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Growth strategies for a commercial farm: the AgroPastoril Campanelli case study

CASE STUDY

Roberto Fava Scare^a, Allan Wayne Gray^b, Rodrigo Lourenço Farinha^{Ⓞc}, Erin Chelsea Fullerton^d,
and Marcos Fava Neves^a

^aProfessor, and ^cUndergraduate Student, School of Economics, Business and Accounting of Ribeirão Preto (FEARP), University of São Paulo, Av. Bandeirantes, 3900, 14020-590, Ribeirão Preto, São Paulo, Brazil

^bProfessor, and ^dMSc Student, University of Purdue, Agricultural Economics,
403 West State Street, West Lafayette 47907, Indiana, USA

Abstract

At 2017, Victor Campanelli remembered the history of his family's business – the AgroPastoril Campanelli farm. His thoughts were back to the challenges that his father had faced, including the investments on an integrated production system that contributed to the family's business growth. The production of cattle, sugarcane, and corn are all part of this integration system that has helped the Campanelli family to develop a successful business model. Currently, AgroPastoril Campanelli has three main production activities: beef, sugarcane, and corn. With these activities, a sustainable circle was created to guarantee more efficiency in economic, environmental and social terms. As Victor Campanelli says, 'there is a perfect synergy between sugarcane, moisture, corn, and cattle. Not just because of the better land and labor use, but also because of the inputs economy and the productivity improvement, both in agriculture and livestock'. However, the present time requires a new investment cycle, leading the whole family to consider new market opportunities, especially regarding farmer's new demands. What should we do and where should we invest? Should we improve efficiency or open new areas? Should we invest in new agriculture enterprises or start new business outside agricultural market? Those and other crucial questions were posed by Victor Campanelli thinking on potential growth strategies for AgroPastoril Campanelli.

Keywords: agribusiness, verticalization, strategy, farm, cattle, corn, sugarcane

JEL code: Q12

[Ⓞ]Corresponding author: rlfarinha@usp.br

1. Introduction

It is a sunny morning in February 2017 as Victor Campanelli, co-owner and executive director for AgroPastoril Campanelli Farm, drives to his office in the city of Bebedouro, State of São Paulo. His company has three core business: the meat, sugarcane and corn production and has been well known due the high investments in technology and in an integrated production system.

Victor drives and contemplates the future of his family's business, he cannot help but remember the history of his family's farm. His thoughts go back to the challenges his grandfather and father had faced, not the least of which included migrating to a new country and making investments in the coffee production business. He also thinks of the success his family achieved in the past as a result of facing these challenges, all of which contributed to the growth of the family business into the successful company it is today. The family had maintained a tradition of not only hard work and success, but also of movement and innovation, adapting to the quickly-changing agricultural environment.

The environment and markets AgroPastoril Campanelli operates in are constantly changing. Producers cannot afford to remain stagnant if they want to remain at the top of the industry and maintain a profitable operation. The need for new investments leads the Campanelli family to constantly consider new market opportunities that can help the farm continue to improve efficiency and profitability. Victor Campanelli believes there is always room for improvement in their current operations. He ponders the questions: 'what should we pursue next and where should we invest? What direction should we head to keep advancing and avoid remaining stagnant at our current position? Should we find a new business model? Or should we invest further in our current integration model?' He sees diversification as a necessary path, but also as a challenge. In order for the operation to remain successful, all of the activities must move and advance together. The frequent addition of new family stakeholders can also create management obstacles to work around each year. AgroPastoril Campanelli has been successful in the past, but how must they proceed in order to remain at the top?

2. History of AgroPastoril Campanelli

Paschoal Campanelli, Victor's great grandfather, left Italy in the beginning of the twentieth century to buy some small coffee plantations in the rural region of Olimpia, located in western São Paulo, Brazil. Within a few years, Paschoal Campanelli had already become a successful rancher and coffee grower. Throughout the years, the existence of cheap land opened the opportunity to expand production, and also begin production of other products, such as oranges and cattle. In a town close to Olimpia, named Bebedouro, the AgroPastoril Campanelli SA company was founded in 1982 by all of the Paschoal Campanelli sons to honor the legacy of their father. Along with the official company, they also formed the enterprise board and the stakeholders' council.

Paschoal Campanelli is the grandfather of the generation of Campanelli's directors, which includes Victor Campanelli as one of the owners and group directors. After founding AgroPastoril Campanelli in 1982, the company invested in the expansion of coffee plants and in orange tree farms, acquiring more farmland close to the first tract purchased by Senior Campanelli upon arriving in Brazil. While the company produced cattle at this time, it was a secondary production activity.

In 1997, Campanelli family began to experience production problems with the rise of citrus canker, also known as greening disease. This crisis affected and damaged many crops throughout Brazil and Florida, leading AgroPastoril Campanelli to develop a plan of abandoning orange production and switching to production of sugarcane. In 2001, the Campanelli family set their plan into action and removed the first orange orchards, beginning with the less productive orchards. They continued to remove orchards through 2006, when the firm completely left the orange business. The removed orchards were gradually substituted by sugarcane fields as AgroPastoril Campanelli continued to increase sugarcane production, having all 8,000 hectares devoted to sugarcane by 2006. Livestock production was still a secondary production activity at

this time. However, Victor Campanelli, who started getting more involved in the family business in that time, began to see synergies existed between sugarcane and cattle production and decided to invest more in cattle production, moving forward.

Today, the company's decisions are made by a board of directors composed by Victor, his grandfather and other family members. All the company's strategic decisions are made by the board, however some of the directors have specific roles in the business. Victor's grandfather is responsible for managing the calf and cattle that AgroPastoril Campanelli buys all year and Victor is the Executive Director of the company. Victor has a major in Business Administration by Fundação Armando Alvares Penteado and a postgraduate degree by Escola Superior de Agricultura 'Luis de Queiroz'. Victor Campanelli business background transformed the family business and made him the person responsible for all the recent changes and innovation in AgroPastoril Campanelli. In 2016, the company had an average of 315 employees and approximately US \$65 million in revenues.

