

Improving Cattle Ranching and Agricultural
Knowledge in Farmers of the Dominican Republic

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Executive Summary

It is our conclusion that there is a significant lack of modern and in-depth information about the animal agriculture industry in the Caribbean, especially the Dominican Republic. We plan to establish a farmer education program in the community of La Ouata, which is located in the eastern region of Dominican Republic, and teach the ranchers about sustainable cattle production through lectures, hands-on activities, and on-farm demonstrations. This program is expected to run for at least six years. Over the time period, evaluations will be taken to discuss how well the implementation of the plan is going and if any changes need to be made.

Introduction

The island of Hispaniola, which is the location of Dominican Republic, has a large percentage of tropical rainforest eliminated for the production of cattle, especially on the eastern region of Dominican Republic. Because the production of cash crops is unpredictable due to weather, pests, and market pricings, many farmers choose to be involved in cattle production instead. Although the Dominican Republic is more forested than its neighboring country Haiti, it still has many environmental problems due to heavy deforestation from clear-cutting forests to provide pasture land solely for cattle grazing. This method is not sustainable to the people and the environment because cattle are unable to be maintained on the land after a period of five to six years. Essentially, more land must be cleared for each head of cattle, five more hectares versus one hectare on new land for one animal, which leads to more degradation of the environment. It is essential for development of agriculture to be sustainable for the environment and people, because currently most farmers in the Latin American countries do not perceive the importance of maintaining a sustainable system of cattle ranching on their land.

Although there has been growth in technology among Latin American countries, the level of technology does not include any considerable knowledge on agriculture in these least developed countries. In addition, the development of agricultural knowledge is necessary for any other rural development projects to surface.

Current Status of Agriculture Development and Economy

According to the Inter-American Institute for Cooperation on Agriculture (IICA), there are four main challenges to agriculture development: producing for markets, embracing technological revolutions, reducing poverty and improving income distribution, and “fostering development of the capabilities of the actors in the chains and rural territories”, meaning, developing the abilities and skills of the farmers who are the actors in the chain of agriculture.

The Dominican Republic government also has not been the best friend to cattle ranchers even though over the past ten or so years the economy has grown very well. The Dominican Republic, like many other countries, will spend money where the most return for the buck is. Agriculture currently takes in about 11% of the GDP (gross domestic product) and 17% of human labor while the ever growing sector of services and government has 58% of GDP and 58% of human labor; accounting for a rise in tourism industry. Ranchers have had a tough time with the governments’ help because of the cattle cycle. The cattle cycle is an economic term that represents the price fluctuations of the cattle market. This cycle runs in ten to twelve period lengths with increasing and decreasing prices.

Purpose

Our rural development project will help the farmers, who are the “actors” in the chain of agriculture, to develop more knowledge and skills to improve their management and understanding of agriculture, as well as economics and trade in their cattle ranching. The goal is to promote the feasibility of sustainable cattle production in Dominican Republic, as well as encouraging agricultural knowledge by establishing an internet-based resource about cattle production in the country. It is also

our objective to be a source of agricultural knowledge available for researchers, agricultural agents, and farmers. We also hope to create a stronger connection between the cattle ranchers and the government of Dominican Republic.

Goals and Objectives

- educating cattle farmers about cattle ranching in a way that it is sustainable and healthy for the environment, benefiting the farmers and community
- enabling ranchers to understand and manage common reproductive problems in their animals
- to aid farmers' breeding program with emphasis on cattle structure and conformation
- to teach and practice sound management practices to minimize occurrence of diseases
- developing a profile of nutrition problems in the tropical bovine, and implementing solutions
- establish an effective farmer education program and informative agricultural website

Partnerships

The Inter-American Institute Cooperation for Agriculture (IICA) is serving as partner for assisting in supporting our project as well as funding. The main partnership for the ranching and farming development in Dominican Republic will coincide with the Secretary of Agriculture (SA) of Dominican Republic, Eligio Jaquez. His purpose to study the economical aspects of the social, production, and distribution of goods and services. The Secretary of Agriculture will also help implement and coordinate our project. The partnership between the team members and Jaquez will establish grounds for the ranchers and farmers to receive financial and management help from government. The government can help structure the market for the ranchers and farmers so their products are sold and a fair return can be given.

Funding

Funds will be obtained through Inter-American Institute Cooperation for Agriculture (IICA). Funds will be from United States Agency for International Development (USAID), the Global Fund, and other organizations.

Personnel

Our partners in the Dominican Republic will obtain several more personnel partners to work with us and support our project in the country. They will also have connections with farmers and so will direct us to locations and identify cattle ranches. Team members must have strong proficiency in communication or Spanish language skills, as well as extensive experience and background in the basic husbandry and science of cattle production, including ruminant nutrition and reproductive science. Team members have degrees pertaining to agriculture and have their own background experiences of personal ranching and farming. Founding team members are Ross Nalivka, Ling Babcock, Wyatt Prescott, and Shanna Smith.

