

Animal Husbandry: A Business Analysis

Batey Relief Alliance, Dominican Republic



APPLIED
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Animal Husbandry Business Analysis

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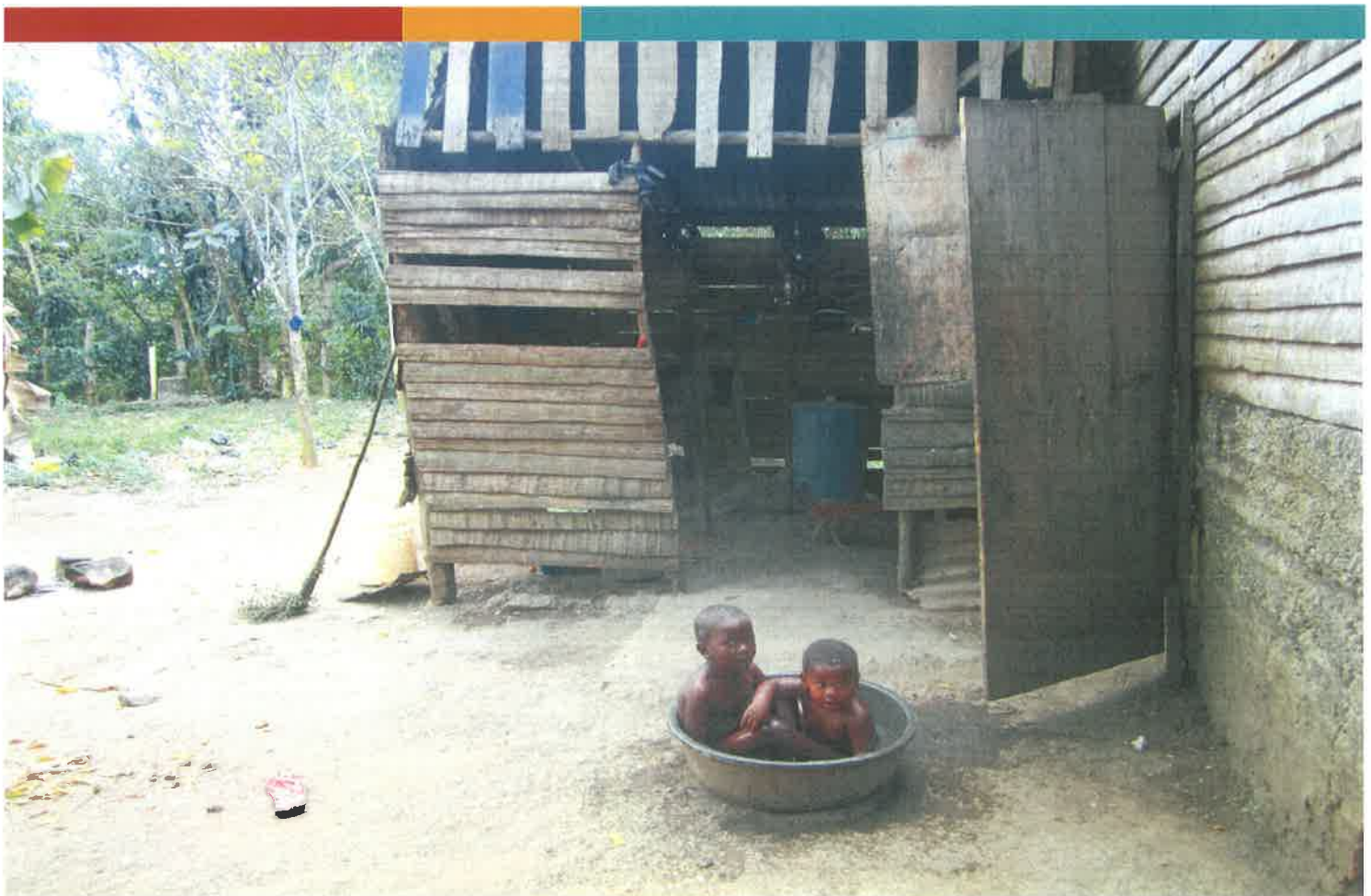
I. Acknowledgements

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II. Mission Statement of AGBL and BRA

The hope of our Applied Global Business Leadership mission is to foster sustainable business practices while preserving cultural ideas by providing micro-enterprise solutions. We were able to live out this mission during our one-week stay in Monte Plata, Dominican Republic working with Batey Relief Alliance.

Our assigned mission for the week was to determine whether or not the animal husbandry sector of Batey Relief Alliance could be a self-sustaining program and if the program is helping the community. We understand that currently the medical clinic is funding the animal husbandry program and cannot continue to fully fund this program. For this reason we have talked with Antonio Alcantara, other members of B.R.A, local farmers, and community members to uncover the true costs of running such a program. This being said we remind ourselves of the mission of B.R.A to provide below market cost animals to the community members. In this report we hope to provide a solution that remains within the boundaries of B.R.A's mission and is still cost effective. Furthermore, we hope to provide some additional information on current financials, inventory record keeping methods and internal controls.



III. Pig Financials

As a general statement, producing pigs is not currently a sustainable program for the BRA, however, it certainly can be. After meeting with Antonio Alcantara and a local pig farmer, we understood that the extra initial costs put into the pig husbandry program at the BRA are completely necessary. The BRA is producing large, healthy, and high quality pigs with their current processes. With regards to the overall process, the BRA has a fantastic program.