In observing the past of AgroPastoril Campanelli, two strong themes arise: tradition and movement. The generations work to preserve the values on which Paschoal Campanelli founded the company. They are pioneers in adopting the best practices and management and stay attuned to the market and environments in which they operate. They are willing to change and adjust their production activities or methods in order to stay profitable, operate at the highest level of efficiency possibly, and remain a top competitor in their industry.

3. The industry at large

3.1 The beef industry

In 2016, the world production of beef and veal was over 60 million metric tons Carcass-Weight Equivalent (CWE) and the world consumption of beef and veal was over 58 million metric tons CWE. Brazil produced over 9 million metric tons CWE of beef and veal in 2016, making up 15.4% of world production, and consumed approximately 7.5 million metric tons of beef and veal (USDA, 2017b). Today, Brazil has made its way to one of the top three beef producers in the world, along with the United States and the European Union. Brazil exports around 10-12% of the world's exported beef (Gerber *et al.*, 2015). In 2015, Brazilian exports of beef totaled over US \$5.9 million. The largest proportion of these beef exports went to Hong Kong (US \$1.09 billion), followed by Egypt (US \$661 million), Russia (US \$579 million), Venezuela (US \$534 million), and China (US \$476.6 million) (ABIEC, 2015).

The cow/calf operations are the first stage of the value chain for cattle production. The cattle are then sold to be raised either on pasture or in a confinement. Feedlots must also purchase or manufacture feed for their operation. Cattle from confinements and pasture are then sold to the slaughterhouses, which process the meat to be sold to end-users through retailers. Feedlot operations are usually large, vertically integrated, and fully mechanized. The meat value chain can be seen in Figure 1. The number of feedlots is rapidly growing in

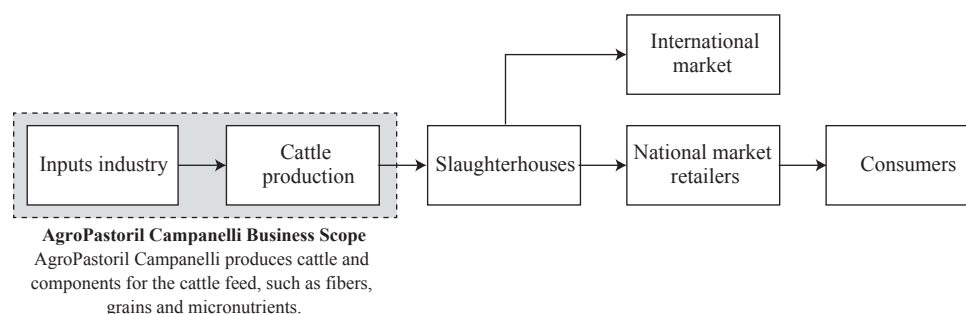


Figure 1. Meat value chain.

South America (Gerber *et al.*, 2015). In contrast, economies of scale in beef production has lead the industry to experience large amounts of consolidation for slaughterhouses, characterizing this stage of the supply chain as highly concentrated. Three of the primary companies that purchase cattle for slaughter in Brazil are JBS, Minerva, and BRF. The small number of slaughterhouses in Brazil translates into relatively low bargaining power for the farmers supplying the cattle, leading to low, fluctuating profit margins for feedlots.

Low profit margins create great risk for feedlot owners. Because of the high risk, a key to success in this stage of the value chain is maintaining efficiency and productivity in production. Efficiency of cattle herds (time in which cows are made into edible food product) is driven by: quality of feed, animal performance (weight gain), and breeding stock in the herd (Gerber *et al.*, 2015). Obtaining high levels of efficiency in fattening cattle will aid feedlot owners in managing any risks associated with the sale of their cattle to slaughterhouses. Researchers expect production capacity to increase, particularly in low production areas, because of improvements in managing animal-crop and forest-pasture systems (Knoll *et al.*, 2017).

Victor Campanelli believes the beef market is in the process of transitioning. The current price of beef is relatively cheap for Brazilian consumers. However, the price of beef is expected to sharply increase in the coming years, leading to a shift in consumption to other proteins.

Due to these changes that are occurring or anticipated in the near future, cattle producers will have to devote more focus to the quality of their animals and their fattening efficiency. It is possible that cattle producers may also be able to mitigate risk by seeking to strengthen partnerships with slaughterhouses in which they do business. Obtaining formal and complete contracts may aid feedlot owners in lowering the potential for high transaction costs or market failure.

3.2 The sugarcane industry

More than 380 billion metric tons of sugar were produced in 2016. There were 55 million metric tons exported globally, of which Brazil accounted for 24 million metric tons, over 40%. Brazil is the largest sugarcane producer and exporter. The other major exporters following Brazil are Australia, the Philippines, Mexico, and Guatemala. Brazil has a natural competitive advantage for low cost production of sugarcane, largely due to the tropical climate and low to non-existent occurrence of natural disasters. Brazil is also the second largest producer of ethanol, which is often manufactured from sugarcane. Production in Brazil is expected to reach 47 million metric tons over the next five years, with exports predicted to reach as high as 34 million metric tons (D'Costa, 2016).

Sugarcane producers, such as the Campanelli family, are one of the early stages in the supply chain for sugar production, purchasing seedlings, fertilizers, and machinery from agricultural input suppliers. Producers can sell their sugarcane to manufacturers for processing of sugar for consumption, for use in bakery and other food products, for energy, or for ethanol. The manufacturing stage of the industry is defined as having relatively low concentration, particularly in Brazil. Low concentration can generally lend to high bargaining power for producers. However, location of the manufacturer is of importance in the production of sugarcane, because sugarcane must be crushed within 24 hours of harvest. In addition, the level of consolidation is expected to increase in the coming years, following the general trend within the agricultural industry of commercialization. Production of sugarcane is generally capital intensive, producing naturally high barriers to entry. Overall, sugarcane production is classified as a mature market and is expected to change little over the next five years (D'Costa, 2016).

