FOR CROP LAND**



© Eduardo Florence / ICV

Pasture undergoing tillage



**Reform** - Pastureland reform is required when soil is degraded, showing signs of die-off, blight, and and/or limited grass plants per unit of area. Soil is first assessed to determine the appropriate intervention. For highly exhausted soils, tillage through plowing and harrowing is necessary to prepare the soil to receive nutrients. After that, limestone or gypsum is applied, prior to planting and the applications of phosphorus and potassium to establish the new pasture. Then, depending on the management strategy employed in each ranch, nitrogen sources may also be used to increase the grass' productive performance.

© Andrés Pasquis / ICV



Pasture being reformed



© Daniela Torezzan / ICV

Reformed pasture

<b>Pasture Reform</b>		
<i>Item</i>	<i>Value (R\$/ha)</i>	<i>%</i>
<b>Mechanized operations</b>	691	30%
<b>Pasture Inputs</b>	808	35%
<b>Electrified Fence</b>	575	23%
<b>Rest Area Infrastructure</b>	321	13%
<b>TOTAL</b>	<b>2.397</b>	<b>100%</b>

SOURCE: ICV

**Restoration** - Restoration is possible when a pasture area is in good condition, having a sufficient stand of plants per unit of area. In this case soil does not require tilling and inputs can be applied directly to the surface.

<i>Pasture Restoration</i>		
<i>Item</i>	<i>Value (R\$/ha)</i>	<i>%</i>
Mechanized operations	79	5%
Pasture Inputs	288	24%
Electrified Fence	468	44%
Rest Area Infrastructure	283	26%
<b>TOTAL</b>	<b>1.120</b>	<b>100%</b>

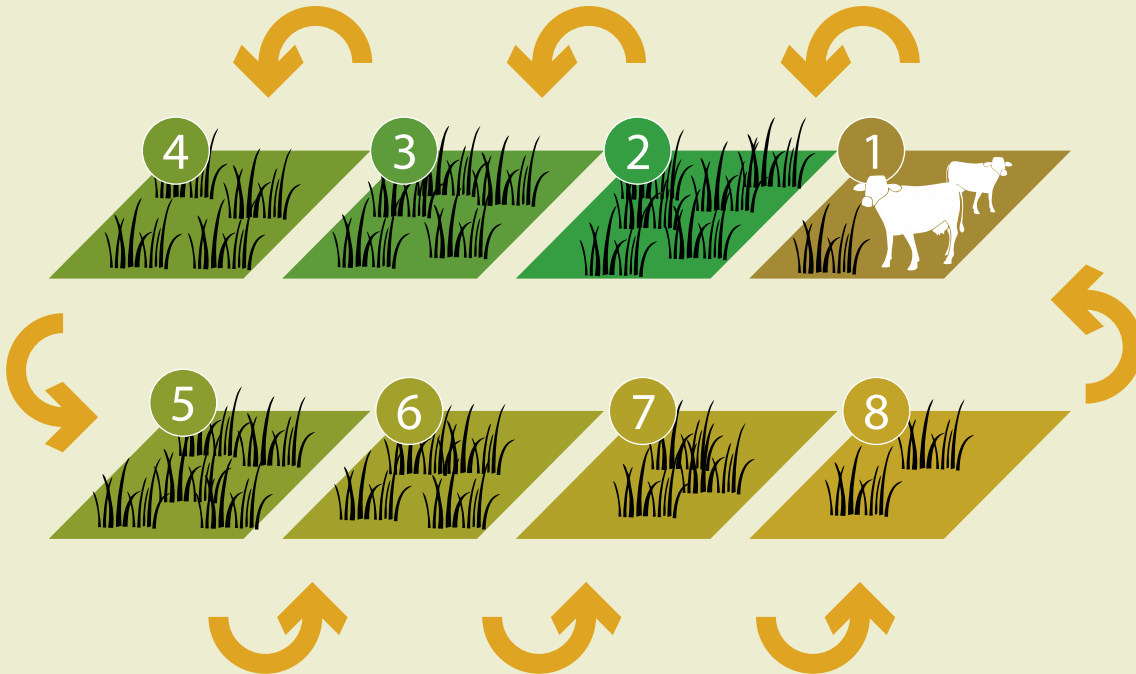
SOURCE: ICV



**Division**

The size and number of divisions depend upon the pasture management system adopted. In the rotational grazing system, areas are divided into pastures which are subjected to alternating periods of grazing and rest. The advantage of this system resides in its control of pasture production, allowing to determine when and for how long the grazing will occur. Pastures under rotational grazing tend to demonstrate greater uniformity and higher efficiency.

# Rotational grazing



© Eduardo Florence / ICV



Rotational grazing on the Paraíso Ranch

## Rotational grazing

Management is exercised by the workers who handle the cattle. Training and experience is necessary to identify the appropriate moment to open or close a pasture for grazing, which depends on the height of grasses, with some variation from one species to another. In the case of Mombaça grass (*Panicum maximum* cv. *Mombaça*), cattle should enter the pasture at a height of 90 cm and be removed when the grass is approaching 40 cm. Each grass requires a slightly different timing. In the pilot phase, both Mombaça and Tanzânia grass (*Panicum maximum* cv. *Tanzânia*) were used.

SUPPLEMENTARY FEEDING



Animals require adequate feeding throughout the year. During the rainy season, grass is abundant. In periods of drought however, the animals' nutrition needs to be adjusted, since there is not a sufficient offer of fodder, In quality and quantity. Thus, supplementary feeding is required. Each ranch develops a supplementing strategy according to the dietary needs of the cattle breed being raised.

The alternatives for supplementary feeding include on-pasture and in feedlots. The determination of feed, protein, and other supplements depends upon the desired development for a herd. Feeding will be adjusted according to the productive capacity of the animals, and other variables including age and weight, as well as the financial situation of the producer and the infrastructure, labor, and knowledge available.



*Supplemental feeding on the Paraíso Ranch*

© Barbara Veiga / ICV



Successful breeding requires close management of the herd. Once identified, females should be separated during the reproductive cycle, during the breeding season, from October to December, or as indicated by veterinary counsel.

### ***Breeding season***

During the time of year indicated for reproduction it is important to provide animals with more feed. This is also the best time for artificial insemination. All of the ranches participating in the project separate their animals during this time for breeding.

### ***Fixed-Time Artificial Insemination***

Cows are separated for Fixed-Time Artificial Insemination (TAI), and subsequently bred by a bull. If they are not impregnated at this time they are sent to slaughter. .