After viewing financial records, we drew up a list of expenses: food, vet, cleaning supplies, taxes/electricity/rent, and salaries. Properly feeding the pigs is the most costly part of this program. The BRA feeds its pigs different types of food at each stage in life in order to enhance growth, health, and reproductive abilities. This increases the cost, because particular stages require more expensive food. In the long run, however, this is more beneficial for creating a sustainable program with quality offspring.

The chart below shows the monthly profit for pig sales after taking into account all expenses. This is based off the idea that the BRA can sell 67 pigs each month at a price of RD \$1250 each. In order to sell 67 young pigs each month, the BRA will need a total of 42 sows. Due to the fact that pig sales are the biggest portion of the BRA's animal husbandry program, all major expenses are grouped into this category. This includes the salaries of Antonio, the guard, and the third helper, as well as the cost of cleaning supplies for the entire program, all taxes, electricity, rent, and vet expenses. The reason the gross profit per month is only RD \$34.52 is that the BRA's social mission is to creating a sustainable program that meets the low cost needs of the community. The fact that the profit is near zero proves that the program can be sustainable at this cost point while still offering the community a price of RD \$1250 per pig. *These calculations do not include the cost of expansion for the pig enclosures currently at the BRA.*

	Monthly Total (Fixed)	
	Qty	Subtotal
Revenue (RD\$1251 each)	67	RD \$83,854.52
Food Expense	-	RD \$44,800.00
Salary Expense	-	RD \$28,800.00
Cleaning Supplies Expense	-	RD \$940.00
Overhead (tax/electricity/rent)	-	RD \$8,080.00
Vet Expenses	-	RD \$1,200.00
Gross Profit Per Month		RD \$34.52

IV. Goat Financials

After speaking with Antonio Alcantara, visiting the BRA agricultural site in Antonci, and visiting the goat farm of Antonio's friend, we have come to the conclusion that the BRA should absolutely be raising goats. The main reasons for this are the low cost and high demand for their meat throughout the Dominican Republic.

The cost to raise goats is almost nonexistent to the BRA. There is a very low cost per goat for medicine and vaccinations, but this is the only recurring cost. Very little food needs to be purchased to feed the goats as they graze on the BRA land all day and the water is already being brought to the farm for the pigs. We do recommend speaking with Antonio's friend and seeing if the BRA can plant any of the trees that he gives to his goats as their favorite snack. There is also the cost of purchasing new goats, especially the Stud Macho periodically. Furthermore, the goat infrastructure is already in place, which makes it easier to build the program; however there are some hidden costs associated with this. There could be some food costs periodically, but they shouldn't be huge. Additionally, the space that the goats roam and graze in could be used for something else, so choosing to use the space to raise goats has a cost of its own. We also recognize that grass is not free, and there will eventually be an additional cost if the goats eat all of the grass. Since everything is already established, it makes sense to use the space to raise goats and bring in revenue for the agricultural project. There is also an opportunity to expand the goat project to include raising goats for the production of milk and cheese. This could be done in the future once we see a return on profit.

Revenue from the goats' area of the farm could really be quite high. Many restaurants, hotels, and people eat goat meat, so the market exists. It might be difficult to establish a successful sales network, so we recommend trying to work that out while the project builds up, and the goats are being raised. Forming a contract agreement with a large restaurant, hotel, or chain would be excellent for revenues and would make it easier to budget the costs and revenues of the agricultural project in the future.

Getting the goat project back up to full force would be fairly low cost and mostly dependent on time. If the current goats are not suited to the climate they can be sold in order to replace them with local, more robust goats. This will lead to a higher quality product, and eventually sustainable production levels. The greatest upside of goats is the low cost and high profit potential they can bring to the entire agricultural project. Hopefully the BRA will continue the goat production in Antonci and that will help make the entire project sustainable.

IV. Goat Financials Continued

Below are income statements for two years of goat production.

Income statement Year 1			
Year 1			
Rabbit Operations			
Revenue			
	Goats	RD\$ 22,500.00	
	9 goats *RD\$2500		
	Total Revenue		RD\$ 22,500.00
Expenses			
	Stud	RD\$ 5,000.00	
	Food	RD\$ 9,200.00	
	Medicine	RD\$ 2,576.00	
	Total Expense		RD\$ 16,776.00
Net profit			RD\$ 5,724.00

Income statement			
Year 2			
Rabbit Operations			
Revenue			
	Goats	RD\$ 50,000.00	
	20 goats *\$2500		
	Total Revenue		RD\$ 50,000.00
Expenses			
	Stud	RD\$ 5,000.00	
	Food	RD\$ 17,500.00	
	Medicine	RD\$ 4,900.00	
	Total Expense		RD\$ 27,400.00
Net profit			RD\$ 22,600.00



V. Rabbit Financials

Our analysis regarding rabbits creates a prospective timeline and financial reports if the BRA chooses to restart the rabbit operation. To restart the operation, an initial investment would entail creating a new structure to house the rabbits, wire to create the cages, boxes for rabbit birthing, food, medicine, and the initial rabbits themselves. The building is estimated to cost RD\$75,000 and is important to allow a rabbit operation that does not intrude upon the goats' facility. Wiring for cages is expected to cost RD\$60,000, and the birthing boxes are expected to cost RD\$350 each with 8 boxes recommended, coming out to RD\$2,800 total for the boxes. To fill the cages, six female rabbits (of breeding age) at RD\$400 each and one male rabbit (of breeding age) at RD\$400 should suffice, for a cost of RD\$2,800. The total for this initial investment would be RD\$140,600. It is clear this is a large investment, but with enough time it will earn money to help fund the BRA and play a vital role in the social mission.

