

Livestock on the Island of Dominica

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Introduction: The terrain of Dominica does not lend itself to large scale livestock production. However, small scale livestock production has historically been important on the island. With the rising prices of food imports, a government sponsored increase in livestock production is instrumental in maintaining a competitive edge, for both dairy and meat purposes. A new facility being constructed on the North Eastern side of the island is centered around providing cattle, goats, sheep, and rabbits with superior genetics to local farmers and families, as well as looking into possible exports of dairy products. Traveling across Dominica, one can often see goats, sheep, and cattle near the roads around villages. There are approximately 5,000 cattle, 6,000 sheep, and 10,000 goats on Dominica currently. These animals are usually seen in groups no bigger than three, and are usually purchased and owned singly by families for use almost exclusively for meat. These families usually do not have the capacity to breed their animals and support them. From time to time, they might breed an animal to another within the village and raise the young for meat, as well as taking advantage of the lactation of the mother. The small remaining portion of the animals are owned by local farmers or the Commonwealth of Dominica. Most farmers that concentrate on raising livestock are located on the North Eastern portion of Dominica. They have very small herds by American standards. The largest cattle farm on the island contains 80 head of cattle.

Being a small island nation, Dominica has always depended on outside sources for its meat supply. Dominica imports approximately \$70 million EC worth of general livestock products yearly. Due to the rising cost of food and fuel, it has become economical for the government to invest in local food production for both meat and dairy.

Methods and Materials: I was able to meet with the Dominican Ministry's Chief Veterinarian, Dr. Reginald Thomas. He arranged for me to travel with him to the government's newly established livestock production facility and answer any questions I might have. The primary source of information for my project was from my journey to the government's livestock production facility with Dr. Thomas. We video-recorded the entire trip as a means of saving the data for better note-taking and analysis later. Dr. Thomas answered questions about the facility, as well as questions about the general use of livestock on Dominica. His commentary is the basis for all the information contained in this report.

Results and Discussions:

Government Livestock on Dominica

The Livestock Development Unit of the Ministry of Agriculture, Fisheries & the Environment is in the process of building a new facility dedicated to the production of livestock. The facility is being developed for several reasons; the main reason is to develop Dominica's livestock genetic pool. The animals there will be sold to either local farmers for their use or directly to families. By maintaining high genetic standards at their facility, the government is spreading animals across the island that will offer higher production than in the past. Dr. Thomas stated "It is a government responsibility to produce and maintain that (superior) genetic material so the people can get food." The government is also looking into exporting livestock products to neighboring islands.

Costing around \$5 million EC, the facility consists of approximately 95 acres located directly to the north of Melville Hall Airport and represents a giant improvement over the previous livestock facility. Goat, sheep, and rabbit barns have been completed , as well as housing for site managers and temporary workers. Within the very near future, work is to begin on a cattle barn to support the milking of dairy cows. Pastureland can only be cultivated during the rainy season. Palm trees are being felled in preparation for the season so grass can be cultivated as soon as the rains begin. No forest ecosystems are in danger of deforestation from this process. Historically, Dominica has used its livestock solely for meat production. The two French islands to the North and South, Guadalupe and Martinique respectively, have had an influence on the use of dairy livestock in Dominica. On these islands, the use of dairy products is very prevalent. The Dominican government is looking into developing the dairy industry for possible export to these islands.

Technology at the Government Facility

Because of the tropical environment, some technologies specific to the Caribbean region have been developed for use at production facilities. The effect of intestinal parasites on the animals has been catastrophic in the past. The moist rainforest environment is very conducive to intestinal roundworms and ascarids. Over the years, Caribbean producers developed the “slotted-floor system” for goats and sheep. This system is designed to keep the animals out of contact with their feces. It consists of barns with pens and a wooden floor with boards spaced apart to allow feces to drop to the ground. (Figure 5) The barns are several feet off the ground, keeping the animals out of contact with the feces, and breaking the parasitic cycle. (Figure 1) The animals are, from

time to time, grazed on open pasture, but when they are returned to the barn, they are immediately de-wormed. The government has begun recommending this technology to local farmers to increase effective production.

There are several production methods used on the island. The “free range and graze” system utilizes running animals on open pasture. It not prevalent on the island because of the limited space, rough terrain, as well as the high incidence of parasites encountered. A system more suited to Dominica’s environment is the “cut and carry system.” In this system the grass is cut in the pasture and brought into the facilities to feed the animals. Using the cut and carry system, farmers are effectively able to double their production. For instance, approximately one acre can support 15 goats. Using one acre of cultivated land to grow grass and take it to the animals in pens, the acre can support 30 animals.

There is a plethora of livestock breeds at the government facility. Research has been done and is ongoing to observe what crosses of purebred animal breeds offer the best combination of attributes in the Dominican environment. For instance, we observed goats that were 3/4 Boer, 1/4 Nubian that had been developed locally.