***REPRODUCTIVE CONTROL IS STRATEGIC FOR THE MANAGEMENT OF BREEDING AND THE TIMING OF PRODUCTION***



*Cattle are separated during breeding*

© Barbara Veiga / ICV



## RESULTS OF THE PILOT-PHASE: NARRATIVES AND NUMBERS

*For 24 years ICV has been developing projects in Mato Grosso and getting to know the region. Since 2012, we have promoted the adoption of Good Agricultural Practices to improve the ranches' management. Today, we present the first results of a project developed in collaboration with strategic partners and participating local ranchers over the past three years.*

*Here, we hope to demonstrate some of the possibilities when "ranching is adapted to the richness of the Amazon biome, integrating water, air, land and forest and principally, the human lives which form a part of that context, and are essential to the balanced management of the entire system." These words by Vando Telles are confirmed by the ranchers*



© Divulgação / ICV



*Above, Vando Telles, of ICV, says the Program demonstrates how to produce better in the Amazon region*

*Left, partners with the Novo Campo Program: Jéssica Brito, Francisco Militão Brito, Milton Souza, Wagner Ferraresi and Gustavo Danetti*



*who participated in the project Low Carbon Integrated Cattle Ranching, the pilot project that established the Novo Campo Program.*

Francisco Francisco Militão Matheus de Brito has been in Alta Floresta (MT) for over 30 years. Like many other local ranchers, he came to the region from Paraná State in hopes of building a better life when the land of

the South was no longer able to attend the needs of his family. He explains that before adopting the practices promoted by ICV, he managed his herd according to the customs of an extensive form of ranching: selling feeder calves at weaning independent of their weight and the quality of their meat, and only bothering to haggle with the slaughterhouse at the time of sale.

“In general, I slaughtered males and females not fit for breeding. Males went to slaughter according to weight and independent of age, between 3 and 4 years old. There was no management and the meat was of very low quality,” he observed. With the problem of the sudden die-off of the *Brachiaria Milton* began to worry about the decreased productivity of his rangelands, which lost usable pasture and the capacity to support his herd.

Seeing his neighbors similarly struggling, he entered ICV's pilot project when he heard the initiative might offer a solution. "At the start, we were reticent, but we needed to look for alternatives as a question of survival". Today, he credits ICV with bringing change. "I sincerely thank all of the members of ICV and their workers, who inspired and carried out this project, and the companies (in this case, the Moore Foundation and Fundo Vale) who provided financial support," he confessed.

Prior to ICV's implementation of the GAP, many local producers believed that the ICV was only concerned with preservation of the natural environment. With this project however, economic, social and environmental goals are approached in an integrated way. Gradually, ICV has earned the confidence of local ranchers. "We're not only promoting a solution to an environmental agenda, but also demonstrating the means for more efficient production within the Amazon biome," says Vando Telles.



© Barbara Veiga / ICV

*Milton Souza approved the investments in the business*



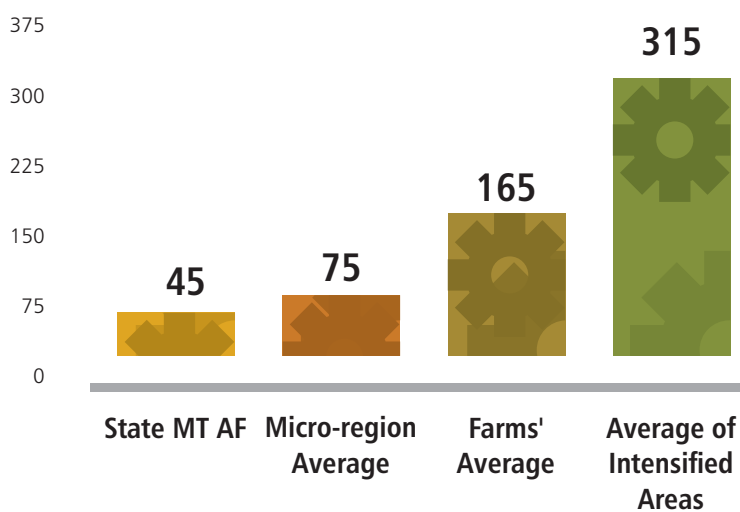
© Marco Flávio Santos - GTPS

*Militão Brito is among the happiest with the new methods. He obtained 30 arrobas (450 Kg) per hectare per year with the implementation of the GAP*

***“IT IS IN THE DAY TO DAY, THROUGH TRIAL AND ERROR, APPLIED EXPERIENCE, AND EDUCATION AND TRAINING FOR WORKERS, THAT WE ARE ABLE TO MAKE A COLLECTIVE DECISION AND ACHIEVE PRESERVATION AND PRODUCTION GOALS SIMULTANEOUSLY,” SAYS VANDO***

With the results of the pilot project, says Militão, a new perspective and a new horizon opened up and with it the need for significant changes, including the “reforming the pastures and implementing technology throughout the whole process.”

“Everything’s changed, 100%.” says the rural landholder. “First of all, I had to change, to break free of old paradigms. That was the most radical change.” He reveals that this was the greatest barrier he had to overcome. “That change is irreversible, when you believe in something, it change your day to day, open your mind.” Militão’s daughter, Jéssica Matheus Brito, a zootecnician, takes part to the Integrated Technical Assistance Nucleous (Nati), which trains professionals to provide technical assistance to ranchers on all aspects of ranching management.

 PRODUCTIVITY (KG/HA/YEAR)


Source: ICV2014

### A SUSTAINABLE FUTURE FOR RANCHING

Militão says that today he sees a future in ranching. Before, he would get three or four arrobas (45 to 60 Kg) per hectare. With the intensified area he achieved 30 arrobas (450 Kg) per year.\* “At the time,” he recalls, “I didn’t know how much the arroba was worth. I would argue with the buyer when it was time to sell, I would ask for a little more,” Today he says, instead of demanding one or two percent of the value of the beef from the meatpacking company, he has control over what he has spent and what he has made thanks to the implementation of the GAP. And the best thing: “it is in my power, it depends only on me, upon my belief,” he concludes.