Beyond this initial investment, there will be a buffer period during which rabbits will be born, your inventories will grow, but you will be unable to sell them. As rabbits sold at four to five months of age yield the highest prices, there would be four months of expenses taking care of the rabbits before sales occur. The costs for the buffer period will be the same as variable costs for later in the operation (although at a slightly lower amount) and include: food, vitamins and medication. Food for the facility after the buffer period will cost RD\$4,725 each month (5 bags of food at RD\$945 each), and this will feed the estimated 151 rabbits on hand. The rabbits require vitamin treatments ever three months, with the cost for the entire group being RD\$600 per treatment for an average monthly cost of RD\$200. The de-parasite medication is required twice per year and will cost RD\$300 per treatment for an average monthly cost of RD\$50. Thus, the total monthly variable costs for rabbits will be RD\$4,975.

After the buffer period of four months ends, there will be a constant flow of 36 rabbits to be sold each month. Although in this scenario we have 6 female breeding rabbits that could all get pregnant at the same time, we recommend having half of them getting pregnant and delivering each month to allow for a more continuous flow of revenue for the operation. These 36 rabbits sold at RD\$300 each would yield a monthly revenue of RD\$10,800. The rabbits are to be sold for breeding at below market price; this is an important part of the social mission and discussed in further detail below.

Combining the monthly revenue (RD\$10,800) and variable costs (RD\$4,975) for the dates beyond the buffer period yields a monthly contribution margin or net profit of RD\$5,825. Unfortunately the costs used in this analysis are not all inclusive, as other materials or services will be required for the operation, but the other costs are expected to be minimal and/or rare compared to the costs included in this analysis.

V. Rabbit Financials Continued

The chart below depicts the expected monthly variable costs and revenues for the beginning of the operation. As shown with the profit year-to-date row, it will take less than 3 months after the buffer period (or seven months including it) to recover the amount spent during the buffer period and begin turning a profit. The initial investment of RD\$140,600 would be paid for by the operation in 24 months (RD\$140,600 / RD\$5,825 monthly profit= 24 months). Additionally, obtaining a donation towards the BRA's rabbit operation would be very helpful and a similar path to the construction of ají.

	Month 1		Month 2		Month 3		Month 4		Month 5		Month 6		Month 7	
	QTY	Subtotal	QTY	Subtotal	QTY	Subtotal	QTY	Subtotal	QTY	Subtotal	QTY	Subtotal	Qty	Subtotal
Revenue(\$300 each)	0	\$0.00	0	0	0	0	0	0	36	\$10,800.00	36	\$10,800.00	36	\$10,800.00
Food (\$945 each)	2	(\$1,890.00)	5	(\$4,725.00)	5	(\$4,725.00)	5	(\$4,725.00)	5	(\$4,725.00)	5	(\$4,725.00)	5	(\$4,725.00)
Vitamins (\$50 each)	1	(\$50.00)	1	(\$50.00)	1	(\$50.00)	1	(\$50.00)	1	(\$50.00)	1	(\$50.00)	1	(\$50.00)
Medicine (\$200 each)	1	(\$200.00)	1	(\$200.00)	1	(\$200.00)	1	(\$200.00)	1	(\$200.00)	1	(\$200.00)	1	(\$200.00)
Monthly Gross Profit		(\$2,140.00)		(\$4,975.00)		(\$4,975.00)		(\$4,975.00)		\$5,825.00		\$5,825.00		\$5,825.00
Profit/Loss YTD		(\$2,140.00)		(\$7,115.00)		(\$12,090.00)		(\$17,065.00)		(\$11,240.00)		(\$5,415.00)		\$410.00

Hypothetical annual income statements for the rabbit operation are shown below. These are rudimentary but summarize the expenses detailed in our analysis and provide a larger picture than the monthly profits shown above. The income statements do not include the cost for building the structure, cages and boxes, as they would appear on the balance sheet.

Income statement Year 1 Rabbit Operations		
Revenue		
Rabbits	RD\$86,400	
Total Revenue		RD\$86,400
Expenses		
Food	RD\$56,200	
Vitamin	RD\$600	
Medicine	RD\$2,400	
Total Expense		RD\$59,200
Net profit		RD\$27,200

Income statement Year 2 Rabbit Operations		
Revenue		
Rabbits	RD\$129,600	
Total Revenue		RD\$129,600
Expenses		
Food	RD\$56,200	
Vitamin	RD\$600	
Medicine	RD\$2,400	
Total Expense		RD\$59,200
Net profit		RD\$70,400

Because of the buffer period where rabbits cannot be sold, the first year's revenue is less than the second year's. The first year's revenue is achieved by selling three litters, averaging 12 rabbits per litter, for 8 months, with 288 rabbits being sold at RD\$300 each for total revenue of RD\$86,400 and net profit of RD\$27,200. The second year's revenue accounts for 432 rabbits being sold during the year to reach a total profit of RD\$70,400.

