THIS BRAZILIAN COFFEE FARM MUST CHANGE TO SURVIVE

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Anna Ferreira and Ricardo Rossi, a young Brazilian couple living in the United States, had just inherited the family's 3,000 acre coffee farm in Brazil. The couple had worked in international trade for years and had begun raising a family. Anna and Ricardo were also passionate about natural living and environmental sustainability. Now they have been presented with an opportunity to make a big change. Unfortunately, they soon realized that the last several years had seen a very weak market for coffee prices.

Based on the growing interest in organic foods, Anna Ferreira and Ricardo Rossi thought of converting the conventional coffee farm into an organic, sustainable farming model. They felt equipped to take on the challenge and make the farm profitable while honoring their values. However, upon closer inspection, they found signs of strain on the decades-old buildings, and a need for new equipment. To make matters even worse, the farm had been losing money for years. Change was necessary for the economic survival of the family legacy, but would organic coffee be the answer?

INTRODUCTION

Anna Ferreira and Ricardo Rossi were presented with the opportunity of a lifetime. They had just inherited Fazenda Amizade Verde (FAV), a 3,000-acre Brazilian coffee farm owned by the Ferreira family since 1900. The young couple, complete with small children, had worked in the US for several years and were working on a career in international trade. In addition to working and raising a family, the two were also passionate about natural living and environmental sustainability. Unfortunately, the world coffee market had seen a dramatic drop in coffee prices in the last several years. In fact, 2001 would later be known as the "coffee crisis", with coffee prices at their lowest level in twenty-five years. Coffee farms all over the world were struggling to survive.

The situation in Brazil was no better. Neighboring coffee farms in the vicinity of

FAV were dumping unprofitable coffee plants in favor of leasing land to sugar processers. Realizing that continuing as a traditional coffee farm would be difficult, Anna and Ricardo observed a growing interest in organic foods and entertained the idea of converting the conventional commercial coffee farm to an organic sustainable coffee farming model. With Anna's passionate commitment to sustainability, Ricardo' foreign trade and marketing experience, and the resources on the farm, they felt they were equipped to take on the challenge of making the farm profitable while honoring their values.

Lush tropical coffee plantations, established in the mid 1800's, dot the hillsides and valleys of Mococa, Brazil, where FAV is located. Sugar cane, coffee plants, palm trees, and untouched forests form a mosaic of textures and colors as far as the eye can see. FAV, situated among this verdant tapestry, was graced with a lovely Brazilian style home, land perfectly suited for growing coffee, bananas, or sugar, and the drying patios, machinery, and equipment used for processing coffee beans. Upon closer inspection, however, one found signs of strain on the decades-old buildings, and the equipment was in need of repair. Worse, the farm had been losing money for years. Indeed, change was necessary for the economic survival of FAV.

A BRIEF HISTORY

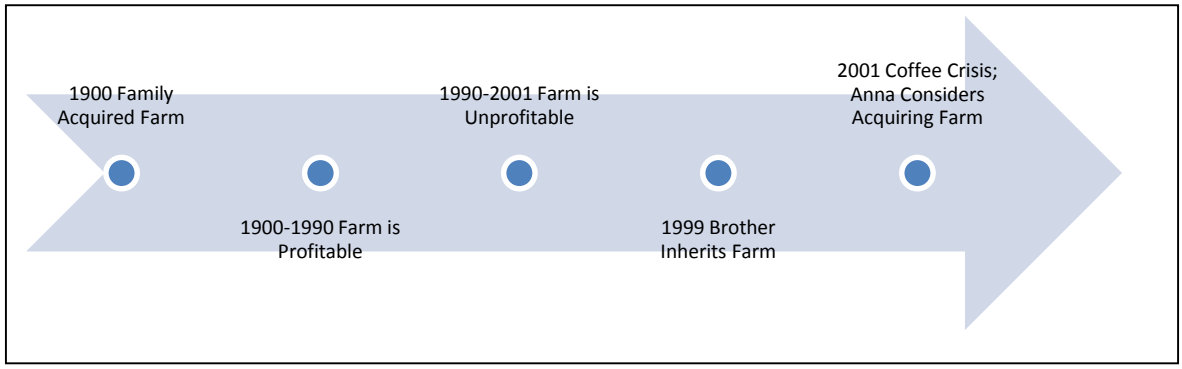
Established in 1850, Fazenda Amizade Verde (FAV) had been in the Ferriera family since 1900 when Anna Ferreira's great-grandfather acquired the farm. Ownership of the farm was passed down from generation to generation, eventually winding up in the hands of Anna's brother. Anna, her husband Ricardo, and their three children, felt a deep connection to the farm, and visited it every year for extended periods. As a child, Anna lived on the farm, located in the south central mountainous region of Alta Mogiana, during the summer months. Alta Mogiana is known as a fertile growing region for coffee, sugar, bananas, and other globally traded crops.