***IN TERMS OF PRODUCTIVITY, THE AVERAGE YIELD WITH TRADITIONAL RANCHING IS 4.5 ARROBAS (67.5 KG) PER HECTARE PER YEAR. WITH THE ADOPTION OF GAP THE RANCHES IN THE PILOT PROJECT AVERAGED 10.76 ARROBAS (161.4 KG) PER HECTARE. IN THE INTENSIFIED AREAS THE AVERAGE REACHED 20,75 ARROBAS (311 KG) PER HECTARE PER YEAR. PRODUCTIVITY CAN BE MORE THAN TRIPLED USING THE SAME AREA OF RANGELAND***

\*1 arroba equals 15 kg of carcass weight

Militão wants to expand the new practices throughout his property. Today, he is able to plan ahead for a year and a half. “When I do the weaning, I already know how much I want to sell, because I know



© Marco Flávio Santos / GTPS



how much feed I am going to require, and how much mineral salt. I recover the pastures for the next drought, I'm able to anticipate my purchase of fertilizers, limestone, chloride, and urea to fertilize the topsoil," he comments, remembering that before he didn't have any system for budgeting and he used to spend much more.

Militão says that today he is "fully satisfied." In the intensified area he has tripled production and he "doesn't need to worry about the grass." Every five days, the cattle are moved to another enclosure with tall grass. And the region receives good average yearly rainfall.



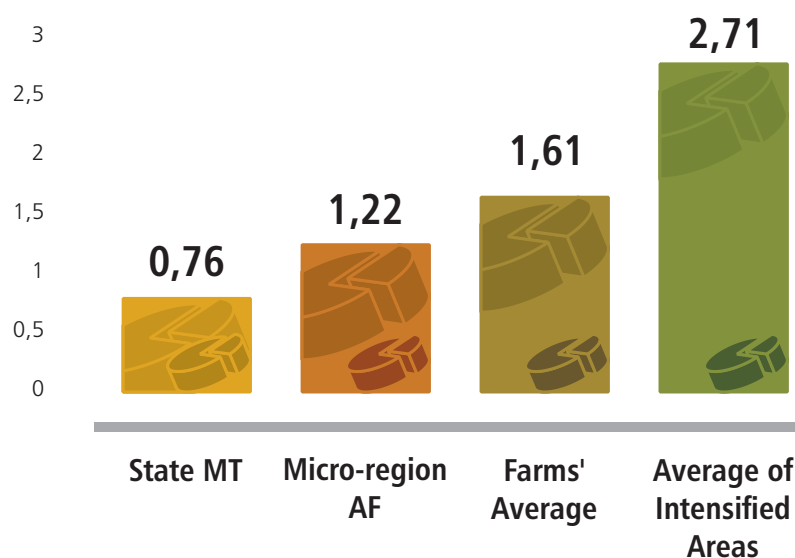
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*Aldo Danetti and his son Gustavo incorporated the BPAs as routine practice on their Ranch and they are satisfied with the results. Gustavo is a consultant with the Nati, servicing the family business and other local ranches*

**IN TERMS OF STOCKING, IT WAS POSSIBLE TO DOUBLE AND IN SOME CASES, EVEN TRIPLE THE NUMBER OF ANIMALS PER HECTARE. THIS PROVES THAT PRODUCTION CAN INCREASE IN THE AREA ALREADY AVAILIABLE, WITHOUT FURTHER DEFORESTATION**



## STOCKING CAPACITY (UA/ha)



Source: ICV2014

“Everything that we installed on the ranch, that’s not spending, that’s investment,” says Milton dos Santos Souza, who enclosed an area of his ranch for environmental restoration (APP), preventing the entry of cattle, and installed an irrigation system with watering troughs in enclosed pastures. The system implemented by Milton has been used as a model for local ranchers interested in copying the design. “The cost keeps getting cheaper, because the structure is already in place,” explains Milton, owner of the Mitaju Ranch, adding that future generations will benefit from these innovations.

#### NEW PRACTICES IN PLACE

Aldo Danetti came from the South to Brazil’s Center-West 30 years ago. “ICV appeared just in time,” he says. “Battling,” trying to survive raising beef cattle after other attempts at coffee and chocolate, Aldo was ready to

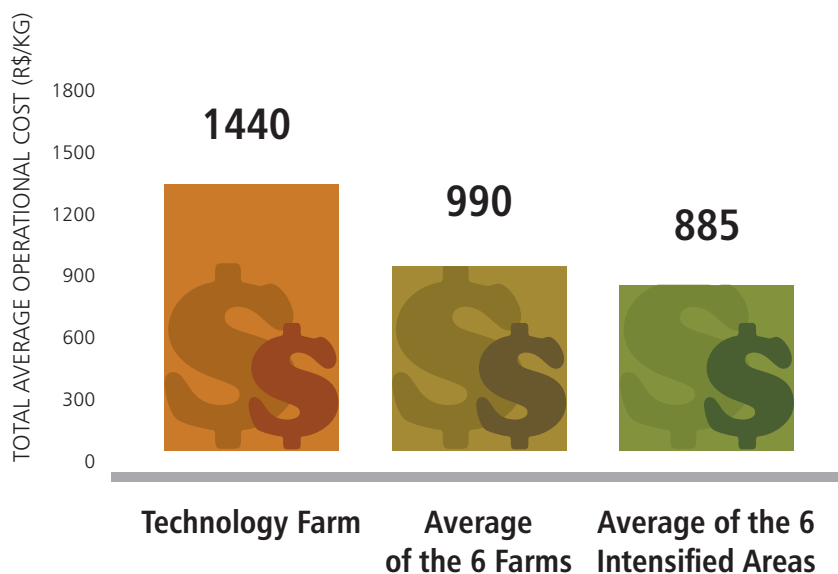
leave ranching. Over time, his concern has shifted. “What if the ICV project should end? Would we be left on our own?” Who would provide modern and efficient support?” he asks. “It would be very difficult to go on without the Program.”

The changes implemented on his property have satisfied Danetti. Costs were reduced and productivity and profits increased. With the Novo Campo Program, his animals have received better and more nutritious feed – especially during the dry season – maintaining an adequate growth rate.

**TO REDUCE PRODUCTION COSTS, PLANNING AND NEW TECHNOLOGIES ARE INDISPENSABLE. THE INTENSIFIED AREAS OBTAINED LOWER COSTS THAN THE AVERAGE OF THE OTHER AREAS IN THE MONITORED RANCHES**



## PRODUCTION COST



Source: ICV2014

Aldo is proud to produce beef “in the Legal Amazon, not the trampled Amazon.” His son Gustavo, an agronomist, also works with the Nati. Today he has two complementary jobs: working as a consultant to other ranches, and helping to manage the family property.