VI. Inventory Records and Internal Controls

The BRA's operations were the most humane, well maintained, and effective of all the farms we toured. Where others purchase the cheapest feed causing disease and stunted growth in livestock, the BRA spends a little more per bag of food, to ensure their products are high quality. Additionally, the animals were well taken care of and in more spacious and cleaner pens to further ensure the quality of the animals. A slight improvement to be made for the BRA's animal husbandry operations would be an inspection of internal controls and the separation of duties. All employees we met were kind, knowledgeable, helpful and very dedicated to the BRA's mission. To protect these people as well as the BRA, certain tasks should be performed by different people.

From a business perspective it is generally preferred to have the separation of: Custody (Physical access to assets); Recording (maintaining books or completing source documents); and Authorization (giving approval of transactions). If an employee has responsibilities in more than one of these categories, there could be trouble. For example, if the same employee had both custody and recording privileges for cash, what prevents them from stealing the cash and creating a transaction in the accounting records to hide the theft? Specific duties you would want to be separated for any individual would be recording sales, tracking inventory, and handling accounts receivable or cash paid for sales. With all these duties or even two, an employee could abuse their power and devastate the BRA's operations for their own benefit. To ensure this does not happen we would recommend having employee on the grounds survey and record the inventory levels for swine, goats and rabbits each month. For pigs, this would entail recording the number of pigs on the farm, and specifying the animals' gender, age, and estimated weight. A sample form for recording these surveys is included below. To assure an employee is able to easily perform this task in the event of Antonio Alcantara unexpectedly leaving, we recommend separating these duties as soon as possible. This will smooth any potential transition in the future and allow Antonio to have more time to help other BRA operations as well as co-op members.

For keeping track of inventory it is recommended that an employee fill out a form categorizing and assigning values to the animals on hand. This form should be filled out regularly at the beginning or end of every month at the minimum, but weekly would be even better. Sample forms are provided below for the categorization and valuation of swine. The information on swine to be sold is entered into the "Market Livestock" form, and categorizes them by age or point in their lifecycle. Average weight is used to provide overall value to the category of swine. As the BRA currently sells solely for breeding, and at a fixed price, the value of swine might not rely entirely on weight.

VI. Inventory Records and Internal Controls Continued

Market Livestock	Number X Value/Head	Pesos
Baby Pigs Average Weight _____		
Wean to Feeder, Average Weight _____		
Growing Pigs, Average Weight _____		
Finishing Pigs, Average Weight _____		
Total Market Livestock		RD\$

Swine to be kept and bred are considered intermediate assets, unlikely to be sold in the near future. The form below depicts various categories of breeding livestock that are to be categorized and valued in a manner similar to Market Livestock. Again these forms are samples that may need adjustments to properly record the value of your inventory.

Intermediate Livestock	Number X Value/Head	Pesos
Sows, Average Weight _____		
Cull Sows, Average Weight _____		
Bred Gilts, Average Weight _____		
Open Gilts, Average Weight _____		
Boars, Average weight _____		
Total Breeding Livestock		RD\$

**Forms similar to these can and should be created for all livestock, including goats and rabbits.



VII. BRA Community Members – Capital Investment and Profits

The capital cost to produce high quality animals is substantially higher for the B.R.A. than the individual members in the community who are participating in animal husbandry. This comes from the quality structures, animal food, and care that go into producing these animals for Batey community members. The costs assumed in the calculations below are based on the costs associated with materials that would be accessible and affordable to community members.

A. Cost and Revenue Structure for Pigs

Capital Investment Costs - Pigs

The capital cost structure for pigs is based on information we received from speaking with Antonio and a local pig production site run by Diojene de Jesus.

<u>Capital Cost</u>	<u>Cost</u>	<u>Qty</u>	<u>Subtotal</u>
Pig Shelter	RD\$ 300.00	2	RD\$ 600.00
Female Pig	RD\$ 1,300.00	1	RD\$ 1,300.00
Rope to tie up pig	RD\$ 30.00	2	RD\$ 60.00
Initial food investment (until birth)*	\$RD 6,840.00	1	RD\$ 6,840.00
Total			RD\$ 8,800.00

**Most families will not end up paying for the expensive, high quality pig food. We have listed these expenses as the ideal way to raise pigs, but should families use the food they have around instead it will substantially reduce both the initial capital investment, and the recurring expenses for the pig food.*

Annual Maintenance Costs – Pigs

The estimated annual maintenance cost for pig production was based on the cost for food, medicine, access to a male (but not purchasing one), repairs and replacements for shelters created to shelter a pig from the rain (not required but recommended) and the cost associated with water and electricity. These costs may seem high for annual costs, however they are also high estimates demonstrating a worst-case scenario for Batey members if they want to produce pigs at as high of a quality as the B.R.A.

When we visited the local pig production facility, we noticed that the standards (and costs) were much lower, but this reduced the value of the pigs that were produced by the mother. Community members may be tempted to reduce their costs by reducing the quality of food or medicine, but the profit and payback below show that even the higher costs associated with caring for a pig properly will create a profitable venture for local community members.

Ongoing Expenses	Cost	Qty	Subtotal
Pig Food	RD\$ 33,520.00	1	RD\$ 33,520.00
Pig Medicine	RD\$ 945.00	4	RD\$ 3,780.00
Pig Studs	RD\$ 1,300.00	3	RD\$ 3,900.00
Repairs/Replacements	RD\$ 500.00	1	RD\$ 500.00
Water/Electricity	RD\$ 100.00	1	RD\$ 100.00
Total			RD\$ 41,800.00

Estimated Annual Expenses for Pig Production: This food cost covers the annual expenses for the pigs until they're sold (based on the calculation below) and the annual food cost for the mother pig.