Ross Nalivka has a degree in Agricultural Science and Technology, with an emphasis in Agricultural Systems Management. Ross has worked on a farm and ranches over half of his life and has common knowledge of ranching and farming industry.

Ling Babcock has a bachelor's in Animal Science with Production emphasis. Her background includes extensive hands-on experience in dairy cattle management, beef nutrition, and forage crop production. She has experience in public relations, teaching youth and the public about agriculture and sustainability at state fairs and agriculture expositions. Ling also has international experience in New Zealand, Taiwan, and Ecuador, where she actively participated in several agricultural development programs through missions groups.

Wyatt Prescott has a degree in Agricultural Industry Management and Communications with breadth in animal science and agricultural economics, accompanied by a minor in History. Wyatt has

been connected to a vertically integrated cattle production operation all of his life. He has working experience in feed crop production, cow/calf management, and market beef production through intensive grazing as well as competitive confined feeding.

Shanna Smith graduated with a degree in Agriculture Industry Management and Communications. She has a background in cattle and horse production, with an emphasis on pasture-based beef operations and rare livestock breeds. Shanna has also been a National Agriculture Ambassador and also is an active participant in community education programs in Hispanic communities throughout California, Idaho, and Texas, as well as in Mexico.

Timeline

Initial program will last six years. Two months will be spent with the cattle ranchers who volunteer their farms for critique and want help addressing problems. Every month will include reports on program or activity implementation, a biannual evaluation on Project Performance including an assessment on Sustainability of Results, and also a yearly Impact Evaluation report (degree of success or effectiveness of program on the community). We will also be implementing that the project will involve weekly courses in which there will be a presentation of different types of cattle ranching and the science behind it. After the first two years there will be a large report on the financial and educational aspects of the program. Most likely the program will be going accordingly so we will not have to change anything. If at any certain point our objectives are not working the way they are supposed to, we would like to re-evaluate the situation and change whatever is not working.

Location

The majority of crop and livestock production takes place in the eastern half to three quarters of the Dominican Republic. Domestic cattle ranches are largely located in the northern rural regions surrounding Santo Domingo and also the valleys connecting to Santiago. These two regions is the location of the country's two Select Sires Reproduction Services offices, because of the proximity to

both the large and small cattle ranches and facilities. Therefore, the location of our development project office will be in the town of La Ouata in order to reach the ranchers and farmers of the Rio Isabela valley and still be within an hour drive of Santo Domingo.

Facilities

Our partners, the Secretary of Agriculture of Dominican Republic Eligio Jaquez and his staff is directing and providing us with a facility in the La Ouata community that will be built in time to implement our action plan. The facilities needed that we have proposed for the developmental project will be an office building with a conference room to hold lectures in. This facility can be converted from a large house or large barn/shed with running water, electricity, and accessible location; as well as communication capabilities for phones and internet. We will also need surrounding hectares (approximately five) to construct example cattle processing facilities and feeding facilities that will house around 15 bovine and 4 equine. Cattle processing facilities will include a squeeze chute with blocked hind stall and head catch, functional alley, loading pen, sorting pens, sorting alley, open processing pen with sturdy tie posts, scales, and equipment storage. The feeding facilities will include a closed pen with a feeding manger as well as example in pen bunks and force feeders, isolation pen for injured or sick cattle, pasture, and horse pen that all have adequate water supplies through troughs or ponds; as well as a alley connecting feeding facilities to processing facilities, yard for feed storage and pilling, and fences constructed for confinement out of available lumber, also constructed for grazing out of wire, lumber, and environment.

Aside from direct project facilities, project worker housing must be located in immediate proximity to project facilities. These facilities can consist of various boarding, but preferably 2 larger rental houses for gender separation with adequate sleeping for personnel and guest in each house. These facilities will also need running water, electricity, and communication capabilities such as internet access.

Implementation

This program will initially involve team members to visit and discuss with cattle ranchers in the eastern part of Dominican Republic, for at least a one month period, about the project and take note of current cattle ranching methods in the country. This one month period will also give the team time to get established our office. The team will build relationship with the ranchers by getting to know them and just talking to them about their way of life, opinions on animal agriculture industry in Caribbean, and aspects of cattle husbandry they would like to know more about. This includes asking about any major or minor issues they have faced in the past and present, and current problems they would like to change. The purpose of all this is to develop a basic understanding of the nature of cattle production in the Dominican Republic, in order to help finalize our educational program and ensure the effectiveness of our current curriculum outline. In addition, contact information will also be obtained from the cattle farmers in order to create a farm directory that will be on our website. The contact information will also be used to touch base with the ranchers later about their interest in participating in our program.