For Gustavo, the dissemination of new technologies by ICV and Embrapa, the government partner offering technical reference through the Good Agricultural Practices (GAP). “Today, these practices are part of the day to day. A large part of our property already uses the intensified model. We don’t want to go backwards, we want to continue forward,” says the agronomist. In his evaluation, the principal advantage of the Program is the capacity to monitor production, and trace the product from start to finish.

Gustavo believes that the concerns of consumers and industry about social and environmental responsibility have

created opportunities for the agricultural sciences to attend these demands and better establish themselves in the region.

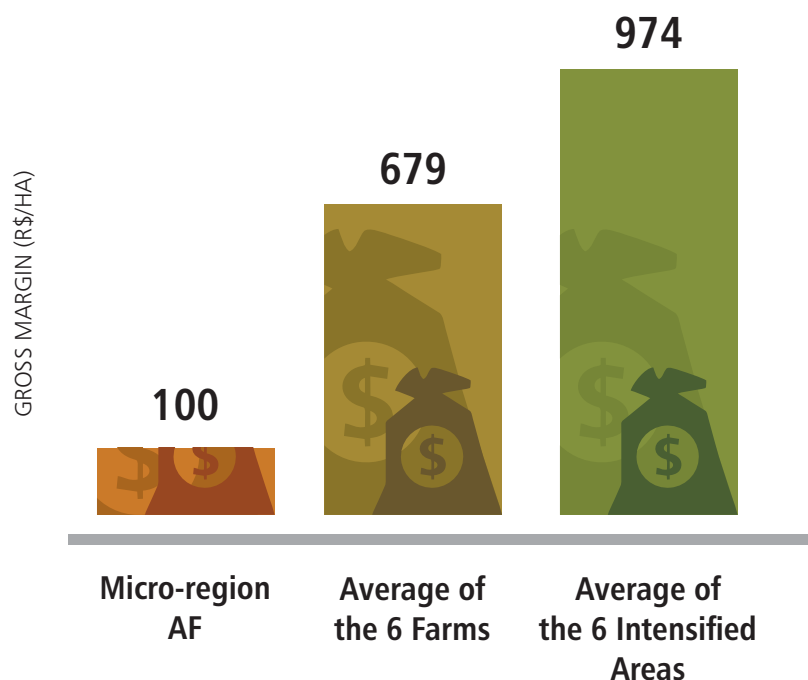


© Barbara Veiga / ICV

Aldo demonstrates an area under recovery on his ranch in Alta Floresta



## GROSS MARGIN



Source: ICV2014

### RESULTADO MUITO ACIMA DO ESPERADO

Another example of successful management is the Bevilaqua Ranch, which has been working for 18 years on genetic improvement of Nelore PO (Pure Origin) cattle. With ICV's guidance, in the intensified areas the ranch increased its productivity fourfold. The owner of the ranch, Celso Bevilaqua, was able to increase his yield of 6 arrobas (90 Kg) per hectare per year to 23 (345 Kg) arrobas per hectare per year. Combining an improved management with better pastures and good genetics, he manages to obtain animals with 19 arrobas (285 Kg) in 30 months.

**IN TERMS OF GROSS MARGIN, TRADITIONAL RANCHING ACHIEVES AS MUCH AS 100 REAIS PER HECTARE IN A YEAR. WITH INTENSIFIED MANAGEMENT, RANCHERS CAN GET AS MUCH AS A THOUSAND REAIS PER HECTARE PER YEAR**

Celso Bevilaqua highlights that he achieved those good results thanks to Ronildo Martins, who manages the Bevilaqua Ranch. Born in the region, Ronildo is accustomed to working on the range. At meetings, trainings, and in the field, Ronildo represents the Ranch.

Ronildo received training on new management techniques related to the handling of the cattle and today, the animals are calm and easy to manage. "The change was in the way of handling the cattle," adds Ronildo, showing how, without shouting and using only a simple flag and a friendly approach, the treatment of the animals is simplified. "I learned a lot with the people at ICV, but I also traveled to São Paulo and Minas Gerais", Ronildo explains, referring to the exchange opportunities afforded by the Program.





© Barbara Veiga / ICV

*Ronildo herds cattle with a flag, one of the methods recommended by the BPA*

The expectation for 2015 is that the four intensified areas on the Bevilaqua Ranch will reach 35 arrobas (525 Kg) per hectare per year, “with only a few slight changes” to the feeding of the animals, according to Ronildo. The manager of the Ranch says he is satisfied with the activity. “Everything has improved, the housing for the workers, the construction and quality of the storehouses, and the lodging for the field staff,” Ronildo explained.

What he recognizes as being most important is the change in mentality: “Some people don’t want to change; they have learned one way of doing things and believe that things should always be that way”, he says. For him however, the important thing is to learn new techniques in order to stay ahead, and the desire to work. “It’s not all about earning,” he asserts categorically. The shortage of rural labor is one of his biggest concerns. With the recognition he has achieved and the improvements he has made on the Be-

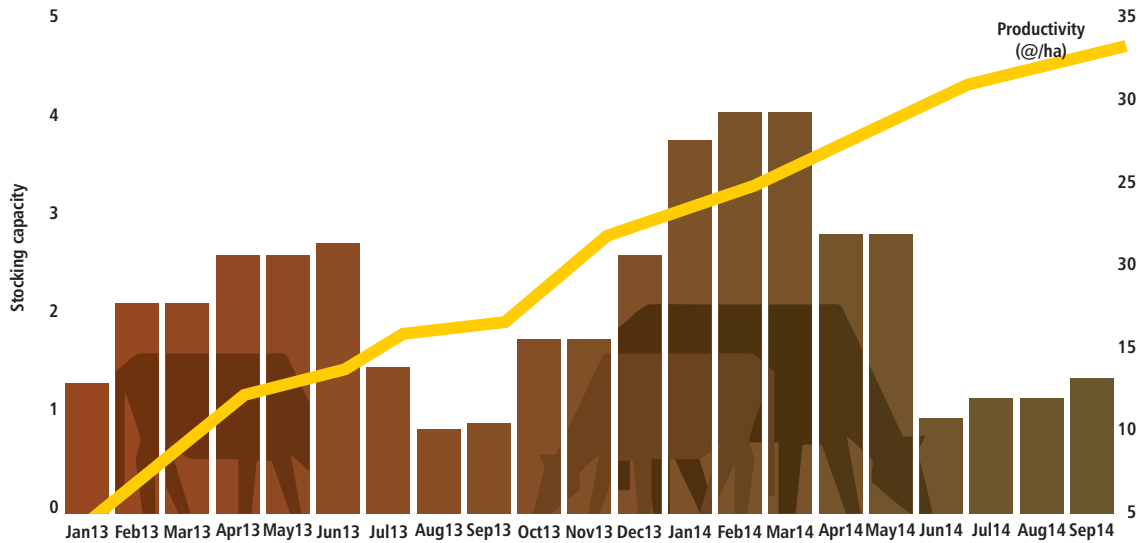
vilaqua Ranch, Ronildo would not even consider returning to the city. His dream is for his daughter to study veterinary medicine, an opportunity he never had.