Revenue Structure and Breeding Cycle - Pigs

Income	Cost	Qty	Subtotal
Pigs for meat	RD\$ 10,000.00	20	RD\$ 200,000.00
Pigs for reproduction	RD\$ 1,300.00	2	RD\$ 2,600.00
Total			RD\$ 202,600.00

The numbers for revenue generated from pig production are based off the following assumptions shared with us during our time at the B.R.A. production site:

One female pig, giving birth to two litters of pigs per year, with eleven pigs per litter.

Additionally, we did not assume any pigs were being eaten by the family in these particular calculations, and the price the pigs were sold at was for small to medium sized pigs.

First Year Results from Animal Production – Pigs

Revenue (1 pig)	RD\$ 101,300.00
Capital	RD\$ 8,800.00
Annual Operating Expense	RD\$ 37,400.00
First Year Total Profit	RD\$ 55,100.00

Expected results after one year of pig production

Annual Profit from Animal Production - Pigs

After the first year and capital costs have been recovered, the annual profit from pigs increases substantially. This comes partially from the mother pig being fully grown and capable of having two litters of piglets per year given their five month reproductive cycle. These profits do assume that the cost of using a male stud is \$1.300 per litter, or the cost of one piglet, as is common practice in the Bateys.

Annual Revenue	RD\$ 202,600.00
Annual Expenses	RD\$ 41,800.00
First Year Total Profit	RD\$ 160,800.00

Expected Annual Profit

Payback Period for Animal Production - Pigs

The payback period was determined by dividing the initial cost of capital by the marginal profit per piglet. This gives us the number of animals an animal has to produce to recover the initial cost of investment. With the number of animals determined, we can then calculate the period of time it will take for a community member to recover their initial cost of by considering the number of animals per birthing cycle, and the number of birthing cycles required to recover the initial cost of the investment. This gives us the period of time it will take for a community member to recover their initial cost of investment.

Initial Capital Investment	RD\$ 8,800.00
Marginal Profit (Profit/Pig)	RD\$ 7,309.00
Number of Animals to Payback	2*
Number of Months to Payback	9.5*

Expected Capital Investment Payback Period

B. Cost and Revenue Structure for Goats

Capital Investment Costs – Goats

While the initial capital investment for goats is almost as high as for pigs, the annual maintenance cost is much lower, making it an overall low-cost way for community members to invest. While many community members simply tie up a goat, this is not advised because they can easily get sick from rain and prefer having a shelter for the rainy weather often experienced in the Dominican Republic. It is also pivotal that community members have water available as goats will always come back to the home if not tied up given they have a source for water. Community members should consider investing in a fence, as the baby goats will run away if their mother is not around or if there is no fence to keep the baby goats in one place.

<u>Investment Item</u>	<u>Cost</u>	<u>Qty</u>	<u>Subtotal</u>
Goat Hut	RD\$ 1,000.00	1	RD\$ 1,000.00
Goat Fence	RD\$ 1,000.00	1	RD\$ 1,000.00
Male Goat*	RD\$ 2,500.00	1	RD\$ 2,500.00
Female Goat	RD\$ 2,500.00	1	RD\$ 2,500.00
Water Dish	RD\$ 100.00	1	RD\$ 100.00
Total			RD\$ 7,100.00

Estimated Cost of Capital Investment for Goat Production Start up

This may be substituted with a rotated stud. See the note on male goats under annual maintenance costs for explanation.

Annual Maintenance Costs – Goats

Goats have extremely low maintenance costs, and require little care other than watching them to make sure they're not stolen. Having a structure for them is important because they don't handle rain well, and families would do well to maintain these structures carefully. There is a small annual cost for goat medicine that families will have to pay for, but they will graze on any kind of food making less expensive for goat owners. It should be noted, however, that there is an opportunity cost for the land to produce goats, and this is not taken into consideration, as the alternatives to goat production were not discussed in our conversations.

<u>Expense Item</u>	<u>Cost</u>	<u>Qty</u>	<u>Subtotal</u>
Male Goat*	RD\$ 2,500.00	1	RD\$ 2,500.00
Food	RD\$ -	2	RD\$ -
Medicine	RD\$ 150.00	2	RD\$ 300.00
Repairs/Replacements	RD\$ 500.00	1	RD\$ 500.00
Water/Electricity	RD\$ 100.00	1	RD\$ 100.00
Total			RD\$ 3,400.00

Estimated Annual Expense from Goat Production

*Goat owners may want to consider seeing if they can "borrow" a stud instead of purchasing a dedicated stud. If a community shared a single male goat and rotated the male goat throughout the surrounding area, it would be less expensive than having to repurchase a stud once the mother has turned 5 years old and they want to breed a goat's daughter.

Revenue Structure and Breeding Cycle – Goats

<u>Income Item</u>	<u>Cost</u>	<u>Qty</u>	<u>Subtotal</u>
Goats for meat	RD\$ 4,500.00	6	RD\$ 13,500.00
Goats for reproduction	RD\$ 2,500.00	2	RD\$ 2,500.00
Goat skins	RD\$ 40.00	8	RD\$ 800.00
Total			RD\$ 16,800.00

Estimated Annual Revenue from Goat Production

The numbers for revenue generated from goat production are based off the following assumptions shared with us during our time at the B.R.A. production site:

One female goat, giving birth to between one and two litters of kids per year, with two kids per litter.