Some countries have high levels of regulation regarding sugar production to protect local producers. Brazil, however, has operated in an environment with little to no regulation for the past 10-15 years. Many of the barriers for other countries, such as the United States and those in the European Union, are expected to decrease. This will likely spur an increase in international trade. The decrease in barriers and increase in

trade will have effects on the global price of sugarcane, as well as opportunities for sugarcane producers, in the coming years (D'Costa, 2016).

In the past five years, the prices for sugarcane have experience high levels of volatility. Brazil's large presence and impact on this market has been a driving force of the high price volatility. The price of sugar is directly related to ethanol prices. As energy prices increased in the years between 2010 and 2015, many producers devoted a large number of stocks toward ethanol production, decreasing the stocks of sugar available for consumption, and thus causing a large increase in the price of sugar. Following this, sugarcane production was encouraged, and an increase of 2 million metric tons produced in Brazil caused a large reduction in the price of sugar. Prices in 2016 rebounded from the decreases, and overall prices are expected to gradually increase over the coming years, leading to increased revenues in the sugar industry (D'Costa, 2016).

3.3 The corn industry

The U.S. is the largest world exporter of corn; however, exports account for only 15% of production in the U.S. Global corn prices, therefore, are based largely on domestic trade in the U.S. and rely on weather within the corn belt region of the country. World producers wait to see the amount of corn that will be produced in the U.S. each year to make decisions on the size of their own crop (USDA, 2017c). For 2015-16, 963 million metric tons of corn were produced, and consumption totaled 981 million metric tons. The amount of corn traded worldwide peaked in 2013-14 at 130 million metric tons (USDA, 2017a). South America provides the primary source of competition for the U.S. (USDA, 2017c). Brazil exported 35,382 million metric tons and produced 67,000 million metric tons of corn in 2015/16. Both Brazil and Argentina had expected to have record crops for 2016/17, causing world production to largely increase from 2015/16 (USDA, 2017a). The reliance on U.S. crop size and prices creates the potential for great fluctuations in the global price, which can cause difficulties for corn producers, particularly in countries outside of the U.S.

4. AgroPastoril Campanelli

AgroPastoril Campanelli is well known in the meat production market due the excellence in operations and pioneering in the integrated production of cattle, sugarcane and corn. These crops and livestock are produced in the company's farms. There are four primary clusters of farms that are used for their production activities. The Santa Rosa Farm, where the feedlots are, is located in the city Altair, near Victor's office, and has 4,500 hectares used for sugarcane, corn, and cattle. It is also the location of a newly built premix factory. Figure 2 shows the location of AgroPastoril Campanelli farms, Figure 3 shows the Santa Rosa Farm and Table 1 shows the area and production activities of each farm.

4.1 The integrated business model

The production of cattle, sugarcane, and corn are all part of an integration process that has helped the Campanelli family to develop a sustainable business model. Currently, AgroPastoril Campanelli has three main production activities: beef, sugarcane, and corn. The core business is producing livestock, producing approximately 60,000 head of cattle per year and generating 59% of the company's revenue. Two types of cattle are purchased. One type is yearlings that are around 280 kilograms. These cows, around 50% of Campanelli's production, are shipped to the pasture for backgrounding and stay there until they reach around 400 kg. The cows are then shipped to the confinements. AgroPastoril Campanelli capacity for backgrounding depends on yearly rainfall in their pastures, but is generally around 25,000-30,000 heads of cattle. The other cattle are purchased at around 340 kg and shipped straight to the confinements. Cows stay in the confinements an average of 115-120 days and gain around 180 kg before being sold to the slaughterhouses.

Cattle are purchased or sold for slaughter on a weekly basis. Table 2 presents AgroPastoril Campanelli's purchase and selling of cattle throughout the years. The company's confinements have the capacity of fattening 30,000 cattle heads at the same time. Approximately 74% of the beef produced by AgroPastoril



Figure 2. Agro Pastoril Campanelli farms location.



Figure 3. Santa Rosa Farm, Campanelli feedlot located in Altair.

Campanelli in 2014 went to Europe as part of the Hilton quota. The Hilton quota allows certain countries a specified amount of high quality beef (fresh, chilled, or frozen) to be exported to the European Union and then sold at a premium price. The quota consists of 58,100 metric tons of high quality beef from the United States, Brazil, Paraguay, Uruguay, Argentina, Australia, New Zealand, and Canada. Campanelli does not decide the amount shipped for the Hilton quote, however. The cows along with all their documentation are shipped to the slaughterhouses, and the slaughterhouses determine what will be shipped for the Hilton quota based on characteristics such as age and weight.

AgroPastoril Campanelli devotes 8,000 hectares to sugarcane production, producing over 630,000 metric tons of sugarcane per year and comprising 36% of the company's revenue. To provide more fiber for the 36,000 confined cattle per year, the Campanelli group decided to use the sugarcane straw left in the soil after harvesting the sugarcane crop. About half of the total straw left in the soil after harvesting the sugarcane

Table 1. Production activities areas (ha) for Campanelli farms.