On the Bevilaqua Ranch, 3.75 hectares of forest have been restored. According to ICV’s Project Manager Eduardo Florence, more than 30 different native species have been planted, including leguminosae like crotalaria and guandu beans, encouraging the return of native wildlife. Native fauna contribute to the restoration of the forest, playing an important role as vectors for seed dispersal. “Consequently, an ecological corridor between areas has been established,” explains Eduardo.

Eduardo recommends technical support for the restoration of forest conservation areas (APP). In the case of the Bevilaqua Ranch, the grass was already deeply rooted. In order to remove it without the use of toxic chemical herbicides, the grass itself was used: it was cut and piled over



INTENSIFIED AREA



© Barbara Veiga / ICV



*Celso Bevilaqua achieved 19 arrobas in 30 months with the new methods implemented through the Program*

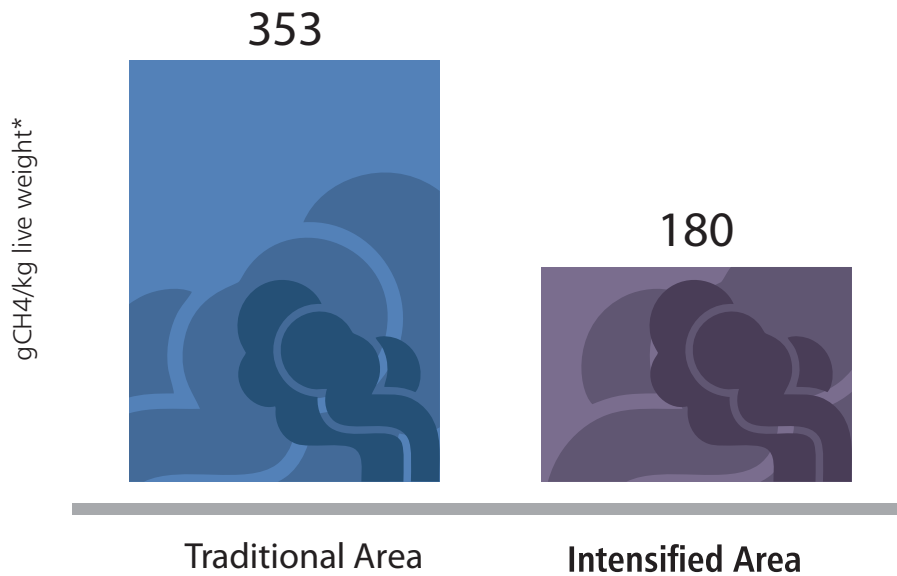
the restoration area, impeding new growth of grass.

After three or four cuttings, a mechanized planter was used to sow native forest seeds and leguminosae like crotala-

ria as and guandu beans, which enrich the organic material and fix nitrogen in the soil. These companion plants provide favorable conditions for other forest species requiring shade for germination and growth. Eduardo estimates that by



## GREENHOUSE GAS EMISSIONS



\*1st year after project's implementation

Source: ICV2014

using this method of active restoration, forest cover will be well advanced within 10 to 15 years. The same techniques, he says, can be successfully applied to other properties.

### GREENHOUSE GAS EMISSIONS

The development of an expansive and low technology form of ranching in the Amazon is also associated with higher greenhouse gas emissions. The longer it takes for cattle to go to market, the greater the impact in terms of the emissions generated. Ranches participating in the Novo Campo Program in the Alta Floresta region demonstrated a significant decrease in greenhouse gas emissions.



Pasture recovery on the Bevilaqua Ranch

© Barbara Veiga / ICV

**WITH THE INTENSIFICATION, EMISSIONS WERE CUT BY HALF OVER THE SAME TIME PERIOD. THE AGE AT WHICH ANIMALS WENT TO SLAUGHTER WAS REDUCED FROM FOUR YEARS TO TWO, WITH THE SAME WEIGHT ON A SMALLER RANGE AREA**

© Barbara Veiga / ICV



### CROP-LIVESTOCK INTEGRATION

Quem Those who have implemented in practice this integrated vision of their rangelands are doing well. Such is the case of Valdomiro Ferraresi, owner of the Ranch 5 Irmãos. The story begins with his son Wagner, who found himself in a situation similar to that of other local producers: he was worried, about soil degradation, low productivity, and the blight of pasture caused by the sudden die-off of *Brachiaria brizantha*. With the implementation of the Good Practices promoted by ICV, he improved the management of his property, increased profits, paid-off debts and finally, saw “light at the end of the tunnel.”

“Three years ago I had the same number of animals on twice the area I have today, and now I use less than half.” In 2014, Wagner planted corn, 100 hectares of soy, and 170 hectares of rice. Another 250 hectares are used as pasture. This system allows for three harvests. After the corn and soy harvests cattle are allowed to graze in the harvested fields. In 2015, Wagner intends to plant 200 hectares of soy and 100 hectares of rice. After the soy harvest, the 200-hectare field will be covered with braquiária grass, which will serve as a reserve pasture during the dry season.

Wagner’s experience reinforces the findings of the Brazilian Agriculture Ministry, which has developed a system for integrated farming, ranching, and forestry, the Crop-Livestock-Forestry Integration (ILPF). The system promotes the restoration of exhausted rangelands and adds the benefits of diversified production in a single area, integrating grains, beef, and timber. The goal is to improve soil fertility through rotation and planting systems that optimize land use.