The project will involve courses every Tuesday and Thursday in which there will be a presentation of different types of cattle ranching and the science behind it. Discussion and questions will be strongly encouraged, and there will be hands-on teaching out on the farm after a 45 minute lecture. Curriculum will involve topics of sustainable agriculture, genetics and profiles of cattle breeds, reproductive physiology, tropical animal nutrition, tropical forage and feeds class, disease management, calf management, and possibly a mini research study that will actively involve farmers and the team member scientists. After the team members' compilation of any problems farmers have, they also will have a set of ideas that may be inexpensive, practical recommendations for the ranch of that specific area of land that is farmed. These ideas and practical methods should be examined before

incorporating into the education program. The number of farmers allowed to participate in program would be estimated at ten.

One important part of our project is the formation of a Spanish and English website about cattle ranching and agriculture in the Dominican Republic. The webspace is going to be provided for at no cost to us by Eligio Jaquez, the Secretary of Agriculture and will be linked to current popular internet sites such as the IICA. We hope that this will play a role in creating interest in Caribbean agriculture, and provide an in-depth profile on cattle production in the Hispaniola. On this website, information and our project reports will be available for viewing by the public, including those who are interested in initiating another rural development project in the tropics.

Farmer Education Program: Curriculum

Lecture Topics:

- Sustainability Issues and Opportunities for Increasing Productivity of Livestock (Lecture 1)
- Cattle Breeds and Uses Around the World
- Cattle Evaluation and Traits
- Replacement Heifer Selection and Sire Selection
- Introduction to Nutrition of Beef and Dairy beef cattle
- Nutrition Management and Prevention of Nutritional Deficiencies
- Maximizing Quality in Tropical Forages and Feeds
- Sustainable Tropical Forage Management
 - including safety and proper use of fertilizers, pesticides and other chemicals
- Ration Formulating [assuming farmers have basic knowledge of math]
- Soil Science and Effective Manure Waste Management
- Predicting reproductive performance in heifers and cows
 - Incidence of reproductive loss, factors contributing to reproductive loss
- Bovine Reproductive Science
 - Puberty, Estrous Synchronization, Embryo development, Pregnancy Diagnosis, Parturition, Male fertility

- Diseases and Reproductive Management
 - Sexually-transmitted diseases, Dystocia, Post-partum diseases and Management
- Calf Management
 - Calf nutrition, sicknesses, vaccinations, and other wise calf management practices
- Overview of Agriculture Economics, Detailing a Budget for Ranchers
 - Dominican Republic ranchers will be taught how to account for the disruption economic influences such as weather, prices, pests, people, technology, that may occur in the time of the farming production.
 - inputs and outputs of their cattle operation (Makus):
 1. When and how to acquire resources to keep business going
 2. Analyze risk factors with monetary and valuable returns from technology
 3. Capital investments
 4. Adjusting ranch size to meet needs
 5. Changing enterprises or changing production line
 - Decision-Making (Makus):
 1. Ranch structure
 2. Information obtained in order to make decisions
 3. Financial competition
 4. Human resources
 5. Consumer Demands
 6. Environmental and health concerns
 7. Technology used in ranching.
 - Decision-Making tools and principles (Makus):
 1. Economic principles
 2. Enterprise record summaries
 3. Investment analysis
 4. Financial statements.

Hands-On Topics:

- Soils and Tropical Forages- Field Lab
- Desirable traits in cattle, Showing and Fitting
- Cattle Evaluation Contest
- Reproductive Management, Reproduction Cycles and Status of 15 demonstration cattle
- Breeding and Artificial Insemination
 - Care and maintenance of semen tank, Semen handling, Estrous detection, AI equipment and technique
- Pregnancy Diagnosis, Real-time Ultrasound of Ovarian Structures
- Replacement Heifer selection and Sire selection

Outcomes

Through this development project, we expect to see effective implementation of the team members skills carry on to the participating farmers. We expect that farmers will have gained significant deal of valuable knowledge on successful cattle production and be able to see a long-term improvement of land and soil quality and production efficiency of their cattle. We hope that the information available on the internet site will be beneficial to other cattle producers and rural development projects in the Caribbean.

Evaluation or Assessment

Assessment of the project will include monthly reports on program or activity implementation, a biannual evaluation on project performance including an assessment on sustainability of results, and also a yearly “Impact Evaluation” report, an assessment on the degree of success or effectiveness of our program on the community. These reports will be vital to gaining knowledge of how the development project is working and how well it is incorporates the cattle farmers. Issues addressed in the reports will involve many questions such as:

- Does the development plan work for the ranchers? Do they like it?
- Are the program classes convenient with their time schedule?
- Does it work with financial obligations? Was our money spent wisely?
- How has the economy responded to the plan implementation?
- To what extent of science knowledge do the farmers have?
- How have ranchers applied learned skills into their production system?
- Is this a program that participating ranchers would recommend to other ranchers?