Coffee plantations like FAV were highly profitable operations for many years during the 19th century and the first half of the 20th century. As the historian Fausto (1999) described, land in the fertile higher elevations of Alta Mogiana was perfectly suited for growing coffee, European and Asian immigrant labor was plentiful and cheap, and the Brazilian government subsidized coffee production. With coffee as the country's principal crop, medium sized Brazilian coffee farms such as FAV traditionally diversified by growing bananas and sugar, and occasionally grazing cattle. Prices for coffee, sugar, and bananas were sustainably high, and beef or dairy products could be sold locally.

These were good years, and FAV invested its profits back into the business, installing coffee processing equipment, laying down tar-covered concrete for drying patios, and building cottages for worker housing. Those highly profitable years for FAV and other medium-sized Brazilian coffee farms were followed by several lackluster decades, and then by alarmingly low profits after 1990 (Figure

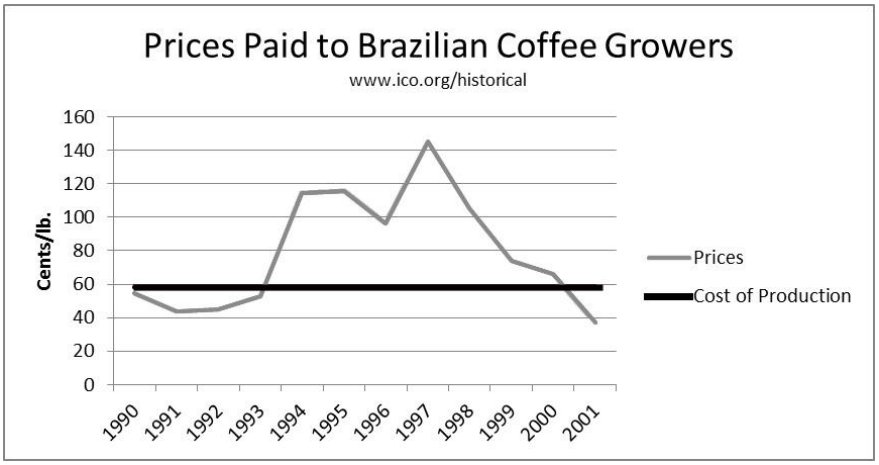
1).

FIGURE 1
FAV Earnings History



Squeezed on one side by the higher cost of field labor, which had increased with the overall improvement in Brazil's economy, they were also squeezed on the other side by the declining world price for commercial-grade Brazilian coffee (ICO org. , 2012). FAV's cost of production, averaging $.58/lb., was higher than the world price paid to Brazilian growers in four out of the past ten years (Figure 2). With the lackluster outlook for the world demand for commercial-grade coffee, there was no realistic reason to expect profits to return any time soon.

FIGURE 2
Price of Brazilian Coffee



With the future of FAV in peril, Anna's father retired in 1999. Anna's brother, a banker, attempted to continue operating the farm in the same manner as their father

- at a big loss. By 2001, the going price for Brazilian commercial-grade coffee had dropped to a low of $.38/lb. It was at this time that Anna and Ricardo were presented with the opportunity to buy the failing farm from her brother, who no longer wanted any part of it.

THE FERREIRA-ROSSI FAMILY

"Papa's home everyone" exclaimed Felipe as Ricardo bounded into their house in an upscale Chicago suburb. "What did you bring us from Brazil this time?" After handing out the brightly painted Brazilian treasures to his children, he hugged his wife. "Anna, I met with your brother after I finished entertaining customers at the farm. Your brother is a banker, not a farmer, and he is ready to hang up his work boots. He has been looking for a buyer for FAV, and the new owner would most likely use the land for growing sugar. You and I have been thinking about buying out your brother for a long time – it seems that it is now or never. If we owned FAV, we could continue the family legacy, and I think that if we made a few changes, we would be able to turn the farm around to make a profit."

Ricardo and Anna were educated in the U.S. and then married and lived in Brazil where their three children were born. Ricardo had graduated from an American university with a degree in International Business. He put that training to use in the import-export business, eventually starting his own successful business in Chicago, exporting a wide variety of Brazilian-made goods such as furniture and artisan crafts.