| Farms | Sugarcane | Pasture | Rubber | Headquarters | Feedlots | Tifton | Forrest | Total area (ha) |
|---------------------|-----------|----------|--------|--------------|----------|--------|----------|-----------------|
| Primavera | – | 2,674.24 | – | 4.79 | – | – | 209.52 | 2,888.55 |
| Santo Antônio | 1,807.59 | – | – | 12.15 | – | – | 267.75 | 2,087.50 |
| São João | 1,440.37 | – | – | – | – | 20.02 | 352.39 | 1,812.78 |
| Lago Azul | 1,394.59 | – | – | – | – | – | 154.21 | 1,548.80 |
| Santa Rosa | 858.06 | 72.32 | – | 7.77 | 31.16 | 94.92 | 220.79 | 1,285.02 |
| Conquista | – | 1,082.94 | – | 1.10 | – | – | 164.15 | 1,248.19 |
| São Francisco | 504.26 | – | – | 0.48 | – | – | 107.62 | 612.35 |
| São Luis | 510.70 | 20.18 | – | 5.21 | – | – | 70.49 | 606.58 |
| Alvorada | 505.64 | 18.96 | – | 1.99 | – | 13.39 | 44.80 | 584.78 |
| Iracema | 452.75 | 41.66 | – | 9.13 | – | – | 47.36 | 550.90 |
| São Geraldo | 458.40 | 4.21 | – | 7.08 | – | – | 72.07 | 541.76 |
| São José | 395.29 | 8.87 | – | 3.39 | – | – | 130.09 | 537.64 |
| Santa Inácia | 396.76 | 11.69 | – | 4.27 | – | – | 105.26 | 517.98 |
| Ipé | – | 454.22 | – | 2.09 | – | – | 16.99 | 473.30 |
| Santa Maria | 290.05 | 9.79 | – | 3.17 | – | – | 24.12 | 327.13 |
| São Pedro | 195.78 | – | – | 0.62 | – | 5.01 | 37.59 | 239.00 |
| Santa Cruz | 70.18 | – | 2.65 | – | – | – | 22.14 | 94.96 |
| São José (Alvorado) | 72.60 | – | – | – | – | – | – | 72.60 |
| Total area (ha) | 9,353.02 | 4,399.08 | 2.65 | 63.24 | 31.16 | 133.34 | 2,047.34 | 16,029.82 |

Table 2. Purchase and selling of Agro Pastoral Campanelli's livestock.¹

| Year | Cattle heads in the year | Cattle heads purchased per year | Total value of purchases (in Reais) | Cost per cow (in Reais) | Cattle heads sales per year | Total revenue (in Reais) | Revenue per cow (in Reais) |
|------|--------------------------|---------------------------------|-------------------------------------|-------------------------|-----------------------------|--------------------------|----------------------------|
| 2015 | 27,343 | 18,540 | 38,179,915 | 2,059 | 11,287 | 32,654,896 | 2,893 |
| 2014 | 25,515 | 43,326 | 71,406,688 | 1,648 | 40,778 | 108,457,715 | 2,660 |
| 2013 | 20,524 | 39,348 | 52,313,530 | 1,330 | 36,639 | 81,075,062 | 2,213 |
| 2012 | 19,692 | 32,853 | 41,526,778 | 1,264 | 29,945 | 62,392,370 | 2,084 |
| 2011 | 13,506 | 25,369 | 32,916,303 | 1,298 | 17,995 | 40,885,772 | 2,272 |
| 2010 | 11,290 | 15,037 | 17,079,977 | 1,136 | 17,697 | 33,755,761 | 1,907 |
| 2009 | 10,354 | 13,889 | 14,383,191 | 1,036 | 9,757 | 16,160,987 | 1,656 |
| 2008 | 11,211 | 10,809 | 9,871,948 | 913 | 10,508 | 19,870,252 | 1,891 |
| 2007 | 11,011 | 8,637 | 6,539,845 | 757 | 10,378 | 14,212,064 | 1,369 |

¹ 1 USD=3.17027 BRL, calculated on the basis of the exchange rate on October 18, 2017.

crop is used to feed the confined cattle, providing a great source of fiber, or is sold as biomass to sugarcane industries. The industry then burns the biomass in boilers to generate electricity. The straw is more efficient than the sugarcane bagasse normally used by the industry

Sugarcane is a permanent crop and after some years it becomes unproductive and must be removed to make room to another crop. After a crop year the sugarcane can be replanted in the same area. Through constant research and testing, the company has increased the average age of their sugarcane crops before replanting

to 9 years, compared to an average age of around 5 years for other sugarcane producers in Brazil. One of the biggest problems in sugarcane production, in Victor's opinion, is soil compaction. Thus, Campanelli has invested in automatic machinery and methods to reduce the impacts of soil compaction. This has aided the company in increasing their yields per sugarcane crop.

The crop areas where sugarcane must be removed, after its average life, are called 'reform areas'. In the region of AgroPastoril Campanelli the common crop used by the sugarcane farms in their reform areas are peanuts. Then, these farms sell their peanuts production to industries, such as Santa Helena, a major candy producer in the region. However, AgroPastoril Campanelli decided that the best use for the land in its reform areas would be to produce corn, a major component for the feed to its cattle.

Each year, approximately 3,000 of the hectares from unproductive sugarcane are used to produce corn, helping to reform the land before planting new sugarcane seedlings. The corn seeds are planted directly in the soil where the sugarcane straw was left, using the highest modern technology concerning planters and high precision agriculture instruments, such as the use of the Trimble FMX (FmX Integrated Display, Trimble, Sunnyvale, CA, USA), a GPS that has a sensor which controls seeds population and a sensor used to block the fertilizer application. The crop corn is also made with high quality, through harvesters with automatic pilots, generating more productivity gains.

The amount of corn demanded to fatten cattle is quite large, around 30,000 metric tons. Around 21,000 metric tons of corn were cropped last year in the company's farms to meet the cattle feed demand. The other 9,000 metric tons required by the confinement to fatten cattle are provided by industry 'spinoffs', such as cornstarch and Maltose Sugar. These choices have good nutritional value and are available in the region where the confinements are located with a reasonable price, making the market a good choice for fulfilling the remaining demand for cattle feed in the confinements.

The state of São Paulo is a place where the feedlots have a higher cost of corn than those from Mato Grosso and Goiás. So, the production of corn to feed the cattle, rather than buying it, is a viable option for AgroPastoril Campanelli. However, the company monitors the price of the corn in the market, selling their corn when the price is high and buying corn when the price is low. All the corn is stored in silos in the AgroPastoril Campanelli farms.