Expected Expenditures

Initial Facility Expenditures	U.S. Dollars	Percentage of Budget
Office Establishment Labor	\$500.00	0.03%
Office & Presentation Equipment	\$5,000.00	0.27%
Livestock Facility Construct Labor	\$1,000.00	0.05%
Livestock Facility Materials	\$5,000.00	0.27%
Total	\$11,500.00	0.63%
Yearly Facility Expenditures	U.S. Dollars	Percentage of Budget
Office Facility Rent	\$3,000.00	0.16%
Livestock Facility Land Rent	\$1,000.00	0.05%
Project Facilities Utilities	\$3,000.00	0.16%
Communications	\$4,000.00	0.22%
Project Facilities Maintenance	\$1,000.00	0.05%
Personnel Housing Rent	\$6,000.00	0.33%
Personnel Housing Utilities	\$3,000.00	0.16%
5 Year Total	\$105,000.00	5.71%
Initial Materials Expense	U.S. Dollars	Percentage of Budget
Bovine	\$9,000.00	0.49%
Equine	\$3,000.00	0.16%
Processing & Feeding Equipment	\$2,000.00	0.11%
Total	\$14,000.00	0.76%
Yearly Materials Expense	U.S. Dollars	Percentage of Budget
Processing & Feeding Equipment	\$1,000.00	0.05%
Feed & Maintenance	\$6,000.00	0.33%
Curriculum	\$3,000.00	0.16%
Other Educational Equipment	\$1,500.00	0.08%
5 Year Total	\$57,500.00	3.13%
Initial In-State Transportation Expense	U.S. Dollars	Percentage of Budget
Automobiles	\$40,000.00	2.18%
Horses	\$3,000.00	0.16%
Total	\$43,000.00	2.34%
Yearly Transportation Expense	U.S. Dollars	Percentage of Budget
Automobile Maintenance	\$2,000.00	0.11%
Automobile Fuel	\$10,000.00	0.54%
Horse Maintenance	\$1,000.00	0.05%
Horse Feed	\$1,000.00	0.05%
Cross Country Travel	\$32,000.00	1.74%
5 Year Total	\$230,000.00	12.51%
Yearly Personnel Expense	U.S. Dollars	Percentage of Budget
Stipend	\$25,000.00	1.36%
Salary	\$240,000.00	13.06%
Housing	\$9,000.00	0.49%
Guest Speakers/Specialists	\$10,000.00	0.54%
Guides & Cultural References	\$3,000.00	0.16%
5 Year Total	\$1,435,000.00	78.07%
Initial Expense	\$65,500.00	3.56%
Yearly Expected Expenditure	\$356,900.00	19.42%
Year 1 Total	\$422,400.00	22.98%
<i>Total</i>	<i>\$1,896,000.00</i>	<i>103.16%</i>
Calculated Twice	\$58,000.00	3.16%
Total Expected Expenditure	\$1,838,000.00	100.00%

Conclusion

Concluding this implementation plan, our team along with the partnerships in Dominican Republic would like to see the ranchers of the Dominican Republic have greater understandings and more methodical processes to increase the efficiency of their cattle production practices. This is to be done by the Rancher Education Program with lectures containing information about cattle reproduction, genetics, and performance, along with management skills necessary for each rancher to become more knowledgeable of their herd. The identification of the current setbacks in agriculture of the Dominican Republic prompted our team to develop a project to help the cattle ranchers overcome difficulties. Our project strives to promote the feasibility of sustainable cattle production in Dominican Republic, as well as encouraging the development and funding of agricultural knowledge and research in the country.

References

- “Agriculture: A Strategic Issue. Status of and Outlook for Agriculture and Rural Life in the Americas 2005.” IICA. <http://www.iica.int/documentos/Ministerial2005/SituacionYPerspectivas-Eng.pdf>
- Anglesen and Kaimowitz. Agricultural Technologies and Tropical Deforestation. CABI Publishing, New York: 2001.
- “Balancing Livestock, the Environment, and Human Needs.” Electronic Conference. 1997. http://www.virtualcentre.org/en/ele/econf_97/lxsumc.htm
- “Dairy Beef Production Systems (Dominican Republic).” International Development Research Centre. http://www.idrc.ca/en/ev-67618-201_820264-1-IDRC_ADM_INFO.html
- <http://www.cia.gov/cia/publications/factbook/print/dr.htm>
- IICA. <http://www.internationalreports.net/theamericas/>
- Makus, Dr. Larry. Professor of Agricultural Economics at University of Idaho.
Course: Ag Econ 278, Farm Management
- Secretaria de Estado de Agricultura. <http://www.agricultura.gov.do/>
- <http://research.ifas.ufl.edu/AnnualReports/rep2000/31Range%20Cattle-%20Ona.pdf>