"Ricardo, I do not doubt that you have the skills and connections to build a successful coffee exporting business" Anna replied, "but it is very important to me to stop the use of the pesticides and herbicides that hurt my bees and contaminate the streams that flow downhill to neighboring farms. I know that organic coffee farms yield fewer pounds of coffee per acre than conventional farms – do you think we can grow organic coffee and still be profitable?"

Anna had instilled in her family her deep passion for organic farming and healthy living from the very beginning. She had grown up spending carefree summers and weekends at Fazenda Amizade Verde, enjoying the natural beauty of the waning Atlantic Rainforest. She was disturbed by the use of synthetic chemicals used to control disease and pests in the coffee orchards, and saw the damage that it did to the larger ecosystem of the farm. As she developed the hobby of beekeeping and saw the adverse relationship between those synthetic pesticides and the health of her bees, a philosophy of sustainability and minimization of man's adverse impact on the earth came to guide her day-to-day decisions.

"I admit I know very little about growing coffee, but FAV has one of the best skilled coffee farmers managing the operations" said Ricardo. "There are very few Brazilian coffee farmers growing organic coffee right now, and I think that between the agricultural skills of the farm manager and my knowledge of exporting

Brazilian goods to world markets, we could be one of the first successful exporters of organic Brazilian coffee to the U.S. and Europe. I have been talking with a few neighboring farmers" Ricardo added. "They have been considering growing organic coffee, but don't know how they could sell it. The co-op will only buy conventional coffee from them."

Ricardo had learned much about successfully marketing products to overseas customers, the logistical process of exporting from Brazil, and importing into Europe and the U.S., as well as the financial services involved in this process. Much of his knowledge applied to the coffee market as well.

"The farm is such a wonderful tropical paradise. I think that I could easily organize a series of week-long yoga retreats" Anna thought out loud. "We have the perfect multi-purpose building with a warm, peaceful atmosphere and an amazing view. My academic friends at the University of Chicago have been pestering me to let them bring study-abroad groups to the farm. It would be perfect for all kinds of corporate, family, or educational groups looking for an exotic and hospitable location."

By 2001, having built a foundation of wise investments, the couple had the financial resources necessary to purchase and revive the farm. Using the internet, Ricardo could easily continue to operate his exporting business from Brazil, and so they considered the prospect of moving to the farm. They embraced the idea as an opportunity to return to their roots and to incorporate their personal values more fully. At the same time, it was imperative that to save the family legacy, they needed to turn the farm into a profit-making business.

FARM OPERATIONS

The farm possessed the buildings, equipment, and machinery necessary for normal farm operations (Table 1), however these assets were aging and in need of repairs. About half of the farmland was planted in coffee plants, a third was undeveloped forest, with the remainder in bananas, honey, and cattle (Table 2). Bananas, honey, and cattle were sold locally for a small profit. Banana plants had an additional benefit of creating a wind barrier and adding nutrients to the soil when planted among the coffee plants.

TABLE 1

FAV Farm Assets

3,000 acres land (see allocation of land in Table 2)
10 cottages, suitable for use as guest houses
Multi-purpose building large enough to accommodate 30 people, with kitchen, two stone fireplaces, eating area, patio, and game room
Owners' residence
Cattle barn
15,000 sq.ft. drying patio for coffee beans
Machinery and equipment for sorting, washing, and fermenting coffee cherries
Coffee processing building
Trucks, tractors, and other small vehicles
Bee hives and beekeeping equipment

Farming methods were conventional, and included the use of the latest agrochemical herbicides, pesticides, and fertilizers available. Like other medium sized farms located in the higher elevations, FAV had historically relied on year-round workers to prune trees, plant new trees, and perform general agricultural management tasks. They hired a crew of seasonal workers every year during the harvest season to get the coffee picked by hand. The workers, many of whom were second or third generation laborers at FAV, depended upon this work to support their families.

An average yearly harvest yielded about 13,500 60-kilo bags of conventional (non-organic) commercial-grade green coffee beans. After picking and processing the coffee cherries, the beans were transported to the regional coffee cooperative where they were classified by quality, warehoused, and sold (Table 3). The cooperative paid FAV the prevailing price for Brazilian commercial-grade green beans determined by the demand for Brazilian commercial-grade coffee.

TABLE 2
Allocation of Land Use

Allocation of Land	
Description	**Acres**
Forest	1,150
Coffee	1,450
Bananas	200
Cattle	200
Total	3,000

Note: the Brazilian government required at least 20% of farm land to be preserved as undeveloped forest in an effort to repopulate the Atlantic Rainforest.