To maintain good standards of corn and sugarcane production, Victor Campanelli also worries about the quality of the soil in his farms. The soil in Brazil contains very few nutrients, making fertilizer a vital component of crop production. For Campanelli, the large amounts of cattle manure from their confinements created a solution for their fertilizer demand within their crop production. Additionally, most fertilizer in Brazil is imported from other countries, creating a relatively high price for farmers. Campanelli decided to invest in producing organic fertilizers using their cattle manure and produces around 50,000 metric tons of this organic fertilizer to use in the sugarcane fields. The production provides 70% of the total fertilizer needed for their sugarcane plantations.

In all of the Campanelli farms, which cover approximately 15,000 hectares of land in total, the integration process is constant. The animals are slaughtered with an average weight of over 500 kg. The company is also one of the major moisture silage producers in the country, producing 17,000 metric tons per year.

The AgroPastoril Campanelli's integration process depicted in Figure 4 is one of the most successful business models of farm integration. A sustainable circle was created to guarantee more efficiency in economic, environmental and social terms. As Victor Campanelli says, 'there is a perfect synergy between sugarcane, moisture, corn, and cattle. Not just because of the better land and labor use, but also because of the inputs economy and the productivity improvement, both in agriculture and livestock.'

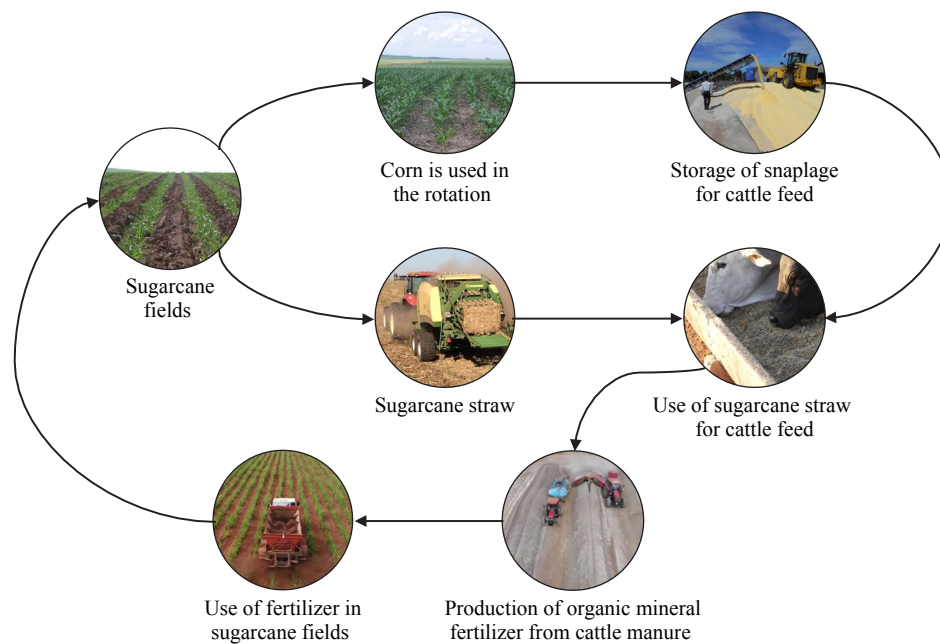


Figure 4. AgroPastoril Campanelli integrated business model.

4.2 AgroPastoril Campanelli's success

Despite all the activities on AgroPastoril Campanelli's farms existing under the same umbrella, the proceeds from one activity does not fund the other activities. Victor Campanelli ensures that each activity is individually competitive and profitable, otherwise it would be more beneficial for them to buy corn or fertilizer from the market rather than producing internally. Therefore, the corn produced by the company is 'sold' to the confinements in accordance with market prices, and the confinement 'sells' the fertilizer for the production of sugarcane and corn at the market price. This allows the Campanelli family to observe and evaluate the success of each activity separately, yet not neglecting the synergy between each activity.

The successful integration model developed by the family has been recognized by multiple awards. One was the Nelson Pineda Award, received in 2012, which recognized AgroPastoril Campanelli as having the best cattle confinement practices in Brazil. One of the great advantages for the company is its performance in the futures market, specifically in the Bolsa de Valores, Mercadorias e Futuros de São Paulo (BM&F – São Paulo Stock Exchange), a major stock market exchange in Brazil. Cattle confinements are one of AgroPastoril Campanelli's central activities. This high fixed cost business platform makes it essential for Campanelli to monetize their investments. The company uses BM&F to hedge the steer and hedge the inputs that are used in confinement. Another award was offered by Idea Group in 2013 for the best sugarcane plantation practices.

It is becoming increasingly difficult in today's economy to pursue profitability in agriculture and livestock, thus Victor seeks to use their integration model to maintain profitability and sustainable development. With the integration model, AgroPastoril Campanelli has reduced exposure to the risk of price fluctuations and holdup problems in obtaining necessary inputs. As mentioned previously, more than 60% of the energy needed for fattening their cattle and 70% of the necessary fertilizer are internally produced. However, it is important that the company continues to monitor the integration process and the transaction costs regarding each activity in order to ensure each activity is still contributing to the overall profitability and efficiency of the company. Table 3 shows AgroPastoril Campanelli income statement.

Table 3. AgroPastoril Campanelli income statement (2014-2015).

| Income statement (in thousand Reais) | 2015 | 2014 |
|--|----------|----------|
| Revenues from product sales | 195,405 | 151,945 |
| Other Revenues | 97 | 53 |
| Deductions, taxes and other expenses | -5,591 | -4,336 |
| Net operating income | 189,911 | 147,662 |
| Cost of goods sold | -174,106 | -133,306 |
| Cattle | -122,878 | -86,597 |
| Sugarcane and grain crop | -36,647 | -27,188 |
| Operating expenses | -5,425 | -8,409 |
| Depreciation | -9,156 | -11,112 |
| Gross profit | 15,805 | 14,356 |
| Operating revenues (expenses) | -15,180 | -12,438 |
| General, administrative and commercial | 6,883 | 6,090 |
| Financial expenses | -3,748 | -2,468 |
| Financial receipts | -1,163 | -204 |
| Interest on own capital | -4,120 | -3,500 |
| Taxes | -531 | -411 |
| Other revenues (expenses) | -1,060 | -174 |
| Operating income (loss) before corporate holdings | 625 | 1,918 |
| Net income (loss) before income taxes and social contributions | 625 | 1,918 |
| Income tax and social contribution current | -2,226 | -2,055 |
| Net income (loss) | -1,601 | -138 |

While the company still has a profitable operation, changes within agriculture, including rising costs of inputs and down-stream consolidation, are providing challenges for AgroPastoril Campanelli. What actions can Victor take now to successfully face these challenges and improve internal operations?