Additionally, we did not assume any goats were being eaten by the family in these particular calculations, and the price the goats were sold at was for small sized goats. The community members (and the B.R.A.) may also want to consider purchasing goats that offer milk reproduction, which is healthy for infants and is a free source of milk for the family valued at approximately RD\$ 10,000 annually.

First Year Results from Animal Production – Goats

The first year for goat production will result in a profit, but a very small one because the mother is not fully grown and can only reproduce once during this year. Following years will have substantially higher revenue, as shown below under Annual Profit from Goats.

Revenue (1 goat)	RD\$ 8,400.00
Capital	RD\$ 7,100.00
Annual Operating Expense	RD\$ 400.00
First Year Total Profit	RD\$ 900.00

Expected results after one year of goat production

Annual Profit from Animal Production – Goats

After the first year and capital costs have been recovered, the annual profit from goats increases substantially. This comes partially from the mother goat being fully grown and capable of having between one and two litters of goats per year, given their seven month reproductive cycle.

Annual Revenue	RD\$ 16,800.00
Annual Expenses	RD\$ 3,400.00
First Year Total Profit	RD\$ 13,400.00

Expected Annual Profit

Payback Period for Animal Production – Goats

The payback period was determined by dividing the initial cost of capital by the marginal profit per kid. This gives us the number of animals an animal has to produce to recover the initial cost of investment. With the number of animals determined, we can then calculate the period of time it will take for a community member to recover their initial cost of by considering the number of animals per birthing cycle, and the number of birthing cycles required to recover the initial cost of the investment. This gives us a period of time it will take for a community member to recover their initial cost of investment.

Initial Capital Investment	RD\$ 7,100.00
Marginal Profit (Profit/Goat)	RD\$ 4,200.00
Number of Animals to Payback	2

Expected Capital Investment Payback Period

C. Cost and Revenue Structure for Rabbits

The cost structure for the initial investment and ongoing expenses for rabbits is displayed below based on the costs we received from our discussions with Antonio and Ebrito, a local rabbit producer.

Capital Investment Costs – Rabbits

<u>Investment Item</u>	<u>Cost</u>	<u>Qty</u>	<u>Subtotal</u>
Rabbit Cages	RD\$ 2,500.00	1	RD\$ 2,500.00
Rabbit Boxes	RD\$ 25.00	2	RD\$ 50.00
Rabbit food/water containers	RD\$ 50.00	5	RD\$ 250.00
Male Rabbits	RD\$ 300.00	1	RD\$ 300.00
Female Rabbits	RD\$ 300.00	2	RD\$ 600.00
Total			RD\$ 3,700.00

Estimated Cost of Capital Investment for Rabbit Production Start up

Annual Maintenance Costs – Rabbits

<u>Expense Item</u>	<u>Cost</u>	<u>Qty</u>	<u>Subtotal</u>
Male Rabbit	RD\$ 300.00	1	RD\$ 300.00
Food*	RD\$ 945.00	4	RD\$ 3,780.00
Medicine	RD\$ 5.00	4	RD\$ 20.00
Repairs/Replacements	RD\$ 200.00	1	RD\$ 200.00
Water/Electricity	RD\$ 100.00	1	RD\$ 100.00
Total			RD\$ 4,400.00

Estimated Annual Expense from Rabbit Production

*** Based on conversations with Antonio Alcantara and Ebrito, we would expect a community member to use mostly plants or vegetation from their home since they will be selling for meat more than reproduction.*

Revenue Structure and Breeding Cycle – Rabbits

<u>Income Item</u>	<u>Cost</u>	<u>Qty</u>	<u>Subtotal</u>
Rabbits for meat	RD\$ 300.00	110	RD\$ 33,000.00
Rabbits for reproduction	RD\$ 300.00	12	RD\$ 3,600.00
Rabbit fur	RD\$ 40.00	122	RD\$ 4,880.00
Total			RD\$ 41,480.00

Estimated Annual Revenue from Rabbit Production

The numbers above are based off of the breeding cycle of rabbits and the average estimates we received for litter production and mortality rates. It is calculated based on the following formula:

Two female rabbits, each producing six litters per year (based on an estimated 60 day reproduction cycle), with each litter producing an average of twelve bunnies.

Additionally, we assume that the family caring for the rabbits would consume some of the rabbits they raised for food. For our purposes, we made a rough estimate of twenty-two bunnies.

First Year Results from Animal Production – Rabbits

Our calculation after one year of rabbit production first takes into consideration the initial purchase of the rabbits, the capital cost of creating cages and boxes for rabbits, food and water dishes. The cost in the first year is not solely the cost of investment, however, and this is indicated above with annual operating expenses. This shows that within one year, rabbits not only recover the initial investment a community member would spend, but also produce an income of RD\$ 13,140. In addition to this profit is the benefit of meat readily available to the family. We assumed above that they would consume approximately 22 bunnies annually, providing an additional benefit of RD\$ 6,600 in the first year.

Revenue (3 rabbits)	RD\$ 20,740.00
Capital	RD\$ 3,700.00
Annual Operating Expense	RD\$ 3,900.00
First Year Total Profit	RD\$ 13,140.00

Expected Results for the First Year of Rabbit Production for a community member

Annual Profit from Animal Production – Rabbits

After the first year and capital costs have been recovered, the annual profit from rabbits increases substantially. This income would be an ideal source for savings for other animals. This idea is further covered in the scenarios following the animal cost structures for individual community members.