TABLE 3
Coffee Classification Table

Final Score	Classification
95-100	Super Premium Specialty
90-94	Premium Specialty
85-89	Specialty
80-84	Premium
75-79	Usual Good Quality (UGQ)
70-74	Average Quality
60-69	Exchange Grade
50-59	**Commercial Grade**
40-49	Below Grade
<40	Off Grade

Organic coffee, by its nature, is usually classified as premium or specialty-grade. As of 2001, most Brazilian coffee farms were conventional farms, not organic, and grew only commercial-grade coffee. However, whether conventional or organic, the outlook did not look promising (Sarcinelli and Ortega, 2004) because the cost of operating a coffee farm was greater than the revenue (Table 4).

TABLE 4
Conventional and Organic Coffee Operations
Profit/Loss Pro Forma 12/31/2001

	US $/Acre/yr.	
Revenue	**Conventional**	**Organic**
World price per 60k bag	$64	$100
Yield per acre (bags)	9.7	5.3
Revenue per acre	$622	$526
Costs		
Variable Costs - Materials	348	186
Var. Costs – Services	46	129
Var. State and Fed. Taxes	62	53
Fixed State and Fed Taxes	148	185
Perm Labor & Fixed Costs	53	66
Costs per acre	**$657**	**$619**
Profit per Acre	**<$35>**	**<$93>**

(based on Sarcinelli and Ortega 2004 and interviews with principles of FAV)

SALES

For a Brazilian coffee farmer growing conventional commercial-grade coffee, selling is a simple process. Large coffee cooperatives and other exporters, having perfected the process over the decades, provide a ready market for farmers. They offer services such as warehousing, lending, and scientific expertise. Most importantly, they buy the farmer's crop, paying the world market price, and exporting to global buyers of commercial-grade coffee.

The business model of the co-op, however, is to buy only conventional, lower grade coffee from farmers; not higher grade, and certainly not organic. They had no resources devoted to finding markets for organic coffee, and had no specialized agricultural services available to organic coffee farmers. The Brazilian organic coffee farmer had to incur the costs of agricultural research into organic farming, and then bear the transaction costs necessary to market their product to the world.

It was clear by 2001 that FAV could not be profitable just by growing and selling conventional commercial-grade coffee. The small number of Brazilian coffee farmers who sold higher grade coffee (including organic) had to bypass the co-op and find other buyers around the world willing to pay a higher price for premium-grade coffee. This was difficult. Without access to the marketing and transaction services of the co-op, farmers had to rely on their own marketing and sales expertise. Could the Rossis make the changes necessary to grow organic, higher grade, better tasting coffee? Could they convince international buyers of specialty grade organic coffee to buy their coffee?

ALTERNATIVES

Lease land

Observing neighboring farms, FAV saw that many had reluctantly removed the coffee trees and contracted with Usina Alimentos, a major Brazilian yeast manufacture. It was a break from tradition, but these farms saw it as an opportunity to survive. Usina Alimentos offered FAV the following land lease (Table 5). Usina Alimentos would control all farming operations, and FAV would become a landlord, relinquishing control of the land management including the use of agrochemicals on their land.

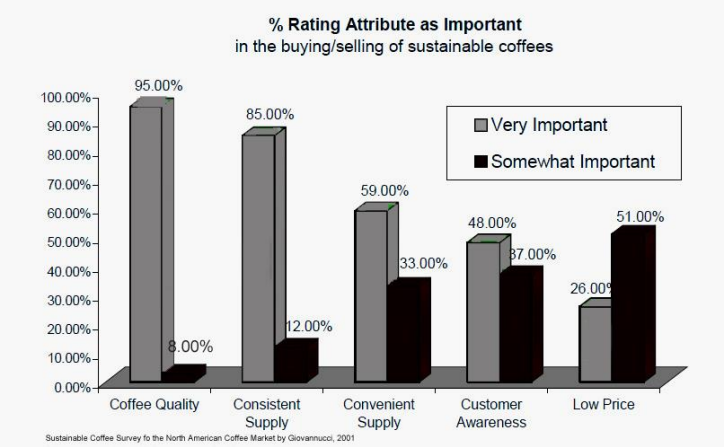
TABLE5
Usina Alimentos Land Lease

Lease Rate	$20/month/acre
Number of Acres	1200
Term	5 years

Grow organic coffee

The emerging market for organic coffee was growing in North America and Europe. Giovannucci (2001) found that consumers in those regions were willing to pay a premium for quality coffee, especially if it was labeled "organic". These new consumers were more concerned with the quality and consistent supply of organic coffee than the price (Figure 3).