© Barbara Veiga / ICV

*Valdomiro Ferraresi in the midst of his rice fields*









© Bárbara Veiga / ICV

Wagner Ferraresi showing new corn fields at 5 Irmãos Ranch

**“IN OUR AREA, 95% OF EVERYTHING IS RE-USE. ANYTHING IN ORDER TO NOT HAVE TO OPEN NEW AREAS OR BUY MORE LAND. WE WANT TO SURVIVE WITH WHAT WE HAVE TODAY,” OBSERVES WAGNER**



### RESULTS ACHIEVED

- |           |   |   |
|-----------|---|---|
| REDUCTION | } |  Ch4 Emissions (GEE) |
|           |   |  Age of Slaughter    |
| INCREASE  | } |  Stocking/ha         |
|           |   |  Productivity        |
|           |   |  Quality of Carcass  |
|           |   |  Gross Profit Margin |



© Marco Flávio Santos - ICV

## NOVO CAMPO PROGRAM: SCALING UP

*Since 2012, ICV promotes the adoption of the Good Agricultural Practices (GAP) for cattle ranching developed by Embrapa. Building upon the pilot project, the Novo Campo Program seeks to reduce the pressure on the Amazon Forest, increase productivity and social and environmental sustainability of cattle ranching, improve quality, and, strengthen the local economy.*

*Coordinated by ICV, the Novo Campo Program has been able to establish strategic partnerships. The participating institutions include Embrapa, the International Institute for Sustainability (IIS), Solidaridad, Imaflora, JBS, and rural unions from Alta Floresta and Cotriguaçu. Financial support comes from Fundo Vale, The Gordon and Betty Moore Foundation, the Brazilian Working Group on Sustainable Cattle Ranching (GTPS) and the Norwegian Agency for Development Cooperation (Norad).*

© Daniela Torezzan



*Technical visit of the Global Roundtable for Sustainable Beef – GRSB, held in Alta Floresta (November 2014)*



*The states indicated comprise the Legal Amazon, the focal region of the Novo Campo Program*

**THE NOVO CAMPO PROGRAM WILL CONSOLIDATE AND SCALE UP THE ADOPTION OF GAP, DEMONSTRATING THE TECHNICAL AND ECONOMIC VIABILITY OF SUSTAINABLE RANCHING IN THE AMAZON. THE GOAL IS TO REACH 300 PROPERTIES IN TWO YEARS AND CONTINUE TO DISSEMINATE GOOD PRACTICES, TECHNOLOGIES AND ACQUIRED EXPERIENCE THAT HAS BEEN TESTED AND PROVEN**

The municipality of Alta Floresta has potential to become a hub for the diffusion of sustainable ranching practices throughout the region. Currently, it has the fourth largest herd in the state of Mato Grosso. Alta Floresta is no longer on the list of



© Marco Flávio Santos - GTPS

Laurent Micol, of the ICV, speaks about the Novo Campo Program, using the map of the Amazon Portal region in Northern Mato Grosso

critical deforestation municipalities established by the Environment Ministry (MMA) and already has various programs for the environmental and land tenure regularization of rural properties.

### ADVANTAGES

The participants in the Novo Campo Program receive numerous benefits:

- Access to new techniques proven to augment productivity and reduce production costs;
- Quality-based price premiums offered by industry partners, such as JBS, for the meat they source from program participants;
- Accreditation of compliance with

the Embrapa GAP;

- Up-to-date technical information and the opportunity to participate in training courses on the implementation of good ranching practices;
- Preparation to enter markets with stricter requirements in terms of the legal and sustainable origin of beef.

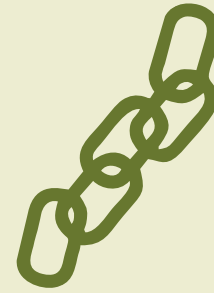
### HOW IT WORKS

The Novo Campo Program is composed of six components designed to produce economic, social and environmental benefits for participating ranchers and for the region. The initiative intends the full integration of the beef supply chain.



## ***1. Mobilizing Producers for Sustainable Ranching***

This is the principal component of the Program in that ranchers form the base of the cattle industry. In order to encourage new producers to participate in the Novo Campo Program, ICV established initial partnerships with rural unions in the counties of Alta Floresta and Cotriguaçu. It is looking to develop further partnerships with local governments, associations, and other organizations with ties to local ranchers, in order to strengthen connections to producers.



## ***2. Specialized technical assistance***

Novo Campo provides technical support to participating producers through its Technical Assistance Nucleus (NATI). This group of professionals and companies credentialed by the Program is contracted directly by the producers to carry out the initial assessment of a property and develop an individualized GAP project. The professionals accompany the implementation of each project and provide guidance and performance assessments. The NATI also provides ongoing opportunities for continued education and training, through courses and exchanges.



In April of 2015, the second phase of the NATI was initiated in partnership with the Mato Grosso State University (Unemat) at the Alta Floresta Campus. The partnership aims to develop a new course of study in beef cattle ranching for a group of undergraduate students in the department of agronomy. This will enable the dissemination of a broader vision of the industry, including economic, social and environmental aspects of ranching. The curriculum includes classes on good practices, environmental planning, labor management, finance, and management software, taught by technicians from ICV and visiting professors. The graduates will join the NATI and qualify to provide technical assistance to local producers through the Novo Campo Program.

### **3. Incentives for an improved product**

The producers participating in the Novo Campo Program receive incentives from meatpacking companies based on the quality and certified origin of their product. They will gain access to special price premium protocols and establish long-term agreements with buyers with guaranteed volumes and commercial conditions.



### **4. Financing for GAP Implementation**

ICV and its partners establish partnerships with financial institutions in order to obtain credit for participating cattle producers. The goal is to create lending agreements which are appropriate to the situation and needs of ranchers so that they can make the investments necessary to implement the GAP.



### **5. Platform for the management of information, monitoring and traceability**

The program will provide a set of management tools to be used by producers, partner organizations and the technical assistance professionals to monitor the implementation of the GAP. These tools will allow participants to track and manage the development of a herd and to trace all products throughout the supply chain. They will also provide an estimate of the greenhouse gases generated during the process of raising and slaughter.



### **6. Integration with a territorial approach**

The Novo Campo Program will be implemented in municipalities participating in the Mato Grosso Sustainable Municipalities Program (PMS) that demonstrate the necessary conditions of environmental governance, including: i) a minimum of 66% (two thirds) of total municipal area registered with the CAR; and ii) a functioning system of municipal environmental management, with Secretariat, Counsel, and a system of environmental monitoring. In these municipalities, government, industry associations, civil society organizations and rural unions can all collaborate towards environmental planning sustainable development goals, seeking to guarantee the kind of standards valued by national and international markets for agricultural commodities.