5. Current context for AgroPastoril Campanelli

Production today is no longer for amateurs and adventurers. In the Campanelli group's view, agriculture and livestock should be seen as a business. They understand it is essential to apply the best management concepts and practices to achieve consistent and lasting results. By constantly evaluating the agricultural markets, staying attuned to new developments and production technology, and seeking information from university research, AgroPastoril Campanelli has consistently stayed a couple years ahead of the market in their adoption of technology and production methods. This has allowed them to increase efficiency and profitability of their operation, maintain their integration model, and develop a trusted name among other producers in the industry. The company continually uses effective management procedures throughout all areas of the company.

Victor identifies the company as having two primary pillars: technology and synergy. The goal of the family is to constantly improve their operations based on development of these two pillars. They certainly face some difficulties with their integration model and the extensive vertical integration, but overall it has provided to be crucial in their overall success. The integration model often allows them to hedge against some of the fluctuations in prices for commodities, such as with corn and fertilizer.

AgroPastoril Campanelli has obtained a high level of efficiency in their production in the past; however, they have experienced a trend of increasing costs in recent years. As mentioned previously, the activities all operate independently from one another, so it is important to understand the current state of each production activity and how they are affecting each other. The Campanelli's have not set up their integration model

and then allowed it to go unchecked. They constantly evaluate the activities and how they are relating to the market. If market prices are more profitable for them, then they will discontinue production of that particular activity until it becomes more economical for them to begin again. Additionally, they ensure all activities advance together. It is of no benefit for them to focus primarily on advancing one area of production if they do not advance the other areas as well.

5.1 Current state of production activities

AgroPastoril Campanelli strives to use the best managerial practices in all areas of productions. Within the confinements, feed purchases are made through simulations considering a variety of possible ingredients and suppliers. The choice is based on the goal of creating the greatest amount of economic efficiency possible. These simulations are made regularly to evaluate the alternatives. The company tries to avoid changing feed components throughout the year, but also tries to take all opportunities for advances in the market.

Within in the cattle production industry, a major key to success is maintaining efficiency in feed distribution. AgroPastoril Campanelli transitioned their partnership for feed monitoring software to a new company three years ago because of problems they were experiencing in efficiency levels. All feed distribution is carried out and managed through automatic, computerized software that can be seen in Figures 5 and 6. The equipment allows the seed wagon to easily determine the exact volume that must be distributed in each picket. This



Figure 5. Ration control software and hardware.



Figure 6. Nutrition monitoring software.

system also offers a strong managerial platform because it permits the managers to analyze how much feed was offered for each lot and if any problems exist with the ingredients. The system also opens the possibility of precisely identifying the cost, and thus the profitability, of each lot.

The consolidation of slaughterhouses presents challenges for any producer. Within Sao Paulo, consolidation has occurred less than in other Brazilian states, leaving a greater number of small slaughterhouses. Because of the size of AgroPastoril Campanelli's cattle production, however, they find it safer and more beneficial for them to deal with the large slaughterhouses and companies, even though it can be challenging.

As mentioned previously, approximately 70% of Campanelli's fertilizer demand is met through internal production of an organic fertilizer using cattle manure. This fertilizer does not contain enough nitrogen, so they purchase more nitrogen fertilizer from the market, and it is mixed with the organic fertilizer. Because of the high costs of fertilizer in Brazil, the production of organic fertilizer is always much cheaper than purchasing from the market. Victor notes, 'The breakeven points are not even close.' Precision agriculture and drones are used in fertilizer application, monitoring to make sure the proper amount of nutrients is applied throughout the crop. One specific device is called 'Green Seeker' (Greenseeker System, Trimble, Sunnyvale, CA, USA), which analyzes the sugarcane plant to evaluate its need for nitrogen fertilizer.

A bio-digester was also tested in one of the farms in order to generate electric energy through cattle manure. However, considering the huge cattle manure production that is collected by the soil confinements, the bio-digester could not clean all the manure to keep it free from soil and other impurities. Additionally, the large fluctuation of energy prices made it risky and unprofitable for AgroPastoril Campanelli to operate the bio-digester. Thus, manure is currently only used to produce the organic fertilizer.

Sugarcane production for the company is fully automatized and monitored closely to ensure the highest level of efficiency. Special tractors with wide-set wheels and run on auto-pilot are used to help alleviate soil compaction. They also use conductive electricity to identify the best locations to collect soil samples for testing. Regarding corn production, the corn seeds are planted directly in the soil where the sugarcane straw was left, using the highest modern technology concerning planters and high precision agriculture instruments. One tool they use is the Trimble FMX, a GPS containing a sensor which controls seed population, and a sensor used to block the fertilizer application.

To prevent erosion and increase productivity AgroPastoril Campanelli also apply the no-till planting method in the production of the corn and sugarcane. No-till planting is a method of growing crops without disturbing the soil through tillage, as seen in Figures 7 and 8. This type of management increases the amount of water in the soil, increases the soil organic matter and also reduces the cost before planting the crops. Approximately 15



Figure 7. No-till planting for sugarcane.



Figure 8. No-till planting for corn.

metric tons of straw remain in the soil for planting sugarcane. This activity is important for the sustainability of the farm’s production model, considering the severe water restriction in the region, as seen in Figure 9.