Rabbit production dictates that the animals be kept in raised cages, with pans below them to catch urine and feces. Commercial operations in the United States use metal frames to support the cages. The high concentration of urea in rabbit urine rusts these frames and they must be replaced every few years. In Dominica, PVC pipe is cheaper and more readily available than metal frameworks. Workers designed PVC pipe supports for the rabbit cages. (Figure 3) The PVC pipe is resistant to the urea and will not corrode over time. Because the facility is expanding, PVC lends itself to easy additions. It

is possibly to quickly change an elbow joint to a T-joint and expand the frames upward, thereby exponentially increasing capacity.

Cattle at the Facility

Cattle are the largest livestock on Dominica, and therefore the most difficult to raise because they require more food and space. At the current time the facility houses 25 cattle. These are mostly Holstein and Jersey cattle for diary production and a few bulls for reproduction. The breeding system is controlled and records are kept, as well as detailed pedigrees. A *Bos indicus* influence is desired, as the breed genetically has a natural resistance to parasites and has physical characteristics that make it thrive in hot, humid environments. (Figure 2) There are also tick control programs in place that offer government subsidized medicines to farmers at a discount cost. Cattle are the only animals on Dominica that have used Artificial Insemination (AI) in the past. Although it offers several advantages over natural service, AI is not currently used on the island mainly because of the lack of individuals with AI specialized training. As the industry grows in the future, the use of AI will become essential for efficient management.

Goats at the Facility

Goats are the most abundant livestock on Dominica. The goat barn at the government facility can house 150 goats. The goats are fed a diet of freshly cut grass, supplemented by a concentrate. Historically, goats were used only for meat production, but recently several dairy breeds have been introduced. Purebred males of the hardy breeds are kept in separate pens in the barn and used to cross with the less hardy breeds to achieve hybrid vigor.

The facility recently received a shipment of Nigerian Dwarf Goats, a dairy breed. The goats were sponsored by a North Carolinian Baptist church, who bought and shipped the goats to Dominica. The breed is new to the island and is currently being evaluated to assess its adaptability and suitability for the Dominican terrain. The Anglo-Nubian breed is an all purpose goat that was developed in England. It is the result of a cross between British and African genetics. The resulting goat is well suited to hot conditions, and is therefore being utilized in tropical regions, including Dominica. The Boer goat is a product of Africa, making it well suited to a hot climate. It is primarily a meat goat. Known for being low maintenance, Boer goat genetics are being incorporated into many animals at the facility. Saanen goats are a dairy breed that Dominicans used more for meat until the recent shift in focus. They are heavy milk producers, but they are sensitive to excess sunlight. They are also not known to perform well in hot climates. Crossing them with hardier breeds is essential for their use on Dominica. Toggenburg goats from Switzerland are the oldest known dairy goat breed. They have exceptionally high milk production, but are suited to cool climates. Crossbreeding is essential. The Alpine goat was originally developed in the Alps and shipped to the United States. It is a large goat that is very adaptable. It can be well acclimated to the tropical climate of Dominica.

Sheep at the Facility

Sheep in Dominica are used for meat, not for wool. Most of the animals on the island are bred to be wool-less. (Figure 6) From time to time animals with predisposed genetics will grow patches of wool that must be shorn quickly. The tropical climate would suffocate any sheep with a thick coat of wool. The government barn can house 75 sheep. There are two main breeds at the facility.

The Barbados Blackbelly is rare among sheep in that it is highly adaptable. It has fared well in Dominica's environment. It has efficient reproduction at an average of two lambs per litter. Another advantage in Dominica, the Blackbelly is extremely resistant to internal parasites. Dorper sheep are the other sheep at the facility. They are hardy to withstand a variety of climates. However, they are extremely susceptible to internal parasites. Purebred Dorsers on Dominica were devastated by these parasites. Crossing them with Barbados Blackbellies has proven to give them adequate resistance and they are now used in this capacity.

Rabbits at the Facility

Rabbits are also raised for meat on the island. The government's previous rabbit production facility was infested by a disease agent eight years ago and had to be burned to the ground. They are now in the process of rebuilding their capacity to raise rabbits. The rabbits at the facility are local Creole rabbits with traces of Californian White and New Zealand White in their genetic background. Rabbits' prolific breeding can be a huge asset for average the family on the island, with a small group of rabbits providing large quantities of meat.

The Future of Livestock on Dominica

Dominica's government is taking unprecedented steps to upgrade and update livestock production on the island. The new livestock facility will be central in distributing animals with superior genetics that thrive in the Dominican environment. This distribution will spread across the island as families buy animals that yield more meat and milk than previous generations, creating an island-wide economic boost. The

exportation of dairy products to other island nations will also serve as an economic stimulus. The future of livestock in Dominica is a bright one.

Figures



Fig.1 The goat barn. Note the raised floor



Fig. 2 A *Bos Indicus* influenced Brangus bull at the facilities.



Fig. 3 Rabbit cages. Note the PVC supports



Fig. 4 Goats looking through the feeding ports in the goat barn



Fig. 5 Goats in the pens. Note the slotted floor



Fig. 6 Sheep in the sheep barn. Note the Natural lack of wool.

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References: 1. <http://www.ansi.okstate.edu/breeds/goats/>
2. <http://www.ansi.okstate.edu/breeds/sheep/>