## ***Commitments assumed by participants***

The Program is designed for producers who want the best for their ranches, for meatpacking and retail companies who want to source beef from a sustainable supply chain and for technical assistance professionals and firms interested in GAP. These participants agree to the following conditions:

<b><i>Participants</i></b>	<b><i>Criteria for participation</i></b>	<b><i>Commitments assumed</i></b>
<b>Producers</b>	Comply with minimum environmental requirements (possess Register with the CAR, not appear on the list of properties embargoed by Ibama or by Sema-MT or of forced labor of the Labor Ministry). Not possess illegal deforestation since 2008	Follow the Embrapa GAP and progressively adopt the practices indicated. Contract Technical Assistance credentialed by the Program for the implementation and monitoring of the GAP project. Fulfill the environmental regularization and the rural property. Not deforest new areas.
<b>Meatpacking companies</b>	Possess a signed agreement (TAC) with the Federal Prosecutors Office. Effect control of suppliers to guarantee the exclusion of social or environmental violations	Develop and implement technical solutions to guarantee the legal origin of beef throughout the supply chain, from the birth of the animal to the consumer.
<b>Financial Institutions</b>	Offer rural credit for cattle ranching. Operate in the north of Mato Grosso State.	Follow the technical guidelines, apply the procedures and use the planning and monitoring tools indicated and provided by the Novo Campo Program. Attend and complete periodic professional development courses and the exchange activities of the NATI.
<b>Technical assistance providers</b>	Possess graduate course in the relevant area. Demonstrate specialization in livestock production or relevant experience indicative of expertise. Possess certificate of training in the Embrapa GAP Program	Follow the technical guidelines, apply the procedures and use the planning and monitoring tools indicated and provided by the Novo Campo Program. Attend and complete periodic professional development courses and the exchange activities of the NATI.

### ***Who does what***

The Novo Campo Program is a partnership between organizations with complementary roles. The principal partners are:

<b><i>Partners</i></b>	<b><i>Principal roles in The Program</i></b>
<b>ICV</b>	Coordination of The Program Platform for monitoring and management of information
<b>Embrapa</b>	Technical supervision and research
<b>International Institute for Sustainability - IIS</b>	Development of economic models and indicators. Development of financial mechanisms for GAP adoption. Strategic planning for sustainable land use in Alta Floresta
<b>Solidariedad</b>	Development of the sustainable territory approach integrated with global agrocommodity value chains
<b>Imaflora</b>	Solutions for the traceability of cattle and beef. Implementation of a Greenhouse Gas Emissions calculator.
<b>JBS</b>	Development of price premium protocols. Support to training and professional development for producers and technicians and to dissemination
<b>Local Rural Unions (Alta Floresta and Cotriguaçu)</b>	Producers' mobilization

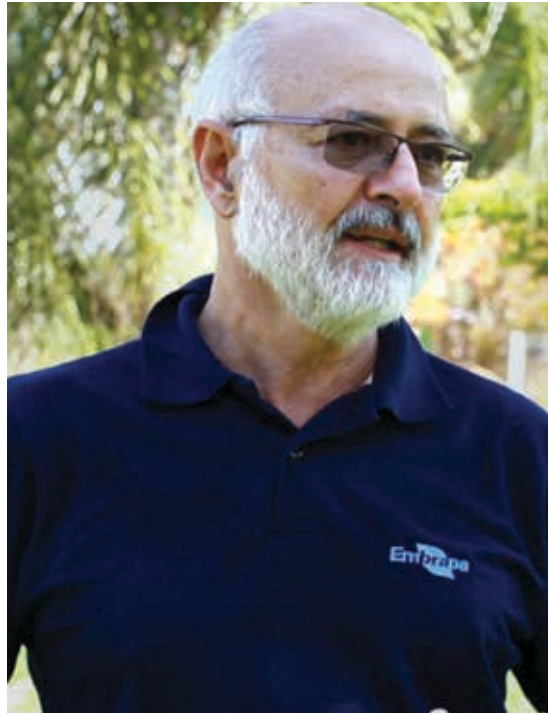
## INFORMATION FOR PRODUCERS

Lineu Domit, a researcher with Embrapa Agrossilvipastoril, observes that without the work of ICV it would be impossible to take the GAP to rural producers. Embrapa has a limited number of field professionals – approximately 30 for the entire state of Mato Grosso – where there are more than 188 thousand producers, of which 106 thousand cattle ranchers, spread across a territory larger than many countries, 1,200 kilometers East to West and 1,200 kilometers North to South.

The relationship between Embrapa and ICV has developed over time. The Novo Campo Program emerged out of that enduring partnership. “The ICV participates in research and assists in the transfer of new technologies and methods to the field. Without their partnership we wouldn’t be able to make progress,” concludes Lineu.

Luciano Bastos Lopes, coordinator of Embrapa’s GAP Program in Mato Grosso, suggests that the partnership with ICV is different from the Program’s work in other States. He explains that instead of conducting punctual assessments of rural properties according to the GAP checklist, the Novo Campo technicians establish working relationships with local producers to implement the good practices in the field. The Novo Campo Program aims to continue this methodology developed in the pilot phase, while expanding to service a greater number of rural properties.

According to Luciano, the most important instructions offered to ranchers have to do with the requirements of fodder production, improvement of infrastructure and installations, improvements to the



© Barbara Veiga / ICV

*Lineu Domit of Embrapa says that the relationship with ICV is of strategic importance for the transfer of technologies and knowledge to rural producers*

animals’ genetics and animal welfare. “This way is easier for the producer, who adapts progressively to the GAP requirements. He sees the economic benefits and other positive outcomes from implementing new practices. Later, he can consolidate these changes and bring his property into compliance with the GAP.”

Embrapa has provided ICV with ongoing support, particularly through training the NATI technicians to share the good practices with local producers. During the pilot phase, Embrapa trained 60 new technicians over 5 training sessions in Sinop, the headquarters for Embrapa in Mato Grosso.

The GAP manual established by Embrapa for Cattle Ranching is being used to develop a new management software for the analysis and monitoring of participating ranches.



## MARKETS AND PERSPECTIVES

*The industry leader JBS is among those most interested in the results of the Novo Campo Program. The company representative Daniela Teston says that the progress made by the Program has been fantastic.*

*For Daniela, a zootecnician and Sustainability Manager at JBS, the Novo Campo Program has everything to do with the objectives of the company. “This is*

*a model of ranching that JBS wants to support.” According to her, JBS’s partnership with ICV and the other participating institutions serves to promote and expand the initiative.*

*“JBS believes in this model, taking good practices to producers, increasing productivity, and disseminating professional ranch management, all of which are in the best interests of the company, sin-*

© Barbara Veiga / ICV



*Above, cattle being loaded on a truck at the Bevilaqua Ranch*

*Corral at the Bevilaqua Ranch, one of the partners with the Novo Campo Program*

ce it helps develop a supply chain with responsible producers who comply with social and environmental requirements.”