FIGURE 3
Sustainable Coffee Survey 2001



However, Brazilian coffee farmers did not seem to be aware of this growing trend. Almost all coffee from Brazil, the world's largest coffee exporter, was conventionally grown (not organic) commercial-grade, and subject to the very competitive and volatile world price for commercial-grade coffee. As of 2001, the average price premium of organic coffee was $.25/lb., or $36 per bag.

Growing organic coffee is costly. Farms must allow land to lie fallow for a minimum of three years between growing conventional crops and growing organic crops. Once organic farming begins, the yield is very low while plants adapt to the absence of powerful chemical fertilizers, herbicides, and pesticides. As illustrated in Table 4, the typical coffee farm sees a yield of only 5.3 bags/acre, compared to the typical conventional yield of 9.7 bags/acre.

Agritourism

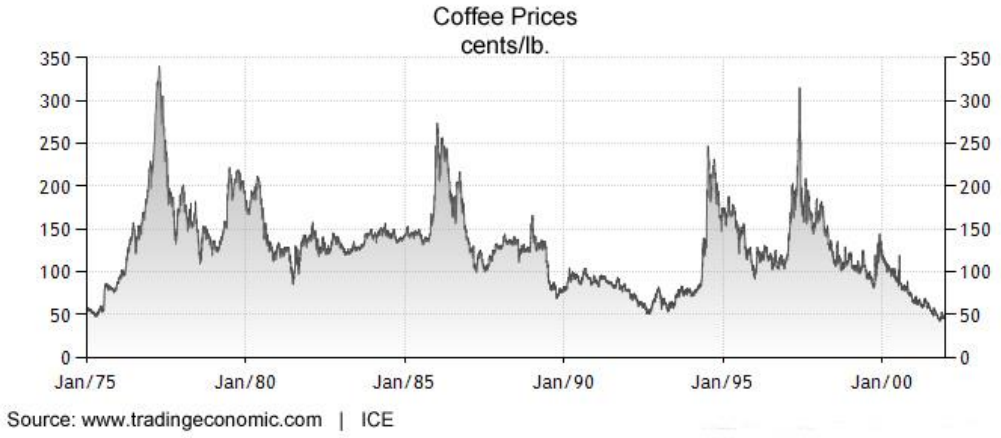
Farm tourism, agritourism, and ecotourism all define the activity of inviting tourists onto a farm or rural area to provide an experience of value. The University of Tennessee Extension (2005) defines the ultimate goal of agritourism as the increase in farm income created by providing education and/or recreation to consumers. A

farm must have the capital, resources, and access to surrounding infrastructure to provide quality agritourism. Sufficient lodging, labor, interesting and unique attractions, and good transportation linking the farm to urban areas are important components and FAV possessed all of these. Although located in rural Brazil, FAV was close to a national highway system linking the town of Mococa to national and international airports. Their facilities were capable of lodging and feeding groups as large as twenty-five. Organizations such as WWOOF (World Wide Opportunities of Organic Farms) and college study abroad programs had already expressed an interest in collaborating with the farm.

VOLATILITY

As noted in Figure 4 below, the world price for conventional Brazilian coffee was very volatile, ranging from $3.00 in 1997 to $.38 in 2001. Similar volatility had occurred in the past.

FIGURE 4
Coffee Prices 1975-2001



The volatility of organic Brazilian coffee was unknown, since very little organic coffee had been exported. However, organic coffee continued to maintain a premium price over conventional Brazilian coffee by $.25/lb. While fluctuating coffee prices were enough to cause concern for coffee farmers, the fixed lease rate for the Usina Alimentos land lease was guaranteed. The farmer could plan for the future, at least for the five-year term of the lease.

GLOSSARY

Arabica coffee: the species, Coffea Arabica, which includes about a dozen varieties. Although there is a wide range of quality, all of the organic coffee beans and higher grade coffee beans are Arabica.

Coffee cherries: the red-skinned fruit that grows on a coffee tree. Inside the fruit are two seeds - the green coffee beans.

Coffee tree: technically a shrub, the plant that produces coffee cherries. Untrimmed, the tree will grow to 15 feet in height, on average. Trees are normally trimmed to allow for efficient picking of cherries.

Commercial-grade coffee: coffee scoring 59 or below on scale of 0-100.
Conventional coffee: non-organic coffee

Green coffee: coffee beans before they are roasted.

Organic coffee: coffee grown using organic farming practices. It is usually, but not always, classified as specialty-grade coffee.

Specialty-grade coffee: coffee scoring 85 or above on an industry scale of 0-100.

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