5.2 Premix factory

A recent investment and current focus for AgroPastoril Campanelli is the development of a factory to produce nutrient premix for their cattle. The group used to purchase a micro and macronutrient mix from the market to supplement their cattle feed. They realized companies in this industry were experiencing good profit margins and that AgroPastoril Campanelli possessed the facilities and capacity to produce their own mix of nutrients not only for their own production, but for other producers as well. They began construction of the plant in 2016. They are currently producing the premix now with the brand name of Tecno beef, but are currently selling only to partners in order to test their product in the market. When they begin full production, only 10% will be used for their own cattle, the other 90% will be sold to the market. Their capacity for production is 100 metric tons/day. Profit margins for this activity are expected to be 10% (a 40% markup on cost). One of the largest resources in beginning production of this nutrient mix is the trusted and respected name of Campanelli in the marketplace. Within this market, the price farmers are willing to pay represents trust in the supplier and trust in the quality and the actual composition of the product being provided, particularly for custom products. Campanelli will provide two types of products: custom products,

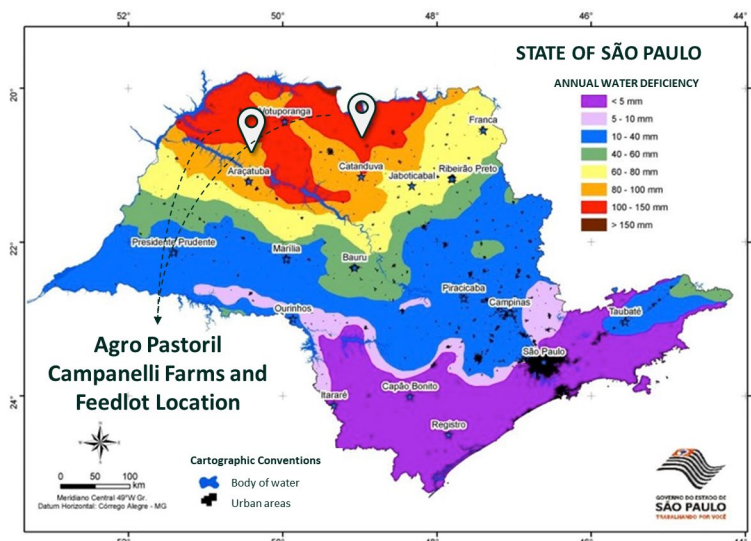


Figure 9. Severe water restriction in the region of Agro Pastoril Campanelli farms.

which will be 'just-in-time' inventory, and a basic product lines. Future expenses they will encounter include addition of salespeople and marketing to promote the product. The initial investment in the premix facility has been relatively low (approximately R\$3 million¹) compared to other investments, such as the energy facility (approximately R\$75 million).

5.3 Challenges

Right now, Campanelli has experienced big inflation in some costs and expenses. The primary increases in expenses have been for labor, energy, and external fertilizer purchases. Farms in Brazil are paying higher wages right now than other types of jobs, causing labor to become an increasing percent of Campanelli's overall expenses. Energy prices have fluctuated greatly in the past few years, but right now have been increasing as a proportion of their costs, such as for diesel and electricity. Campanelli must purchase some of their fertilizer externally, and these prices have been increasing. Campanelli has also dealt with the overall downturn of the Brazilian economy in recent years. Campanelli states the integration helps alleviate the negative impacts of expense increases and price fluctuations in the market.

Campanelli feels that a current challenge for the company is to continue to diversify the company, yet keep all current activities advancing. Additionally, the company has new stakeholders every year because of the size of the family. Incorporating the views of all the members and working together to manage the farm can create challenges.

6. What comes next for AgroPastoril Campanelli?

The integration process on AgroPastoril Campanelli's farms has proven to be a key component of Campanelli's success. They continue to pursue innovative methods, adopt new technology, and seek for ways to improve efficiency and thus the profitability of their operation. With their most recent investments and ventures, including the production of energy (which has been shut-down for the current time), their use of precision agriculture technology, and the most recent decision to produce a premix of nutrients to add to cattle feed, Campanelli now wonders what opportunities await the operation to continue innovating and improve their current level of efficiency and productivity.

Campanelli constantly evaluates the make-or-buy decisions of the integrated activities and acts accordingly. Most often, it is more efficient and profitable for them to continue internal production. Currently, Campanelli views three potential paths to pursue. AgroPastoril Campanelli can seek ways to further coordinate the supply chain network for beef or sugarcane production, look for a new method or technology to adopt in production, or they can consider expanding horizontally in the market for nutrient premixes.

6.1 Coordination in supply chain network

Within any supply chain network, the producers involved in each stage of the value chain face the typical make-or-buy decision. The solution to this decision or dilemma often lies in the analysis of transaction costs and evaluation of the overall cost to buy versus the cost to make a material or component. If there is great potential for market failure in transactions, hold-up problems, and a large amount of opportunity cost or forgone profit potential in using the market, then it may be more beneficial for a company to vertically integrate or coordinate along the supply chain. Potential benefits of vertical integration include, but are not limited to: greater control over production quality, intellectual property and data; elimination of hold-up problems; and avoidance of information asymmetries.

With the integration on Campanelli's farm, the business currently plays a part in many steps of the value chain for both beef and sugarcane production. They decided that producing corn and using bales of sugarcane

¹ 1 USD=3.17027 BRL, calculated on the basis of the exchange rate on October 18, 2017.

straw for cattle feed, and producing their own micronutrient premix would cost less than using the market, and thus increase their profitability as an operation. With the high risk involved in owning feedlots and the low and fluctuating profit margins in selling cattle to slaughterhouses, feedlot owners must work to increase efficiency and productivity as much as possible to maximize profits in selling their cattle for slaughter. An issue that Campanelli must continue to evaluate is whether it is still profitable to continue producing the majority of their feed components, or if they would benefit more from switching back to the market.