She adds that the meat processing company has the role of informing producers regarding the demands of the market. “At the end of the day, the rancher doesn’t produce cattle, he produces beef. And that beef has to meet attributes set by the market. Beyond social and envi-

ronmentally responsible production, the meat has to be of high quality, tender and flavorful.” The partnership with ICV, Daniela says, is essential for bringing this information to producers.

**ONE OF THE FUNDAMENTAL ROLES OF JBS IS TO FIND NEW COMMERCIAL PARTNERS FOR THE PROGRAM. JBS HAS AN ENORMOUS PORTFOLIO OF CLIENTS AND THE CAPACITY TO POSITION THIS PRODUCT ON THE MARKET, SINCE IT IS DISTINCTIVE AND APPEALS TO A DISCERNING CONSUMER**

From the industry’s perspective, it is important to show the producer the results of the special treatment that his cattle receive. This is evident “in the quality of the beef, in the quantity of fat, in the dis-

© Barbara Veiga / ICV



*Daniela Teston, Sustainability Manager at JBS, wants all suppliers to follow the GAP*

tribution of meat between bone and fat,” she explains. All of that helps the producer to understand the kind of product the market is looking for.

### ON THE PATH TO TRANSPARENCY

Daniela emphasizes the fact that, in terms of transparency, 100% of suppliers to JBS are required to meet social and environmental criteria, including not having new deforestation since 2008, not appearing on Ibama’s embargo list nor on the list of participants in forced labor, and not overlapping with protected areas or indigenous lands. “These criteria guarantee the origin of the beef we bring to market, and the Novo Campo Program serves to reinforce these attributes. While the producers are implementing good

agricultural practices and complying with the social and environmental legislation, they are also experiencing increased productivity, which provides higher profits. Their cash flows improve as animals are ready for slaughter more quickly.”

According to the zootechnician with JBS, the work coordinated by ICV gives a lot of credibility to everyone involved, including JBS, because it demonstrates that another way of doing business is possible. “The challenge now is to disseminate this to 100% of our suppliers, to scale-up the Program,” she adds.

### MORE DEMANDING CONSUMER MARKET

Many consumers want to know where the meat they are buying comes from. Looking at this market, a number of organizations are working to support producers who are interested in expanding production without causing further deforestation in the Amazon. The International Institute for Sustainability (IIS) works on this issue involving a key link in the beef value chain: the financial agents.



© Barbara Veiga / ICV

*Kemal Kalif, of the International Institute for Sustainability, which seeks financial support for the Novo Campo ranchers*



IIS has developed significant expertise in the area of economic modeling and the use of so-called bio-economic models. “The partnerships we have undertaken with ICV have provided us with data needed to develop these models and this is a two-way street, because we can then offer a simulation where a given producer can look at the effects of economic decisions for his ranch, with a projection of 20 years or more” adds Kemel Kalif, Cattle Ranching Projects Coordinator at IIS.

### COLLABORATION TO STRENGTHEN THE BEEF VALUE CHAIN

The Brazilian Working Group for Sustainable Ranching (GTPS) was formed to bring together the diverse segments in the value chain towards finding solutions for more efficient cattle ranching. The GTPS includes the rancher, industry, retail, banking, non-governmental, and service sectors and looks for local solutions. The agronomist Fernando Sampaio, a member of the GTPS Executive Committee and the Executive Director of the Brazilian Association of the Beef Exporting Industries (Abiec), believes that ranching is the key towards a more sustainable form of production in Brazil. “Not only in the production of beef, leather and milk, but also for the development of agriculture, which depends upon the intensification of ranching.”

Fernando explains that for a long time, ranching spread horizontally across the country, growing in area and reaching the agricultural frontier, the Amazon Forest. Now, he defends the idea that agriculture should expand in areas currently used as rangelands. “By be-



© Barbara Veiga / ICV

*Fernando Sampaio, of GTPS, defends the intensification of ranching*

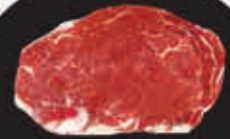
coming more intensified, ranching can increase production and reduce the area it occupies, reduce deforestation, emissions and the use of natural resources. That is the solution we are looking for.”

The greatest achievement, suggests Fernando, is that ICV’s work “was able to unite all of the pieces, to put it in practice and show how well it works.” The GTPS representative observes that it obtained part of the financing for the Program through a fund from the Dutch government that promotes good agricultural practices. “We contributed to mobilize financial resources because what is being done here can be taken to other regions, even other countries,” he said, referring to the training of technicians and workers. “This will have a multiplier effect which can influence an entire region,” explains Fernando.

# NOVO CAMPO PROGRAM

## CONVENTIONAL CATTLE RANCHING

Degraded and not restored areas; Poor management of the farm, pastures, herds, and human resources; Lack of value chain integration and incentives; No traceability



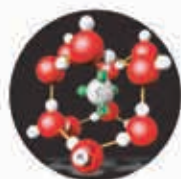
Inferior beef quality: fat finishing 0-1 mm

2.  
3.  
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## MAIN BENEFITS\*

**1** REDUCTION OF METHANE EMISSIONS

From 353 to 180 gCH<sub>4</sub>/KgLW



**2** REDUCTION OF SLAUGHTERING AGE

From 44 to 34 months for males and from 34 to 24 months for females



\*Average results of 6 pilot farms in the first year after GAP implementation. Results refer to the whole farm, where one 32-hectare module of intensification was installed, representing 5-10% of the total area of pastures.

# CATTLE RANCHING GOOD PRACTICES DISSEMINATE IN THE AMAZON

## GOOD AGRICULTURAL PRACTICES

Restored, intensified area; Technical assistance; Professional management; Valuation of human resources; Supplementary feeding and improvement in animal welfare; Reproductive management and sanitary control; Environmental regularization and forest conservation; Guarantee of origin and traceability



Superior beef quality: fat finishing 2-3 mm



**5 INCREASE IN GROSS MARGIN**  
From 0-100 to 680 R\$/ha/yr



**3 INCREASE IN STOCKING DENSITY**  
From 1.22 to 1.61 animal units / ha



**4 INCREASE IN PRODUCTIVITY**  
From 70 to 160 KgCW/ha/yr





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