Annual Revenue	RD\$ 41,480.00
Annual Expenses	RD\$ 4,400.00
First Year Total Profit	RD\$ 37,080.00

Expected Annual Profit

Payback Period for Animal Production – Rabbits

The payback period was determined by dividing the initial cost of capital by the marginal profit per bunny. This gives us the number of animals an animal has to produce to recover the initial cost of investment. With the number of animals determined, we can then calculate the period of time it will take for a community member to recover their initial cost of by considering the number of animals per birthing cycle, and the number of birthing cycles required to recover the initial cost of the investment. This gives us the period of time it will take for a community member to recover their initial cost of investment.

Initial Capital Investment	RD\$ 3,700.00
Marginal Profit (Profit/Rabbit)	RD\$ 258.00
Number of Animals to Payback	14*
Number of Months to Payback	7*

Expected Capital Investment Payback Period

**If the variables (number of baby rabbits, price rabbits are sold for, rabbits kept for consumption) are changed, there will appear to be large “jumps” in these numbers due to the reproduction cycle of the rabbits, which are accounted for in the payback period. This will be true for any animal, as the profit is tied to the reproductive cycle of the animal.*



VIII. Community Scenarios

Based on the information and numbers calculated above, we applied these calculations into various scenarios that community members can identify with based on their family situation and goals. We assumed that a typical family can save DR\$1,000/month, which we were told was a reasonable amount from a member in the community.

If a Family Buys a Pig...

As indicated above, a family would need to save DR\$8,800 to be able to cover the total initial investment for a pig, including the female pig, shelter, and the initial food investment. It would take the family a total of 8 months and 24 days, or approximately 9 months to save this money. The family would break even with their investment in the pig and start turning a profit 9.5 months after they purchase the pig. Combined, the family will not begin to see a return on their investment and savings until 1.5 years after they initially begin saving.



If a Family Buys a Rabbit and a Pig, Discontinuing Personal Savings After Initial Investment...

If instead, a family chooses to invest in rabbits, the initial savings required would be DR\$3,700. After the first 3.7 months of saving, the family would purchase two female rabbits and one male rabbit. Assuming the family stops saving DR\$1,000 per month after buying the rabbits, it would take 4 months of profit from the rabbit production to save enough for the initial investment for the pig. The rabbits will pay themselves back after 7 months of reproduction, while the pig will pay back its investment in 9.5 months. The total amount of time for the family to wait until pig ownership is 7.7 months. It will take approximately 1.5 years for the family to have two streams of revenue, while experiencing profit of DR\$29,450 from the rabbits while the pig is maturing to its breakeven point.



If a Family Buys a Rabbit and a Pig, Continuing Personal Savings...

Our recommendation is that a family continues to save after their initial investment in the rabbits. In this scenario, the family will be able to buy a pig 2.5 months after they purchase the rabbits. With the revenue from one cycle of rabbit production of DR\$6,200 and 2.5 months of saving, the family could make its investment in pigs. This shortens the timeline to pig ownership down to a total of 6.2 months, and the family will be experiencing two streams of revenue and profits from the rabbits within 1 year 3.5 months.

IX. Mentorship Program

Within the BRA, there is a need to increase awareness of the organization's programs and services. When we visited the BRA site on one of the final days, we spoke to a woman who lived adjacent to the firm. When speaking to this woman, we asked if she was aware of the programs and services, including the cooperative that the BRA has. She said she did not know about the cooperative whatsoever. Therefore, a proposition that we feel would greatly impact the BRA's sustainability and outreach would be an increase in advertising. This can be as simple as word-of-mouth requests and handing out fliers and signs (see appendix). In conjunction with this, informational fliers (see appendix) can also highlight the benefits of rabbit production and how it leads to pig ownership.

The BRA's cooperative program is an integral part of the organization. One way to expand the impact of the co-op is to promote the financial benefits of saving for a rabbits to work toward a pig. This will help co-op member to manage their finances and help them to save more efficiently in order to buy their pigs. Financial literacy is an area where BRA and AGBL can work together to improve the lives of the batey residents. Individuals participating in the savings through animal husbandry will require training in livestock care. This leads to the idea of a "Mentorship Program".

This mentorship program could function through co-op members working with potential or new members to train them in livestock techniques, financial planning, and other topics as needs arise. This would be done by having the BRA first train key co-op members in topics such as how to properly and economically feed pigs in order to viably produce healthy piglets, how to save money through buying rabbits or goats in order to eventually purchase a pig, and other areas of basic financial literacy. Antonio Alcantara has highly detailed knowledge of animals. Therefore, he already serves as an excellent mentor to many people. However, there could be more members knowledgeable on animal rearing topics to help disseminate knowledge amongst cooperative members. There can also be specialized "mentors" that only teach co-op members financial literacy practices.

Animal rearing and livestock care sector of the proposed mentorship program should be set up to address the following questions or topics:

1. Animal nutrition – what are the most cost effective methods dependent on the animal’s stage of life?
2. Animal selling – should they sell commercially or within the community? For breeding or meat?
3. What kind of animal should they buy?
4. How many new animals should they buy if they already have a variety or one?
5. Should they buy their own male animal or utilize “Stud” services

Mentors should be knowledgeable on how to advise community members on these subjects, and we propose that there should be at least four more co-op members that are this knowledgeable or are able and willing to be trained by Antonio Alcantara to provide this mentorship in the near future.