Campanelli is not considering any downstream integration at this time. Within the meat market it is very difficult to enter into the processing stage of the value chain. There are many decisions and opportunities to consider when processing meat, so thorough knowledge of the markets and sound decision-making are necessary skills that create natural barriers to entry for this stage of the value chain in meat production. They are beginning to move downstream in the supply of cattle feed with their production of a nutrient premix. Downstream integration is an option that can be evaluated in the future as Campanelli continues to develop their company. Issues they would need to consider if they wanted to integrate downstream include: level of competition in the specific market, size of the market, potential problems that could arise in the future due to market conditions (product price or cost of production), and the size of the profit margin.

6.2 New technology or production methods

Next steps for both corn and sugarcane are biotech. The development of a GMO Corn is what allowed them to start planting corn in sugarcane reform areas. Biotech will help them to continue to increase production in a sustainable manner, preserving their land and soil, but increasing efficiency and profitability.

Cattle is a little more difficult because Brazil has a lot of regulations regarding products than can be used on cattle, such as no products containing traces of DNA. There are nutrients that allow the cow to improve protein absorption, thus decreasing the amounts of protein that need to be used in the feed rations, but Campanelli must work around the regulations and find ways to increase their efficiency despite meeting regulatory requirements. Each year within cattle nutrition, though, there are new developments in products and methods.

Also, Campanelli is evaluating a new way of applying nitrogen to sugarcane. All sugarcane producers apply the nitrogen to the soil. However, current research is showing that applying it to the leaf of the plant is more effective and can increase efficiency up to four times more than using it in the soil. Further research and development will have to be conducted in order to determine the best process and technology to use in order to use this method of applying nitrogen to their crops.

6.3 Horizontal expansion for nutrient mix

Possible future options would be for them to enter the market of providing premix for other livestock and animals. The procedures and the facilities would be the same as the nutrient premix they supply for cattle. Campanellis states that it is actually easier to produce premix for smaller livestock, such as poultry. Their reasoning for entering the market with the company Tecno beef and producing for livestock first is because of their trusted name in the market for beef production. Success within this market could lead to opening a path to provide nutrient premix for pet and other livestock feed.

6.4 Growth through expansion

There is always opportunity for Campanelli to expand in the size of their production. Currently, Campanelli states the company is operating close to or at capacity of their facilities. In order to grow more in size of production, it would be necessary to invest in more mills, mill trucks, factories and land. Could this be a profitable option for Campanelli that would also open other opportunities for growth?

7. Future success for the Campanelli family

Victor arrives at his office and proceeds inside to make a cup of coffee. As he sips his coffee, he looks to a portrait of his grandfather on the wall. He thinks of the current state of the agricultural industry and some of the challenges the company is currently facing. He feels affirmed in his position that AgroPastoril Campanelli needs to consider the available investment opportunities and keep moving forward. He knows they need to continue to improve upon internal operations to remain a profitable and successful supplier of cattle, sugarcane, and now their Tecno beef nutrient mix.

He contemplates the opportunities available for the business to pursue and realizes the necessity of a family meeting to discuss these opportunities and the future direction of the business. It is easy for companies to settle into a comfortable state when they reach a certain level of success, but Campanelli knows there are always ways to improve and to move forward. The company has a culture of innovation and constant improvement. No matter what the future may bring, Victor is confident that moving forward with these items in mind, and developing upon their pillars of synergy and technology, Campanelli will continue to remain at the top of their industry. He believes in the strength of his family's business and management capabilities to be successful and continue to improve their operations, remaining one of the most successful commercial farming operations in Brazil.

8. Questions for discussion

1. Many markets in agriculture are undergoing consolidation through large mergers and acquisitions. Does this market trend create any problems and/or opportunities for AgroPastoril Campanelli?
2. AgroPastoril Campanelli takes special care to continually monitor the industry and analyze how market prices compare to the price at which they can produce their own products. Are there any changes occurring in the industry currently that will make it more or less profitable to continue their integration model? Which products in particular?
3. The case discusses different opportunities for AgroPastoril Campanelli to pursue and direct their focus, including expanding their premix production to other animal markets, investing in new production methods or technology, vertically integrating in one of their production activities, or expanding the size of their production by investing in new facilities. Which of these opportunities is the most attractive for AgroPastoril Campanelli? Why? What factors need to be considered in making this decision?

9. Theoretical notes and teaching support

This study is focused on issues involving a farm that achieved a strong level of integration on its activities and is deciding the next steps of the business considering the changes in the industry and economic landscape. The case can be used to discuss business growth strategies and value chain integration, using the Brazilian business environment as a background for the discussion.

For this reason, this case is highly recommended for courses of strategy, marketing, agribusiness and farm management and can be used in both undergraduate and postgraduate courses. Also, this case can be used by farmers and in marketing and sales courses to capital goods industry or agricultural inputs industry. In courses directed to farmers, the students can put themselves in the place of the decision maker and discuss growth strategies, agro-industrial systems and farm management. The marketing and sales courses directed to capital goods and agricultural inputs industry should discuss key account management strategies, considering the challenges that AgroPastoril Campanelli faces, and business strategy having them as client.

The study is primarily focused on courses in the Brazilian students, however it can be also discussed in international courses. The case study session can follow the suggested approach:

- Brief explanation about AgroPastoril Campanelli and the Brazilian agribusiness.
- Questions to introduce the case discussion and challenges that the AgroPastoril Campanelli faces.
- AgroPastoril Campanelli history since the beginning and changes in its agricultural production through the years.
- Contextualization of the industry and business that the company is involved. This topic includes:
 - the beef industry;
 - the sugarcane industry;
 - the corn industry.
- The integrated business model of AgroPastoril Campanelli.
- Current context for AgroPastoril Campanelli. This topic includes:
 - the current state of production activities;
 - the premix factory;
 - the current business challenges.
- Alternatives for AgroPastoril Campanelli business.
- Main challenges of the case and conclusion.

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