Financial literacy mentors need to know and advise community members on the following:

1. How to effectively save money in the short and long run.
2. The purpose of saving money and importance of doing so.
3. Entrepreneurial strategies.

Mentorship on these topics can be a sustainable way to help Batey residents’ save more effectively. AGBL would be delighted to assist the BRA on these efforts in the future.

X. Conclusion

We have included a number of recommendations above. First, we suggest that you continue to provide below market price pigs to the community, but also sell some pigs to larger grocery stores at market price to gain some revenue. Second, goats are extremely cheap to produce, so you should continue to sell goats for income. Finally, rabbits could be used to help the community meet their goals of buying pigs and to fulfill the mission of B.R.A. Rabbits reproduce extremely fast and could be a good source of income in the community.

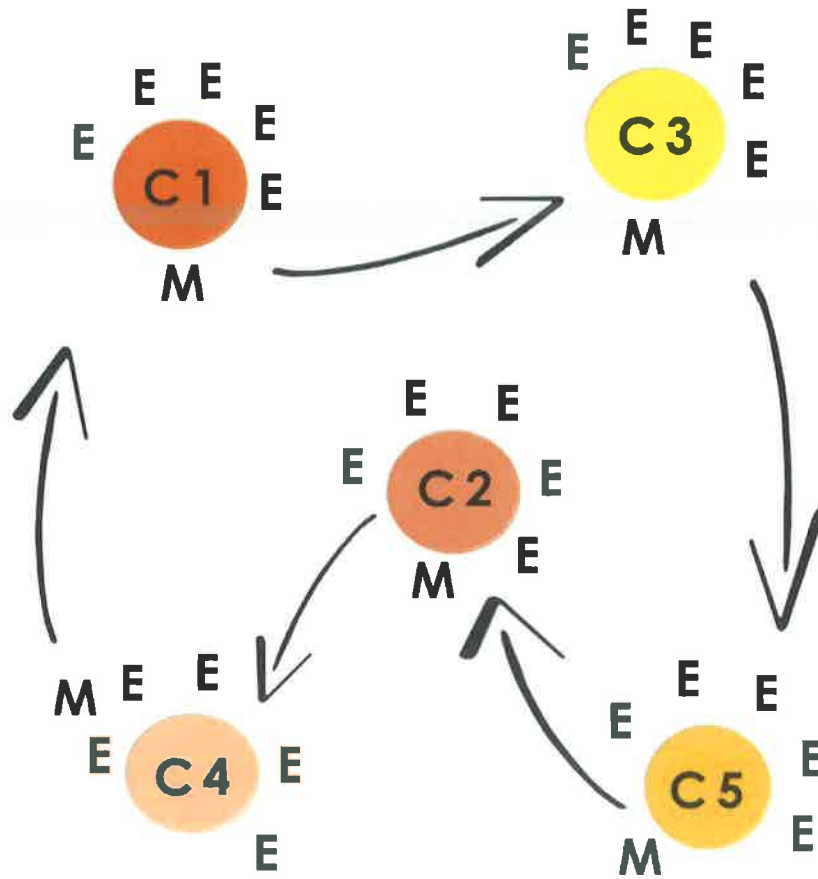
Furthermore, we have several recommendations to help the community and the individual families that are in need of below market price animals. The first is to create an education program to inform and educate people in the community about B.R.A and its mission. Along with this suggestion we recommend you promote financial literacy in the communities through creating a mentorship program. If more families knew how much buying one rabbit would make them in the long run, maybe they would be more willing to save money and buy the rabbits. Finally, we suggest you collaborate with all parts of B.R.A and have the animal husbandry program work more closely and link with the cooperative. This is a good way to spread the word about B.R.A and all the different programs that it has.

Finally, thank you so much for your openness and honesty with us during the week we were in the Dominican Republic. We believe strongly in your mission and we were excited to find a solution with your help. We hope that this information is useful and look forward to more contact in the future.



XI. Attachments - Posters

This poster shows how several communities can join together and mutually benefit from sharing in the cost of animal production. If each community has one male that impregnates all females in the community, they can trade the male in another community in exchange for their male. This helps to diversify the genes for the animals in that community to help prevent crossbreeding, and also lowers the cost that each individual community member incurs to have their female impregnated.



La Configuración de la Comunidad

This poster can be used as a form of marketing in order to create awareness of the rabbit to pig production idea and spread general awareness of the BRA itself.

¿Quieres ser capaz de comprar un cerdo?

Descubra cómo el programa de la BRA
puede ayudar.



Aprenda sobre el programa de tutoría
de la BRA en la cría de ganado y la
forma de administrar el dinero.

Aprenda cómo invertir en la producción de
conejo puede ayudarle a comprar un cerdo
rápidamente y hacer crecer su negocio de
ganado.



Situado en
el Batey
Cinco
Casas

Do you want to be able to buy a pig?

Learn how the BRA can help you.



Learn about how the mentoring program
in the BRA can help you raise livestock
and manage your money.



Learn how investing in rabbit production and
breeding can help you to buy a pig more
quickly!



B A T E Y
R E L I E F
A L L I A N C E

Located in
the Batey
Cinco
Casas



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GLOBAL BUSINESS LEARNING**

EMPOWERING OUR STUDENTS TO SERVE THE WORLD



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